По вопросам продаж и поддержки обращайтесь:

Архангельск (8182)63-90-72
Астана (7172)727-132
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
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Волгоград (844)278-03-48
Вологда (8172)26-41-59
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Калуга (4842)92-23-67
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Киров (8332)68-02-04
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Красноярск (391)204-63-61
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Липецк (4742)52-20-81
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Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
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Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

Единый адрес: snw@nt-rt.ru **Веб-сайт:** www.swan.nt-rt.ru

Каталог продукции SWAN

Standard electrodes for water technology

Swansensor pH and Redox

Application in drinking water and swimming pools.

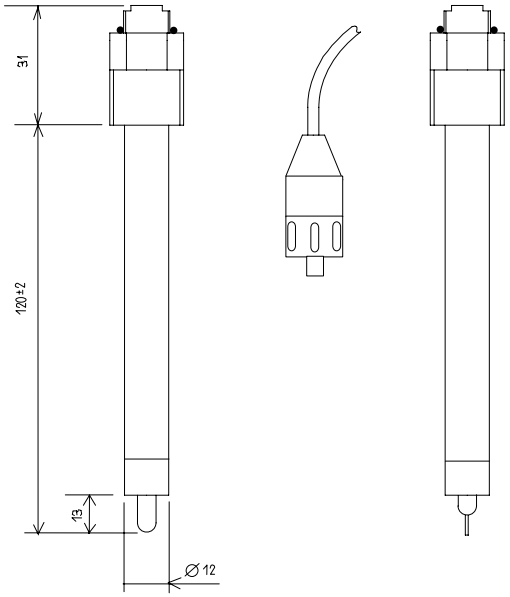
Maintenance-free pH resp. ORP/redox electrode in mechanically and chemically inert plastic case (IP 68) with excellent life time.

Poisoning protected Ag/AgCl-reference system.

Clogging of the reference system by insoluble silver compounds is eliminated by a AgCl-free electrolyte.

Specifications pH:

Operative and measuring range: 1 … 13 pH
Diaphragm: annular gap
Reference system: Ag/AgCl
Electrolyte: KCl-gel, 3.5 M (without AgCl)
Operating temperature: 0 ... 50 °C
Pressure: < 2 bar
Conductivity measuring medium:> 150 µS/cm
Case material: isotactic polypropylene, PPO
Connection: plug PG 13.5
Weight: 40 g



Specifications ORP:

Electrode with platinum pin
Measuring range ORP: - 400 … + 1200 mV
Diaphragm: annular gap
Reference system: Ag/AgCl
Electrolyte: KCl-gel, 3.5 M (without AgCl)
Operating temperature: 0 ... 50 °C
Pressure: < 2 bar
Conductivity measuring medium:> 150 µS/cm
Case material: isotactic polypropylene
Connection: plug PG 13.5
Weight: 40 g

Order scheme	Swansensor pH/Redox	A-87.		20.200
Parameter:	pH			1
	ORP/redox			4

Electrodes for waste water technology

Swansensor pH and Redox AY

Application in waste water due to additional salt supplies.

Maintenance-free pH resp. ORP/redox electrode in mechanically and chemically inert plastic case (IP 68) with excellent life time.

Poisoning protected Ag/AgCl-reference system.

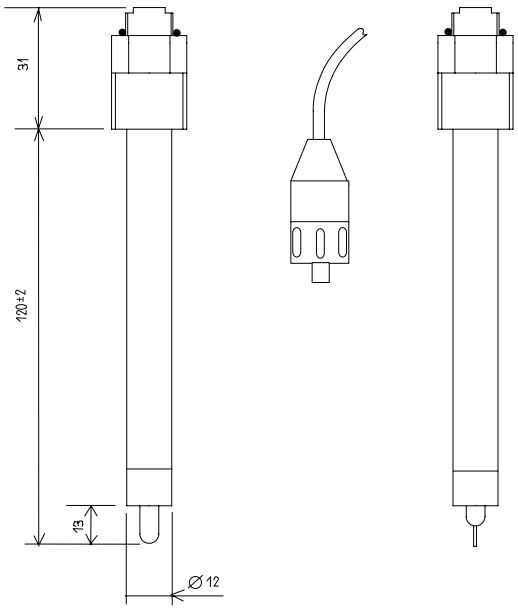
Clogging of the reference system by insoluble silver compounds is eliminated by a AgCl-free electrolyte.

Specifications pH:

Operative and measuring range: 1 - 13 pH
Conductivity measuring medium:> 100 µS/cm
Diaphragm: annular gap
Reference system: Ag/AgCl
Electrolyte: KCl-gel, 3.5 M (without AgCl)
Operating temperature: 0 .... 50 °C
Pressure: < 2 bar
Case material: isotactic polypropylene, PPO
Connection: plug PG 13.5
Weight: 40 g

Specifications ORP:

Electrode with platinum pin
Measuring range ORP: - 400 to + 1200 mV
Conductivity measuring medium:> 100 µS/cm
Diaphragm: annular gap
Reference system: Ag/AgCl
Electrolyte: KCl-gel, 3.5 M (without AgCl)
Operating temperature : 0 .... 50 °C
Pressure: < 2 bar
Case material: isotactic polypropylene
Connection: plug PG 13.5
Weight: 40 g



Order scheme	Swansensor pH/Redox AY	A-87.		30.200

Parameter:
pH AY 1
ORP/redox AY 4

Analyzer for the continuous determination of dissolved sodium in the ppb-range for steam, condensate and high purity water for samples with pH ≥ 7.

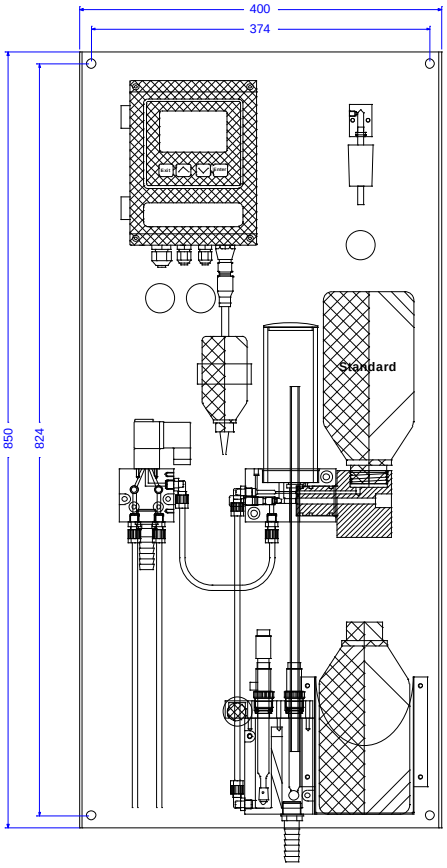
Analyzer AMI Sodium P

Complete system mounted on stainless steel mounting panel.

- **Transmitter AMI Sodium P** in a rugged aluminum enclosure (IP66)
- **Flow cell** with temperature probe, sodium sensor, reference, pH sensor and bubble detector.
- Reliable alkalization reagent addition with continuous pH monitoring.
- Continuous sample flow detection.
- Simple two-point calibration.
- Easy to use grab sample capability.
- Factory tested, ready for installation and operation.

Specification

- Measuring range: 0.1 – 10'000 ppb Na (under reference conditions) with automatic range switching.
- Automatic temperature compensation.
- Big backlit LC display for the reading of all measured values and status information simultaneously.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Real-time clock for time stamp in data logs and for automated functions.



Analyzer with optional 2nd sample stream

- Data logger for 1'500 data records stored at selectable intervals.
- Option for second sample stream with programmable stream switching.

Order Nr.	Analyzer AMI Sodium P; 280mm	A–24.411.100
	Analyzer AMI Sodium P; 400mm	**A–24.421.100**
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option:	[ ] 2nd sample stream (requires 400mm panel)	A-83.590.043

Analyzer AMI Sodium P

Data sheet No. DenA244X1100

Sodium Measurement

Sodium electrode, calomel reference electrode (liquid junction: ground glass sleeve) and pH electrode.

pH-conditioning with diisopropylamine (~1 L / 30 d) or ammonia (~3 L / 30 d).
Interferences: none,
if total acidity of sample < 10 meq/l

Automatic temperature compensation.

Measuring range	**Resolution**
0 - 99.9 ppb	0.1 ppb
0 - 999 ppb	1 ppb
0 - 9.99 ppm	0.01 ppm

Automatic range switching.
Accuracy:
± 5% of reading after calibration
Repeatability: 5%
Response time: 180 s (95%)

Sodium calibration
Manual 1- or 2-point calibration with direct standard injection.

Temperature measurement
Temperature sensor SWAN NT5K
Measuring range: -10 to +100 °C
Resolution: 0.1 °C

Transmitter Specifications and Functionality

Electronic case: Aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90 % relative non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %)
or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.

User menus in English, German, French and Spanish.

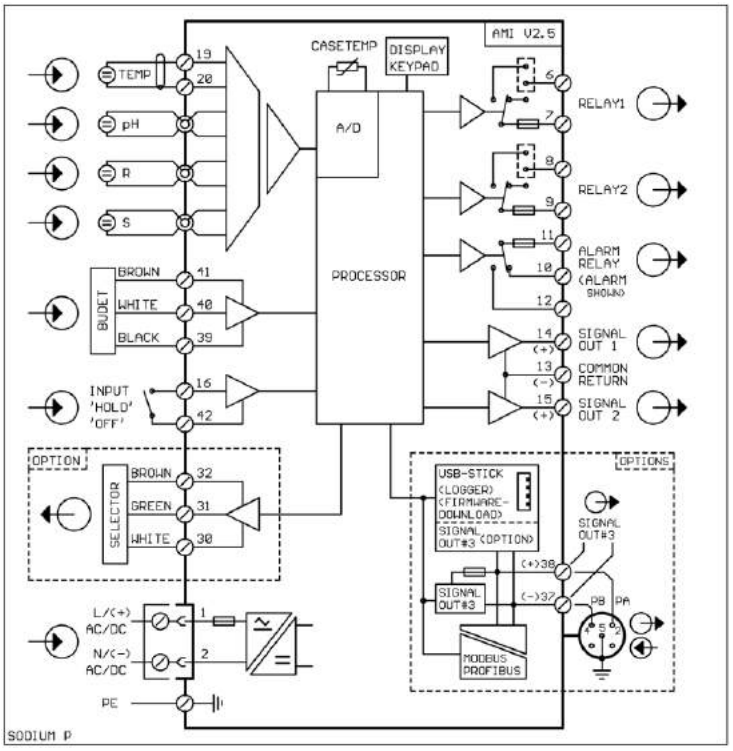
Separate menu specific password protection.

Display of process values, alarm status and time during operation.

Storage of event log, alarm log and calibration history. Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.

Electrical Connection Scheme



Overvoltage protection of in- and outputs.

Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Max. load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Max. load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Max. burden: 510 Ω

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Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Analyzer Data

Sample conditions
pH value: ≥ pH 7.0
Ammonium concentration: < 10 ppm
Dissolved solids: smaller than 10 ppm
Flow rate: min. 100 ml/min.
Inlet pressure: 0.3 - 3 bar (4 - 43 PSI)
Outlet pressure: ambient pressure
Temperature: 5 - 45 °C (41 - 113 F)
No fat or grease.

Flow cell and connections
Made of acrylic glass with photoelectric bubble sensor for sample flow detection.
One or two (option) sample streams.
Stream switching time: ≥ 15 min.

Sample inlet:: Serto PVDF 6 mm
Sample outlet: G1/2" adapter
for flexible tube Ø 20 x 15 mm

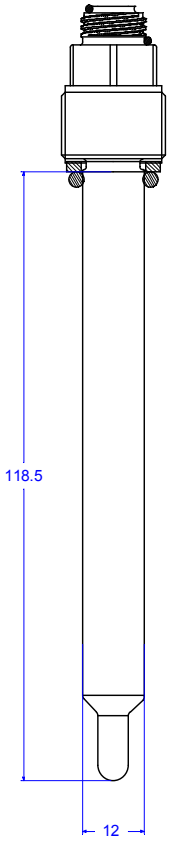
Panel
Dimensions: 400 (or 280) x 850 x 200 mm
Material: Stainless steel
Total weight: 12 or 9 kg

Precision temperature sensors for SWAN transmitters.
The sensor type used depends on the transmitter model.

Swansensor NT5K
Swansensor Pt100
Swansensor Pt1000

Specifications

Sample temperature:	up to 100 °C
Sample pressure:	up to 10 bar at 25 °C up to 5 bar at ≥ 80 °C
Material:	stainless steel 1.4435, SS 316L
Connection:	PG13.5, screw plug
Protection degree:	IP 68



Swansensor NT5K / Pt100 / Pt1000

Order scheme	Swansensor Temperature	A–87.0	X	0.200

Sensor	**Swansensor Pt 100** precision temperature sensor.....	1
	Swansensor NT5K precision temperature sensor.....	2
	Swansensor Pt 1000 precision temperature sensor	3

Order scheme	Cables for above temperature sensors	A–88.131.	X	20

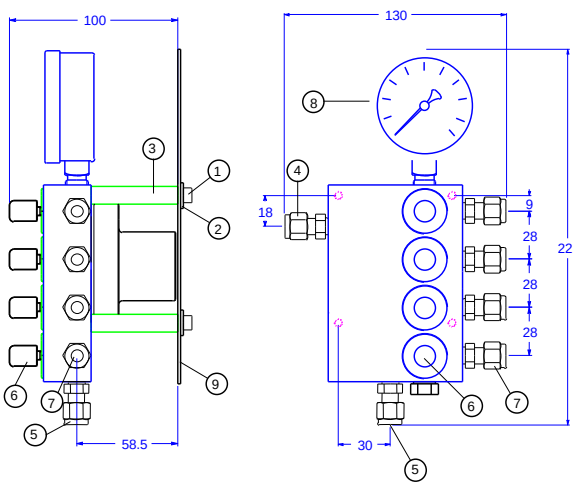
Sensor cable	Sensor cable (sleeves/screw plug), 1 m	1
	Sensor cable (sleeves/screw plug), 5 m	5
	Sensor cable (sleeves/screw plug), 10 m	6
	Sensor cable (sleeves/screw plug), 15 m	7

Back Pressure Regulator for a stable sample flow rate to guarantee reliable and accurate measuring results.

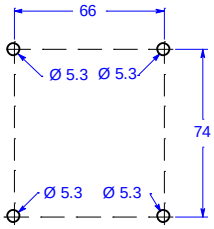
Back Pressure Regulator

Back pressure regulator made of stainless steel SS316L with pressure indicator.
Sample in- and outlets with female threads ⅛" for Swagelok or Serto connections.

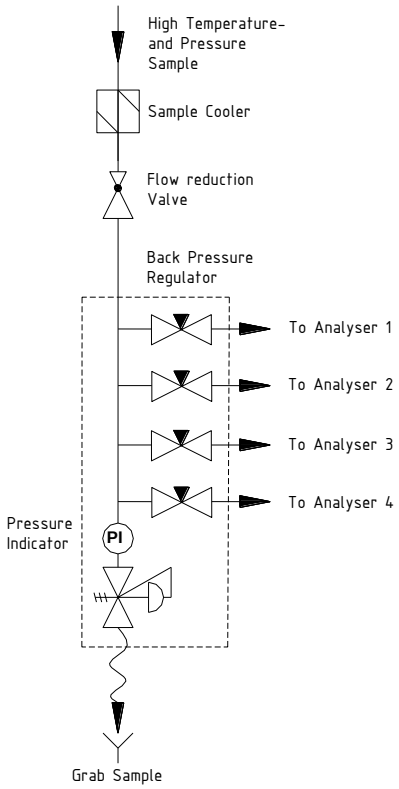
One sample inlet, one overflow outlet and 1 to 4 outlets to the instruments. The overflow outlet is also useful for grab sampling.



1. Hexogen socket screw, M5 x 60 mm
2. Washer for M5
3. Distance sleeve Ø 5.3 x Ø 15, length 50 mm
4. Sample IN
5. Sample overflow and grab sample, atmospheric
6. Shut off valve
7. Sample out to Analyzer
8. Back pressure gauge 0 – 2.5 bar
9. Mounting panel



- Provides stable flow rates to instruments even if sample flow is not constant
- Acts also as a relief valve for up to 600 l/h short term
- 1 to 4 sample outlet shut-off valves
- Outlet pressure indicator (stainless steel) 0 ... 2.5 bar
- No separate grab sample valves necessary



Back Pressure Regulator

Data sheet no. DenA8258X001

Technical data:
Back pressure block made of stainless steel SS316L

Back pressure membrane:
Butyl rubber, PVDF

Sample temperature: 0 - 70 °C
short time max. 90 °C

Sample flow:

Per outlet:	0 - 25 l/h
Max. overflow continuous:	120 l/h
Max. overflow short time:	600 l/h

Pressure:

Sample outlet pressure:	0.5 - 0.6 bar
Outlet pressure indicator:	0 - 2.5 bar

Process connection:

Inlet:	female thread ⅛"
Outlet:	female thread ⅛"
Overflow:	female thread ⅛"

Dimensions:

Length:	225 mm
Width:	130 mm
Depth:	100 mm

Delivery

Back pressure regulator with Manometer as pressure indicator. Available as 1-, 2-, 3- or 4-channel model (not upgradeable in the field).

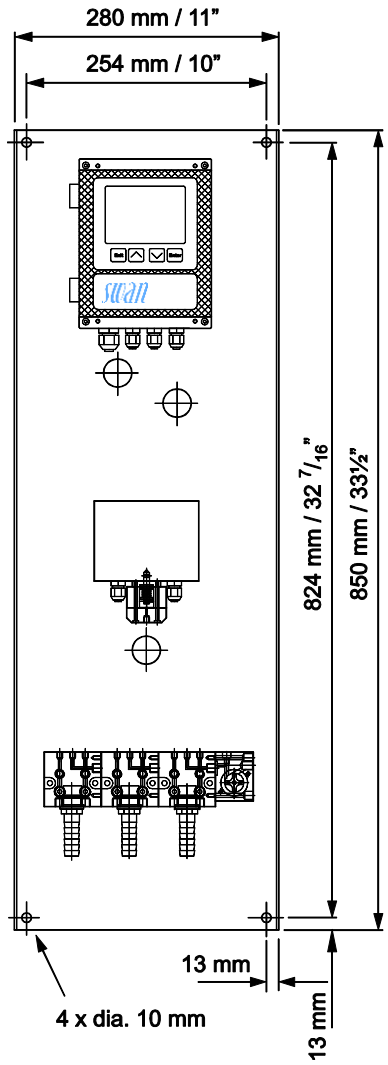
Without fittings (Swagelok respectively Serto connections for sample inlet, sample outlet and overflow are not scope of supply).

Order Nr.	**Back Pressure Regulator; 1 channel**	**A–82.581.001**
	Back Pressure Regulator; 2 channel	**A–82.582.001**
	Back Pressure Regulator; 3 channel	**A–82.583.001**
	Back Pressure Regulator; 4 channel	**A–82.584.001**

Complete system for the automatic, continuous multiplexing of up to six sample streams to 1 process analyzer.

Sample Sequencer

- Complete system including control electronics, back pressure regulator and needle-valve for each stream, 6-way valve switching up to 6 sample streams to one analyzer, flow measurement.
- 6 signal outputs for indication of the current position of the 6-way valve.
- 1 signal output for flow alarm.
- 6 signal inputs to override programmed sequence by deactivating a certain sample stream.
- 6 current outputs (0/4 to 20mA) for measurement values.
- 6 sample inlets each equipped with back pressure regulator and needle valve. Overflow to one of the 3 sample outlets (Drain).
- Digital sample flow meter.
- Power supply: either as AC or DC available.
- Alarm display and activation of alarm relay when user defined, critical limits for a measurement value (only flow) are reached.
- Large back-lit LCD display showing measured values (only flow) and status information simultaneously.
- Factory tested, ready for installation and operation.



For use with :

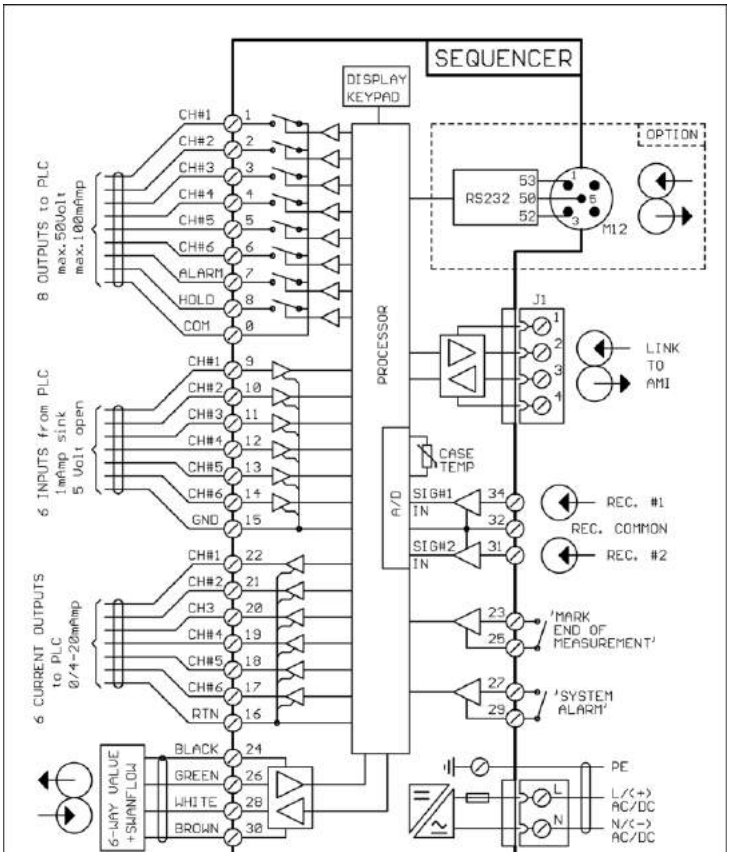
- AMI Sodium A, AMI Sodium P
- AMI Silica (requires FW 4.70 or higher)
- AMI Silitrace
- AMI Phosphate HL

Order Nr.	Sample Sequencer; AC	A–82.611.060
	Sample Sequencer; DC	A–82.612.060

Sample Sequencer

Data sheet no. DenA8261X060

Electrical Connection Scheme



Transmitter Specifications and Functionality

Electronics case:	Aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Ambient temperature:	-10 to +50 °C
Limit range of operation:	-25 to +65 °C
Storage and transport:	-30 to +85 °C
Humidity:	10 to 90 % relative, non condensing

Power supply
Either as AC or as DC model available.

Voltage:	100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption:	max. 8 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance” and “Installation”.
User menus in English, German, French and Spanish
Separate, menu specific password protection.
Display of process value, alarm status, channel status and time during operation.
Storage of event log, and alarm log.

Safety features
No data loss after power failure, all data is saved in non-volatile memory. Over-voltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Real-time clock with calendar
For action time stamp and preprogrammed actions.

Link to AMI
Internal communication between Sequencer and AMI Analyzer (only for AMI Silica, AMI Phosphate-II B)

8 Relay outputs for indication of the active sample stream and Alarm.

Max. load:	50 V / 100mA

6 Inputs Overriding programmed sample stream sequence.
For use with dry contacts.

Load:	5 V / 1mA

6 Signal outputs
Six signal outputs for measured values.

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Monitor Data

Sample conditions

Flow rate:	according attached analyzer plus min. 5 l/h per stream
Water inlet pressure	0.5 - 3 bar
Sample temperature:	5 to 45 °C

Flow cell and connections
Made of acrylic glass with back pressure regulator, needle valve and digital sample flow meter.

Sample inlet (6):	4 x 6 mm
Sample outlet (1):	4 x 6 mm
Sample overflow (3):	15 x 20 mm (1/2”)
Overflow pressure:	atmospheric

Panel

Panel dimensions:	280 x 850 x 200 mm
Panel material:	stainless steel
Weight:	8 kg

Two-electrode conductivity sensor for the continuous measurement in water/steam cycle applications with retractable wet-tap valve.

Swansensor Retracon, retractable sensor with wet-tap valve

Conductivity sensor with stainless steel body, stainless steel electrode and built-in temperature probe for automatic temperature compensation.

Specifications

Recommended measuring range:
0.055 µS/cm to 1'000 µS/cm (for K=0.05)
0.05 µS/cm to 60 mS/cm (for K=10.0)

Accuracy (at 25°C): ± 1% or 0.02 µS/cm whichever is greater

Cell constant: ~ 0.05 cm^{-1} for low conductivity
~10.0 cm^{-1} for high conductivity

Temperature sensor type: Pt1000

Operating conditions:
- Continuous temperature: 150 °C
- Pressure: max. 3.4 bar

Materials in contact with sample:
- Electrode: Stainless steel SS 316L
- Insulator: Teflon

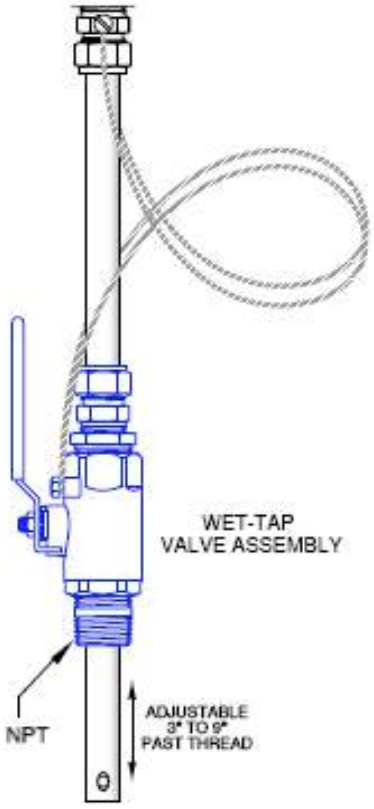
Process connection: 1 " NPT for valve or DN25 flange SS316

Dimensions*:
- Total length: ~420mm
- Insertion length: ~76 to 228mm past thread
- Sensor diameter: 19mm

*: Dimension can vary.

Restriction of use:
only for use with AMI Powercon Transmitter.

Electrical connection:
- stripped and tinned 24 gauge ends



Connection sheme to AMI Powercon:

Terminal	Cable color	Function
19	BLK	Inner Electrode
20	WHT & Clear	Outer Electrode & Shield
21	RED	PT1000
22	GRN	PT1000

Order scheme	**Swansensor Retracon**	**A – 87 . 381 .**			
		↑	↑	↑	
Cell constant	0.05 cm^{-1} for low conductivity	3	|	|	
	10.0 cm^{-1} for high conductivity	8	|	|	
Cable length	None, without cable		0	|	
	Cable 10 Feet (~3 meter)		1	|	
	Cable 20 Feet (~6 meter)		5	|	
	Cable 50 Feet (~15 meter)		7		
Process Connection	1" NPT thread				0
	DN25 flange, SS316				1

SWANSENSOR Retracon HP

Data sheet no. DenA87382XXX

Two-electrode conductivity sensor for the continuous measurement in water/steam cycle applications with retractable wet-tap valve.

Swansensor RetraconHP, high pressure, retractable sensor with wet-tap valve

Conductivity sensor with stainless steel body, stainless steel electrode and built-in temperature probe for automatic temperature compensation.

Specifications

Recommended measuring range:
0.055 µS/cm to 1'000 µS/cm (for K=0.05)
0.05 µS/cm to 60 mS/cm (for K=10.0)

Accuracy (at 25°C): ± 1% or 0.02 µS/cm whichever is greater

Cell constant: ~ 0.05 cm^{-1} for low conductivity
~10.0 cm^{-1} for high conductivity

Temperature sensor type: Pt1000

Operating conditions:
- Continuous temperature: 120 °C
- Pressure: max. 12 bar

Materials in contact with sample:
- Electrode: Stainless steel SS 316L
- Insulator: Teflon

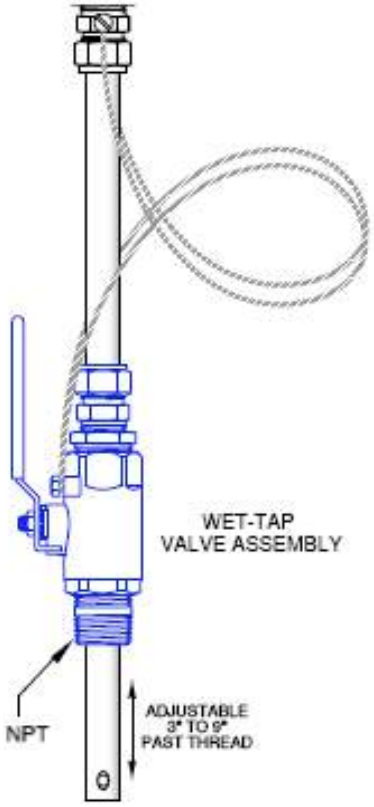
Process connection: ¾ " NPT for valve or DN25 flange SS316

Dimensions:
- Total length: ~420mm
- Insertion length: 76 to228mm past thread
- Sensor diameter: 12.7mm

*: Dimension can vary.

Restriction of use:
only for use with AMI Powercon Transmitter.

Electrical connection:
- stripped and tinned 24 gauge ends



Connection sheme to AMI Powercon:

Terminal	Cable color	Function
19	BLK	Inner Electrode
20	WHT & Clear	Outer Electrode & Shield
21	RED	PT1000
22	GRN	PT1000

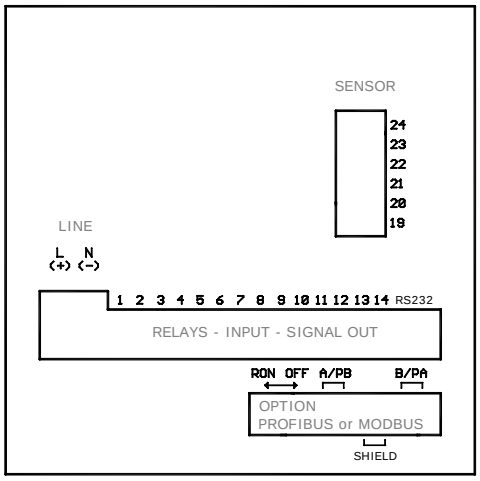
Order scheme	**Swansensor RetraconHP**	**A – 87 . 382 .**			
Cell constant	0.05 cm^{-1} for low conductivity	3			
	10.0 cm^{-1} for high conductivity	8			
Cable length	None, without cable		0		
	Cable 10 Feet (~3 meter)		1		
	Cable 20 Feet (~6 meter)		5		
	Cable 50 Feet (~15 meter)		7		
Process Connection	¾ " NPT thread			0	
	DN25 flange, SS316			1	

Electronic transmitter / controller for the continuous measurement of the pH value or Redox (ORP) in water.

Transmitter AMU pH-Redox

- Measuring and control transmitter for panel installation in a Noryl® resin enclosure, 96 x 96 x 120 mm (DIN 43700).
- Measuring range:
  0 to 14 pH respectively -500 to +1500 mV
- Sensor connections for a pH or ORP sensor, reference electrode, Pt1000 temperature and for a digital sample flow meter.
- Galvanically separated sensor connections.
- Automatic temperature compensations according to Nernst with or without correction functions.
- Values for pH buffer solutions and redox calibration solution programmable.
- Big backlit LC display for measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Data logger for 1'500 data records stored at a selectable interval. Serial interface included for data download to PC with Microsoft HyperTerminal.
- Overvoltage protection for in- and outputs.
- Two current outputs (0/4 - 20 mA) for conductivity and temperature signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.
- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).

Front panel



Rear panel with electrical connections

Order scheme	Transmitter AMU pH-Redox	A – 1 1 . 4 3 1 .	X	0	X
Power supply	100 - 240 VAC / 50/60 Hz		1		
	24 VDC, direct current		2		
Communication option	None				0
	Profibus DP interface				2
	Modbus interface (for *Webserver* connection)				4

Transmitter AMU pH-Redox

Data sheet No. DenA11431X0X

pH / ORP Measurement

Signal inputs galvanically separated.
Input resistance: > 10^{13} Ω

pH measurement
Measuring range: 0.00 to 14.00 pH
Resolution: 0.01 pH
Reference temperature: 25 °C

ORP measurement
Measuring range: -500 to +1500 mV
Resolution: 1 mV

Temperature compensations
Selectable modes, according to:
- Nernst (for potable water and wastewater)
- Nernst with non-linear solution compensation (for high purity water)
- Nernst with linear compensation with selectable coefficient (for high purity water)

Calibration solutions table
Programmable table for pH buffers and ORP calibration solution.

Sensor monitoring
Indication of glass breakage and line disconnection.

Temperature measurement
with SWAN Pt1000 sensor.
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement
with digital sample flow meter.

Transmitter Specifications and Functionality

Electronics case: Noryl® resin
Protection degree: IP54 (front)
Display: backlit LCD, 75 x 45 mm
Electrical connectors: clamping yoke
Dimensions: 96 x 96 x 120 mm
Weight: 0.45 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90% rel., non-condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 15 %)
Power consumption: max. 8 VA

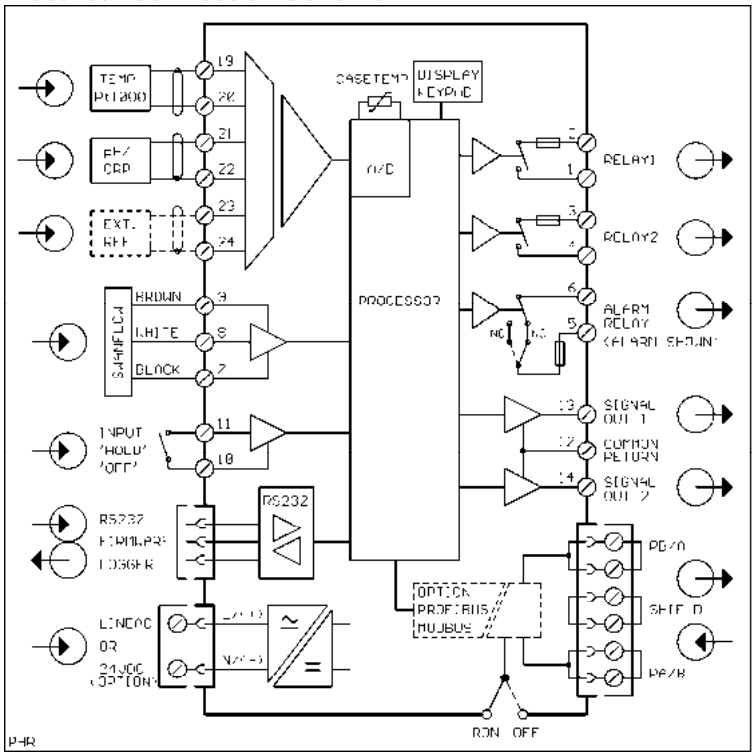
Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.

User menus in English, German, French and Spanish.

Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation.

Electrical Connection Scheme



Storage of event log, alarm log and calibration history.

Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

Real-time clock with calendar
For action time stamp and preprogrammed actions.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 100 mA / 50 V

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Maximum load: 100 mA / 50 V

2 Signal outputs
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable).
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 serial interface RS232
For data logger download to PC using Microsoft HyperTerminal and for transmitter firmware updates.

1 serial interface RS485 (option)
With Fieldbus protocol Modbus or Profibus DP, galvanically separated.

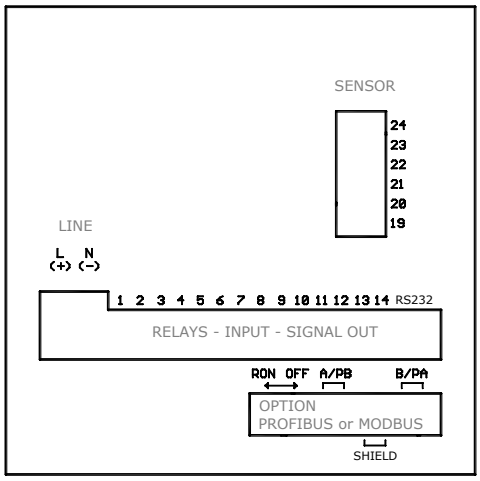
Remote instrument access with PC requires Modbus interface and optional *Webserver.*

Electronic transmitter / controller for the measurement of dissolved oxygen in high purity water.

Transmitter AMU Oxytrace

- Measuring and control transmitter for panel installation in a Noryl® resin enclosure, 96 x 96 x 120 mm (DIN 43700).
- Measurement ranges:
  - Dissolved oxygen: 0.01ppb to 20 ppm
  - Saturation: 0 to 200%
- Sensor connections for Oxytrace G oxygen sensor with integrated NT5k temperature probe and for a digital sample flow meter.
- Automatic compensation of temperature and air pressure.
- Big backlit LC display for measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Data logger for 1'500 data records stored at a selectable interval. Serial interface included for data download to PC with Microsoft HyperTerminal.
- Galvanically separated sensor connection.
- Overvoltage protection for in- and outputs.
- Two current outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.
- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).

Front panel



Rear panel with electrical connections

Order scheme	Transmitter AMU Oxytrace	A – 1 2 . 4 3 5 .	X	0	X
Power supply	100 - 240 VAC / 50/60 Hz		1		
	24 VDC, direct current		2		
Communication option	None				0
	Profibus DP interface				2
	Modbus interface (for *Webserver* connection)				4

Transmitter AMU Oxytrace

Data sheet No. DenA12435X0X

Dissolved Oxygen Measurement

Oxygen sensor
Oxytrace G sensor with integrated NT5k temperature probe and guard electrode.

Measuring range	Resolution
0.01 to 9.99 ppb	0.01 ppb
10 to 199.9 ppb	0.1 ppb
200 to 1999 ppb	1 ppb
2 to 20 ppm	0.01 ppm
0-200% saturation	0.1% saturation

Automatic range switching.

Automatic temperature and air pressure compensation

Temperature measurement
with SWAN NT5k sensor
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement
with digital SWAN sample flow sensor.

Transmitter Specifications and Functionality

Electronics case: Noryl® resin
Protection degree: IP54 (front)
Display: backlit LCD, 75 x 45 mm
Electrical connectors: clamping yoke
Dimensions: 96 x 96 x 120 mm
Weight: 0.45 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90% rel., non-condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 15 %)
Power consumption: max 8 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.

User menus in English, German, French and Spanish.

Separate menu specific password protection.

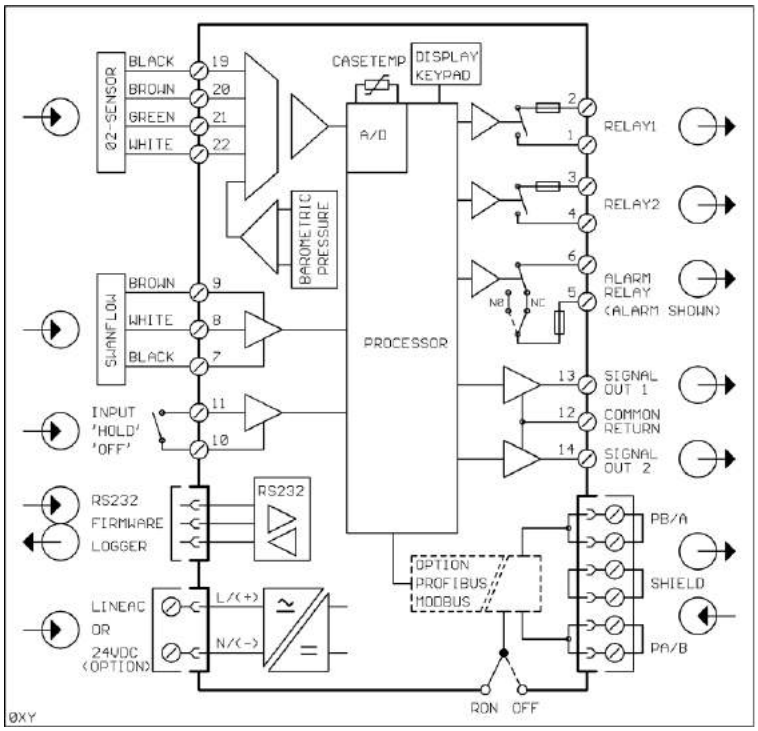
Display of process value, sample flow, alarm status and time during operation.

Storage of event log, alarm log and calibration history.

Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Electrical Connection Scheme



Transmitter temperature monitoring
with programmable high/low alarm limits.

Real-time clock with calendar
For action time stamp and pre-program-med actions.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument errors.
Maximum load: 100 mA / 50 V

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Maximum load: 100 mA / 50 V

2 Signal outputs
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable).
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 serial interface RS232
For data logger download to PC using Microsoft HyperTerminal and for transmitter firmware updates.

1 serial interface RS485 (option)
With Fieldbus protocol Modbus or Profibus DP, galvanically separated.

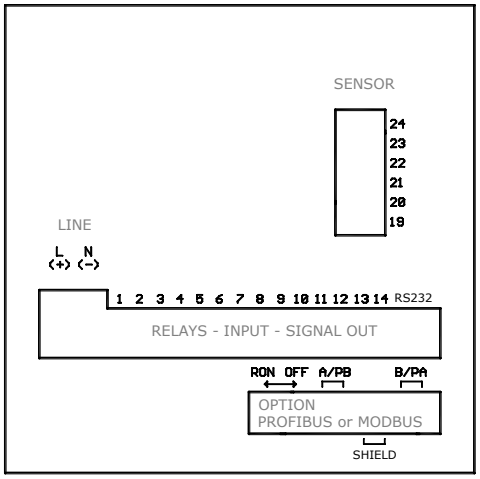
Remote instrument access with PC requires Modbus interface and optional Webserver.

Electronic transmitter / controller for the measurement of the specific conductivity, concentration of CIP solutions, salinity and TDS.

Transmitter AMU Solicon4

- Measuring and control transmitter for panel installation in a Noryl® resin enclosure, 96 x 96 x 120 mm (DIN 43700).
- Conductivity measurement range from 0.05 µS/cm to 100 mS/cm.
- For the measurement of specific conductivity, concentrations (for NaCl, NaOH and acids in %), salinity (as NaCl in %) and total dissolved solids (TDS in % or mg/l).
- Connections for a four-electrode conductivity sensor with built-in Pt1000 temperature probe like Swansensor Shurecon P or Swansensor Shurecon S.
- Temperature compensation with selectable coefficient or non linear function for natural waters according to EN 27888 / DIN 38404.
- Big backlit LCD display for measuring value, sample temperature, sample flow and operating status.
- User menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events.
- Real-time clock for time stamp in data logs and for automated functions.
- Data logger for 1'500 data records stored at a selectable interval. Serial interface for data download to PC with Microsoft HyperTerminal included.
- Galvanically separated sensor connection.
- Overvoltage protection for in- and outputs.
- Two current signal outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.
- Two potential-free contacts programmable as limit switch or PID-control.

Front panel



Rear panel with electrical connections

- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).

Order scheme	Transmitter AMU Solicon4	A – 1 3 . 4 5 1 .	X	0	X
Power supply	100 - 240 VAC / 50/60 Hz		1		
	24 VDC, direct current		2		
Communication options	None				0
	Profibus DP interface				2
	Modbus interface (for *Webserver* connection)				4

Transmitter AMU Solicon4

Data sheet No. DenA13451X0X

Conductivity Measurement

Sensor type
4-electrode sensor

Measuring range	**Resolution**
0.05 to 9.99 µS/cm	0.01 µS/cm
10.0 to 99.9 µS/cm	0.1 µS/cm
100 to 999 µS/cm	1 µS/cm
1.00 to 9.99 mS/cm	0.01 mS/cm
10.0 to 29.9 mS/cm	0.1 mS/cm
30 to 100 mS/cm	1 mS/cm

Automatic range switching.
Values for Swansensors Shurecon P and Shurecon S.

Precision
0.5 % of measured value or 0.01 µS/cm

Greatest long-term stability by auto-zero front-end calibration procedure.

Sensor cell constant
Selectable from 0.005 to 1.000 cm^{-1}

System calibration
Automatic calibration procedure with 1.413 mS/cm standard solution.

Temperature compensations
- Absolute (none)
- Linear coefficient in %/°C
- Non-linear function (NLF) for natural waters according to EN 27888 / DIN 38404

Concentration measurements (25°C)

- NaCl:	0 - 4.6%
- HCl:	0 - 0.8%
- NaOH:	0 - 1.6%
- H_2SO_4:	0 - 1.1%
- HNO_3:	0 - 1.5%
- Salinity:	0 - 4.6% (as NaCl)
- TDS:	0 - 4.6% (as NaCl)
- TDS:	0.0 mg/l - 20.0 g/l (coefficient)

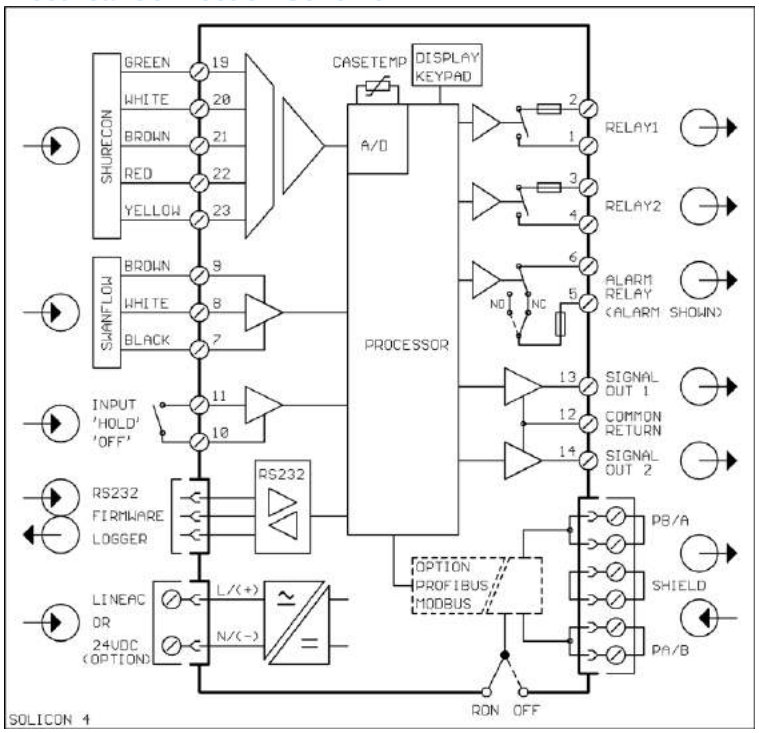
Temperature measurement
with Pt1000 type sensor (DIN class A)
Measuring range: -30 to +250 °C
Resolution: 0.1 °C

Sample flow measurement
with digital SWAN sample flow meter.

Transmitter Specifications and Functionality

Electronics case: Noryl® resin
Protection degree: IP54 (front)
Display: backlit LCD, 75 x 45 mm
Electrical connectors: clamping yoke
Dimensions: 96 x 96 x 120 mm
Weight: 0.5 kg
Ambient temperature: -10 to +50 °C
Limit range of operation: -25 to +65 °C
Storage and transport: -30 to +85 °C
Humidity: 10 to 90 % relative, non-condensing

Electrical Connection Scheme



Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 15 %)
Power consumption: max. 8 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
Separate menu specific password protection.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log.
Storage of the last 1’500 data records in logger with selectable time interval.

Real-time clock with calendar
For action time stamp and preprogrammed actions.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Temperature monitoring
Alarm if the transmitter temperature is higher than +65 °C or lower than 0 °C.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 100 mA / 50 V

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Maximum load: 100 mA / 50 V

2 Signal outputs
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable).
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Serial interface
RS232 for data logger download to PC with Microsoft HyperTerminal and for transmitter firmware updates.

1 Communication interface (option)
RS485 with Fieldbus protocol Modbus or Profibus DP, galvanically separated.

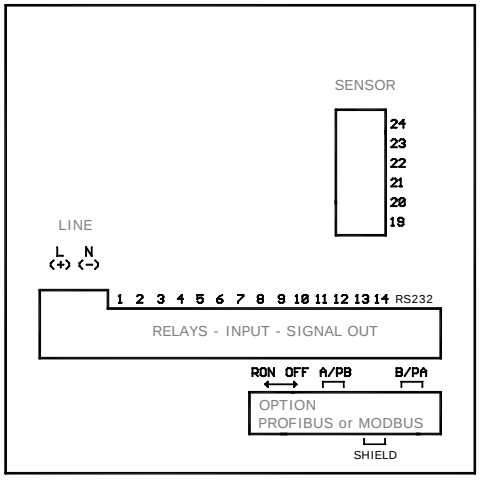
Remote instrument access with PC requires Modbus interface and optional *Webserver*.

Electronic transmitter / controller for the measurement of the specific resistivity or specific conductivity in high purity water.

Transmitter AMU Rescon

- Measuring and control transmitter for panel installation in a Noryl® resin enclosure, 96 x 96 x 120 mm (DIN 43700).
- Measurement ranges:
  - Resistivity: 0.001 to 200 MΩ-cm
  - Conductivity: 0.005 to 1000 µS/cm
- Sensor connections for a two-electrode sensor with built-in NTC temperature probe like Swansensor RC-U or RC-UT and for a digital sample flow meter.
- Big backlit LC display for measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Wide range of selectable temperature compensations for different sample conditions.
- Data logger for 1'500 data records stored at a selectable interval. Serial interface included for data download to PC with Microsoft HyperTerminal.
- Galvanically separated sensor connection.
- Overvoltage protection for in- and outputs.
- Two current outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.
- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).

Front panel



Rear panel with electrical connections

Order scheme	Transmitter AMU Rescon	A – 1 3 . 4 6 2 .	X	0	X
Power supply	100 - 240 VAC / 50/60 Hz		1		
	24 VDC, direct current		2		
Communication option	None				0
	Profibus DP interface				2
	Modbus interface (for *Webserver* connection)				4

Transmitter AMU Rescon

Data sheet No. DenA13462X0X

Resistivity & Conductivity Measurement

Resistivity / Conductivity type sensor
2-electrode sensor

Sensor cell constant
Selectable from 0.005 to 1.000 cm^{-1}

Measuring range	**Resolution**
0.001 to 200.00 MΩ-cm	0.01 MΩ-cm
0.005 to 2.999 µS/cm	0.001 µS/cm
3.00 to 29.99 µS/cm	0.01 µS/cm
30.0 to 99.9 µS/cm	0.1 µS/cm
100 to 1000 µS/cm	1 µS/cm

Automatic range switching. Values for Swansensor RC-U (k = 0.01 cm^{-1}).

System Accuracy (with RC-U sensor)

0.01 to 20 MΩ-cm	± 0.5 %
0.05 to 20 µS/cm	± 0.5 %
20 to 1000 µS/cm	± 1 %

Periodic accuracy test with ultra high precision resistors.

Test modus for transmitter according to USP<645> with test resistance.

Alarm function for limit values according to USP<645> Stage 1.

Temperature compensations
- High purity water (non-linear)
- Neutral salts (NaCl)
- Strong acids (HCl)
- Strong bases (NaOH)
- Ammonia, Ethanolamine
- Morpholine
- Linear coefficient in %/°C
- None (compensation switched off)

Temperature measurement
with NT5K sensor

Measuring range:	-30 to +130 °C
Resolution:	0.1 °C

Sample flow measurement
with digital SWAN sample flow sensor.

Measuring range:	10 to 200 L/h

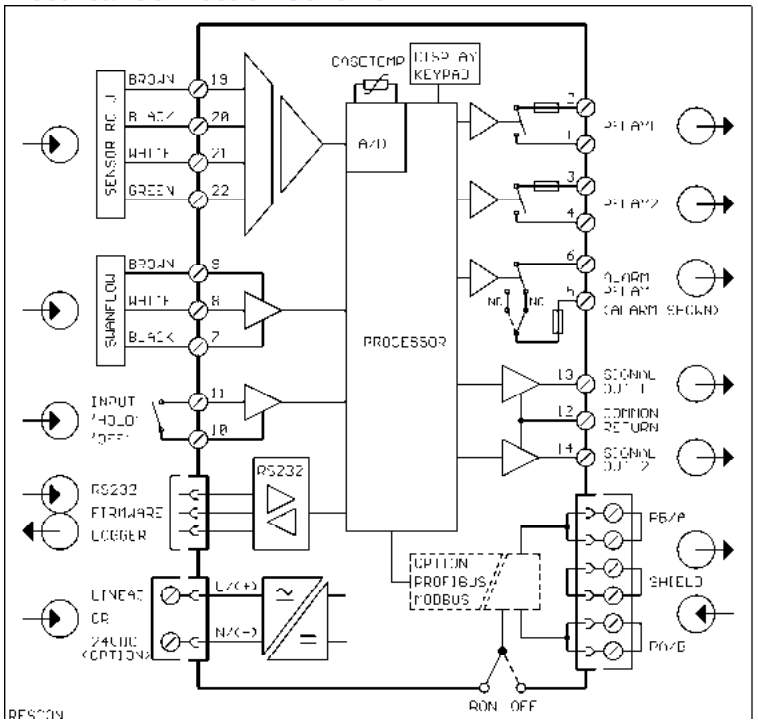
Transmitter Specifications and Functionality

Electronics case:	Noryl® resin
Protection degree:	IP54 (front)
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	clamping yoke
Dimensions:	96 x 96 x 120 mm
Weight:	0.45 kg
Ambient temperature:	-10 to +50 °C
Humidity: 10 - 90% rel., non-condensing	

Power supply

Voltage:	100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 15 %)
Power consumption:	max. 8 VA

Electrical Connection Scheme



Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.

User menus in English, German, French and Spanish.

Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation.

Storage of event log, alarm log and calibration history.

Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

Real-time clock with calendar
For action time stamp and preprogrammed actions.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.

Maximum load:	100 mA / 50 V

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.

Maximum load:	100 mA / 50 V

2 Signal outputs
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable).

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 serial interface RS232
For data logger download to PC using Microsoft HyperTerminal and for transmitter firmware updates.

1 serial interface RS485 (option)
With Fieldbus protocol Modbus or Profibus DP, galvanically separated.

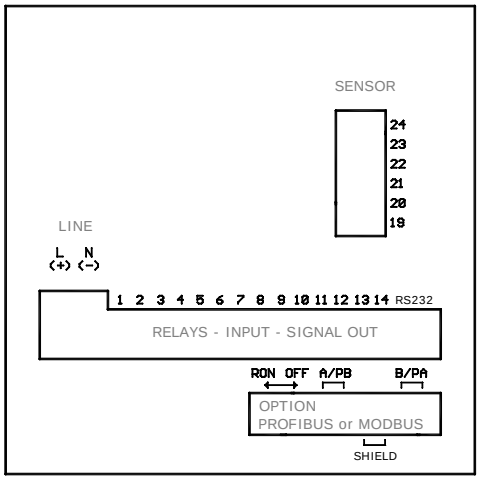
Remote instrument access with PC requires Modbus interface and optional *Webserver.*

Electronic transmitter & controller for the measurement of the conductivity in power cycles. For the measurement before (specific resp. total conductivity) or after a cation exchanger (acid resp. cationic conductivity).

Transmitter AMU Powercon

- Measuring and control transmitter for panel installation in a Noryl® resin enclosure, 96 x 96 x 120 mm (DIN 43700).
- Measurement range: 0.005 µS/cm to 30 mS/cm
- Connections for a 2-electrode conductivity sensor with integrated Pt1000 temperature probe (e.g. Swansensor UP-Con1000) and for a digital SWAN sample flow meter.
- Temperature compensations: non linear for high purity water, neutral salts, strong acids, strong bases, ammonia, ethanolamine, morpholine or linear with coefficient.
- Big backlit LC display for measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Data logger for 1'500 data records stored at a selectable interval. Serial interface included for data download to PC with Microsoft HyperTerminal.
- Galvanically separated sensor connection.
- Overvoltage protection for in- and outputs.
- Two current outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.
- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).

Front panel



Rear panel with electrical connections

Order scheme	Transmitter AMU Powercon	A – 1 3 . 4 6 3 .	X	0	X
Power supply	100 - 240 VAC / 50/60 Hz		1		
	24 VDC, direct current		2		
Communication option	None				0
	Profibus DP interface				2
	Modbus interface (for *Webserver* connection)				4

Transmitter AMU Powercon

Data sheet No. DenA13463X0X

Conductivity Measurement

Conductivity sensor type
for 2-electrode sensor.

Measuring range	Resolution
0.005 to 0.999 µS/cm	0.001 µS/cm
1.00 to 9.99 µS/cm	0.01 µS/cm
10.0 to 99.9 µS/cm	0.1 µS/cm
100 to 999 µS/cm	1 µS/cm
1.00 to 2.99 mS/cm	0.01 mS/cm
3.0 to 9.9 mS/cm	0.1 mS/cm
10 to 30 mS/cm	1 mS/cm

Automatic range switching.
Values for cell constant 0.0415 cm^{-1}
(Swansensor UP-Con1000)

Accuracy: ± 1 % of measured value

Sensor cell constant
Default value: 0.0415 cm^{-1}
or selectable from 0.005 to 10 cm^{-1}

Temperature compensations
- Non linear function (NLF) for high purity water
- Neutral salts
- Strong acids
- Strong bases
- Ammonia
- Ethanolamine
- Morpholine
- Linear coefficient in %/°C
- Absolute (none)

Temperature measurement
with Pt1000 type sensor (DIN class A)
Measuring range: -30 to +250 °C
Resolution: 0.1 °C

Sample flow measurement
with digital SWAN sample flow sensor.

Transmitter Specifications and Functionality

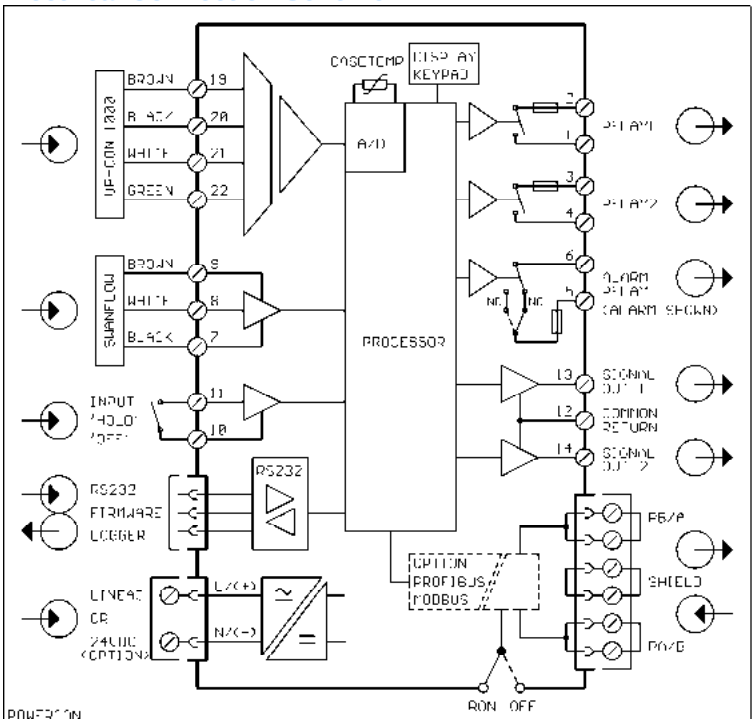
Electronics case: Noryl® resin
Protection degree: IP54 (front)
Display: backlit LCD, 75 x 45 mm
Electrical connectors: clamping yoke
Dimensions: 96 x 96 x 120 mm
Weight: 0.45 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90% rel., non-condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 15 %)
Power consumption: max. 8 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.

User menus in English, German, French and Spanish.

Electrical Connection Scheme



Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation.

Storage of event- and alarm log.

Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

Real-time clock with calendar
For action time stamp and preprogrammed actions.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 100 mA / 50 V

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Maximum load: 100 mA / 50 V

2 Signal outputs
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable).
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 serial interface RS232
For data logger download to PC using Microsoft HyperTerminal and for transmitter firmware updates.

1 serial interface RS485 (option)
With Fieldbus protocol Modbus or Profibus DP, galvanically separated.

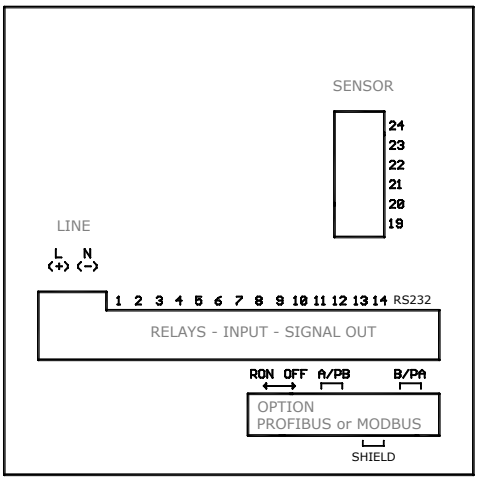
Remote instrument access with PC requires Modbus interface and optional *Webserver.*

Electronic transmitter & controller for the measurement of specific conductivity, concentration, salinity and TDS.

Transmitter AMU Inducon

- Measuring and control transmitter for panel installation in a Noryl® resin enclosure, 96 x 96 x 120 mm (DIN 43700).
- Wide conductivity measurement range from 0 to 2000 mS/cm.
- For the measurement of specific conductivity, concentrations (for NaCl, NaOH and acids in %), salinity (as NaCl in %) and total dissolved solids (TDS as NaCl in %).
- Connections for an inductive (toroidal) conductivity sensor with built-in Pt1000 temperature probe (Swansensor Inducon1000) and for a digital SWAN sample flow meter.
- Temperature compensation with selectable coefficient or non-linear function for natural waters according to EN 27888.
- Big backlit LC display for measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Data logger for 1'500 data records stored at a selectable interval. Serial interface included for data download to PC with Microsoft HyperTerminal.
- Galvanically separated sensor connection.
- Overvoltage protection for in- and outputs.
- Two current outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.
- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).

Front panel



Rear panel with electrical connections

Order scheme	Transmitter AMU Inducon	A – 1 3 . 4 7 1 .	X	0	X
			↑		↑
Power supply	100 - 240 VAC / 50/60 Hz		1		|
	24 VDC, direct current		2		|
Communication option	None				0
	Profibus DP interface				2
	Modbus interface (for *Webserver* connection)				4

Transmitter AMU Inducon

Data sheet No. DenA13471X0X

Conductivity Measurement

Conductivity type sensor
Inductive (toroidal) sensor: Swansensor Inducon1000.

Conductivity ranges	**Resolution**
0.00 to 9.99 mS/cm	0.01 mS/cm
10.0 to 99.9 mS/cm	0.1 mS/cm
100 to 2'000 mS/cm	1 mS/cm

Measurement error < 1 %

Temperature compensations
- Absolute (none)
- Linear coefficient (0.00 - 19.99 %/°C)
- Non linear function (NLF) for natural waters according to EN 27888

Concentration measurements
- NaCl: 0 to max. 17.9 - 21 % (0 - 50°C)
- HCl: 0 to max. 10 - 12 % (0 - 50°C)
- NaOH: 0 to max. 6.5 - 9 % (0 - 50°C)
- H_2SO_4: 0 to max. 16 - 22 % (0 - 50°C)
- HNO_3: 0 to max. 17 - 20.8 % (0 - 50°C)
- Salinity (as NaCl) in %
- TDS (Total Dissolved Solids as NaCl) in %

Temperature measurement
with Pt1000 type sensor (DIN class A)
Measuring range: -30 to +250 °C
Resolution: 0.1 °C

Transmitter Specifications and Functionality

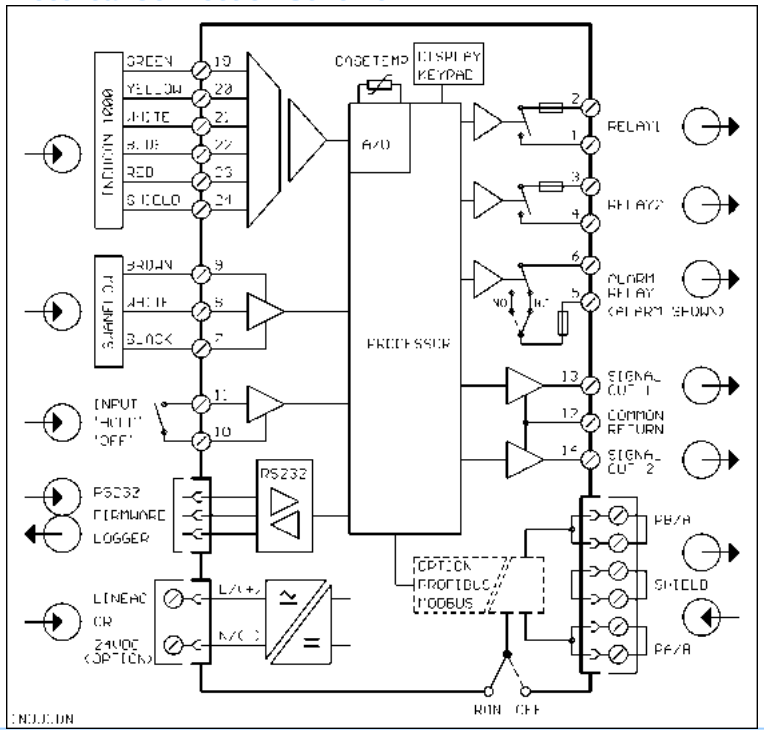
Electronics case: Noryl® resin
Protection degree: IP54 (front)
Display: backlit LCD, 75 x 45 mm
Electrical connectors: clamping yoke
Dimensions: 96 x 96 x 120 mm
Weight: 0.45 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90% rel., non-condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 15 %)
Power consumption: max. 8 VA

Operation
Easy operation based on separate menus for "Messages", "Diagnostics", "Maintenance", "Operation" and "Installation".

User menus in English, German, French and Spanish.

Electrical Connection Scheme



Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation.

Storage of event- and alarm log.

Storage of the last 1'500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

Real-time clock with calendar
For action time stamp and preprogrammed actions.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 100 mA / 50 V

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Maximum load: 100 mA / 50 V

2 Signal outputs
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable).
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 serial interface RS232
For data logger download to PC using Microsoft HyperTerminal and for transmitter firmware updates.

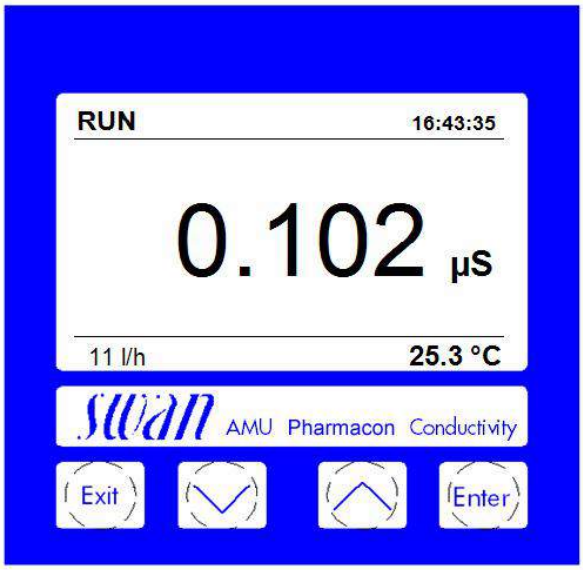
1 serial interface RS485 (option)
With Fieldbus protocol Modbus or Profibus DP, galvanically separated.

Remote instrument access with PC requires Modbus interface and optional *Webserver.*

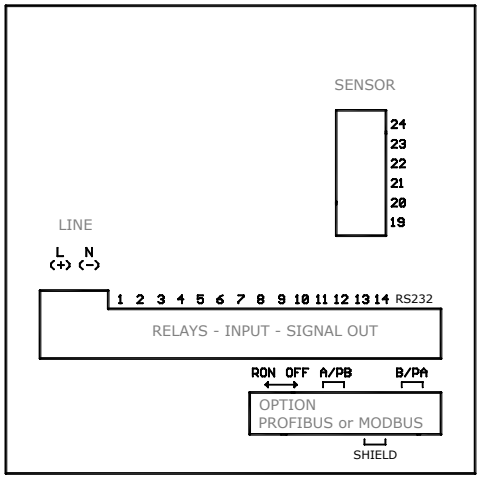
Electronic transmitter & controller for the measurement of the conductivity in purified water and water for injection of pharmaceutical water.

Transmitter AMU Pharmacon

- Measuring and control transmitter for panel installation in a Noryl® resin enclosure, 96 x 96 x 120 mm (DIN 43700).
- Measurement range: 0.005 to 2'000 µS/cm
- Connections for a 2-electrode conductivity sensor with integrated Pt1000 temperature probe (e.g. Swansensor Pharmacon) and for a digital SWAN sample flow meter.
- Big backlit LC display for measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Wide range of selectable temperature compensations for different sample conditions.
- Data logger for 1'500 data records stored at a selectable interval. Serial interface included for data download to PC with Microsoft HyperTerminal.
- Galvanically separated sensor connection.
- Overvoltage protection for in- and outputs.
- Two current outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.
- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).



Front panel



Rear panel with electrical connections

Order scheme	Transmitter AMU Pharmacon	A – 1 3 . 6 8 0 .	X	X	X
			↑	↑	↑
Power supply	100 - 240 VAC / 50/60 Hz		1	|	|
	24 VDC, direct current		2	|	|
Alarm Relay	Normally open, Alarm closed (NO = standard)			0	
	Normally closed, Alarm open (NC)			1	
Communication option	None				0
	Profibus DP interface				2
	Modbus interface (for *Webserver* connection)				4

Transmitter AMU Pharmacon

Data sheet No. DenA13680XXX

Conductivity Measurement

Conductivity sensor type
for 2-electrode inline sensor Pharmacon (k= 0.1cm^{-1}).

Sensor cell constant
selectable from 0.005 to 1.000 cm^{-1}

Measuring range	**Resolution**
0.005 to 0.999 µS/cm	0.001 µS/cm
1.00 to 9.99 µS/cm	0.01 µS/cm
10.0 to 199.9 µS/cm	0.1 µS/cm
200 to 2000 µS/cm	1 µS/cm

Automatic range switching.

System accuracy

0.05 to 500 µS/cm	± 2 %
500 to 2000 µS/cm	± 3 %

or ± 0.001 µS/cm whichever is greater.

Greatest long-term stability by auto-zero front-end calibration procedure.

Test modus for transmitter according to USP<645> with test resistance.

Alarm function for limit values according to USP<645> Stage 1.

Temperature compensations
- High purity water (non-linear)
- Neutral salts (NaCl)
- Strong acids (HCl)
- Strong bases (NaOH)
- Linear coefficient: in %/°C
- None (compensation switched off)

Temperature measurement
with Pt1000 sensor (DIN class A)

Measuring range:	-30 to +250 °C
Resolution:	0.1 °C

Sample flow measurement
Input for digital sample flow sensor.

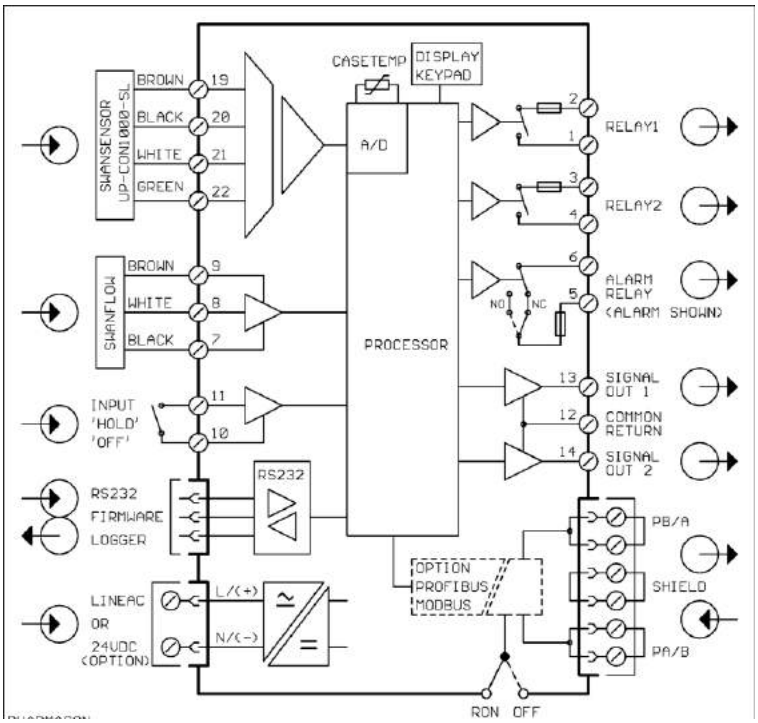
Transmitter Specifications and Functionality

Electronics case:	Noryl® resin
Protection degree:	IP54 (front)
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	clamping yoke
Dimensions:	96 x 96 x 120 mm
Weight:	0.45 kg
Ambient temperature:	-10 to +50 °C
Humidity:	10 - 90% rel., non-condensing

Power supply

Voltage:	100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %)
	or 24 VDC (± 15 %)
Power consumption:	max. 8 VA

Electrical Connection Scheme



Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.

User menus in English, German, French and Spanish.
Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation.

Storage of event- and alarm log.

Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring with programmable high/low alarm limits.

Real-time clock with calendar
For action time stamp and preprogram-med actions.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 100 mA / 50 V

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Maximum load: 100 mA / 50 V

2 Signal outputs
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable).

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 serial interface RS232
For data logger download to PC using Microsoft HyperTerminal and for transmitter firmware updates.

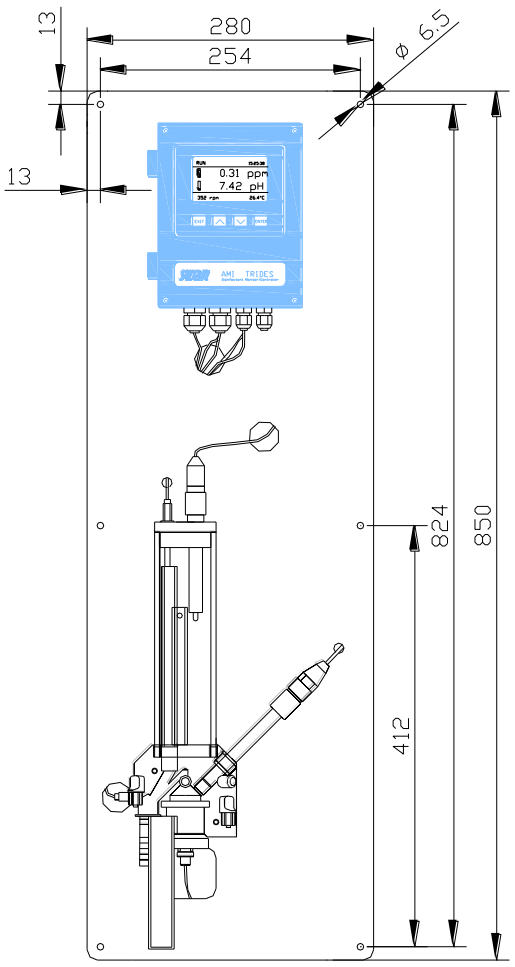
1 serial interface RS485 (option)
With Fieldbus protocol Modbus or Profibus DP, galvanically separated.

Remote instrument access with PC re-quires Modbus interface and optional *Webserver*

Microprocessor controlled system for the automatic and continuous measurement of disinfectants in potable water and swimming pools

Monitor AMI Trides

- Complete system for monitoring and controlling of disinfectant levels.
- Range 0.00 - 5.00 ppm free chlorine, 0.000 - 1.000 ppm ozone, 0.00 - 3.00 ppm chlorine dioxide, iodine, bromine.
- Transmitter, disinfectant sensor, temperature sensor, flow sensor and flow cell, mounted on PVC panel, factory tested and ready to operate.
- Real-time-pH-compensation of chlorine measurement with integrated pH-meter (optional pH sensor).
- Measuring transmitter in an aluminum case (IP 66) 180 x 140 x 70 mm.
- Large backlit graphic display for the reading of measuring value, flow and operating status. Full text menu driven user interface.
- Easy programming of all parameters by keypad.
- Sensor: Self-cleaning TRIDES three-electrode-system for measurement of disinfectants.
- Automatic temperature compensation.
- Monitoring of sample flow and sensor cleaning.
- Over voltage protection for in- and outputs.
- Two signal outputs, galvanically separated from sensor input 0/4 - 20 mA for disinfectant or temperature or as continuous control outputs.
- Signal outputs freely scalable and with simulation mode.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.
- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact, function programmable.



Options:

- Communication interface for transmitter.
- pH electrode with cable or ORP (Redox) electrode with cable.

Order Nr.	Monitor AMI Trides	A–26.111.000
	Monitor AMI Trides; compact	**A–26.111.100**
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option:	[ ] pH measurement	A-87.127.010
	[ ] ORP measurement	A-87.427.010

Monitor AMI Trides

Data sheet no. DenA261110XX

Disinfectant measurement

Signal input (galvanically separated) for TRIDES disinfectant sensor.

Accuracy:	Measuring range:
Ozone	
± 0.005 ppm	0.000 - 1.000 ppm
HOCl, free chlorine	
± 0.01 ppm	0.00 - 1.00 ppm
± 0.06 ppm	1.00 - 3.00 ppm
± 0.2 ppm	3.00 - 5.00 ppm
Chlorine dioxide, iodine, bromine	
± 0.01 ppm	0.00 - 1.00 ppm
± 0.06 ppm	1.00 - 3.00 ppm

Stability (HOCl): ± 1% from end of interval during 1 month at normal conditions.

Response time:
90 % of change of excessive Cl_2 in 60 seconds after sample entered flow cell.

Automatic temperature compensation.

pH measurement (option)
Measuring range: pH 2 to pH 12
Resolution: 0.01 pH

ORP (Redox) measurement (option)
Measuring range: - 400 to +1'200 mV
Resolution: 1 mV

Restrictions of use
Presence of following substances may perturb the measurement : cyanuric acid, 5,5-Di-methyldantoin, phosphates, copper, sand.

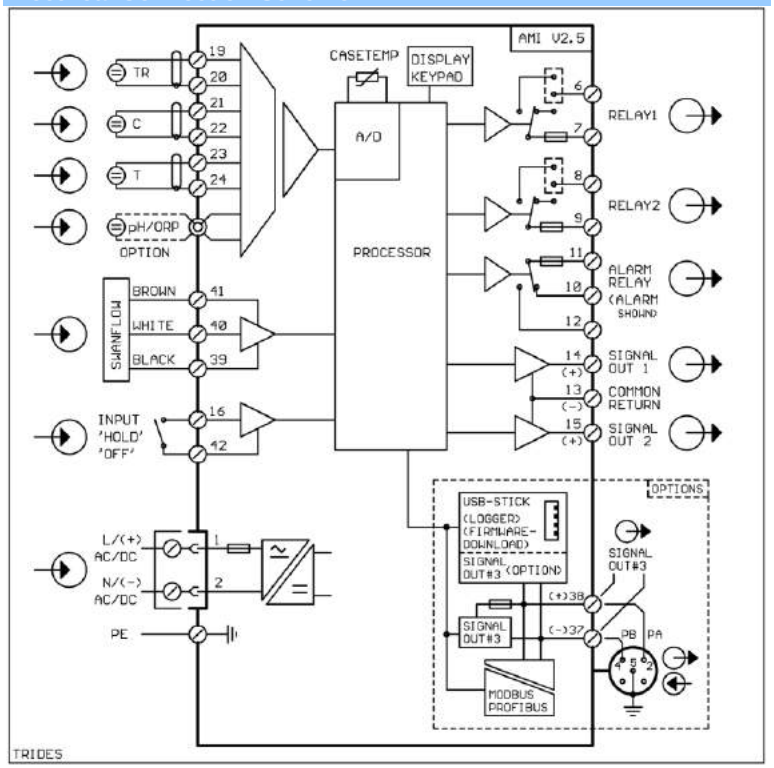
Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90% rel., non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for "Messages", "Diagnostics", "Maintenance", "Operation" and "Installation".
User menus in English, German, French, Spanish and Italian.
Separate menu specific password protection.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log and calibration history.
Storage of the last 1'500 data records in logger with selectable time interval.

Electrical Connection Scheme



Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor data

Sample conditions
Water consumption: approx. 40 l/h
Temperature: 5 to 45 °C
Pressure water inlet: 0.15 to 2 bar
Min. sample conductivity: 5 µS/cm

Trides flow cell
Flow cell made of acrylic glass with insert for Trides sensor and flow sensor. Insert for temperature sensor and 3 additional inserts 12 mm for sensors.
Connection inlet: 6 x 9 mm
Water outlet: atmospheric drain
Connection outlet: 14 x 20 mm (1/2")

Panel
Dimensions: 280 x 850 x 200 mm
(compact :)300 x 530 x 200 mm
Mounting panel: PVC
Weight: 6.0 kg

Two-electrode conductivity sensor for the continuous measurement in water/steam cycle applications

Swansensor UP-Con1000

Conductivity sensor with stainless steel body, titanium electrode and built-in temperature probe for automatic temperature compensation.

Specifications

Recommended measuring range:
0.055 to 1000 µS/cm

Accuracy (at 25°C): ± 1% or 0.001 µS/cm whichever is greater

Cell constant: ~ 0.04 cm^{-1}
Indicated on sensor with 5 decimal places.

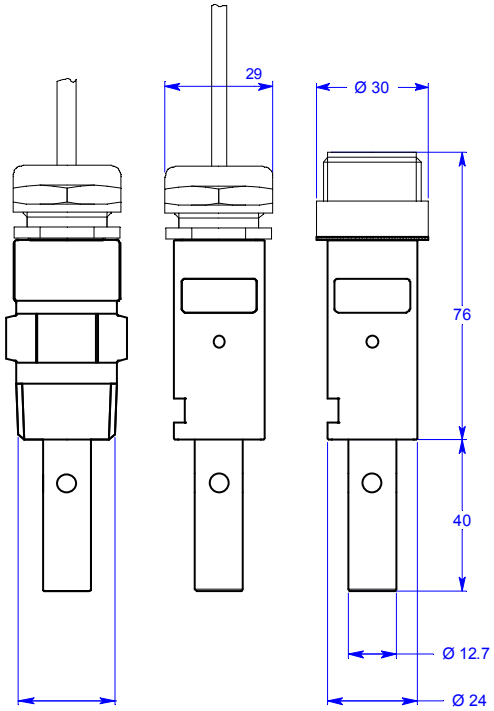
Temperature sensor type:
Pt1000, DIN class A

Operating conditions:
- Continuous temperature: 100 °C at 6.5 bar
- Max. temperature: 120 °C at 6.5 bar
- Pressure: max. 30 bar at 25 °C

Materials in contact with sample:
- Shaft: Stainless steel SS 316L
- Electrode: Titanium
- Isolation: PEEK

Process connection & sensor mounting:
- SWAN slot-lock (patent pending) for quick sensor release in suitable flow cells
- or NPT ¾”

Electrical connection:
- Male Plug M1 (protection degree IP67)
- or directly attached cable with end sleeves



¾” NPT connection

SWAN slot-lock connection

Order scheme	Swansensor UP-Con1000	A – 87 . 334 .			
Process connection	NPT ¾”	1			
	SWAN slot-lock	2			
Electrical connection	Plug M1		0	0	
	Cable 0.3 meter		0	3	
	Cable 1 meter		1	0	
	Cable 5 meters		5	0	
	Cable 15 meters		7	0	

Sensor cables for sensors with male plug M1 (A-87.334.100 and A-87.334.200):

A-88.155.120	Sensor cable, female plug M1 / sleeves, length 1 m
A-88.155.520	Sensor cable, female plug M1 / sleeves, length 5 m
A-88.155.720	Sensor cable, female plug M1 / sleeves, length 15 m

Sensor for the measurement of the specific conductivity. Toroidal design with integrated temperature sensor.

Swansensor Inducon1000

For applications in the chemical, food & dairy, refinery, pulp & paper, metal finishing and wastewater industries. For conductivity measurements and monitoring of chemical concentration and salinity.

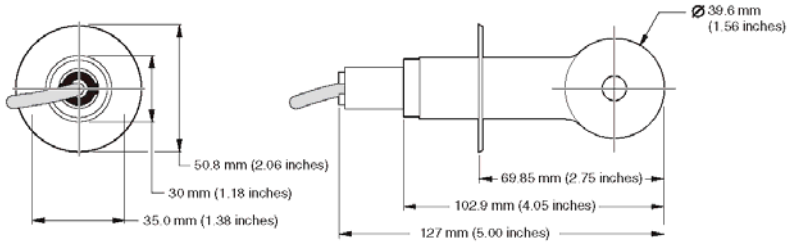
Sensor with directly attached cable. For the use together with the SWAN conductivity transmitters AMI Inducon and AMU Inducon.

General specifications

Conductivity range:	0.2 to 2'000 mS/cm
Temperature sensor type:	Pt1000
Max. sample flow rate:	3 m/s
Electrical connection:	Directly attached cable with end sleeves

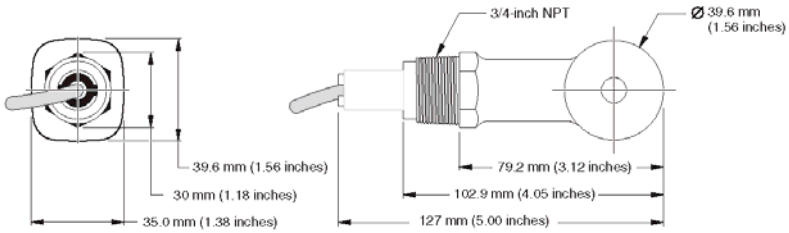
Sanitary style (CIP) sensor

Process connection:	Sanitary mounting, diameter 2", with stainless steel cap
Material:	PFA Teflon® (Perfluoroalkoxy Teflon®) for all wetted parts
Temperature & pressure limit:	150 °C at 13.8 bar
Sensor cable:	6 m, with Teflon coated jacket, rated to 200 °C



Convertible style sensor

Process connection:	¾" NPT
Material:	Polypropylene (PP) for all wetted parts
Temperature & pressure limit:	100 °C at 6.9 bar
Sensor cable:	6 m, with XLPE jacket, rated to 150 °C



Order numbers	Swansensor Inducon1000 sanitary	A – 8 7. 3 5 1 . 1 5 0
	Swansensor Inducon1000 convertible	A – 8 7. 3 5 1 . 2 5 0

Accessory: Sanitary clamp, stainless steel 2" C-87.329.020

Complete monitoring system for the automatic, continuous measurement of silica in water steam cycles.

Monitor AMI Silitrace

- Measuring range: 0,5 to 1'000 ppb
- Based on colorimetric measurement principle.
- Programmable, automatic calibration.
- Programmable, automatic verification.
- Automatic Zero measurement (daily).
- Easy to use grab sample capability.
- Reagent saving mode.
- Continuous, automatic monitoring of main instrument functions (sample flow, reagent supply, reaction temperature and pump tube integrity).
- Complete system including measurement and control electronics, photometer with integrated constant-temperature reaction chamber, flow indicator, reagent dosing system and reagent containers.
- Measurement values are available as analog output signals.
- Alarm display and activation of alarm relay when user defined, critical limits are reached.
- Large back-lit LCD display showing all measured values and status information simultaneously.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Data logger for 1'500 data records stored at a selectable interval.
- Factory tested, ready for installation and operation.

Instrument variants

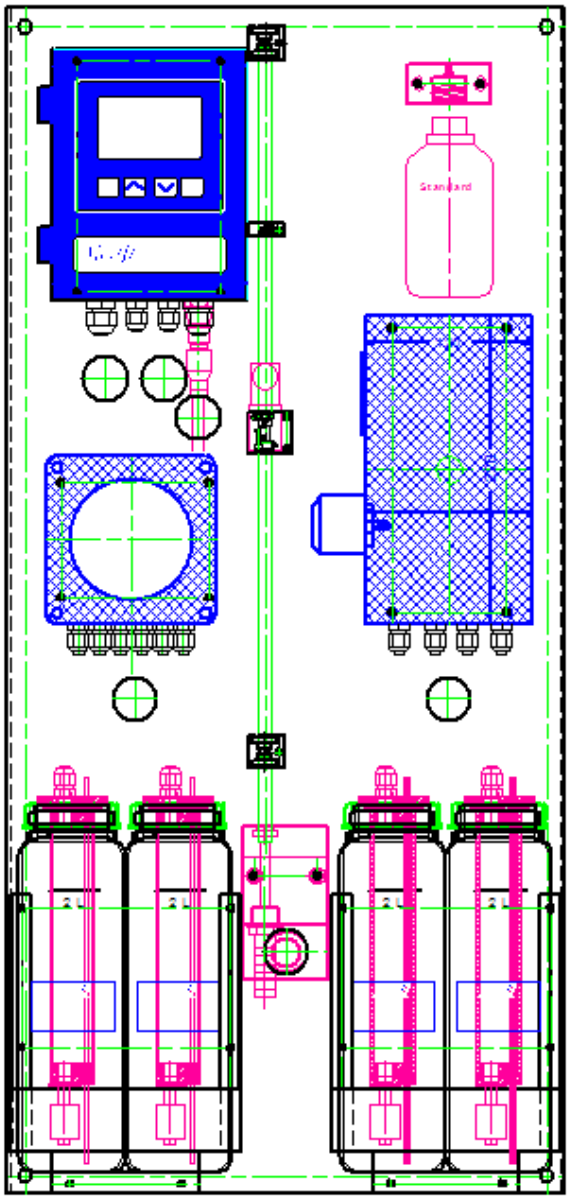
- Single stream or Dual stream instrument

Accessory

- AMI Sample Sequencer, switching up to 6 sample streams with single stream instrument.

Instrument options

- Communication interface (Profibus, Modbus, 3rd Signal Output, USB, HART).



Monitor AMI Silitrace

Order Nr.	Monitor AMI Silitrace	A–25.431.100
	Monitor AMI Silitrace; Dual-Stream	**A–25.431.110**
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Monitor AMI Silitrace

Data sheet no. DenA254311x0

Analytical System

Colorimetric, molybdosilicat method with temperature controlled high precision photometer.

Silica measurement

Measuring range: 0.5 to 1'000 ppb
Reproducibility: ± 0.5 ppb or ± 5%, whichever is greater
Cycle time: 3'
Reagent saving mode: up to 100 days lifetime with one reagent kit.

Flow cell

Made of acrylic glass with water inlet and flow adjustment valve.

Transmitter Specifications and Functionality

Electronics case: Aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 mm x 45 mm
Electrical connectors: screw clamps
Ambient temperature: -10 to +50 °C
Limit range of operation: -25 to +65 °C
Storage and transport: -30 to +85 °C
Humidity: 10 to 90 % relative, non condensing

Power supply

Voltage: 100 - 240 VAC (± 10 %) 50/60 Hz (± 5 %)
Power consumption: max. 50 VA

Operation

Easy operation based on separate menus for "Messages", "Diagnostics", "Maintenance", "Operation" and "Installation".
Separate menu specific password protection possible.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log and calibration history.
Storage of the last 1'500 data records in logger with selectable time interval.

Safety features

No data loss after power failure, all data is saved in non-volatile memory. Over voltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring

With programmable high/low alarm limits.

Real-time clock with calendar

For action time stamp and pre-programmed actions.

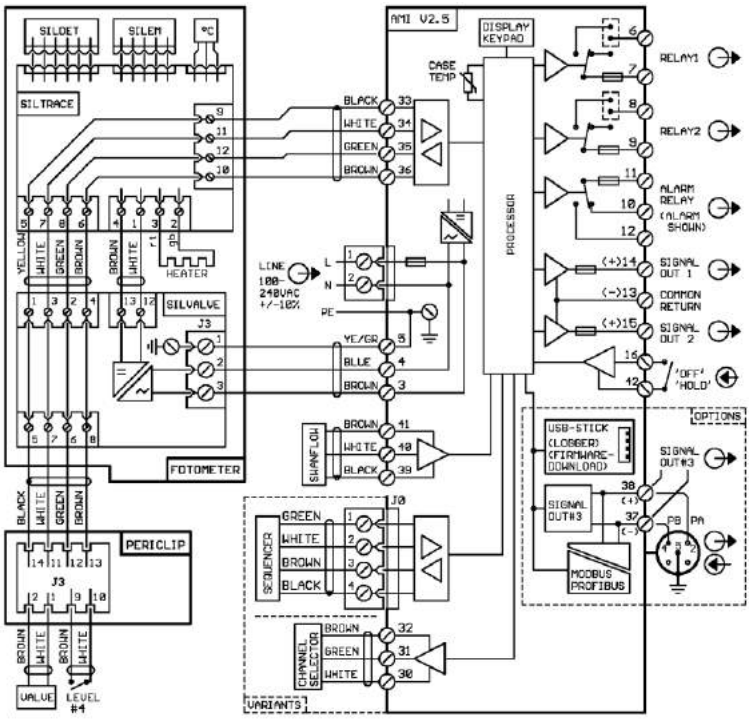
Monitoring of reagent consumption

Warning if low level is reached and alarm for lack of reagents.

1 Alarm relay

One potential free contact for summary alarm indication for programmable alarm values and instrument faults. Maximum load: 1A / 250 VAC

Electrical Connection Scheme



1 Input

One input for potential-free contact. Programmable hold or remote off function

2 Relay outputs

Two potential-free contacts programmable as limit switches for measuring values, controllers or timer with automatic hold function.
Max. load: 1A / 250 VAC

2 Signal outputs (3rd as option)

Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control function

Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)

- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Sample and Monitor Data

Ambient temperature: 5 to 50 °C

Sample conditions

Flow rate: min. 3 l/h
Temperature: 5 to 50 °C
Inlet pressure: 0.15 to 2 bar
Outlet pressure: pressure free, atmospheric drain
No oil, no grease

Sample connections

Inlet: Serto PVDF 6 mm (1/8"), for tubing 4x6 mm
Drain: Ø 16 mm, tubing 15x20 mm

Panel

Dimensions: 400 x 850 x 150 mm
Material: stainless steel
Weight: 16.0 kg

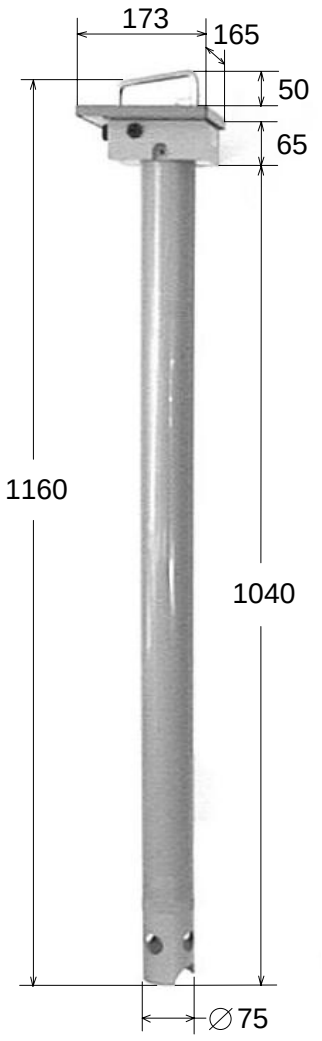
Immersion assembly for application in open basins and tanks

Swanfit UNIDIP

The UNIDIP immersion assembly can be used for pH-, ORP-, temperature-, conductivity-, and oxygen sensors.

Depending on the model, the UNIDIP immersion assembly is designed for three sensors with a shaft diameter of 12 mm (Swansensors pH, ORP, temperature, conductivity) or for one OXYSAFE oxygen sensor.

All cables are led out of the fitting by threaded joints, weather-protected.



(all dimensions in mm)

Technical data:

Material:	PVC
Length of submerge:	1000 mm
Extension:	500 and 1000 mm
Operating pressure:	unpressurised
Protection:	IP 65
Ambient temperature:	- 10 .... + 50 °C
Sensor insert:	3 x PG13.5 (12 mm) or 1 x 32 mm (oxygen)

Accessories:

- Fixed angle holder or pendulum holder, stainless steel
- Holder for servicing, stainless steel
- Calibration vessel, PVC
- Extension 500 mm
- Extension 1000 mm

Order scheme	Swanfit UNIDIP	A-83.151.2		0
			↑	
Sensor insert:	3 x PG13.5 inserts (1 sensor adapter, 2 blind plugs)		1	
	1 x 32 mm insert for OXYSAFE oxygen sensor		6	

Flow cell with integrated flow sensor and needle valve

QV-Flow and QV-HFlow SS316L 130

Flow cell made of stainless steel with flow sensor for the connection to SWAN transmitter and with manual needle valve. Connection to tube with Swagelok adapter.

For high purity water applications with SWAN conductivity sensor RC-U.

Two different sample flow sensors are available:
- QV-Flow for flow rates from 3 to 25 l/h.
- QV-HFlow for (High) flow rates from 10 to 120 l/h.

Technical data

Flow cell made of stainless steel SS316L for one sensor with ¾" NPT thread and fitting length of 89 mm.

Sample conditions

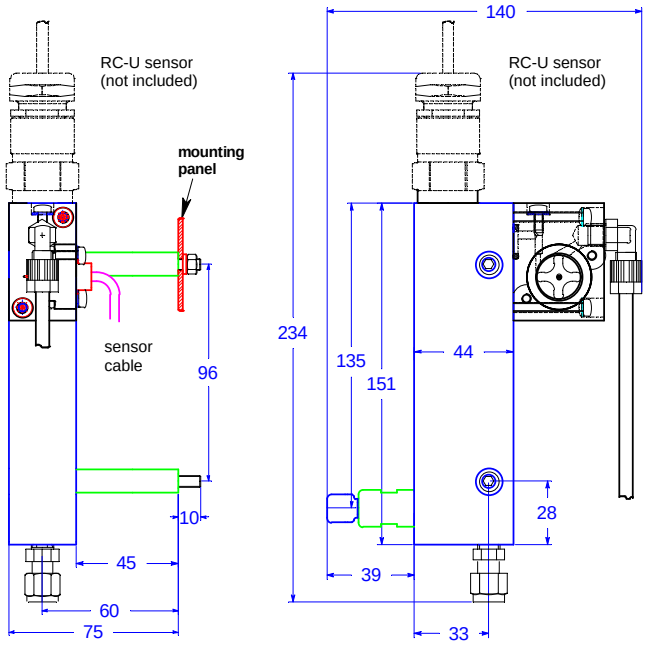
Temperature:	0 ... 60 °C
Inlet pressure:	max. 15 bar at 50 °C
Outlet pressure:	pressure-free against atmosphere
Flow rate:	3 ... 25 l/h for QV-Flow 10 ... 120 l/h for QV-HFlow

Process connections

Inlet:	Swagelok adapter for ¼" tube
Outlet:	Serto 90° angle + 6 mm flexible tube

Dimensions

Cell height:	151 mm
Total installation height:	~ 234 mm
Cell width incl. outlet adapter:	~ 140 mm
Depth (front-to back size):	75 mm



Delivery:

Flow cell with 2 mounting screws (M5) and distance sleeves for wall mounting.

Order scheme	QV-Flow/QV-HFlow SS316L 130	A – 83 . 436 . 1		
Flow rate:	3 to 25 l/h (QV-Flow)		5	
	10 to 120 l/h (QV-HFlow)		6	
Cable length of flow sensor:	Flow sensor with 1 m cable			1
	Flow sensor with 5 m cable			5
	Flow sensor with 15 m cable			7

Sensor for the measurement of dissolved oxygen in ultra pure water

Swansensor OXYTRACE G

Precise oxygen measuring cell with integrated temperature sensor and guard electrode for faster initial response time after maintenance.

Easy maintenance due to sensor cap with integrated membrane.

Easy calibration.

No exposed metallic surfaces, no corrosion in corrosive media.

High electric reliability. No integrated electronics.

Technical data:

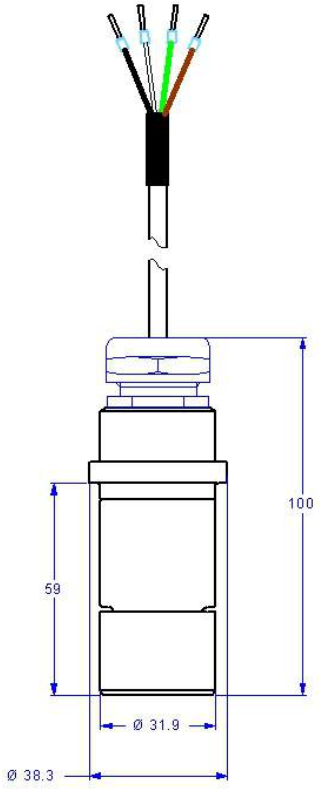
Clark oxygen electrode

Cathode gold, anode silver, guard silver

Zero current-free electrode system

Robust 25 µm fluoropolymer diaphragm

Measuring range:	0-20 ppm O_2 (25 °C) or 0 - 200% saturation
Accuracy:	0,3 % if calibration temperature = measuring temp.
	1,5 % at ± 10 °C deviation to cal. temperature
Precision:	± 1% of reading or ±0.15 ppb
Response time:	t_{90} < 30 seconds (rising concentration)
Minimal flow:	50 cm/s
Pressure resistance:	3 bar
Operating temperature:	max. 50 °C
Material:	polyacetal copolymer
Protection:	IP 68
Weight:	150 g



Delivery includes:
Sensor with cable (sleeves), pre-filled with electrolyte, protective cap, sensor adapter and a bottle with fresh electrolyte.

Order scheme	Swansensor Oxytrace G	A – 8 7 . 2 1 3 . 0		0
			↑	
Cable length	1 m		1	
	5 m		5	
	10 m		6	
	15 m		7	

Spare part

A-87.290.050 Sensor cap with integrated membrane and a bottle with electrolyte

Sensor OXYSAFE 1000

Data sheet. DenA872320X1

Sensor for the measurement of dissolved oxygen in water treatment technology

Swansensor OXYSAFE 1000

Precise oxygen measuring cell with integrated temperature measuring (Pt1000).

Easy calibration, excellent life time (up to 2 years of operation between refilling in activated sludge tank).

Easy and fast exchange of diaphragm and electrolyte.

No exposed metallic surfaces, no corrosion in saline measuring media.

High electric reliability. No integrated electronics.

Technical data:

Clark oxygen sensor

Cathode gold, anode silver

Zero current-free electrode system

Measuring range: 0 – 20.0 ppm O_2 (15 °C)
or 0 - 200% saturation

Accuracy:
0.3 % if calibration temperature = measuring temperature
1.5 % at ± 10 °C deviation to calibration temperature

Max. pressure: 3 bar (42 psi)

Operating temperature: max. 50 °C

Material: polyacetal copolymer

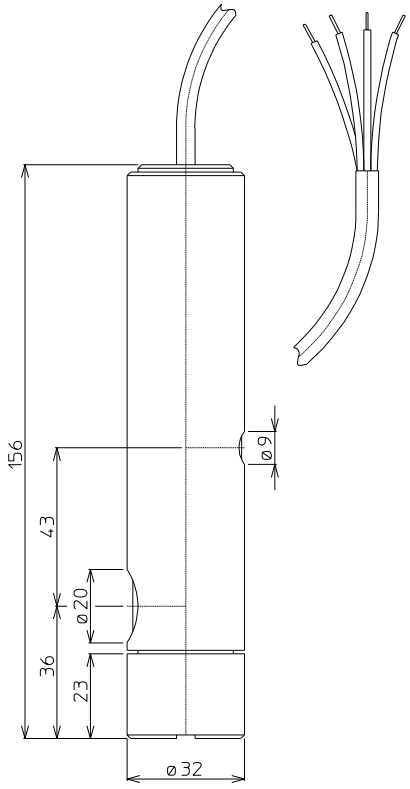
Protection: IP 68

Weight: 350 g

Robust 50 µm (2 mil) fluoropolymer diaphragm

Response time: t_{90} < 180 seconds

Minimal flow: 0.5 cm/s



Delivery includes:
Sensor with cable (sleeves), 1 diaphragm and 50 ml electrolyte.

Order scheme	Swansensor Oxysafe	A-87.232.0		1

Cable length:

1 m	1
5 m	5
15 m	7

Accessories:

A-87.290.020	Sensor tip Oxysafe
A-87.239.010	Replacement set for Swansensor Oxysafe (50 ml filling solution, 2 spare membranes and O-ring)
A-87.290.040	Replacement set for Swansensor Oxysafe (3 pressure compensation membranes)

Sensor for the measurement of the specific conductivity and specific resistivity in high purity water

Swansensor RC U

For high purity water applications, e.g. in power plants and semiconductor manufacturing plants.

Sensor with certificate: The cell constant is defined with a precision of 5 digits after the decimal point. The temperature correction factor for the built-in NTC is determined with a thermometer, traceable to national standards (Swiss Calibration Service, 1997 SCS). Both values are written on the sensor and on the certificate.

Sensor with plug (IP67) or 5 m respectively 15 m cable (Spec 44, PVDF). Special length on request.

Specifications RC U:

Recommended measuring range:
0,005 – 1000 µS/cm
resp. 0,01 – 200 MΩ-cm

Accuracy (at 25°C):
> ± 0.5% up to 20 µS/cm
± 1% above 20 µS/cm up to 1000µS/cm

Cell constant: 0.01 cm^{-1}

Material:
shaft: SS 316L, stainless steel
electrode: SS 316L, stainless steel
isolation: PEEK

Temperature sensor:
NT5K, accuracy ± 0.2 °C

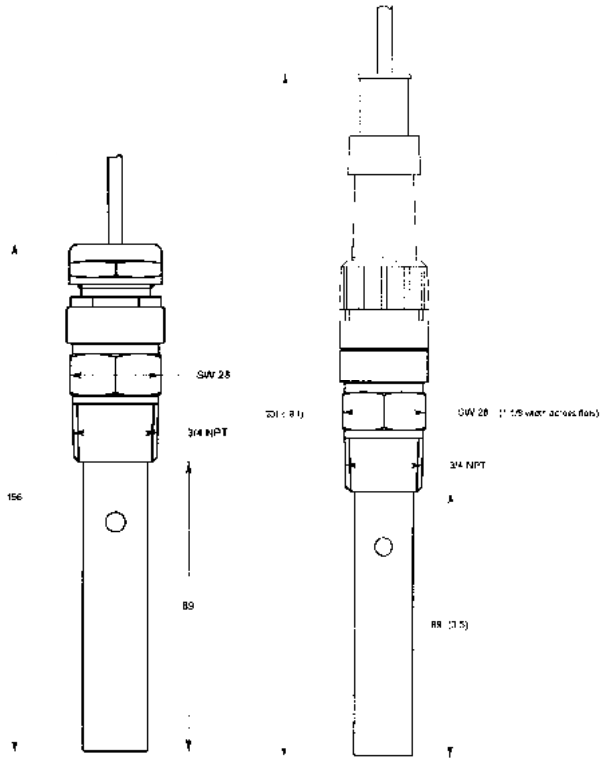
Sensor mounting: ¾" NPT thread

Operating temperature: -10 .... +90 °C

Operating pressure:
max. 10 bar at +90 °C

Length totally: 156 mm (cable)
231 mm (plug)

Insertion length: 89 mm



(sensor with cable sensor with plug)

Order scheme	Swansensor RC U	A-87.322.2		0

Cable length:	plug (IP67)	0
	5 m cable (Spec 44, PVDF), sleeves	5
	15 m cable (Spec 44, PVDF), sleeves	7

Accessories:

A-88.155.520	Sensor cable to RC U, sleeves - female plug, 5 m
A-88.155.720	Sensor cable to RC U, sleeves - female plug, 15 m
V-9710015	Quality certification for conductivity sensor Swansensor RC-U

Sensor for the measurement of the specific conductivity. Four electrode design with platinum electrodes and built-in Pt1000 temperature sensor.

Swansensor Shurecon P

For applications in surface water, potable water and cooling water. Unaffected by fouling. No measuring errors due to polarization effects. Insertion depth only 30 mm.

Sensor with directly attached cable. For the use together with the SWAN conductivity transmitters AMI Solicon4 and AMU Solicon4.

Specifications:

Recommended conductivity range:
0.1 µS/cm to 100 mS/cm

Accuracy: ± 1.5% or ± 0.2 µS/cm whichever is greater

Cell constant k: ~0.4 cm^{-1}

Temperature sensor type:
Pt1000, DIN class A

Operating conditions:
- Normal operating temperature: ≤ 50°C
- Max. temperature short-time: 90°C at ambient pressure
- Max. pressure: 10 bar at 25°C

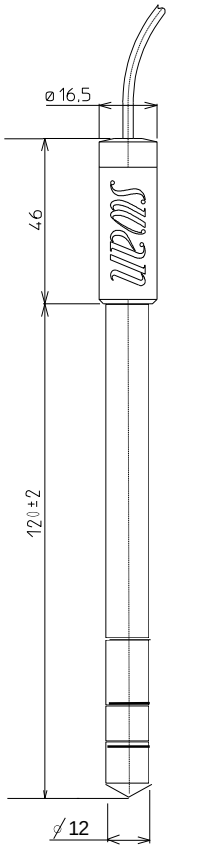
Materials:
- Shaft and tip: PVDF
- Electrodes: Platinum

Protection class: IP 68

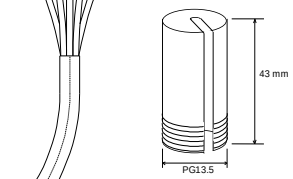
Process connection:
On Ø16 mm sensor head or Ø12 mm shaft

Electrical connection:
Sensor with integrated cable with end sleeves.

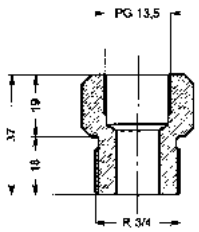
Delivery:
Sensor with mounting adapter 16 mm / PG13.5



Swansensor Shurecon P with cable



Sensor adapter
16 mm / PG13.5



T-Fit adapter
PG13.5 / R ¾"

Order scheme	Swansensor Shurecon P	A – 8 7 . 3 4 2 . 1		0

Sensor cable length:

Integrated cable 1 m	1
Integrated cable 5 m	5
Integrated cable 15 m	7

Accessories:

A-83.910.020	**Sensor adapter 16 mm / PG13.5** to mount Swansensor Shurecon P into PG13.5 thread (The same as included in the standard sensor delivery as a replacement part)
A-83.910.080	**T-Fit adapter PG13.5 / R ¾"** to mount PG13.5 sensor into R ¾" thread
A-83.437.330	**Flow cell M-flow PG** (see separate data sheet no. DenA83437330)

Swansensor Turbiwell 7027

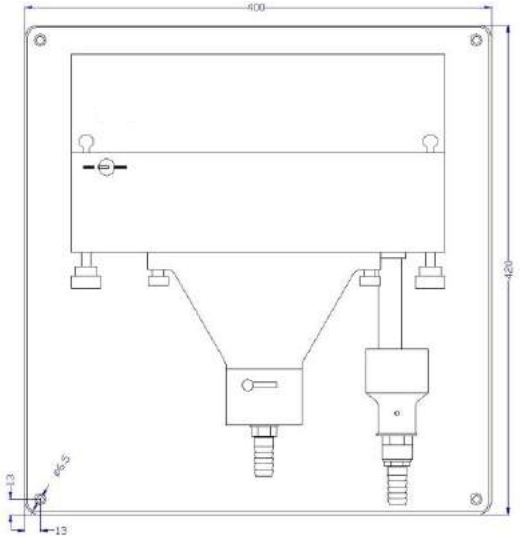
Data sheet no. DenA875321XX

Nephelometric turbidimeter based on ISO 7027 for the automatic and continuous measurement of turbidity.

Swansensor Turbiwell 7027

For applications in potable water, surface water treatment and effluent.
Unaffected by fouling.
Sensor assembled with fixed cable. For the use with the transmitter AMI Turbiwell.

- Non-contact turbidimeter: System optics is not in direct contact with sample, no fouling on optical surfaces.
- Two-part turbidimeter block made of PETP with drain valve.
- Heated optics to avoid condensation.
- Sensor including optoelectronics, sample chamber and turbidimeter.
- Manual or automated draining of the sample chamber.
- Easy cleaning of sample compartment.
- Factory calibrated with Formazine.



Swansensor Turbiwell 7027

Specifications:

Turbidimeter:

Measuring range:	0.000 - 200.0 FNU/NTU, Automatic range switching
Precision:	± 0.003 FNU/NTU or 1% of reading, whichever is greater

Panel:

Dimensions:	420 x 400 x 200 mm
Material:	white PVC
Weight:	8.0 kg

Sample conditions:

Flow rate:	approx. 20-60l/h
Temperature:	up to 40 °C
Sampletemp.:	max. 5°C over ambient temperature
Outlet pressure:	pressure free, atmospheric drain

Sample connections:

Inlet:	nozzle, Ø 10mm
Drain:	Ø 16 mm, tubing 15 x 20 mm

Order scheme	Swansensor Turbiwell 7027	A – 8 7 . 5 3 2 .	1		
				↑	↑
Cable length.....	5 m.....			5	|
	15 m.....			7	|
Drain valve	Manual drain valve				1
	Automatic drain valve: “Auto-drain” with electrical motor				2

Accessories:

A-85.151.060	Verification kit Turbiwell 7027 Low FNU
A-85.151.070	Verification kit Turbiwell 7027 High FNU

See datasheet DenA15411X0X regarding transmitter AMI Turbiwell.

Swansensor Turbiwell W/LED

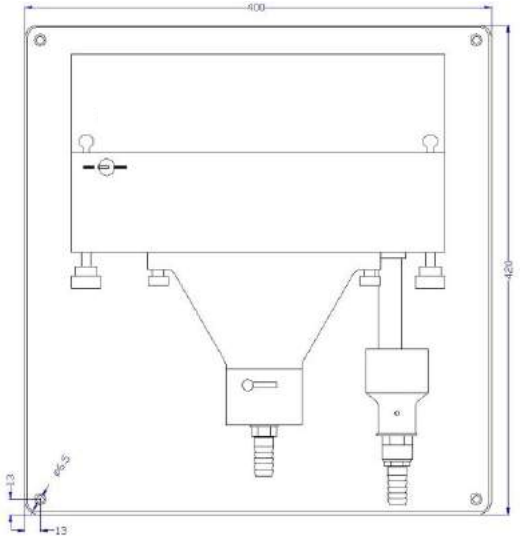
Data sheet no. DenA875322XX

Nephelometric turbidimeter based on the approved alternative method to US EPA 180.1 for the automatic and continuous measurement of turbidity.

Swansensor Turbiwell W/LED

For applications in potable water, surface water treatment and effluent.
Unaffected by fouling.
Sensor assembled with fixed cable. For the use with the transmitter AMI Turbiwell.

- Non-contact turbidimeter: System optics is not in direct contact with sample, no fouling on optical surfaces.
- Two-part turbidimeter block made of PETP with drain valve.
- Heated optics to avoid condensation.
- Sensor including optoelectronics, sample chamber and turbidimeter.
- Based on the approved “Swan AMI Turbiwell” method following the regulations of the US EPA with a white LED.
- Manual or automated draining of the sample chamber.
- Easy cleaning of sample compartment.
- Factory calibrated with Formazine.



Swansensor Turbiwell W/LED

Specifications:

Turbidimeter:

Measuring range:	0.000 - 100.0 NTU, Automatic range switching
Precision:	± 0.003 NTU or 1% of reading, whichever is greater

Panel:

Dimensions:	16.5 x 15.75 x 8.6“
Material:	white PVC
Weight:	18.0 lbs

Sample conditions:

Flow rate:	approx. 5-16gal/h
Temperature:	up to 104 °F

Sampletemp.: max. 9°F over ambient temperature
Outlet pressure: pressure free, atmospheric drain

Sample connections:

Inlet:	¼” thread / nozzle Ø 0.39”(10mm)
Drain:	½” thread / Ø 0.62”(16 mm), tubing 0.59 x 0.78” (15 x 20 mm

Order scheme	Swansensor Turbiwell W/LED	A – 8 7 . 5 3 2 .	2		
				↑	↑
Cable length	5 m			5	|
	15 m			7	|
Drain valve	Manual drain valve				1
	Automatic drain valve: “Auto-Drain” with electrical motor				2

Accessories:

A-85.151.065	Verification kit Turbiwell W/LED Low NTU
A-85.151.075	Verification kit Turbiwell W/LED High NTU

See datasheet DenA15411X0X regarding transmitter AMI Turbiwell.

Complete monitoring system for the automatic, continuous measurement of the acid (cation) conductivity in feedwater, steam and condensate.

Monitor AMI Powercon Acid

Complete system mounted on stainless steel mounting panel:

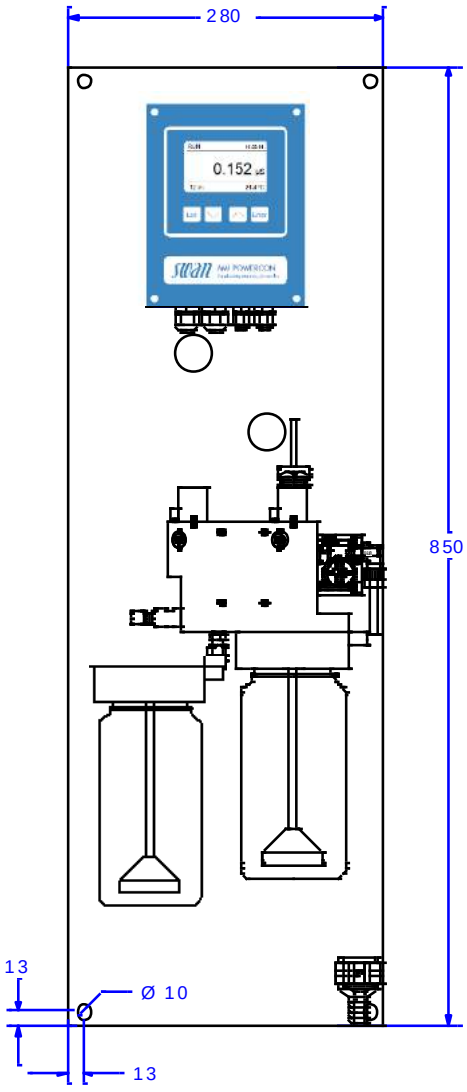
- **Transmitter AMI Powercon** in a rugged aluminum enclosure (IP 66).
- **Swansensor UP-Con1000-SL** 2-electrode conductivity sensor with slot-lock adapter and integrated Pt1000 temperature probe, k = 0.04 cm^{-1}.
- **Flow cell Catcon-Plus-SL** made of stainless steel 316L with flow adjustment valve and digital sample flow meter. Quick sensor release with patented slot-lock design. Integrated, easy exchangeable, transparent cation exchanger vessel with automatic de-aeration. Nuclear grade resin with capacity indicator.
- Factory tested, ready for installation and operation.

Variant with Pre-rinse setup:

- for instantaneous resin exchange (lead-and-trail) with additional trail vessel.

Specifications:

- Conductivity measurement range: 0.055 to 1000 µS/cm
- Simultaneous measurement and display of conductivity, sample temperature and flow.
- Temperature compensation preset for strong acids but wide range of others selectable for other sample conditions.
- Big backlit LC display for the reading of all measuring values and operating status.
- Easy user menus with simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.



Monitor with optional pre-rinse set-up

- Two current outputs (0/4 - 20 mA) for measured signals (3rd as option).

Order Nr.	Monitor AMI Powercon Acid	A–23.445.101
	Monitor AMI Powercon Acid; Pre-rinse	**A–23.445.102**
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option:	[ ] Cation exchanger, 1 bottle with 1l resin	A-82.841.030

Monitor AMI Powercon Acid

Data sheet No. DenA2344510X

Conductivity Measurement

Swansensor UP-Con1000-SL with integrated Pt1000 temperature probe.

Measuring range	Resolution
0.055 to 0.999 µS/cm	0.001 µS/cm
1.00 to 9.99 µS/cm	0.01 µS/cm
10.0 to 99.9 µS/cm	0.1 µS/cm
100 to 1000 µS/cm	1 µS/cm

Automatic range switching.

Accuracy:
± 1 % of measured value or ± 1 digit (whichever is greater).

Temperature compensations
Non-linear function (for high purity water), neutral salts, strong acids, strong bases, ammonia, ethanolamine, morpholine, linear coefficient in %/°C), absolute (none). Influence of temperature see PPChem 2012 14(7) [Wagner]

Temperature measurement
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement
With digital Swan sample flow sensor.

Transmitter Specifications and Functionality

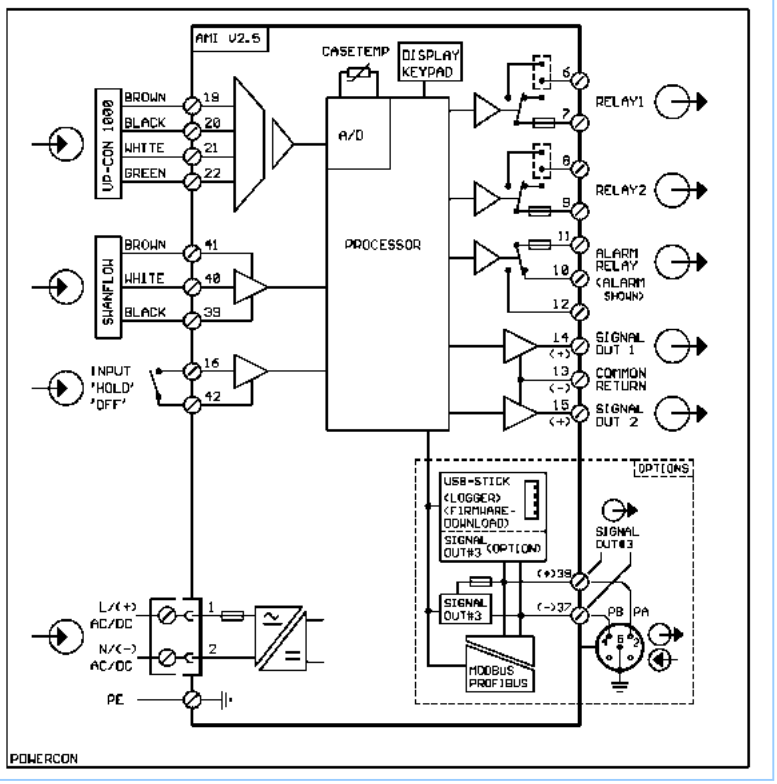
Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50°C
Humidity: 10 - 90% rel., non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log and calibration history. Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Electrical Connection Scheme



Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor Data

Sample conditions

Flow rate:	5 to 20 L/h
Temperature:	up to 50 °C
Inlet pressure (25 °C):	up to 2 bar
Outlet pressure:	pressure free

No sand, no oil

Flow cell and connections
Flow cell with flow adjustment valve and digital sample flow meter. Quick sensor release with patented slot-lock design.
Sample inlet: Swagelok ¼” tube adapter
Sample outlet: G ½” adapter for flexible tube Ø 20 x 15 mm

Cation exchanger
Cleaned resin (1L, nuclear grade) with capacity indicator ready for operation.
Resin sufficient at 1 mg/L ammonia (pH 9.4). Resin capacity for 1L: 4 months at sample flow 10 L/h, 5 months at 5 L/h.
Additional trail resin vessel with pre-rinse setup as option.
Automatic deaeration of resin bottle(s).

Panel

Dimensions:	280 x 850 x 200 mm
Material:	stainless steel
Total instrument weight:	10.0 kg

Complete monitoring system for the automatic, continuous measurement of the conductivity before (specific / total conductivity) and after a cation exchanger (acid / cation conductivity).
Calculation of the sample pH value and alkalizing reagent concentration based on differential conductivity measurement.

Monitor AMI Deltacon Power

Complete system mounted on stainless steel panel:

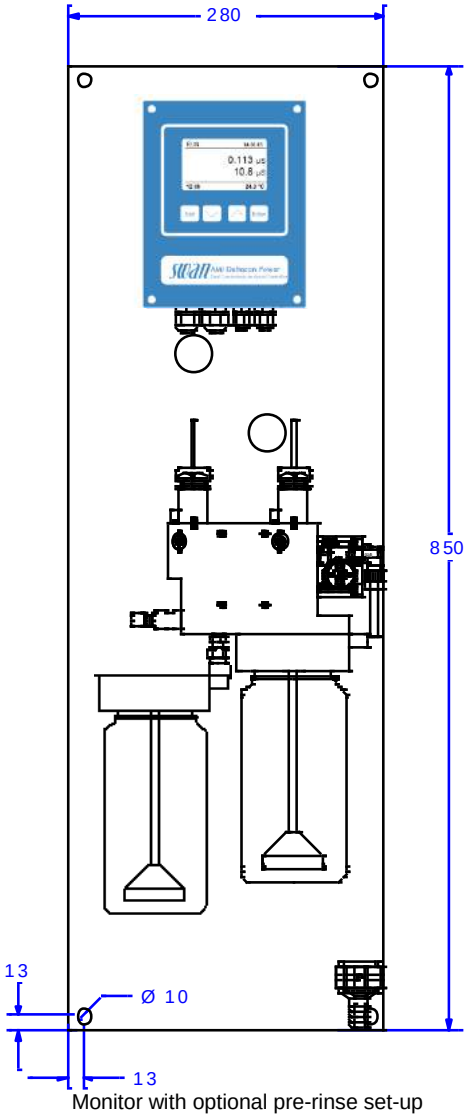
- **Transmitter AMI Deltacon Power** in a rugged aluminum enclosure (IP 66).
- **Swansensor UP-Con1000-SL**; two 2-electrode conductivity sensors with slot-lock design and integrated Pt1000 temperature probe,k= 0.04 cm^{-1}.
- **Flow cell Catcon-Plus-SL** made of stainless steel 316L with flow adjustment valve and digital sample flow meter. Quick sensor release with patented slot-lock design. Integrated, easy exchangeable, transparent cation exchanger vessel with automatic deaeration. Nuclear grade resin with capacity indicator.
- Factory tested, ready for installation and operation.

Variant with Pre-rinse setup:

- for instantaneous resin exchange (lead-and-trail) with additional trail vessel.

Specifications:

- Conductivity measurement range: 0.055 to 1000 µS/cm.
- Calculation of pH value in the range from pH 7.5 to 11.5 (VGB-directive 450L).
- Calculation of alkalizing reagent concentration, e.g. ammonia in the range from 0.01 to 10 ppm.
- Simultaneous measurement and display of both conductivities, pH, alkalizing reagent, sample temperature and sample flow.
- Temperature compensation preset for strong acids but wide range of others selectable for other sample conditions.
- Two current outputs (0/4 - 20 mA) for measured signals (3rd as option).



Monitor with optional pre-rinse set-up

Order Nr.	Monitor AMI Deltacon Power	A–23.461.101
	Monitor AMI Deltacon Power; Pre-rinse	**A–23.461.102**
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option:	[ ] Cation exchanger, 1 bottle with 1l resin	A-82.841.030

Monitor AMI Deltacon Power

Data sheet No. DenA2346110X

Conductivity Measurement

Swansensors UP-Con1000-SL with integrated Pt1000 temperature probe.

Measuring range	**Resolution**
0.055 to 0.999 µS/cm	0.001 µS/cm
1.00 to 9.99 µS/cm	0.01 µS/cm
10.0 to 99.9 µS/cm	0.1 µS/cm
100 to 1000 µS/cm	1 µS/cm

Automatic range switching.

Accuracy
± 1 % of measured value or ± 1 digit (whichever is greater).

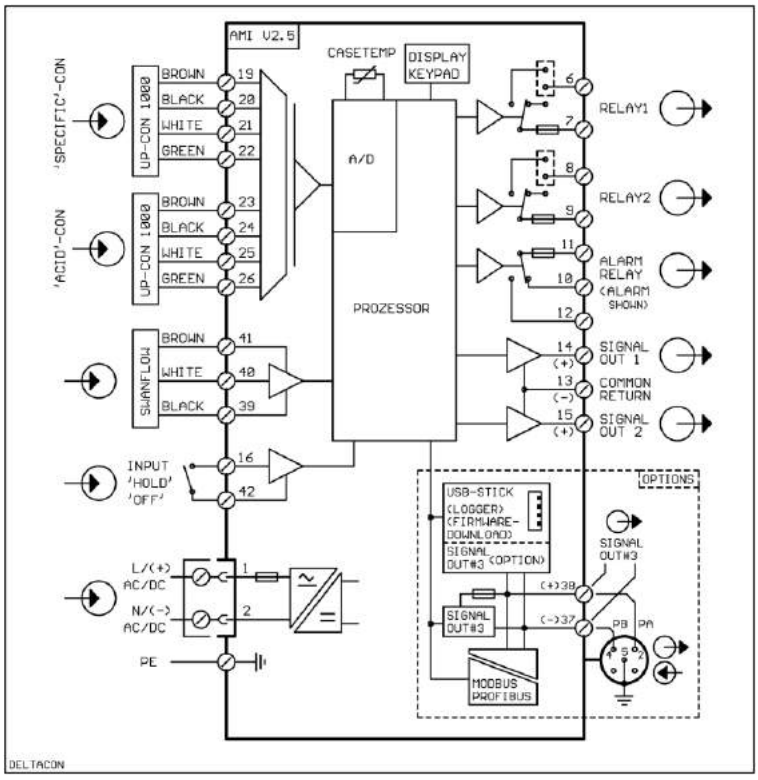
Temperature compensation
Strong acids or non-linear function for high purity water, neutral salts, strong bases, ammonia, ethanolamine, morpholine, linear coefficient in %/°C, absolute (none). Influence of temperature see PPChem2012 14(7) [Wagner]

pH and alkalizing reagent calculation
Ranges (25° C): pH 7.5 to 11.5
e.g. ammonia 0.01 to 10 ppm

Temperature measurement Pt1000
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement
With digital SWAN sample flow meter

Electrical Connection Scheme



Transmitter Specifications and Functionality

Electronics case:	Cast aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Dimensions:	180 x 140 x 70 mm
Weight:	1.5 kg
Ambient temperature:	-10 to +50°C
Humidity:	10 - 90% rel., non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”. User menus in English, German, French and Spanish.

Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation. Storage of event log, alarm log and calibration history.

Storage of the last 1’000 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.

Overvoltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP / 3rd Signal output / USB interface / HART interface

Monitor Data

Sample conditions

Flow rate:	5 to 20 L/h
Temperature:	up to 50 °C
Inlet pressure (25 °C):	up to 2 bar
Outlet pressure:	pressure free

No sand, no oil

Conditions for pH calculation
Only 1 alkalizing reagent, contamination is mostly NaCl, phosphates < 0.5 mg/L, if pH value < 8 the concentration of contaminant must be small compared to alkalizing reagent.

Sample connections
Inlet: Swagelok ¼” tube adapter
Outlet: G ½” adapter for tube for flexible tube Ø 20 x 15 mm

Cation exchanger
Cleaned resin (1L, nuclear grade) with capacity indicator ready for operation.
Permanent monitoring of resin consumption with alarm.
Resin sufficient at 1 mg/L ammonia (pH 9.4). Resin capacity for 1L: 4 months at sample flow 10 L/h, 5 months at 5 L/h.
Automatic deaeration of resin bottle(s).
Additional trail resin vessel with prerinse setup as variant.

Panel

Dimensions:	280 x 850 x 200 mm
Material:	stainless steel
Total instrument weight:	10.0 kg

Flow cell for continuous pH and ORP/Redox measurements in high purity water

Flow cell QV-Flow IS1000

Flow cell for two sensors with built-in Pt1000 temperature probe, manual flow adjustment valve and digital sample flow meter.

Technical data

Flow cell and sample beaker made of stainless steel SS316L.

Sample beaker with bayonet coupling for easy sensor access and calibration.

Sensor connections: 2 x PG13.5 thread
(1 blind plug included in delivery)

Suitable Sensors:

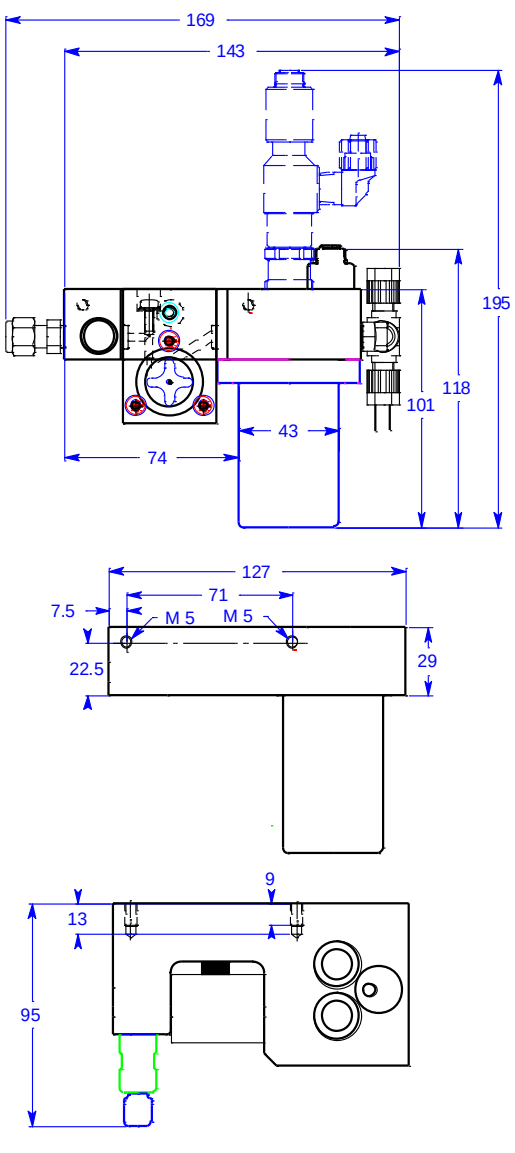
- Swansensor pH SI
- Swansensor pH FL + Reference FL
  or ORP/Redox versions alternatively.

Process connections
- Inlet: Swagelok adapter for ¼" tube
- Outlet: Serto 90°-angle for ∅ 8x6 mm tube
  (tube 1.5 m included in delivery)

Electrical connections
- Pt1000 probe: screw head
- Flow meter: cable with end sleeves
- Suitable transmitters: AMI pH-Redox
  AMU pH-Redox

Mounting: 2 screws M5 x 10 mm
(included in delivery)

Sample conditions
- Flow: 5 to 10 L/h
- Temperature: up to 50 °C
- Inlet pressure: max. 2 bar at 50 °C
- Outlet pressure: must be pressure-free
- Tube length at outlet: max. 1.5 m



The shown SI-sensor is not included in the delivery.

Order scheme	Flow cell QV-Flow IS1000	A – 83 . 411 . 11	X
			↑
Flow sensor cable length:	Cable 1 m		1
	Cable 5 m		5
	Cable 15 m		7

Delivery with flow cell includes one blind plug PG13.5, outlet tube 1.5 m and mounting screws.

Flow cell for one oxygen sensor with needle valve and flow measurement

QV-Flow PMMA OTG

Flow cell made of acrylic glass for one oxygen sensor Oxytrace G including mounting angle made of stainless steel.

With needle valve and flow measurement.

Technical data:

Flow cell made of acrylic glass on mounting angle made of stainless steel.

Sample inlet: Swagelok connection for tube ¼"

Sample outlet: tube ∅ 6 mm
Pressure-free outlet necessary (atmospheric drain), use a funnel

Sample flow: 6-25 l/h
Sample flow measuring range: 0-25 l/h

Sample pressure: 1 bar

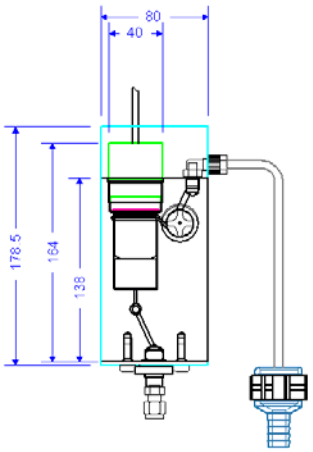
Sample temperature: 50 °C

Suspended solids: less than 10 ppm

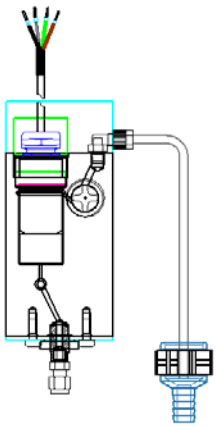
No oil and no grease

Size:
Width: 80 mm
Height incl. sensor: 164 mm
Height incl. mounting angle + sensor: 178.5 mm

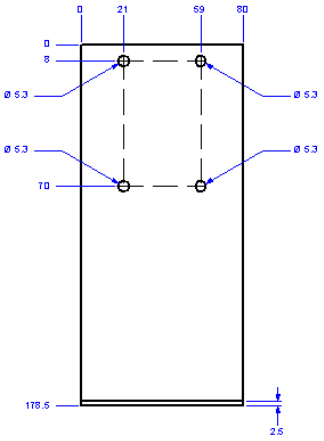
Mounting: screws M5



QV-Flow PMMA OTG with dimensions (front view)



QV-Flow PMMA OTG (front view)



Mounting angle

Drawings with sensor and funnel (both not included in delivery!)

Delivery includes:

Flow cell QV-Flow PMMA Oxytrace on mounting angle and four M5 screws..
Process connections: Swagelok connection for ¼" tube, flexible tube ∅ 6 mm

Order scheme	**QV-Flow PMMA OTG**	**A – 8 3 . 4 2 3 . 1 0**	
Flow measurement……	flow sensor with 1 m cable……		1
	flow sensor with 5 m cable……		5
	flow sensor with 15 m cable……		7

Flow cell with digital flow meter for the connection to tubes.

Q-Flow SS316L 70

Flow cell made of stainless steel SS316L to connect to tubes. For one sensor with ¾" NPT thread, fitting length 40 mm (e.g. UP-CON sensor).

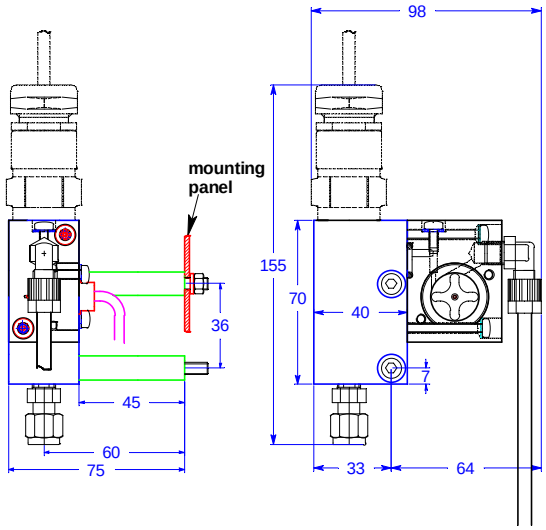
Digital flow meter for connection to SWAN transmitter.

Technical data:

Flow cell made of stainless steel SS316L.

1 insert for one sensor with ¾" NPT thread, fitting length max: 40 mm.

Sample temperature:	0 .... 60 °C
Pressure:	max. 2 bar at 60 °C The sample outlet has to be pressure-free against atmosphere.
Sample flow:	3 .... 25 l/h
Process connection:	
Inlet:	¼" Swagelok
Outlet:	SERTO angle + 6 mm tube
Height:	
without Swagelok:	70 mm
with Swagelok +sensor:	ca. 155 mm
Depth:	98 mm
Front-to back size (mounted):	75 mm



Drawing: Q-flow SS316L 70 shown with UP-CON Sensor (not included)

Delivery:

Flow cell with screws (M5) and distance sleeves for wall mounting

Order scheme	Q-flow SS316L 70	A-83.431.15	
			↑
Cable length of flow sensor:	flow sensor with 1 m cable		1
	flow sensor with 5 m cable		5
	flow sensor with 15 m cable		7

Flow cell
QV-Flow UP-CON-SL

Data sheet no. DenA8343415X

Flow cell for continuous conductivity measurements in water

Flow cell QV-Flow UP-CON-SL

Flow cell for sensor with SWAN slot-lock adapter, e.g. Swansensor UP-Con1000-SL; with integrated needle valve for sample flow adjustment and digital sample flow meter.

Technical data

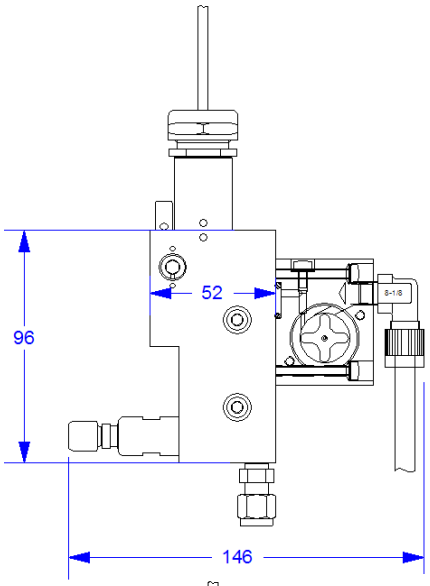
Flow cell made of stainless steel SS316L.

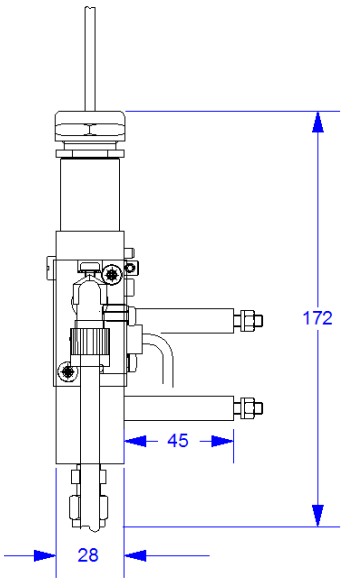
Insert for sensor with patented SWAN slot-lock adapter for quick sensor release.

Sample conditions
- Temperature: up to +60 °C
- Inlet pressure: max. 2 bar at +60 °C
- Outlet pressure: ambient pressure
- Flow: 3 to 25 L/h

Process connections
- Inlet: ¼" Swagelok tube adapter (SS)
- Outlet: 6 mm Serto tube adapter (PVDF)

Electrical connection
- Flow sensor: cable with end sleeves
- Suitable transmitters: AMI Powercon
  AMU Powercon





Order scheme	Flow cell QV-Flow UP-CON-SL	A – 83 . 434 . 15	X
			↑
Flow sensor cable length:	Cable 1 m		1
	Cable 5 m		5
	Cable 15 m		7

Delivery: Flow cell with mounting parts (M5 screws and distance sleeves) for panel mounting.

Flow cell for continuous conductivity measurements in water

Flow cell QV-Flow UP-CON-SL HT

Flow cell for sensor with SWAN slot-lock adapter, e.g. Swansensor UP-Con1000-SL; with integrated needle valve for sample flow adjustment and digital sample flow meter for extended temperature range.

Technical data

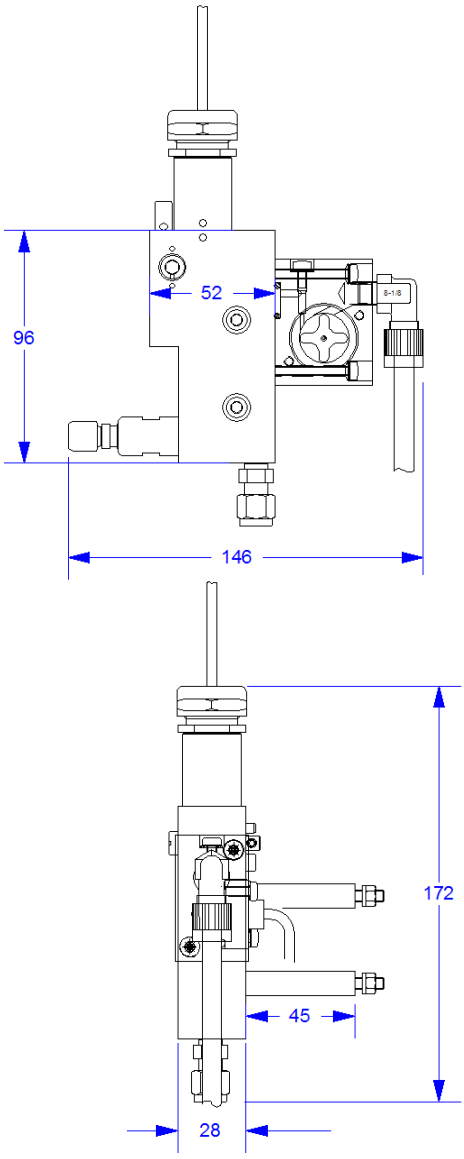
Flow cell made of stainless steel SS316L.

Insert for sensor with patented SWAN slot-lock adapter for quick sensor release.

Sample conditions
- Temperature: up to +90 °C
- Inlet pressure: max. 2 bar at +60 °C
- Outlet pressure: ambient pressure
- Flow: 3 to 25 L/h

Process connections
- Inlet: ¼" Swagelok tube adapter (SS)
- Outlet: 6 mm Serto tube adapter (PVDF)

Electrical connection
- Flow sensor: fixed cable with end sleeves (length 1m or 15m)
- Suitable transmitters: AMI Powercon, AMU Powercon



Delivery: Flow cell with mounting parts (M5 screws and distance sleeves) for panel mounting.

Order scheme	**Flow cell QV-Flow UP-CON-SL; 1m**	**A–83.434.171**
	Flow cell QV-Flow UP-CON-SL; 15m	**A–83.434.177**

Flow cell for the connection to tubes

QV-Flow SS316L 70

Flow cell made of stainless steel SS316L to connect to tubes for one sensor with ¾" NPT thread, fitting length 40 mm.

QV-Flow with flow measurement 3 to 25 l/h and needle valve.

Technical data:

Flow cell made of stainless steel SS316L.

1 insert for one sensor with ¾" NPT thread, fitting length max: 40 mm.

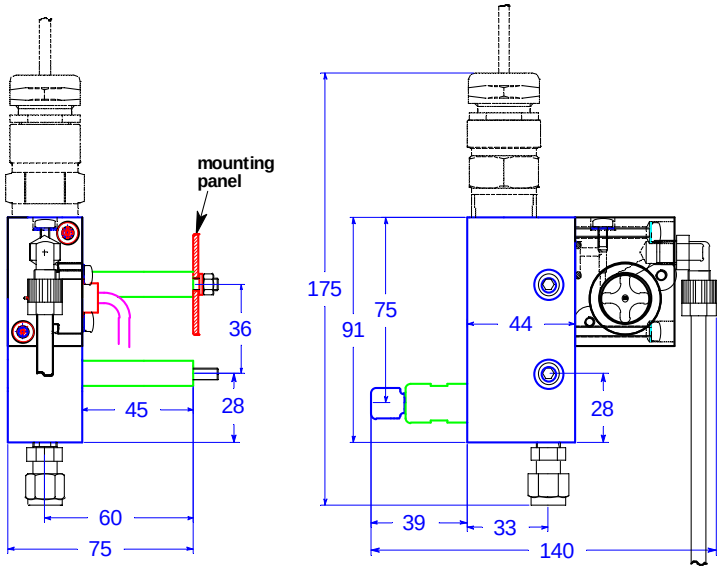
Sample temperature: 0 .... 60 °C

Pressure: max. 2 bar at 60 °C
The sample outlet has to be pressure-free against atmosphere.

Sample flow: 3 .... 25 l/h

Process connection:
Inlet: ¼" Swagelok
Outlet: SERTO angle + 6 mm tube

Length:
without Swagelok: 91 mm
with Swagelok + sensor (with cable): ca. 175 mm
Width: ca. 140 mm
Front-to back size (mounted): 75 mm



(Drawing: QV-flow SS316L 70)

Delivery:

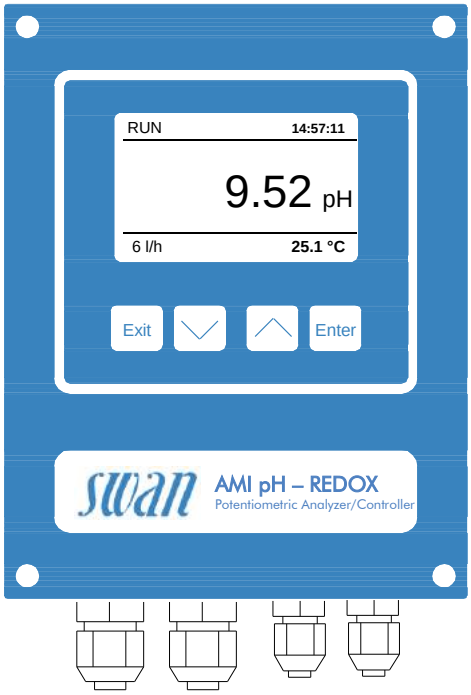
Flow cell with screws (M5) and distance sleeves for wall mounting

Order scheme	QV-Flow SS316L 70	A-83.435.15	
			↑
Flow sensor:	flow sensor with 1 m cable		1
	flow sensor with 5 m cable		5
	flow sensor with 15 m cable		7

Electronic transmitter / controller for the continuous measurement of the pH value or Redox (ORP) in water.

Transmitter AMI pH-Redox

- Measuring and control transmitter in a rugged aluminum enclosure (IP 66).
- Measuring range:
  0 to 14 pH respectively -500 to +1500 mV
- Sensor connections for a pH or ORP sensor, reference electrode, Pt1000 temperature and for a digital sample flow meter (QV-Flow or deltaT-Flow).
- Galvanically separated sensor connections.
- Automatic temperature compensations according to Nernst with or without correction functions.
- Values for pH buffer solutions and redox calibration solution programmable.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow, temperature compensation type and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Real-time clock for time stamp in data logs and for automated functions.
- Data logger for 1'500 data records stored at a selectable interval.
- Overvoltage protection for in- and outputs.
- Two current outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.



- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).

Order Nr.	Transmitter AMI pH-Redox	A–11.411.100
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Transmitter AMI pH-Redox

Data sheet No. DenA11411100

pH / ORP Measurement

Signal inputs galvanically separated.
Input resistance: > 10^{13} Ω

pH measurement
Measuring range: 0.00 to 14.00 pH
Resolution: 0.01 pH
Reference temperature: 25 °C

ORP measurement
Measuring range: -500 to +1500 mV
Resolution: 1 mV

Temperature compensations
automatic, according to:
- Nernst (for potable water and wastewater)
- Nernst with non-linear solution compensation (for high purity water)
- Nernst with linear compensation with selectable coefficient (for high purity water)

Calibration solutions table
Programmable table for pH buffers and ORP calibration solution.

Sensor monitoring
Indication of glass breakage and line disconnection.

Temperature measurement
with SWAN Pt1000 sensor.
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement
with digital sample flow meter.

Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90 % rel., non cond.

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %)
or 24 VDC, (± 10 %)
Power consumption: max. 30 VA

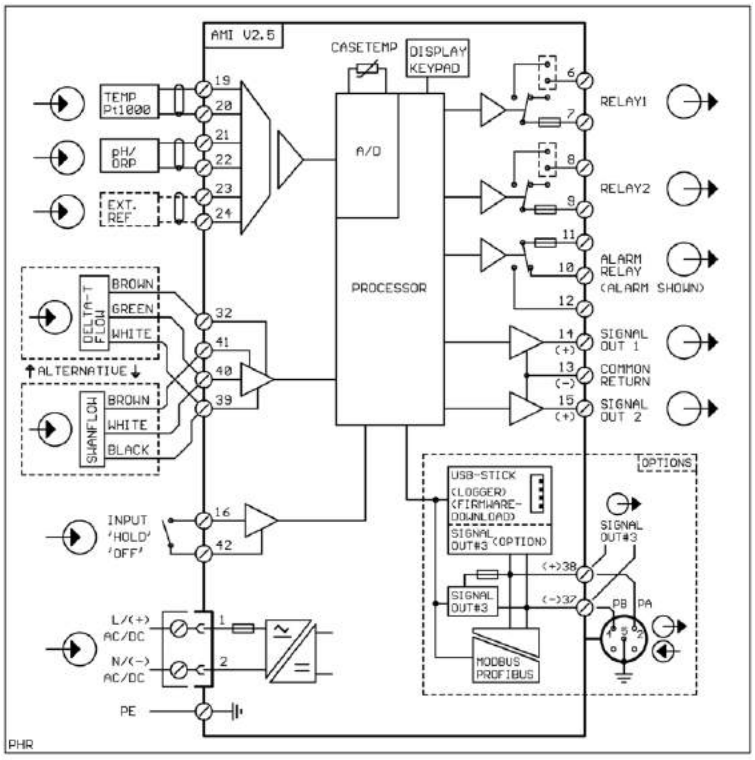
Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.

User menus in English, German, French and Spanish.

Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation.

Electrical Connection Scheme



Storage of event log, alarm log and calibration history.

Storage of the last 1’500 data records in logger with selectable time interval.

Real-time clock with calendar
For action time stamp and preprogrammed actions.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Max. load: 1A / 250 VAC

2 Signal outputs (3rd optional)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

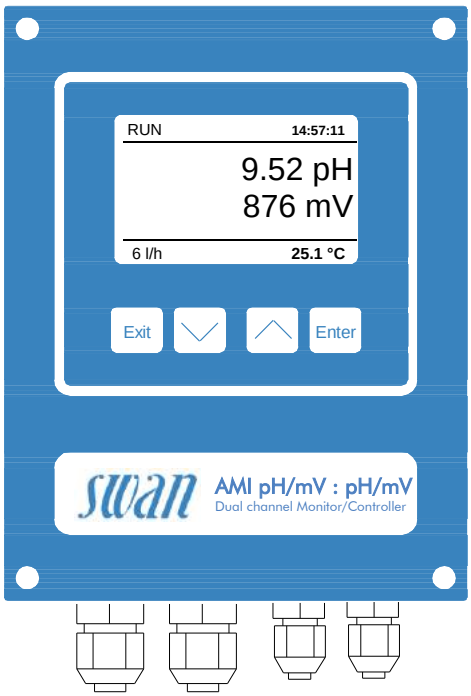
Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd signal output
- USB interface
- HART interface

Dual channel electronic transmitter / controller for the continuous measurement of the pH value and Redox (ORP) in water.

Transmitter AMI pH/mV:pH/mV

- Measuring and control transmitter in a rugged aluminum enclosure (IP 66).
- Measuring range:
  0 to 14 pH respectively -500 to +1500 mV
- Sensor connections for two combined pH and/or ORP sensors.
- Sensor connections for one or two NT5K temperature sensors
- Sensor connection for a digital sample flow meter, e.g. Swan Level Detector, Swan deltaT- or QV-Flow meter.
- Galvanically separated sensor connections.
- Automatic temperature compensations according to Nernst with or without correction functions.
- Values for pH buffer solutions and redox calibration solution programmable.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow, and operating status.
- Easy user menus in English, German, French, Spanish and Italian. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Real-time clock for time stamp in data logs and for automated functions.
- Data logger for 1'500 data records stored at a selectable interval. (Data download to PC requires optional HyperTerminal interface).
- Overvoltage protection for in- and outputs.
- Two current outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.



- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).

Order Nr.	Transmitter AMI pH/mV:pH/mV	A–11.412.100
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Transmitter AMI pH/mV:pH/mV

Data sheet No. DenA11412100

pH / ORP Measurement

Signal inputs galvanically separated.
Input resistance: > 10^{13} Ω

pH measurement
Measuring range: 0.00 to 14.00 pH
Resolution: 0.01 pH
Reference temperature: 25 °C

Automatic temperature compensation according to Nernst.

ORP measurement
Measuring range: -500 to +1500 mV
Resolution: 1 mV

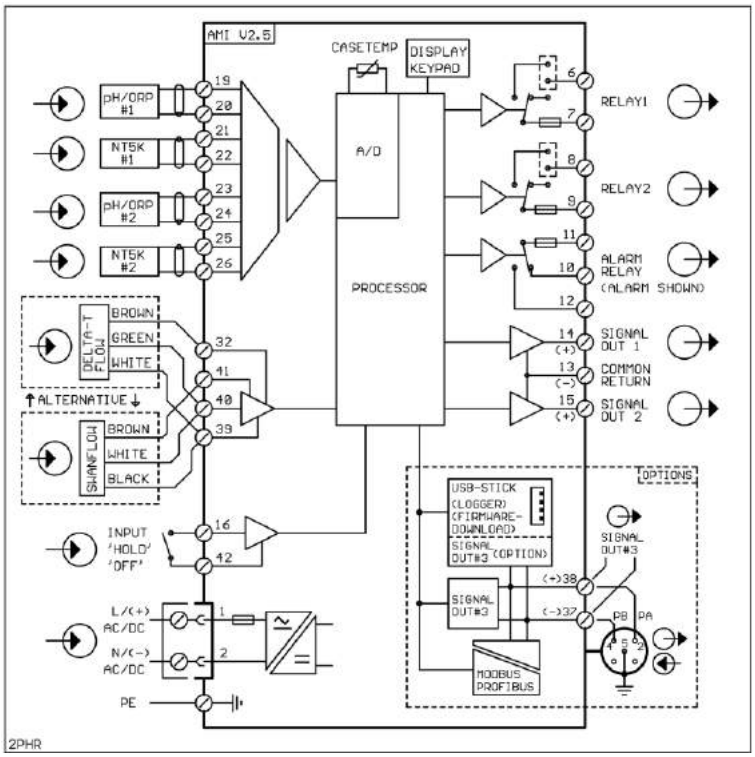
Calibration solutions table
Programmable table for pH buffers and ORP calibration solution.

Sensor monitoring
Indication of glass breakage and line disconnection.

Temperature measurement
with SWAN NT5K sensor.
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement
with digital sample flow meter.

Electrical Connection Scheme



Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90 % rel., non cond.

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC, (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status and time during operation.

Storage of event log, alarm log and calibration history.

Storage of the last 1’500 data records in logger with selectable time interval.

Real-time clock with calendar
For action time stamp and preprogrammed actions.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Max. load: 1A / 250 VAC

2 Signal outputs (3rd optional)
Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable)) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

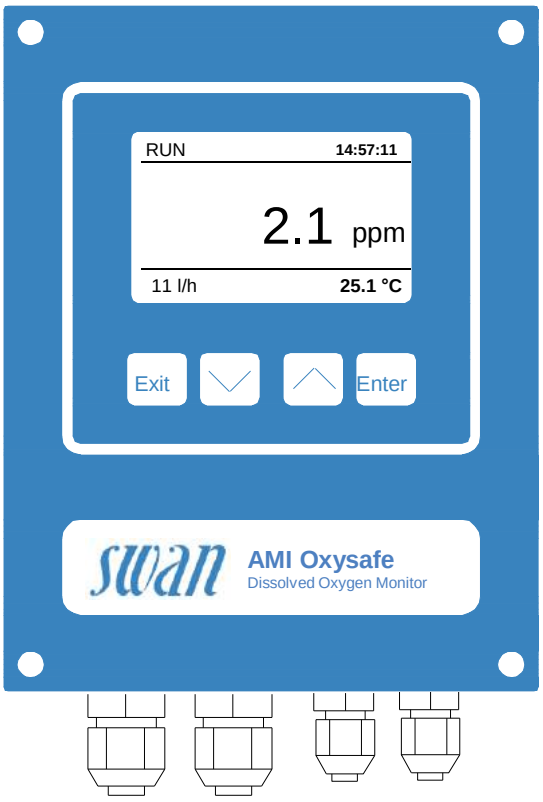
Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output interface
- USB interface
- HART interface

Electronic transmitter & controller for the measurement of the dissolved oxygen in potable or waste water .

Transmitter AMI Oxysafe

- Measuring and control transmitter in a rugged aluminum enclosure (IP 66).
- Measurement ranges:
  - Dissolved oxygen: 0.01 ppm to 20 ppm
  - Saturation: 0 to 200%
- Connections for an oxygen sensor with integrated Pt1000 temperature probe, e.g. Swansensor Oxysafe1000 and for a SWAN digital sample flow meter (QV-Flow or deltaT-Flow).
- Automatic temperature and air pressure compensation.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Real-time clock for time stamp in data logs and for automated functions.
- Data logger for 1'500 data records stored at a selectable interval. (Data download to PC requires optional HyperTerminal interface).
- Galvanically separated sensor connection.
- Overvoltage protection for in- and outputs.
- Two current signal outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.



- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).

Order Nr.	Transmitter AMI Oxysafe	A–12.411.100
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Transmitter AMI Oxysafe

Data sheet No. DenA12411100

Dissolved Oxygen Measurement

Dissolved oxygen sensor with integrated Pt1000 temperature sensor, e.g. SS Oxysafe 1000

Measuring range	**Resolution**
0.01 to 20 ppm	0.01 ppm
0 to 200% saturation	0.1% saturation

Automatic temperature and air pressure compensation

Temperature measurement
with Pt1000
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement
with digital SWAN sample flow sensor.

Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 to 90 % rel., non cond.

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %)
or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.

User menus in English, German, French and Spanish.

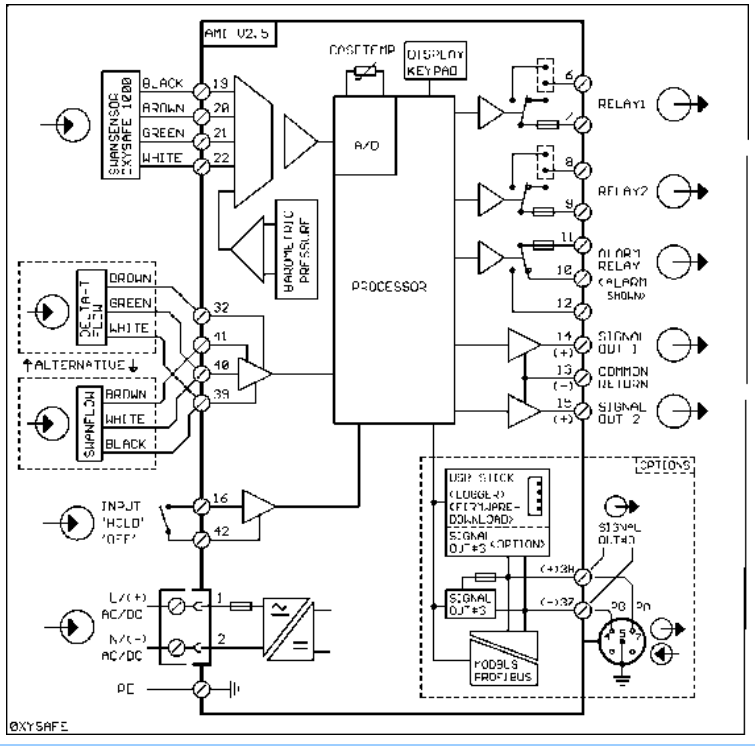
Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation.

Storage of event log, alarm log and calibration history.

Storage of the last 1’500 data records in logger with selectable time interval.

Electrical Connection Scheme



Real-time clock with calendar
For action time stamp and preprogrammed actions.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument errors.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

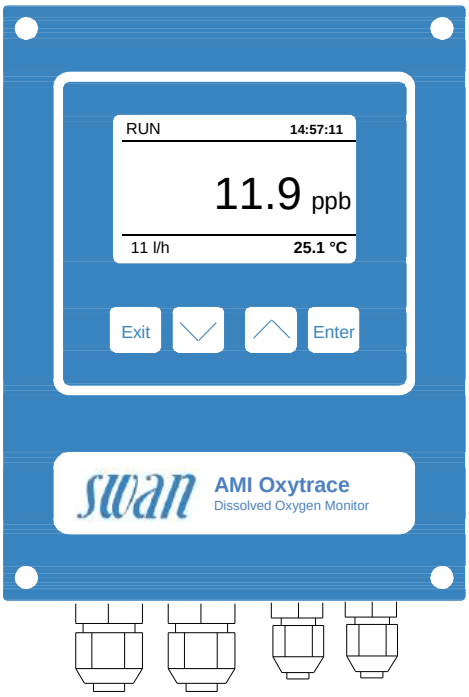
Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Electronic transmitter & controller for the measurement of the dissolved oxygen in high purity water .

Transmitter AMI Oxytrace

- Measuring and control transmitter in a rugged aluminum enclosure (IP 66).
- Measurement ranges:
  - Dissolved oxygen: 0.01ppb to 20 ppm
  - Saturation: 0 to 200%
- Connections for a three-electrode oxygen sensor with integrated NT5k temperature probe, e.g. Swansensor Oxytrace G with cathode (gold), anode (silver) and guard (silver) and for a SWAN digital sample flow meter.
- Temperature and air pressure compensation.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Real-time clock for time stamp in data logs and for automated functions.
- Data logger for 1’500 data records stored at a selectable interval.
- Galvanically separated sensor connection.
- Overvoltage protection for in- and outputs.
- Two current signal outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.



- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).

Order Nr.	Transmitter AMI Oxytrace	A–12.415.100
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Transmitter AMI Oxytrace

Data sheet No. DenA12415100

Dissolved Oxygen Measurement

Dissolved oxygen sensor type
Three-electrode sensor with cathode, anode and guard.

Measuring range	Resolution
0.01 to 9.99 ppb	0.01 ppb
10 to 199.9 ppb	0.1 ppb
200 to 1999 ppb	1 ppb
2 to 20 ppm	0.01 ppm
0 to 200% saturation	0.1% saturation

Automatic range switching.

Automatic temperature and air pressure compensation

Temperature measurement
with NT5k

Measuring range:	-30 to +130 °C
Resolution:	0.1 °C

Sample flow measurement
with digital SWAN sample flow sensor.

Transmitter Specifications and Functionality

Electronics case:	Cast aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Dimensions:	180 x 140 x 70 mm
Weight:	1.5 kg
Ambient temperature:	-10 to +50 °C
Humidity:	10 to 90 % rel., non cond.

Power supply

Voltage:	100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption:	max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.

User menus in English, German, French and Spanish.

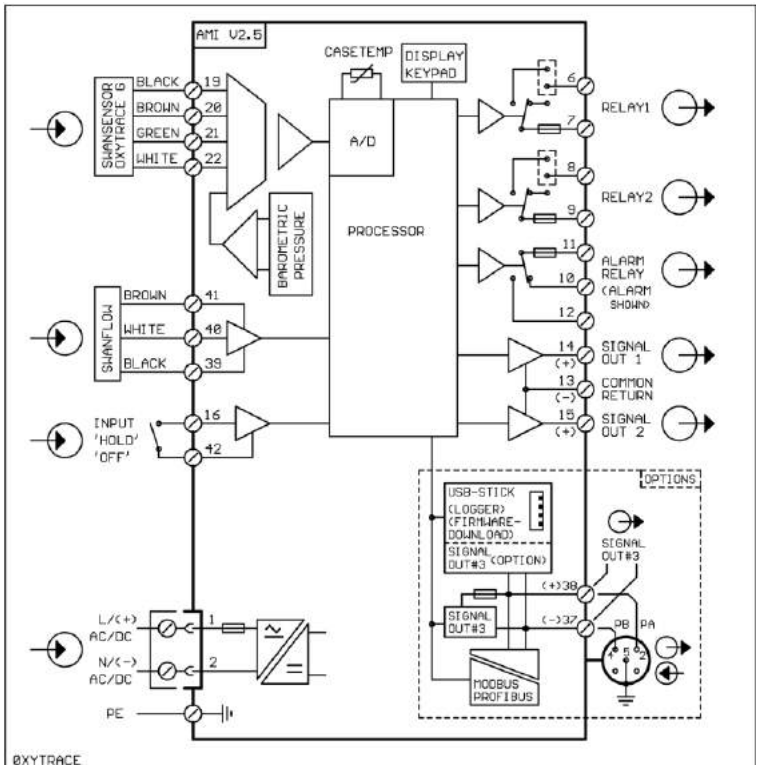
Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation.

Storage of event log, alarm log and calibration history.

Storage of the last 1’500 data records in logger with selectable time interval.

Electrical Connection Scheme



Real-time clock with calendar
For action time stamp and preprogrammed actions.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument errors.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous con-trol outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

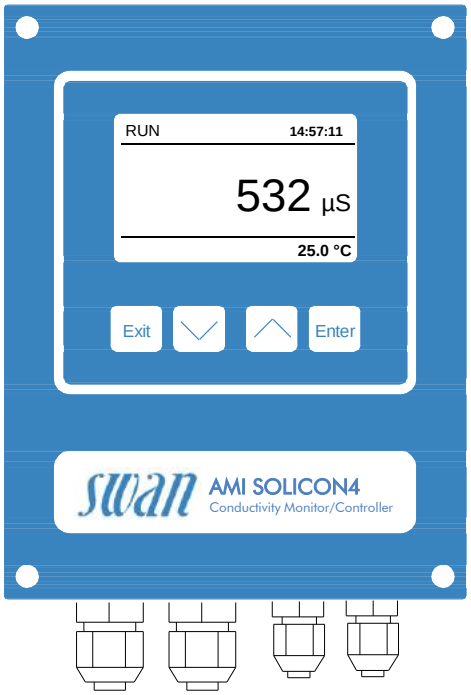
Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Electronic transmitter / controller for the measurement of the specific conductivity, concentration of CIP solutions, salinity and TDS

Transmitter AMI Solicon4

- Measuring and control transmitter in a rugged aluminum enclosure (IP 66).
- For the connection of a four-electrode conductivity sensor with integrated Pt1000 temperature sensor like Swansensor Shurecon P or Swansensor Shurecon S.
- Measurement range:
  from 0.05 µS/cm to 100 mS/cm.
- For the measurement of specific conductivity, concentrations (for NaCl, NaOH and acids in %), salinity (as NaCl in %) and total dissolved solids (TDS in % or mg/l).
- Big backlit LCD display for the reading of measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Galvanically separated sensor connection.
- Temperature compensation with selectable coefficient or non linear function for natural waters according to EN 27888 / DIN 38404.
- Overvoltage protection for in- and outputs.
- Two current signal outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.
- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).



Order Nr.	Transmitter AMI Solicon4	A–13.411.100
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Transmitter AMI Solicon4

Data sheet No. DenA13411100

Conductivity Measurement

Sensor type
4-electrode sensor

Measuring range	Resolution
0.05 to 9.99 µS/cm	0.01 µS/cm
10.0 to 99.9 µS/cm	0.1 µS/cm
100 to 999 µS/cm	1 µS/cm
1.00 to 9.99 mS/cm	0.01 mS/cm
10.0 to 29.9 mS/cm	0.1 mS/cm
30 to 100 mS/cm	1 mS/cm

Automatic range switching.
Values for Swansensors Shurecon P and Shurecon S.

Precision
0.5% of measured value or 0.01 µS/cm

Greatest long-term stability by auto-zero front-end calibration procedure.

Sensor cell constant
Selectable from 0.005 to 1.000 cm^{-1}

System calibration
Automatic calibration procedure with 1.413 mS/cm standard solution.

Temperature compensations
- Absolute (none)
- Linear coefficient in %/°C
- Non linear function (NLF) for natural waters according to EN 27888 / DIN 38404

Concentration measurements (25°C)

- NaCl:	0 - 4.6%
- HCl:	0 - 0.8%
- NaOH:	0 - 1.6%
- H_2SO_4:	0 - 1.1%
- HNO_3:	0 - 1.5%
- Salinity:	0 - 4.6% (as NaCl)
- TDS:	0 - 4.6% (as NaCl)
- TDS :	0.0 mg/l – 20.0 g/l (coefficient)

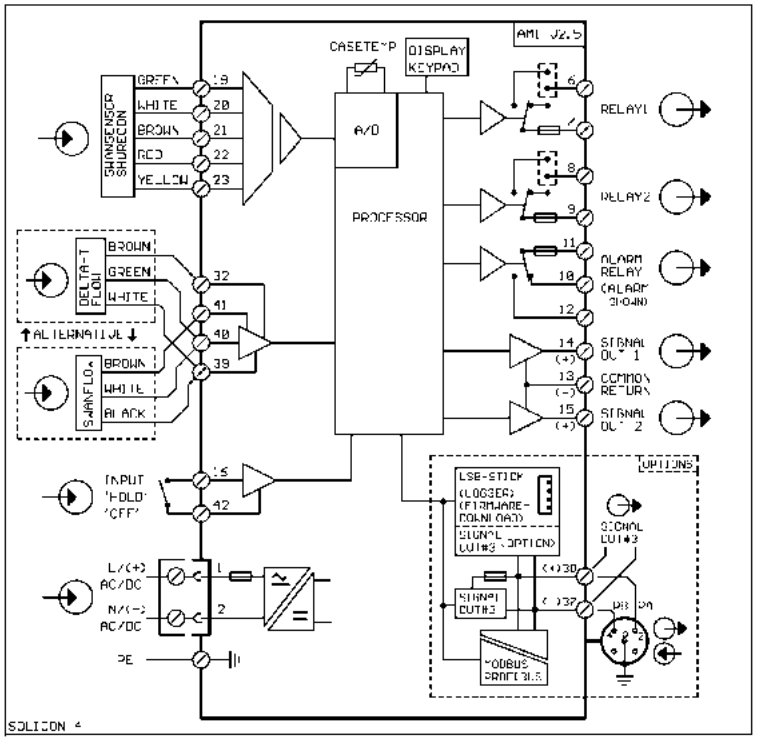
Temperature measurement
with Pt1000 type sensor (DIN class A)
Measuring range: -30 to +250 °C
Resolution: 0.1 °C

Sample flow measurement
with digital SWAN sample flow meter

Transmitter Specifications and Functionality

Electronics case:	Aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Dimensions:	180 x 140 x 70 mm
Weight:	1.5 kg
Ambient temperature:	-10 to +50°C
Limit range of operation:	-25 to +65°C
Storage and transport:	-30 to +85°C
Humidity:	10 to 90 % relative non condensing

Electrical Connection Scheme



Power supply

Voltage:	100 - 240 VAC (± 10%), 50/60 Hz (± 5%) or 24 VDC (± 10%)
Power consumption:	max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
Separate menu specific password protection possible.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log.
Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
Data storage in non-volatile memory.
Over voltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
With programmable high/low alarm limits.

Real-time clock with calendar
For action time stamp and pre-programmed actions.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Max. load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Electronic transmitter / controller for the measurement of the specific resistivity or specific conductivity in high purity water.

Transmitter AMI Rescon

- Measuring and control transmitter in a rugged aluminum enclosure (IP 66).
- Measurement ranges:
  - Resistivity: 0.001 to 200 MΩ-cm
  - Conductivity: 0.005 to 1000 µS/cm
- Sensor connections for a two-electrode sensor with built-in NTC temperature probe like Swansensor RC-U or RC-UT and for a digital sample flow meter.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow, temperature compensation type and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Wide range of selectable temperature compensations for different sample conditions.
- Electronic record of major process events and calibration data.
- Real-time clock for time stamp in data logs and for automated functions.
- Data logger for 1'500 data records stored at a selectable interval. (Data download to PC requires optional HyperTerminal interface).
- Galvanically separated sensor connection.
- Overvoltage protection for in- and outputs.
- Two current outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.

- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).

Order Nr.	Transmitter AMI Rescon	A–13.422.100
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Transmitter AMI Rescon

Data sheet No. DenA13422100

Conductivity Measurement

Resistivity/Conductivity sensor type
2-electrode sensor

Sensor cell constant
Selectable from 0.005 to 1.000 cm^{-1}

Measuring range	**Resolution**
0.001 to 200.00 MΩ-cm	0.01 MΩ-cm
0.005 to 2.999 µS/cm	0.001 µS/cm
3.00 to 29.99 µS/cm	0.01 µS/cm
30.0 to 99.9 µS/cm	0.1 µS/cm
100 to 1000 µS/cm	1 µS/cm

Automatic range switching. Values for Swansensor RC-U (k = 0.01 cm^{-1}).

System accuracy (with RC-U sensor)

0.01 to 20 MΩ-cm	± 0.5 %
0.05 to 20 µS/cm	± 0.5 %
20 to 1000 µS/cm	± 1 %

Periodic accuracy test with ultra high precision resistors.

Test modus for transmitter according to USP<645> with test resistance.

Alarm function for limit values according to USP<645> Stage 1.

Temperature compensations
- High purity water (non-linear)
- Neutral salts (NaCl)
- Strong acids (HCl)
- Strong bases (NaOH)
- Ammonia, Ethanolamine
- Morpholine
- Linear coefficient: in %/°C
- None (compensation switched off)

Influence of temperature see PPChem 2012 14(7) [Wagner].

Temperature measurement
with NT5K sensor

Measuring range:	-30 to +130 °C
Resolution:	0.1 °C

Sample flow measurement
with digital SWAN sample flow sensor.

Measuring range:	10 to 200 L/h

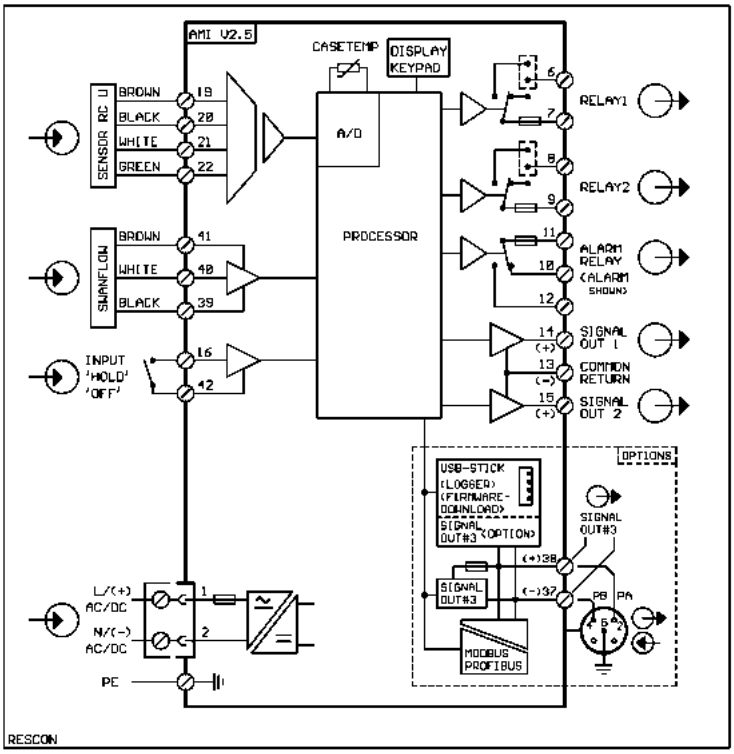
Transmitter Specifications and Functionality

Electronics case:	Cast aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Dimensions:	180 x 140 x 70 mm
Weight:	1.5 kg
Ambient temperature:	-10 to +50°C
Humidity:	10 - 90 % rel., non condensing

Power supply

Voltage:	100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption:	max. 30 VA

Electrical Connection Scheme



Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.

User menus in English, German, French and Spanish.

Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation.

Storage of event log, alarm log and calibration history.

Storage of the last 1’500 data records in logger with selectable time interval.

Real-time clock with calendar
For action time stamp and preprogrammed actions.

Safety features
No data loss after power failure, all data is saved in non-volatile memory. Overvoltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.

Maximum load:	1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.

Rated load:	1A / 250 VAC

2 Signal outputs (3rd optional)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

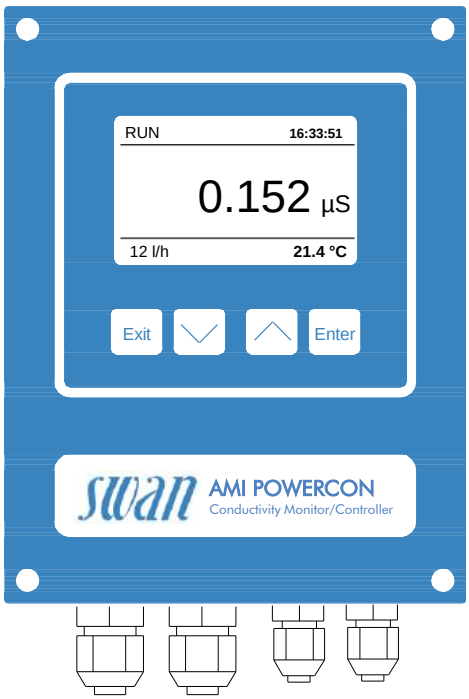
Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Electronic transmitter & controller for the measurement of the conductivity in power cycles. For the measurement before (specific / total conductivity) or after a cation exchanger (acid / cationic conductivity).

Transmitter AMI Powercon

- Measuring and control transmitter in a rugged aluminum enclosure (IP 66).
- Conductivity measurement range from 0.005 µS/cm to 30 mS/cm.
- Connections for a 2-electrode conductivity sensor with integrated Pt1000 temperature probe, e.g. Swansensor UP-Con1000 with titanium electrodes and for a digital SWAN sample flow meter.
- Temperature compensations: non linear for high purity water, neutral salts, strong acids, strong bases, ammonia, ethanolamine, morpholine or linear with coefficient.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events.
- Real-time clock for time stamp in data logs and for automated functions.
- Data logger for 1'500 data records stored at a selectable interval. (Data download to PC requires optional HyperTerminal interface).
- Galvanically separated sensor connection.
- Overvoltage protection for in- and outputs.
- Two current signal outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.



- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).

Order Nr.	Transmitter AMI Powercon	A–13.423.100
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Transmitter AMI Powercon

Data sheet No. DenA13423100

Conductivity Measurement

Conductivity sensor type
2-electrode sensor.

Measuring range	Resolution
0.005 to 0.999 µS/cm	0.001 µS/cm
1.00 to 9.99 µS/cm	0.01 µS/cm
10.0 to 99.9 µS/cm	0.1 µS/cm
100 to 999 µS/cm	1 µS/cm
1.00 to 2.99 mS/cm	0.01 mS/cm
3.0 to 9.9 mS/cm	0.1 mS/cm
10 to 30 mS/cm	1 mS/cm

Automatic range switching.
Values for cell constant 0.0415 cm^{-1}, with Swansensor UP-Con1000.

Accuracy: ± 1 % of measured value

Sensor cell constant
Default value: 0.0415 cm^{-1}
Selectable: from 0.005 to 10 cm^{-1}

Temperature compensations
- Non linear function (NLF) for high purity water
- Neutral salts
- Strong acids
- Strong bases
- Ammonia
- Ethanolamine
- Morpholine
- Linear coefficient 0.00 – 10.00 %/°C
- Absolute (none)

Influence of temperature see PPChem 2012 14(7) [Wagner]

Temperature measurement
with Pt1000 type sensor (DIN class A)
Measuring range: -30 to +250 °C
Resolution: 0.1 °C

Sample flow measurement
with digital SWAN sample flow sensor.

Transmitter Specifications and Functionality

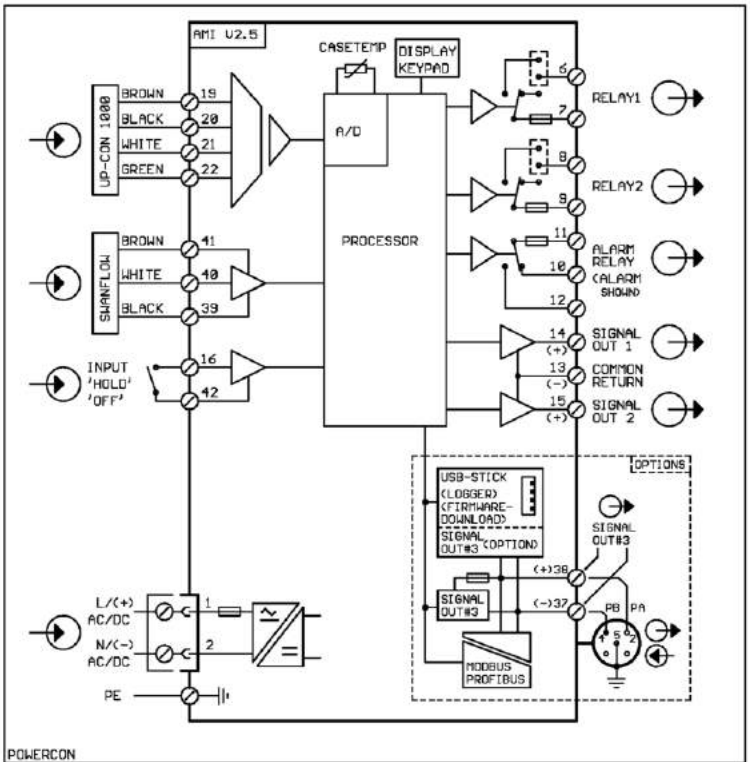
Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 to 90 % rel., non cond.

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.

User menus in English, German, French and Spanish.

Electrical Connection Scheme



Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation.

Storage of event- and alarm log.

Storage of the last 1’500 data records in logger with selectable time interval.

Real-time clock with calendar
For action time stamp and preprogrammed actions.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

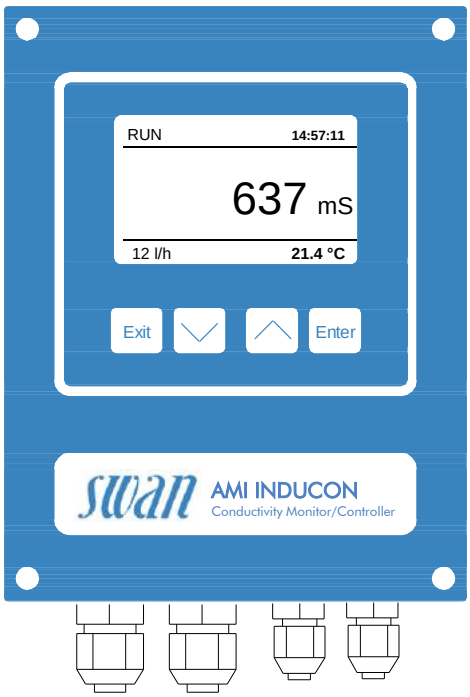
Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface

Electronic transmitter & controller for the measurement of specific conductivity, concentration, salinity and TDS.

Transmitter AMI Inducon

- Measuring and control transmitter in rugged aluminum enclosure (IP 66).
- Wide conductivity measurement range from 0 to 2000 mS/cm.
- For the measurement of specific conductivity, concentrations (for NaCl, NaOH and acids in %), salinity (as NaCl in %) and total dissolved solids (TDS as NaCl in %).
- Connections for an inductive (toroidal) conductivity sensor with built-in Pt1000 temperature probe (Swansensor Inducon1000) and for a digital SWAN sample flow meter.
- Temperature compensation with selectable coefficient or non-linear function for natural waters according to EN 27888.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Real-time clock for time stamp in data logs and for automated functions.
- Data logger for 1'500 data records stored at a selectable interval. (Data download to PC requires optional HyperTerminal interface).
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow, temperature compensation type, substance name (for concentration measurements) and operating status.
- Galvanically separated sensor connection.
- Overvoltage protection for in- and outputs.
- Two current outputs (0/4 - 20 mA) for measured signals.



- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.
- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).

Order Nr.	**Transmitter AMI Inducon**	**A–13.431.100**
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Transmitter AMI Inducon

Data sheet No. DenA13431100

Conductivity Measurement

Conductivity type sensor
Inductive (toroidal) sensor: Swansensor Inducon1000.

Conductivity ranges	**Resolution**
0.00 to 9.99 mS/cm	0.01 mS/cm
10.0 to 99.9 mS/cm	0.1 mS/cm
100 to 2'000 mS/cm	1 mS/cm

Measurement error < 1 %

Temperature compensations
- Absolute (none)
- Linear coefficient (0.00 - 19.99 %/°C)
- Non linear function (NLF) for natural waters according to EN 27888

Concentration measurements
- NaCl: 0 to max. 17.9 - 21 % (0 - 50°C)
- HCl: 0 to max. 10 - 12 % (0 - 50°C)
- NaOH: 0 to max. 6.5 - 9 % (0 - 50°C)
- H_2SO_4: 0 to max. 16 - 22 % (0 - 50°C)
- HNO_3: 0 to max. 17 - 20.8 % (0 - 50°C)
- Salinity (as NaCl) in %
- TDS (Total Dissolved Solids as NaCl) in %

Temperature measurement
with Pt1000 type sensor (DIN class A)
Measuring range: -30 to +250 °C
Resolution: 0.1 °C

Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50°C
Humidity: 10 - 90 % rel., non condensing

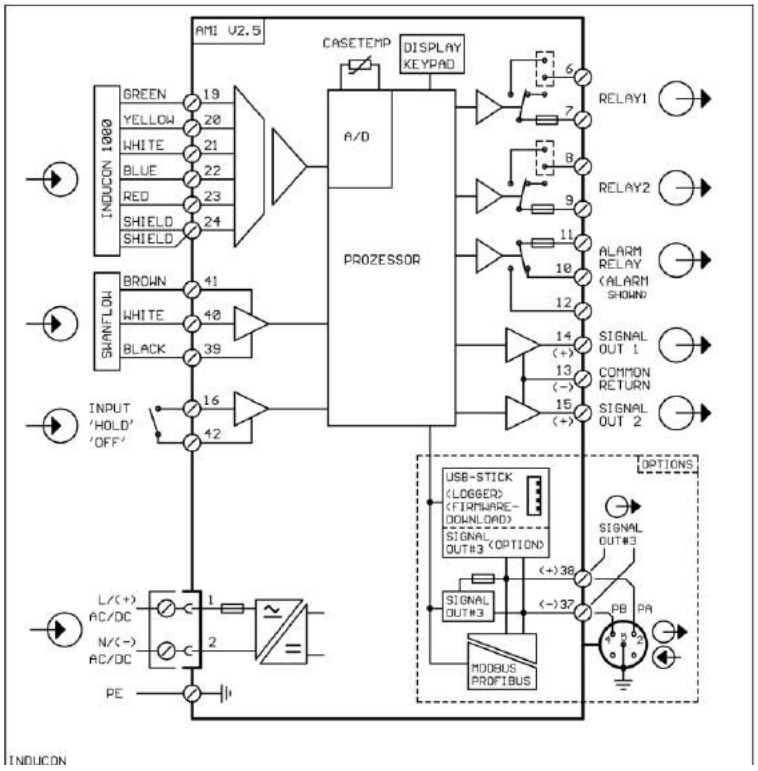
Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %)
or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for "Messages", "Diagnostics", "Maintenance", "Operation" and "Installation".

User menus in English, German, French and Spanish.

Separate menu specific password protection.

Electrical Connection Scheme



Display of process value, sample flow, alarm status and time during operation.

Storage of event log, alarm log and calibration history.

Storage of the last 1'500 data records in logger with selectable time interval.

Real-time clock with calendar
For action time stamp and preprogrammed actions.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Max. load: 1A / 250 VAC

2 Signal outputs (3rd optional)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

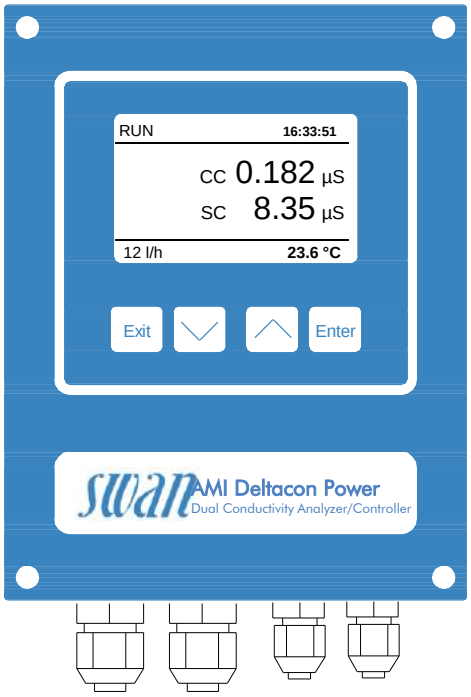
Transmitter
AMI Deltacon Power

Data sheet No. DenA13441100

Two-channel electronic transmitter & controller for the conductivity measurement in power cycles. For simultaneous measurements before (specific / total conductivity) and after a cation exchanger (acid / cationic conductivity). Calculation of pH value and alkalizing reagent concentration based on differential conductivity.

Transmitter AMI Deltacon Power

- Measuring and control transmitter in a rugged aluminum enclosure (IP 66).
- Conductivity measurement range from 0.055 µS/cm to 30 mS.
- Connections for two 2-electrode conductivity sensors with integrated Pt1000 temperature probe (e.g. 2 x Swansensor UP-Con1000) and for a digital SWAN sample flow meter.
- Calculation of pH value (VGB-R 450 L, 1998) in the range from pH 7.5 to 11.5
- Calculation of alkalizing reagent concentration, e.g. ammonia in the range from 0.01 to 10 ppm.
- Temperature compensations: non-linear for high purity water, neutral salts, strong acids, strong bases, ammonia, ethanol-amine, morpholine or linear with coefficient.
- Big backlit LC display for the simultaneous reading of measuring and calculated values, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Real-time clock for time stamp in data logs and for automated functions.
- Data logger for 1'000 data records stored at a selectable interval.
- Galvanically separated sensor connections.
- Overvoltage protection for in- and outputs.



- Two current signal outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.
- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).

Order Nr.	Transmitter AMI Deltacon Power	A–13.441.100
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Transmitter
AMI Deltacon Power

Data sheet No. DenA13441100

Conductivity Measurement

Conductivity sensor types
two 2-electrode sensors.

Measuring range	Resolution
0.055 to 0.999 µS/cm	0.001 µS/cm
1.00 to 9.99 µS/cm	0.01 µS/cm
10.0 to 99.9 µS/cm	0.1 µS/cm
100 to 1000 µS/cm	1 µS/cm
1.00 to 2.99 mS/cm	0.01 mS/cm
3.0 to 9.9 mS/cm	0.1 mS/cm
10 to 30 mS/cm	1 mS/cm

Automatic range switching.
Values for cell constant 0.0415 cm^{-1}, with Swansensor UP-Con1000.

Accuracy
± 1 % of meas. value (up to 5 mS/cm)
± 3 % of meas. value (up to 30 mS/cm)

Sensor cell constants
Default value: 0.0415 cm^{-1}
Selectable: from 0.005 to 1.000 cm^{-1}

Temperature compensation
Strong acids or non-linear function for high purity water, neutral salts, strong bases, ammonia, ethanolamine, morpholine, linear coefficient in %/°C, absolute (none).
Influence of temperature see PPChem 2012 14(7) [Wagner].

pH and alkalizing reagent calculation
(see appendix of VGB-R 450 L, 1998)
Ranges (25°C): pH 7.5 - 11.5
e.g. Ammonia 0.01 - 10 ppm

Sample conditions:
- Only 1 alkalinizing reagent
- Contamination is mostly NaCl
- Phosphates < 0.5 mg/L
- If pH value < 8, the concentration of contaminant must be small compared to alkalinizing reagent.

Temperature measurement Pt1000
With Pt1000 type sensor
range: -30 to +250 °C
Resolution: 0.1 °C

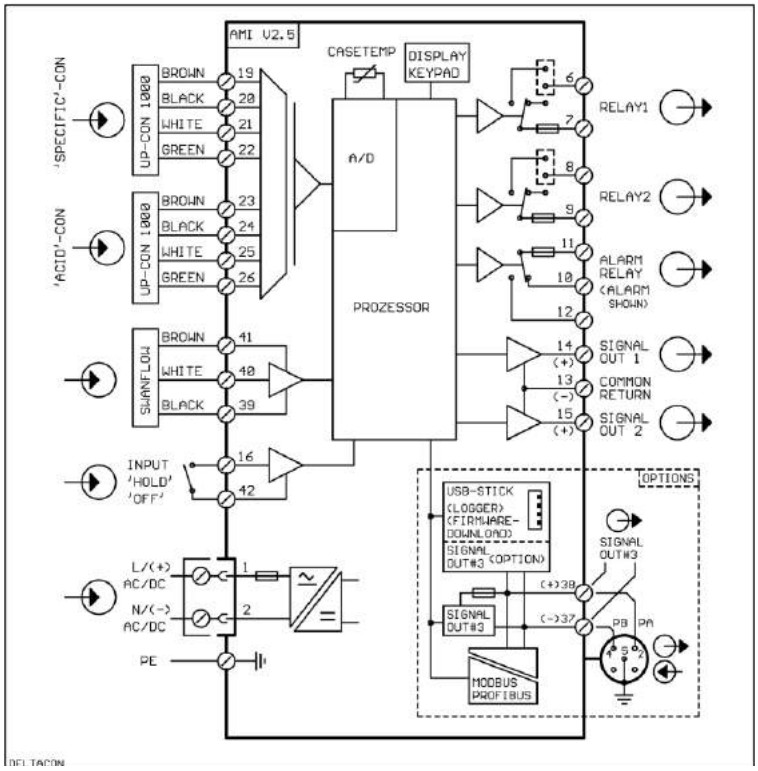
Sample flow measurement
with digital SWAN sample flow sensor.

Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 to 90 % rel., non cond.

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %)
or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Electrical Connection Scheme



Operation
Easy operation based on separate menus for "Messages", "Diagnostics", "Maintenance", "Operation" and "Installation". User menus in English, German, French and Spanish.

Separate menu specific password protection. Display of process value, sample flow, alarm status and time during operation.

Storage of event log, alarm log and calibration history.

Storage of the last 1'000 data records in logger with selectable time interval.

Real-time clock with calendar
For action time stamp and preprogrammed actions.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
With programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd optional)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Electronic transmitter & controller for the measurement of conductivity in purified water and water for injection of pharmaceutical water.

Transmitter AMI Pharmacon

- Measuring and control transmitter in a rugged aluminum enclosure (IP 66).
- Measurement ranges:
  - Conductivity: 0.005 to 2'000 µS/cm
- Sensor connections for a two-electrode sensor with built-in Pt1000 temperature probe like Swansensor Pharmacon and for a digital sample flow meter.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow, temperature compensation type and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Wide range of selectable temperature compensations for different sample conditions.
- Electronic record of major process events and calibration data.
- Real-time clock for time stamp in data logs and for automated functions.
- Data logger for 1'500 data records stored at a selectable interval. (Data download to PC requires optional HyperTerminal interface).
- Galvanically separated sensor connection.
- Overvoltage protection for in- and outputs.
- Two current outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.

- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).

Order Nr.	Transmitter AMI Pharmacon	A–13.640.100
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Transmitter AMI Pharmacon

Data sheet No. DenA13640100

Conductivity Measurement

Conductivity sensor type
2-electrode inline sensor Pharmacon (k = 0.1cm^{-1}).

Sensor cell constant
Selectable from 0.005 to 11.00 cm^{-1}

Measuring range	**Resolution**
0.005 to 0.999 µS/cm	0.001 µS/cm
1.00 to 9.99 µS/cm	0.01 µS/cm
10.0 to 199.9 µS/cm	0.1 µS/cm
200 to 2000 µS/cm	1 µS/cm

Automatic range switching.

System accuracy

0.05 to 500 µS/cm	± 2 %
500 to 2000 µS/cm	± 3 %

or ± 0.001 µS/cm whichever is greater.

Greatest long-term stability by auto-zero front-end calibration procedure.

Test modus for transmitter according to USP<645> with test resistance.

Alarm function for limit values according to USP<645> Stage 1.

Temperature compensations
- High purity water (non-linear)
- Neutral salts (NaCl)
- Strong acids (HCl)
- Strong bases (NaOH)
- Linear coefficient: in %/°C
- None (compensation switched off)

Influence of temperature see PPChem 2012 14(7) [Wagner].

Temperature measurement
with Pt1000 sensor (DIN class A)

Measuring range:	-30 to +250 °C
Resolution:	0.1 °C

Sample flow measurement
Input for digital sample flow sensor.

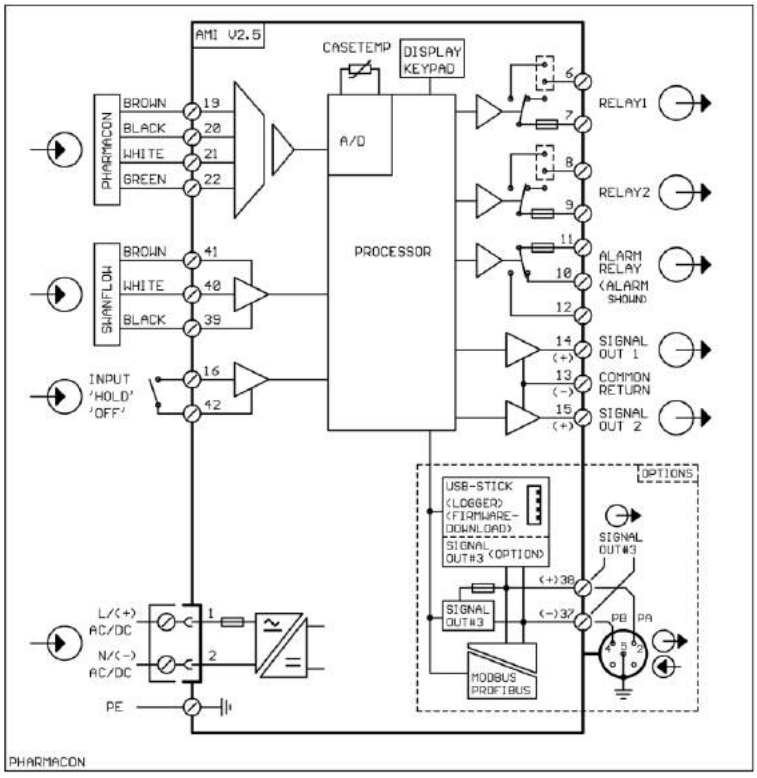
Transmitter Specifications and Functionality

Electronics case:	Cast aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Dimensions:	180 x 140 x 70 mm
Weight:	1.5 kg
Ambient temperature:	-10 to +50°C
Humidity:	10 - 90 % rel., non condensing

Power supply

Voltage:	100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption:	max. 30 VA

Electrical Connection Scheme



Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.

User menus in English, German, French and Spanish.

Separate menu specific password protection according 21CFR Part 11.

Display of process value, sample flow, alarm status and time during operation.

Storage of event log, alarm log and calibration history.

Storage of the last 1’500 data records in logger with selectable time interval.

Real-time clock with calendar
For action time stamp and preprogrammed actions.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.

Maximum load:	1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.

Rated load:	1A / 250 VAC

2 Signal outputs (3rd optional)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Electronic transmitter & controller for the measurement of turbidity in potable water, surface water treatment and effluent .

Transmitter AMI Turbiwell

- For the use with Swansensor Turbiwell
- Measuring and control transmitter in a rugged aluminum enclosure (IP 66).
- Measurement range: 0.000 - 200 FNU/NTU
  Automatic range switching.
- Precision: ± 0.003 FNU/NTU or 1% of reading.
- Big backlit LC display for the reading of measuring value and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Real-time clock for time stamp in data logs and for automated functions.
- Data logger for 1'500 data records stored at a selectable interval.
- Galvanically separated sensor connection.
- Overvoltage protection for in- and outputs.
- Two current signal outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.
- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).

Order Nr.	Transmitter AMI Turbiwell	A–15.411.100
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

See datasheet DenA875321X2 regarding Swansensor Turbiwell

Transmitter AMI Turbiwell

Data sheet No. DenA15411100

Turbidimeter System

Nephelometer according to ISO 7027

Measuring range:0.000 to 200.0FNU/NTU
Precision: ± 0.003 FNU/NTU or ± 1%, whichever is greater

Two-part turbidimeter body made of PETP with drain valve.
Heated optics, windows and sample compartment to avoid condensation.

Easy cleaning of sample compartment.

Factory calibrated with Formazine.

Possibility to detect oil in pure water. Restrictions do apply.

Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 to 90 % rel., non cond.

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.

User menus in English, German, French and Spanish.

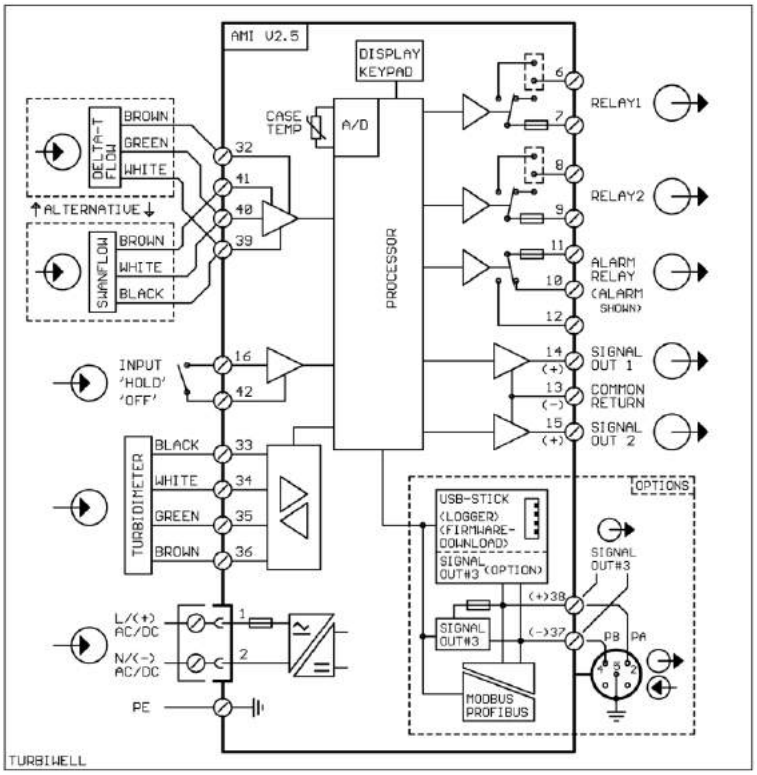
Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation.

Storage of event log, alarm log and calibration history.

Storage of the last 1’500 data records in logger with selectable time interval.

Electrical Connection Scheme



Real-time clock with calendar
For action time stamp and preprogrammed actions.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument errors.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs
Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control outputs (control parameters programmable)) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

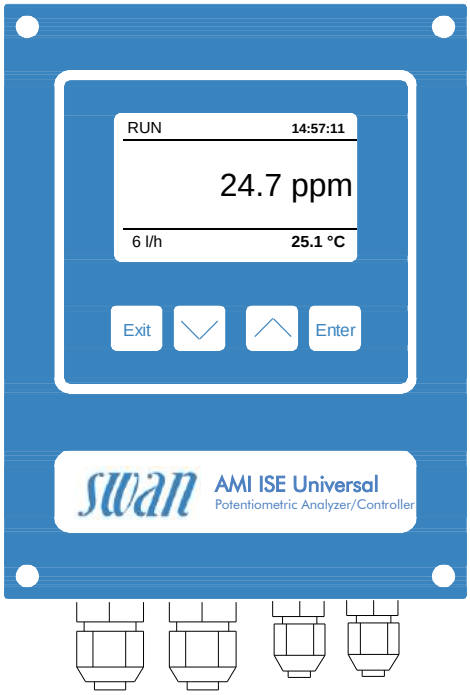
Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Electronic transmitter / controller for the continuous measurement of Ammonium, Nitrate or Fluoride in potable water.

Transmitter ISE Universal

- Measuring and control transmitter in a rugged aluminum enclosure (IP 66).
- Measuring range: 0.01 to 1'000 ppm (=mg/l)
- Sensor connections for one ISE (ion sensitive electrode), e.g. Swansensor Ammonium, - Nitrate or - Fluoride, one Reference electrode and one temperature sensor (NT5K).
- Sensor connection for a digital sample flow meter, e.g. Swansensor deltaT-Flow.
- Galvanically separated sensor connections.
- Automatic temperature compensations according to Nernst.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French, Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Real-time clock for time stamp in data logs and for automated functions.
- Data logger for 1'500 data records stored at a selectable interval. (Data download to PC requires optional HyperTerminal interface).
- Overvoltage protection for in- and outputs.
- Two current outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.
- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).



For use with:

- **Swansensor Ammonium,** - **Nitrate** or **- Fluoride** in combination with **Swansensor Reference FL** for the measurement of Ammonium, Nitrate respectively Fluoride (see datasheet of sensor).
- **Swansensor Temperature (NT5k)**.
- **Swansensor deltaT-Flow**.
- Flow cell **M-Flow 10-3 PG**.

Order Nr.	**Transmitter AMI ISE Universal**	**A–17.210.100**
Option 1:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042

Transmitter AMI ISE Universal

Data sheet No. DenA17210100

NH_4-N / NO_3-N / F Measurement

Signal inputs galvanically separated.
Input resistance: > 10^{13} Ω

Ammonium, Nitrate or Fluoride measurement with appropriate sensor.

Measuring range: 0.1 to 1'000 ppm
Display Resolution
0.00 to 9.99 0.01 ppm
10.0 to 99.9 0.1 ppm
100 to 1'000 1 ppm
Accuracy: 10% of meas. value
Reference temperature: 25 °C
Automatic temperature compensation according to Nernst

Restriction of use: direct control of fluoride dosing is not permitted.

Temperature measurement
with SWAN NT5K sensor.
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement
with sample flow detection deltaT-Flow.

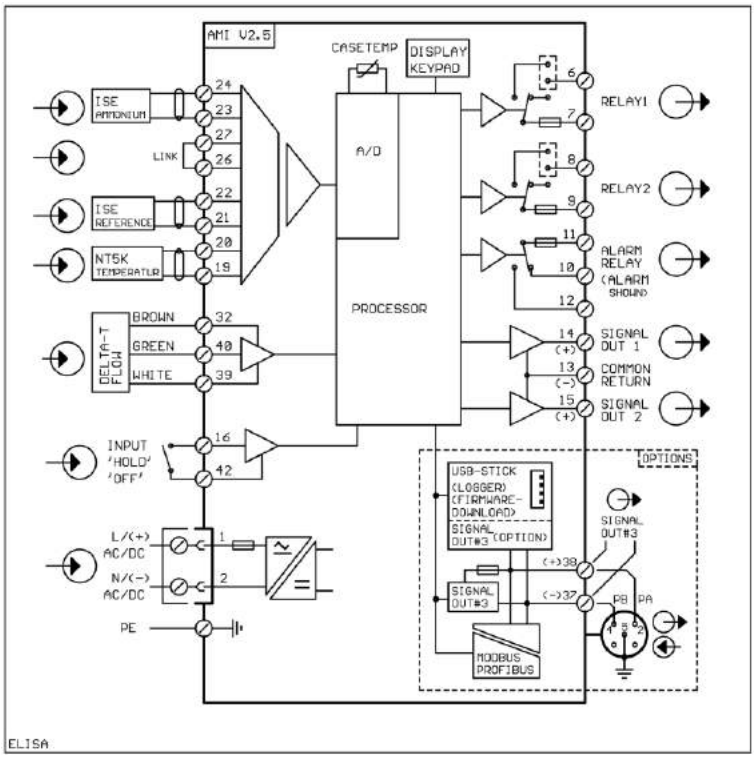
Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90 % rel., non cond.

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %)
or 24 VDC, (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for "Messages", "Diagnostics", "Maintenance", "Operation" and "Installation".
User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status and time during operation.

Electrical Connection Scheme



Storage of event log, alarm log and calibration history.

Storage of the last 1'500 data records in logger with selectable time interval.

Real-time clock with calendar
For action time stamp and preprogrammed actions.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Max. load: 1A / 250 VAC

2 Signal outputs (3rd optional)
Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable)) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

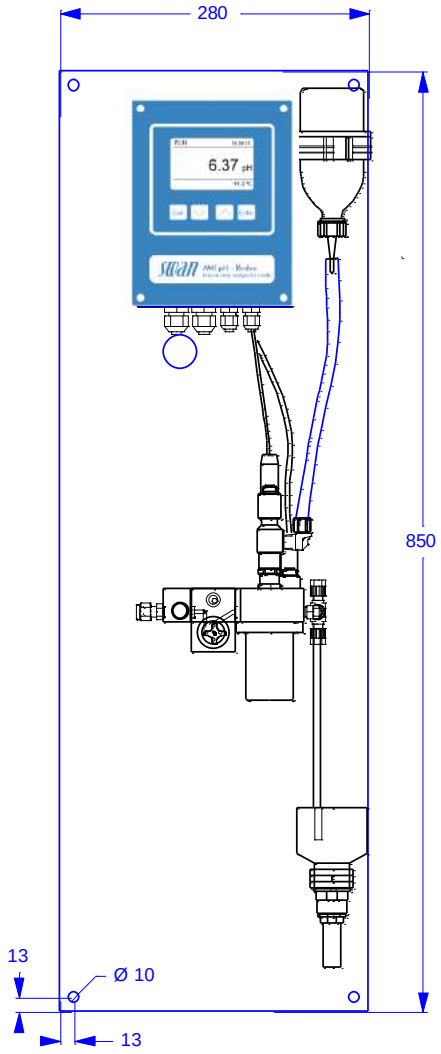
1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface

Monitor for continuous measurement of pH or redox (ORP) in high purity water, steam and condensate.

Monitor AMI pH-Redox (QV-Flow)

Complete system mounted on stainless steel panel:

- **Transmitter AMI pH-Redox** in a rugged aluminum enclosure (IP 66).
- Various combined or separated sensors with reference electrodes available.
- **Flow cell QV-Flow IS1000** made of stainless steel with quick release vessel, needle valve, digital sample flow meter and temperature sensor.
- Factory tested, ready for installation and operation.



Specifications:

- Measuring range:
  1 to 13 pH respectively -500 to +1500 mV depending on installed sensor.
- Simultaneous measurement of pH or redox, sample temperature and sample flow.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow and operating status.
- Easy user menus with simple programming of all parameters by keypad.
- Two current outputs (0/4 - 20 mA) for measured signals (3rd output optional).

Order Nr.	Monitor AMI pH-Redox; QV-Flow	A–21.211.010
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option:	[ ] Swansensor pH Standard (requires Adapter A-83.910.120)	A-87.120.200
	[ ] Swansensor pH SI	A-87.110.200
	[ ] Swansensor pH FL (requires SS Reference FL)	A-87.150.200
	[ ] Swansensor ORP Standard (requires Adapter A-83.910.120)	A-87.420.200
	[ ] Swansensor ORP SI	A-87.410.200
	[ ] Swansensor ORP FL (requires SS Reference FL)	A-87.411.200
Option:	[ ] Swansensor Reference FL (requires cable A-88.121.120)	A-87.860.100

Monitor AMI pH-Redox

Data sheet No. DenA21211010

pH/ORP Measurement

Signal input galvanically separated
Input resistance: > 10^{13} Ω

pH measurement
Measuring range with:
-Swansensor ST/AY: pH 1 to 13
-Swansensor SI/FL: pH 1 to 12
Resolution: 0.01 pH
Reference temperature: 25 °C

ORP measurement
Measuring range with:
-Swansensor ST/AY: -400 to 1200 mV
-Swansensor SI/FL: -500 to 1500 mV
Resolution: 1 mV

Temperature compensations
automatic, according to:
- Nernst (for potable water and wastewater)
- Nernst with non-linear solution compensation (for high purity water)
- Nernst with linear compensation with selectable coefficient (for high purity water)

Calibration solutions table
Programmable table for pH buffers and ORP calibration solution.

Temperature measurement Pt1000
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

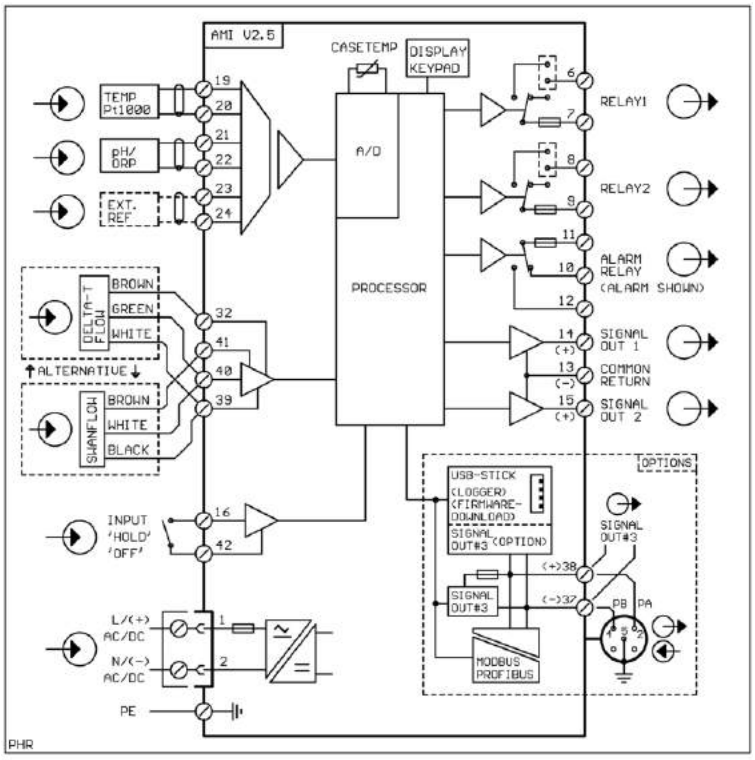
Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90% rel., non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %)
or 24 VDC, (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

Electrical Connection Scheme



Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor Data

Sample conditions
Flow rate: 5 to 10 l/h
Temperature: up to 50 °C
Inlet pressure: 0.2 to 2 bar
Outlet pressure: pressure free

Flow cell and connections
Flow cell made of stainless steel with quick release vessel with built-in flow adjustment valve, digital sample flow meter and Pt1000 temperature sensor.
Sample inlet: Swagelok ¼” tube adapter
Sample outlet: G ½” adapter
for flexible tube Ø 20 x 15 mm

Panel
Dimensions: 280 x 850 x 150 mm
Material: stainless steel
Total weight: 8.0 kg

Monitor for continuous measurement of pH or redox (ORP) in potable water and effluents.

Monitor AMI pH-Redox (M-Flow)

Complete system mounted on PVC panel:

- **Transmitter AMI pH-Redox** in a rugged aluminum enclosure (IP 66).
- **Flow cell M-Flow 10-3PG** include a Pt1000 temperature sensor and optional sensor cleaning.
- Factory tested, ready for installation and operation.

For use with combined sensors with reference electrodes for various sample conditions:

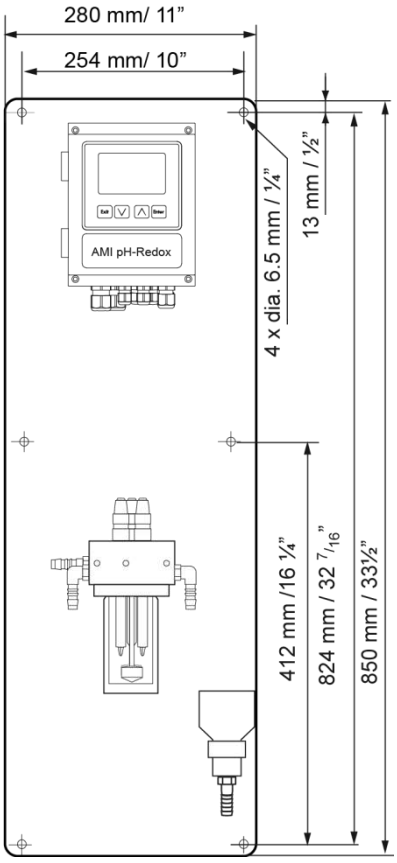
- **Swansensor pH- & ORP Standard** (combined electrode with gel electrolyte)
- **Swansensor pH- & ORP AY** (combined electrode with gel electrolyte)

Optional:

- Spray nozzle for sensor cleaning
- Swansensor deltaT for flow detection

Specifications:

- Measuring ranges: 1 to 13 pH
  respectively -400 to +1200 mV
- Simultaneous measurement of pH or redox, sample temperature and sample flow.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow (option) and operating status.
- Easy user menus with simple programming of all parameters by keypad.
- Two current outputs (0/4 - 20 mA) for measured signals (3rd output optional).



Order Nr.	Monitor AMI pH-Redox; M-Flow, AC	A–21.221.050
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option:	[ ] Swansensor pH Standard	A-87.120.200
	[ ] Swansensor pH AY	A-87.130.200
	[ ] Swansensor ORP Standard	A-87.420.200
	[ ] Swansensor ORP AY	A-87.430.200
Option:	[ ] Swansensor deltaT Flow	A-87.933.010
Option:	[ ] Spray nozzle for sensor cleaning	A-83.491.120

Monitor AMI pH-Redox

Data sheet No. DenA21221050

pH/ORP Measurement

Signal input galvanically separated
Input resistance: > 10^{13} Ω

pH measurement
with Swansensor ST/AY
Measuring range: pH 1 to 13
Resolution: 0.01 pH
Reference temperature: 25 °C

Automatic temperature compensation according to Nernst.

ORP measurement
with Swansensor ST/AY
Measuring range: -400 to 1200 mV
Resolution: 1 mV

Calibration solutions table
Programmable table for pH buffers and ORP calibration solution.

Temperature measurement
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Transmitter Specifications and Functionality

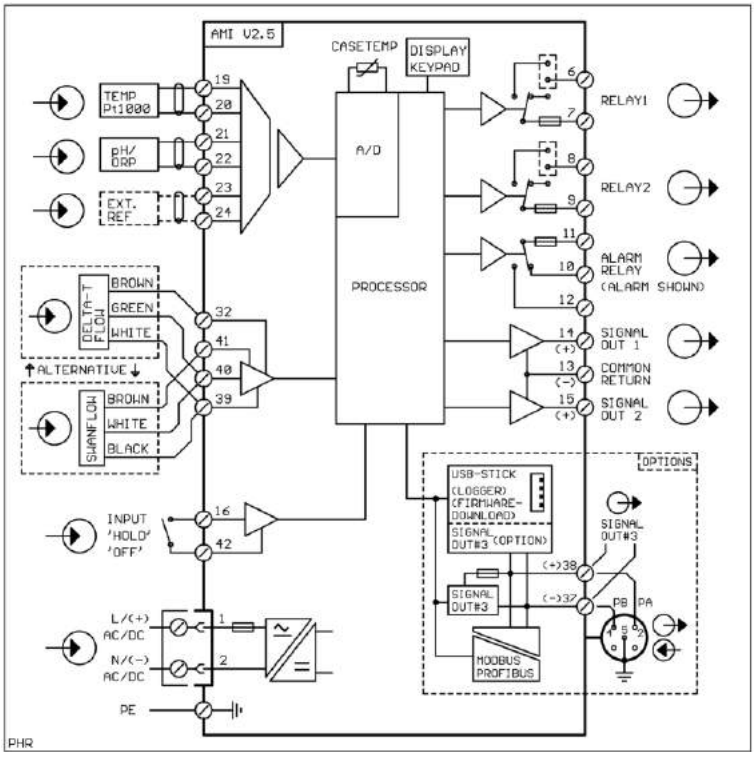
Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90% rel., non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Electrical Connection Scheme



Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control output (control parameters programmable)) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor Data

Sample conditions
Flow rate: 4 to 15 L/h
Temperature: up to 50 °C
Inlet pressure: up to 1 bar
Outlet pressure: pressure free

Flow cell and connections
Flow cell made of PVC and acrylic glass.
Sample inlet: Hose nozzle ¼” -10 elbow for 10mm tube
Sample outlet: G ½” adapter for flexible tube Ø 20 x 15 mm

Panel
Dimensions: 280 x 850 x 150 mm
Material: white PVC
Total weight: 6.0 kg

Monitor for continuous measurement of pH and redox (ORP) potential in pool water.

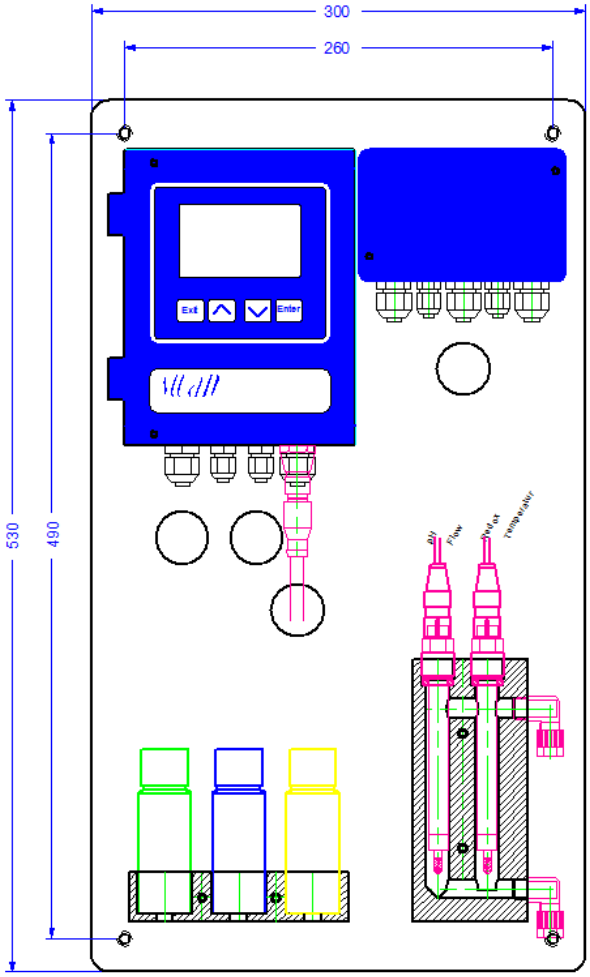
Monitor AMI pH/mV:pH/mV Pool

Complete system mounted on PVC panel:

- Dual channel **transmitter AMI pH/mV : pH/mV** in a rugged aluminum enclosure (IP 66).
- Flow cell for pool water applications with digital sample flow indicator and a NT5K temperature sensor.
- Factory tested, ready for installation and operation.

For use with:

- Swansensor pH Standard and Redox Standard.



Specifications:

- Measuring ranges: 1 to 13 pH
  respectively-400 to +1200 mV
- Simultaneous measurement of pH and redox (ORP) potential with maintenance-free combination electrodes, sample temperature and sample flow check.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow and operating status.
- Easy user menus with simple programming of all parameters by keypad.
- Two current outputs (0/4 - 20 mA) for measured signals (3rd output optional).

Order Nr.	Monitor AMI pH/mV : pH/mV Pool	A–21.311.010
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option:	[ ] Swansensor pH Standard	A-87.120.200
Option:	[ ] Swansensor ORP Standard	A-87.420.200

Monitor AMI pH/mV:pH/mV

Data sheet No. DenA21311010

pH/ORP Measurement

Signal input galvanically separated
Input resistance: > 10^{13} Ω

pH measurement
Measuring range with: pH 1 to 13
Resolution: 0.01 pH
Reference temperature: 25 °C
Automatic temperature compensation according to Nernst.

ORP measurement
Measuring range with:-400 bis 1200 mV
Resolution: 1 mV

Calibration solutions table
Programmable table for pH buffers and ORP calibration solution.

Temperature measurement
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Transmitter Specifications and Functionality

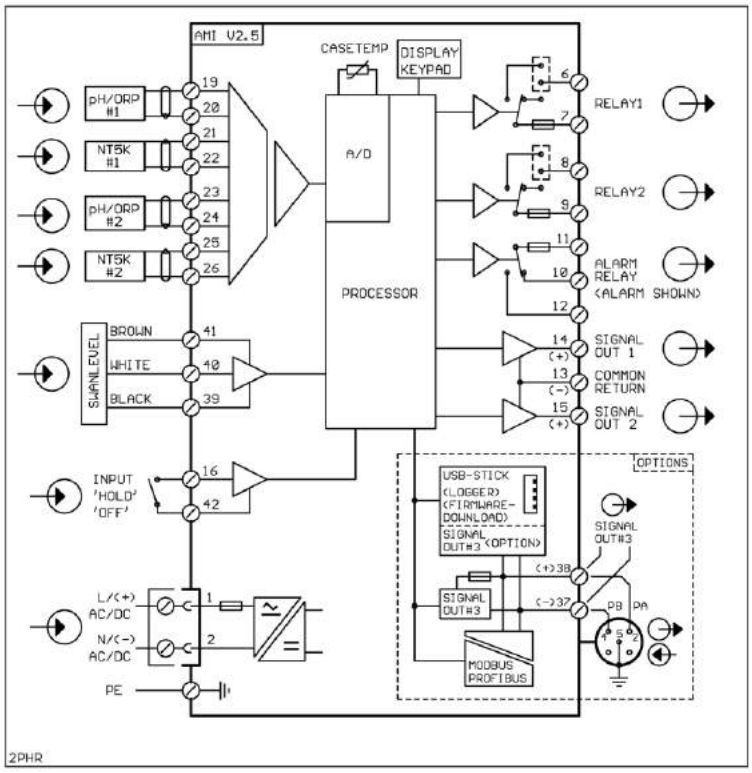
Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90% rel., non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Electrical Connection Scheme



Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor Data

Sample conditions
Flow rate: min. 30 l/h
Temperature: up to 50 °C
Inlet-, Outlet pressure: 0.2 to 2 bar

Flow cell and connections
Flow cell made of acrylic glass.
Sample in-, outlet: Tube 6x8 mm, PE

Panel
Dimensions: 300 x 530 x 150 mm
Material: white PVC
Total weight: 5.0 kg

Monitor for continuous measurement of pH and redox (ORP) in potable water and effluents.

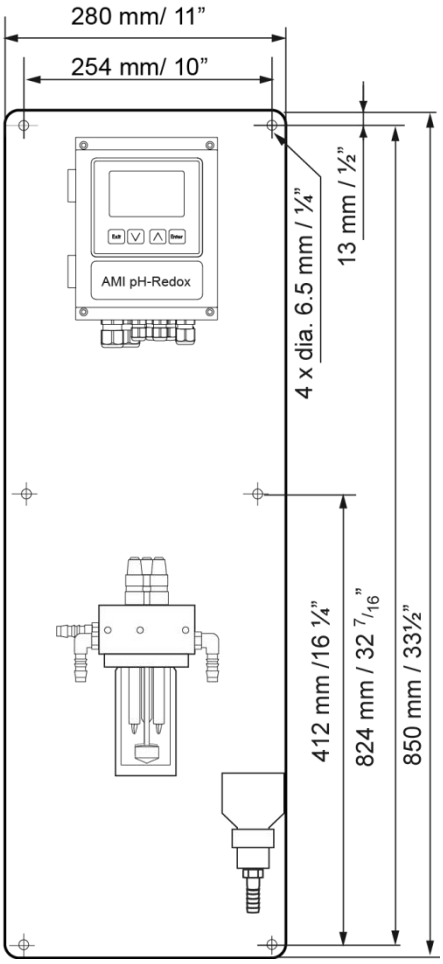
Monitor AMI pH/mV:pH/mV (M-Flow)

Complete system mounted on PVC panel:
- Dual channel **Transmitter AMI pH/mV:pH/mV** in a rugged aluminum enclosure (IP 66).
- **Flow cell M-Flow 10-3PG** including temperature sensor (Nt5k) and sensor cables for two combined pH- respectively ORP sensor.
- Factory tested, ready for installation and operation.

For use with two combined sensors with reference electrodes (combined electrode with gel electrolyte):
- **Swansensor pH Standard**
- **Swansensor pH AY**
- **Swansensor ORP Standard**
- **Swansensor ORP AY**

Optional:
- Spray nozzle for sensor cleaning
- Swansensor deltaT for flow detection

Specifications:
- Measuring ranges: 1 to 13 pH / -500 to +1500 mV depending on installed sensor.
- Simultaneous measurement of pH, Redox (ORP), sample temperature and sample flow.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow and operating status.
- Easy user menus with simple programming of all parameters by keypad.
- Two current outputs (0/4 - 20 mA) for measured signals (3rd output optional).



Order Nr.	Monitor AMI pH/mV:pH/mV; M-Flow	A–21.321.020
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option:	[ ] Swansensor pH Standard	A-87.120.200
	[ ] Swansensor pH AY	A-87.130.200
	[ ] Swansensor ORP Standard	A-87.420.200
	[ ] Swansensor ORP AY	A-87.430.200
Option:	[ ] Swansensor deltaT Flow	A-87.933.010
Option:	[ ] Spray nozzle for sensor cleaning	A-83.491.120

Monitor AMI pH/mV:pH/mV

Data sheet No. DenA21321020

pH/ORP Measurement

Signal input galvanically separated
Input resistance: > 10^{13} Ω

pH measurement
with Swansensor Standard / - AY.
Measuring range: pH 1 to 13
Resolution: 0.01 pH
Reference temperature: 25 °C

Automatic temperature compensation according to Nernst.

ORP measurement
with Swansensor Standard / - AY.
Measuring range: -400 to 1200 mV
Resolution: 1 mV

Calibration solutions table
Programmable table for pH buffers and ORP calibration solution.

Temperature measurement
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Transmitter Specifications and Functionality

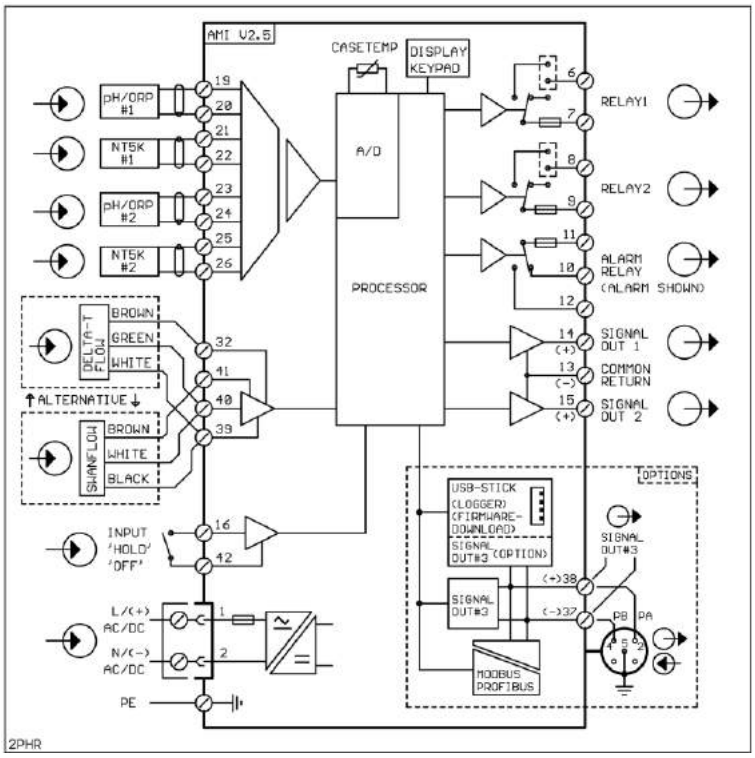
Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90% rel., non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %)
or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Electrical Connection Scheme



Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor Data

Sample conditions
Flow rate: 4 to 15 L/h
Temperature: up to 50 °C
Inlet pressure: up to 1 bar
Outlet pressure: pressure free

Flow cell and connections
Flow cell made of PVC and acrylic glass.
Sample inlet: Hose nozzle ¼”-10 elbow for Ø 10 mm tube
Sample outlet: G ½” adapter for flexible tube Ø 20 x 15 mm

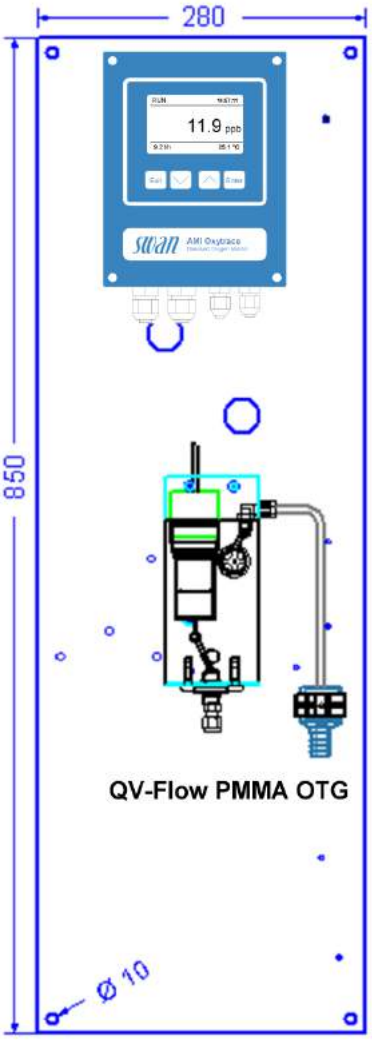
Panel
Dimensions: 280 x 850 x 150 mm
Material: white PVC
Total weight: 9.0 kg

Monitor for continuous measurement of dissolved oxygen in high purity water.

Monitor AMI Oxytrace (QV-Flow)

Complete system mounted on stainless steel panel:

- **Transmitter AMI Oxytrace** in a rugged aluminum enclosure (IP 66).
- **Flow cell QV-Flow PMMA OTG** made of acrylic glass with needle valve and digital sample flow meter on mounting angle made of stainless steel.
- **Swansensor Oxytrace G** with three electrode set-up (cathode, anode and guard) and integrated NT5k temperature sensor.
- Factory tested, ready for installation and operation.



Specifications:

- Measuring range:
  0.01 ppb - 20 ppm O_2 (at 25°C) or
  0 - 200% saturation
- Automatic air pressure compensation
- Automatic temperature compensation
- Automatic surveillance of electrolyte
- Faster initial response time after maintenance due to silver guard
- Simultaneous measurement of dissolved oxygen, sample temperature and sample flow.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Two current outputs (0/4 - 20 mA) for measured signals (3rd output optional).
- Electronic record of major process events and calibration data

Order Nr.	Monitor AMI Oxytrace	A–22.401.000
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Monitor AMI Oxytrace

Data sheet No. DenA22401000

Dissolved Oxygen Measurement

Swansensor Oxytrace G with three electrode set-up (cathode [gold], anode [silver] and guard [silver]) with integrated NT5k temperature sensor.

Measuring range	Resolution
0.01 to 9.99 ppb	0.01 ppb
10 to 199.9 ppb	0.1 ppb
200 to 1999 ppb	1 ppb
2 to 20 ppm	0.01 ppm
0-200% saturation	0.1% saturation

Automatic range switching

Automatic temperature and air pressure compensation

Accuracy / Repeatability
Accuracy: ± 1.5% of reading or ± 0.2 ppb
Repeatability: ± 1% of read. or ±0.15 ppb

Response time
t_{90} < 30 sec. (rising concentration)

Temperature measurement NT5k
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement
With digital SWAN sample flow sensor

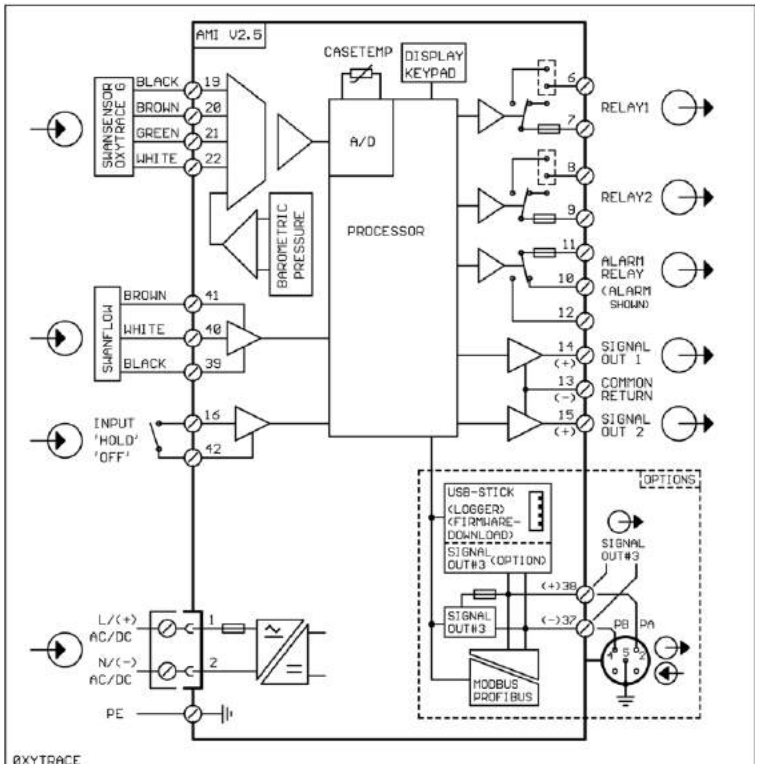
Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90% rel., non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

Electrical Connection Scheme



Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Over-voltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument errors.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor Data

Sample conditions

Flow rate:	8 to 25 l/h
Temperature:	up to 45 °C
Inlet pressure:	0.2 to 1 bar
Outlet pressure:	pressure free
pH:	not lower than pH 4
Suspended solids:	less than 10 ppm

Flow cell and connections
Flow cell made of acrylic glass with built-in flow adjustment valve and digital sample flow meter
Sample inlet:
Swagelok ¼” tube adapter
Sample outlet:
for flexible tube Ø 20 x 15 mm

Panel

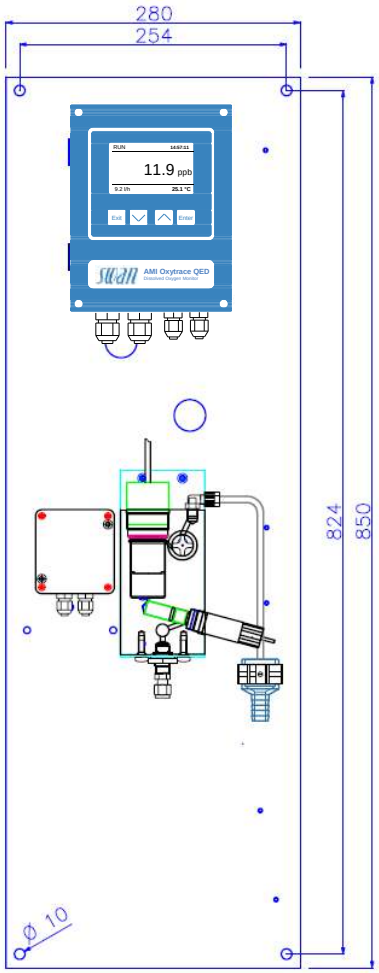
Dimensions:	280 x 850 x 150 mm
Material:	stainless steel
Total weight:	8.0 kg

Monitor for continuous measurement of dissolved oxygen in high purity water with integrated auto verification.

Monitor AMI Oxytrace QED

Complete system mounted on stainless steel panel:

- **Transmitter AMI Oxytrace QED** in a rugged aluminum enclosure (IP 66).
- **Flow cell QV-Flow PMMA OTG QED** made of acrylic glass with needle valve and digital sample flow meter on mounting angle made of stainless steel.
- **Swansensor Oxytrace G** with three electrode set-up (cathode, anode and guard) and integrated NT5k temperature sensor.
- **Faraday electrode** for the automatic or manual verification by electrochemically generated oxygen concentration in the ppb range.
- Factory tested, ready for installation and operation.



Specifications:

- Measuring range (at 25°C): 0.01 ppb to 20 ppm O_2 or 0 to 200% saturation
- Automatic air pressure compensation
- Automatic temperature compensation
- Automatic surveillance of electrolyte
- Faster initial response time after maintenance due to silver guard
- Simultaneous measurement of dissolved oxygen, sample temperature and sample flow.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Two current outputs (0/4 - 20 mA) for measured signals (3rd output optional).
- Electronic record of major process events and calibration data.

Order Nr.	Monitor AMI Oxytrace QED	A–22.451.000
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Monitor AMI Oxytrace QED

Data sheet No. DenA22451100

Dissolved Oxygen Measurement

Swansensor Oxytrace G with three electrode set-up (cathode [gold], anode [silver] and guard [silver]) with integrated NT5k temperature sensor.

Measuring range	Resolution
0.01 to 9.99 ppb	0.01 ppb
10 to 199.9 ppb	0.1 ppb
200 to 1999 ppb	1 ppb
2 to 20 ppm	0.01 ppm
0-200% saturation	0.1% saturation

Automatic range switching

Automatic temperature and air pressure compensation.

Response time
t_{90} < 30 sec. (rising concentration)

Accuracy / Repeatability
Accuracy:± 1.5% of reading or ± 0.2 ppb
Repeatability:± 1% of read. or ±0.15 ppb

Faraday verification
In-line, electrochemical generation of oxygen in ppb range (value dep. on flow rate) by faraday electrode made of platinum.

Temperature measurement NT5k
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement
With digital SWAN sample flow sensor

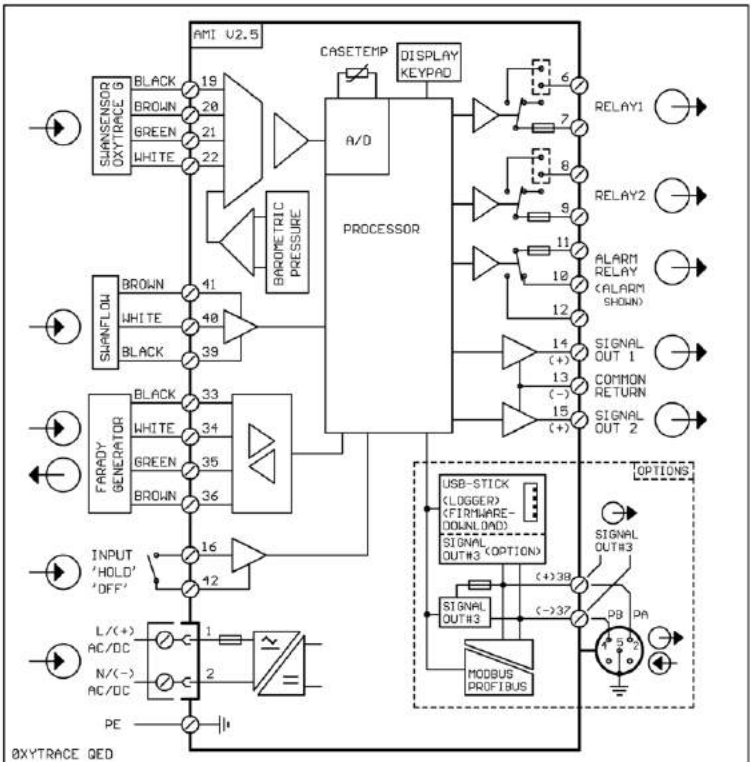
Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90% rel., non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

Electrical Connection Scheme



Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Over-voltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument errors.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor Data

Sample conditions
Flow rate: 8 to 25 l/h
Temperature: up to 45 °C
Inlet pressure: 0.2 to 1 bar
Outlet pressure: pressure free
pH: not lower than pH 4
Suspended solids: less than 10 ppm

Flow cell and connections
Flow cell made of acrylic glass with built-in flow adjustment valve, digital sample flow meter and faraday electrode.
Sample inlet:
Swagelok ¼” tube adapter
Sample outlet:
for flexible tube Ø 20 x 15 mm

Panel
Dimensions: 280 x 850 x 150 mm
Material: stainless steel
Total weight: 8.0 kg

Monitor for continuous measurement of dissolved oxygen in potable water and effluents.

Monitor AMI Oxysafe

Complete system mounted on panel:

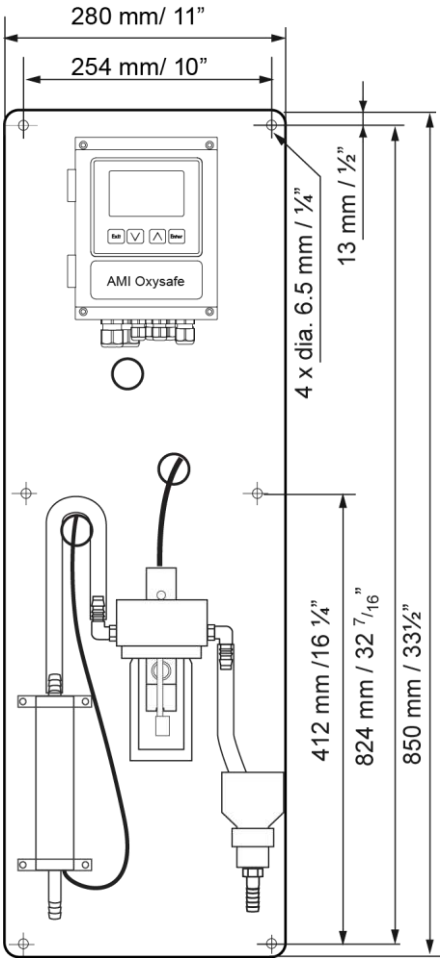
- **Transmitter AMI Oxysafe** in a rugged aluminum enclosure (IP 66).
- **Flow cell M-Flow M40**.
- Factory tested, ready for installation and operation.

For use with:

- **Swansensor Oxysafe 1000** with integrated Pt1000 temperature sensor.

Optional:

- **Swansensor deltaT** for flow detection



Specifications:

- Measuring range: 0 - 20 ppm O_2 (at 25°C) or 0 - 200% saturation
- Automatic air pressure compensation
- Automatic temperature compensation
- Simultaneous measurement of dissolved oxygen, sample temperature and sample flow.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Two current outputs (0/4 - 20 mA) for measured signals (3rd output optional).
- Electronic record of major process events and calibration data

Order Nr.	Monitor AMI Oxysafe	A–22.601.040
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option:	[ ] Swansensor deltaT Flow	A-87.933.010
Option:	[ ] Swansensor Oxysafe1000	A-87.232.011

Monitor AMI Oxysafe

Data sheet No. DenA22601040

Dissolved Oxygen Measurement

Swansensor Oxysafe 1000 with integrated Pt1000 temperature sensor.

Measuring range	**Resolution**
0.01 to 20 ppm	0.01 ppm
0-200% saturation	0.1% saturation

Automatic temperature and air pressure compensation.
Correction of salinity.

Accuracy
Accuracy: 0.3% if calibration temp. = measuring temp.
respectively: 1.5% at ± 10°C deviation to calibration temperature

Response time
t_{90} < 180 sec. (rising concentration)

Temperature measurement Pt1000
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement (option)
With digital SWAN sample flow sensor

Transmitter Specifications and Functionality

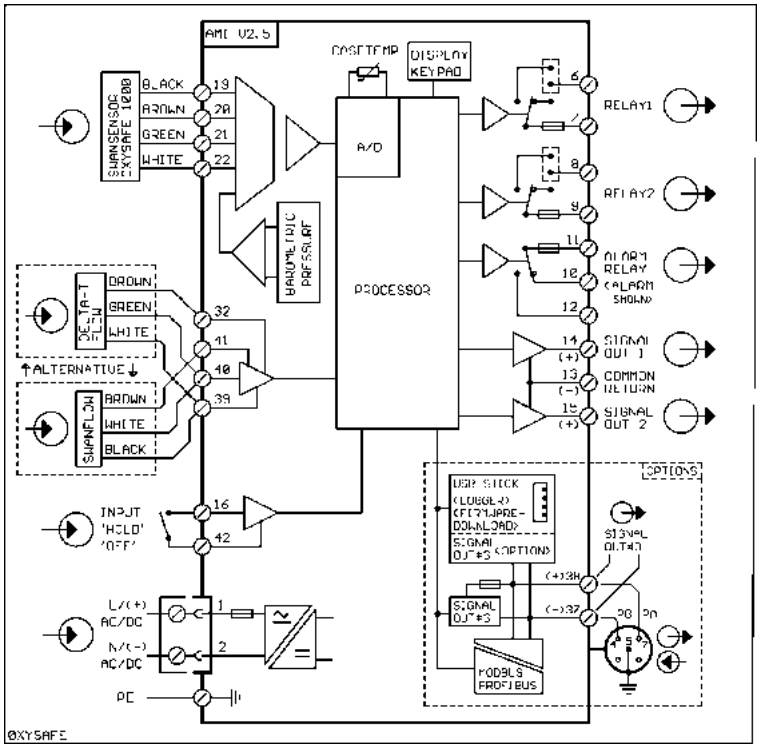
Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90% rel., non-condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Over-voltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Electrical Connection Scheme



Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument errors.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor Data

Sample conditions

Flow rate:	4 to 15 l/h
Temperature:	up to 50 °C
Inlet pressure:	up to 1 bar
Outlet pressure:	pressure free
pH:	not lower than pH 4
Suspended solids:	less than 10 ppm

Flow cell and connections
Flow cell made of PVC and acrylic glass.
Sample inlet: Hose nozzle ¼” -10 elbow for 10mm tube
Sample outlet: G ½” adapter for flexible tube Ø 20 x 15 mm

Panel

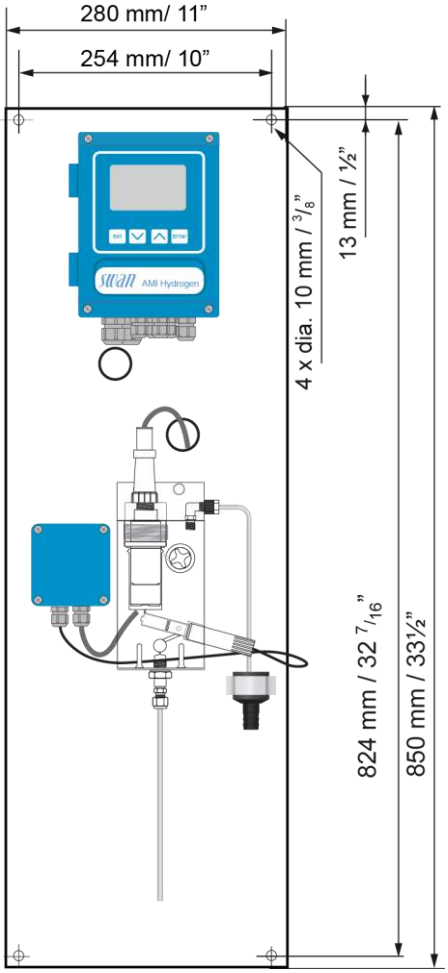
Dimensions:	280 x 850 x 200 mm
Material:	PVC
Total weight:	6.0 kg

Monitor for continuous measurement of dissolved hydrogen in water steam cycles.

Monitor AMI Hydrogen QED

Complete system mounted on stainless steel panel:

- **Transmitter AMI Hydrogen** in a rugged aluminum enclosure (IP 66).
- **Flow cell QV-Flow PMMA OTG** made of acrylic glass with needle valve and digital sample flow meter on mounting angle made of stainless steel.
- **Swansensor Hydrogen** with platinum anode and silver cathode and integrated NT5k temperature sensor.
- **Faraday electrode** for the automatic or manual verification by electrochemically generated hydrogen concentration in the ppb range.
- Factory tested, ready for installation and operation.



Specifications:

- Measuring range:
  0.01 ppb to 800 ppb H_2 (at 25°C, 1013hPa) or
  0 – 50% saturation
- Automatic air pressure compensation
- Automatic temperature compensation
- Simultaneous measurement of dissolved hydrogen, sample temperature and sample flow.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Two current outputs (0/4 - 20 mA) for measured signals (3rd output optional).
- Electronic record of major process events and calibration data

Order Nr.	Monitor AMI Hydrogen QED	A-22.851.000
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Monitor AMI Hydrogen QED

Data sheet No. DenA22851000

Dissolved Hydrogen Measurement

Swansensor Hydrogen with platinum anode and silver cathode and with integrated NT5k temperature sensor.

Measuring range	Resolution
0.01 to 9.99 ppb	0.01 ppb
10.0 to 99.9 ppb	0.1 ppb
100 to 800 ppb	1 ppb
0-50% saturation	0.1% saturation

Automatic range switching

Automatic temperature and air pressure compensation.

Accuracy / Repeatability
Accuracy: ± 5% of reading or ± 0.5 ppb
Repeatability: ± 1% of read. or ±0.5 ppb (whichever is greater)

Response time
t_{90} < 40 sec. or ±1 ppb (rising concentration, whichever is greater)

Faraday verification
In-line, electrochemical generation of hydrogen in ppb range (value dep. on flow rate, recommended up to max. 50ppb) by faraday electrode made of platinum.

Temperature measurement NT5k
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement
With digital SWAN sample flow sensor

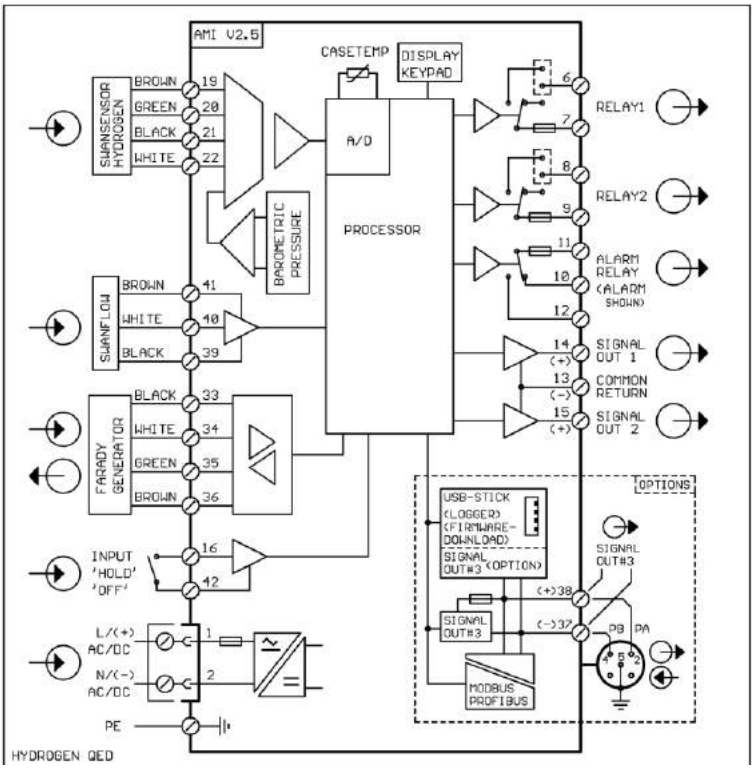
Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90% rel., non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %)
50/60 Hz (± 5 %)
or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

Electrical Connection Scheme



Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Over-voltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument errors.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor Data

Sample conditions

Flow rate:	6 to 20 l/h
Temperature:	up to 45 °C
Inlet pressure:	0.2 to 1 bar
Outlet pressure:	pressure free
Suspended solids:	less than 10 ppm

Flow cell and connections
Flow cell made of acrylic glass with built-in flow adjustment valve and digital sample flow meter
Sample inlet:
Swagelok ¼” tube adapter
Sample outlet:
for flexible tube Ø 20 x 15 mm

Panel

Dimensions:	280 x 850 x 150 mm
Material:	stainless steel
Total weight:	10.0 kg

Complete monitoring system for the automatic, continuous measurement of the specific conductivity, concentration of CIP solutions, salinity and TDS in surface water, potable water and cooling water.

Monitor AMI Solicon4

Complete system mounted on PVC mounting panel:

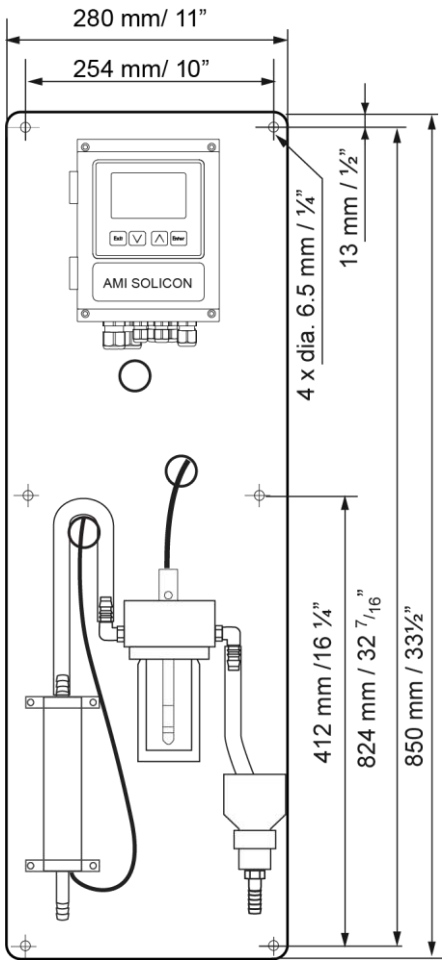
- **Transmitter AMI Solicon4** in a rugged aluminum enclosure (IP 66).
- **Flow cell M-Flow PG**.
- **Swansensor Shurecon P;** 4-electrode conductivity sensor with integrated Pt1000 temperature sensor.
- Factory tested, ready for installation and operation.

Optional:

- Swansensor deltaT for flow detection

Specifications:

- Simultaneous measurement and display of conductivity, sample temperature and sample flow.
- Measurement range from 0.1 µS/cm to 100 mS/cm.
- For the measurement of specific conductivity, concentrations (for NaCl, NaOH and acids in %), salinity (as NaCl in %) and total dissolved solids (TDS in % or mg/l).
- Conductivity sensor unaffected by fouling. No measuring errors due to polarization effects.
- Straightforward sensor calibration without sensor removal directly in flow cell with quick release vessel and user guided dialogue.
- Large backlit LCD display for the reading of measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Two current signal outputs (0/4 – 20mA) for measured signals.
- Data logger for 1'500 data records stored at a selectable interval. (Data download to PC requires optional HyperTerminal interface)



Monitor AMI Solicon4
with optional deltaT flow detection.

Order Nr.	Monitor AMI Solicon4	A–23.421.020
Option 1:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option 2:	[ ] Swansensor deltaT Flow	A-87.933.010

Monitor AMI Solicon4

Data sheet No. DenA23421020

Conductivity Measurement

Swansensor Shurecon P with integrated Pt1000 temperature sensor.

Measuring range	**Resolution**
0.10 to 9.99 µS/cm	0.01 µS/cm
10.0 to 99.9 µS/cm	0.1 µS/cm
100 to 999 µS/cm	1 µS/cm
1.00 to 9.99 mS/cm	0.01 mS/cm
10.0 to 29.9 mS/cm	0.1 mS/cm
30 to 100 mS/cm	1 mS/cm

Automatic range switching.

Accuracy ± 0.5% of measured value

Temperature compensations
Absolute (none), linear coefficient in %/°C, non linear function (NLF) for natural waters according to EN 27888 / DIN 38404

Concentration measurements (25°C)

- NaCl:	0 - 4.6%
- HCl:	0 - 0.8%
- NaOH:	0 - 1.6%
- H_2SO_4:	0 - 1.1%
- HNO_3:	0 - 1.5%
- Salinity:	0 - 4.6% (as NaCl)
- TDS:	0 - 4.6% (as NaCl)
- TDS:	0.0 mg/l – 20 g/l (with coefficient)

Temperature measurement
With Pt1000 type sensor.

Measuring range:	-30 to +130°C
Resolution:	0.1°C

Sample flow measurement (option)
With digital SWAN sample flow meter.

Transmitter Specifications and Functionality

Electronics case:	Aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Ambient temperature:	-10 to +50°C
Limit range of operation:	-25 to +65°C
Storage and transport:	-30 to +85°C
Humidity:	10 to 90 % relative non condensing

Power supply

Voltage:	100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption:	max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.

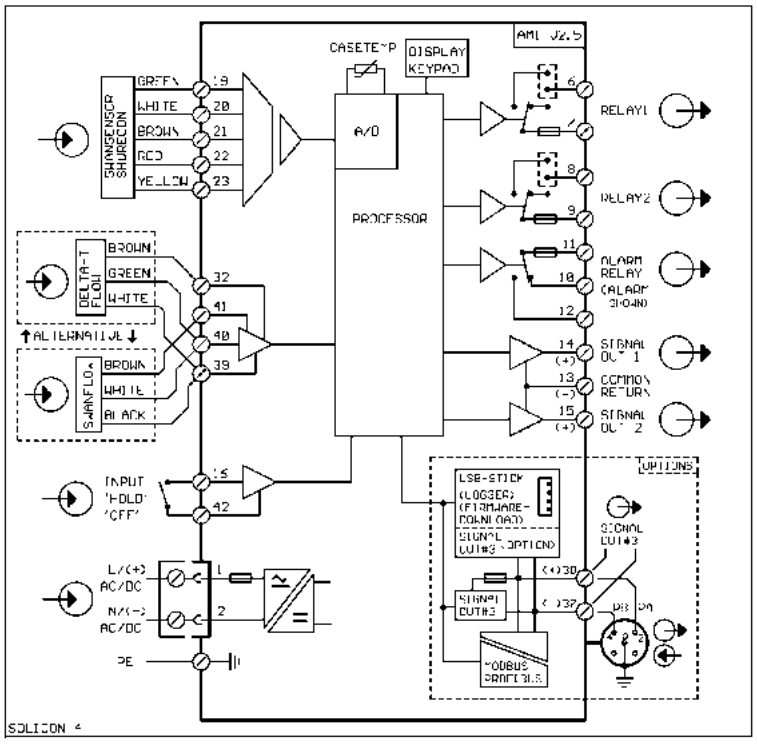
Separate menu specific password protection possible.

Display of process value, sample flow, alarm status and time during operation.

Storage of event- and alarm log.

Storage of the last 1’500 data records in logger with selectable time interval.

Electrical Connection Scheme



Safety features
No data loss after power failure, all data is saved in non-volatile memory.

Overvoltage protection of in- and outputs.

Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
With programmable high/low alarm limits

Real-time clock with calendar
For action time stamp and preprogrammed actions.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.

Maximum load:	1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.

Max. load:	1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable)) as current source. 3rd signal output selectable as current source or current sink.

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor Data

Sample conditions

Flow rate:	4 to 15 l/h
Temperature:	up to 50 °C
Inlet pressure (25 °C):	up to 1 bar
Outlet pressure:	pressure free

Sample connections

Sample inlet:	Hose nozzle ¼” -10 elbow for 10mm tube
Sample outlet:	G ½” adapter for flexible tube Ø 20 x 15 mm

Panel dimensions:	280 x 850 x 180 mm
Panel material:	white PVC
Weight:	6.0 kg

Complete monitoring system for the automatic, continuous measurement of the specific resistivity / specific conductivity in high purity water.

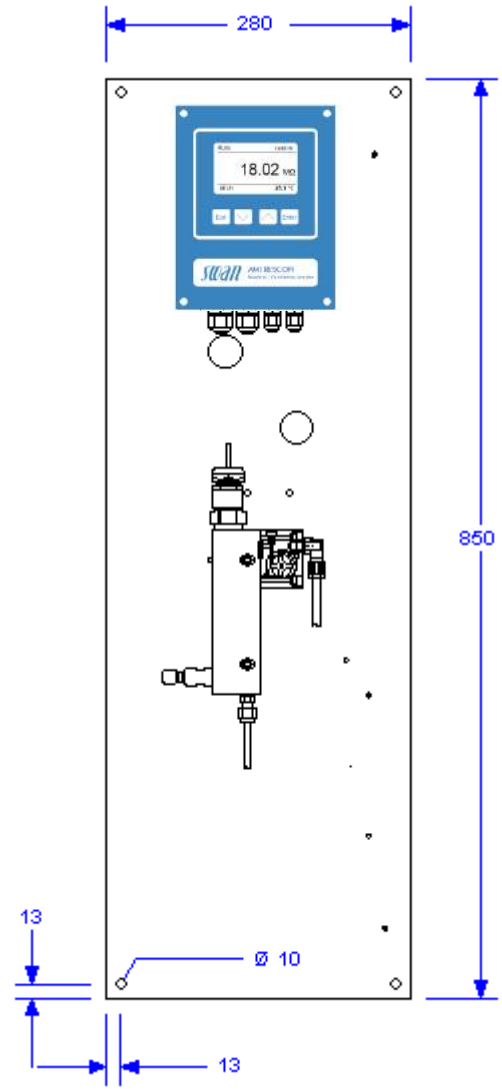
Monitor AMI Rescon

Complete system mounted on stainless steel mounting panel:

- **Transmitter AMI Rescon** in a rugged aluminum enclosure (IP 66).
- **Swansensor RC-U** high precision two-wire electrode made of stainless steel with integrated NTC temperature probe for automatic temperature compensation.
- **Flow cell QV-Hflow** made of stainless steel with manual flow adjustment valve and digital, high temperature sample flow meter.
- Factory tested, ready for installation and operation.

Specifications:

- Measurement range:
  - Resistivity: 0.01 to 18.18 MΩ-cm
  - Conductivity: 0.055 to 1000 µS/cm
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow, temperature compensation type and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Wide range of selectable temperature compensations for different sample conditions.
- Alarm function according to the limits in USP<645>.
- Electronic record of major process events and calibration data.
- Data logger for 1'500 data records stored at a selectable interval. (Data download to PC requires optional HyperTerminal interface).
- Two current outputs (0/4 - 20 mA) for measured signals.



Accessory:

- Precision test resistor plug for verification of transmitter according to USP<645>.

Order Nr.	Monitor AMI Rescon	A–23.431.100
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Monitor AMI Rescon

Data sheet No. DenA23431100

Conductivity Measurement

Swansensor RC-U (k = 0.01 cm^{-1}) with integrated NT5K temperature sensor.

Measuring range	**Resolution**
0.01 to 18.18 MΩ-cm	0.01 MΩ-cm
0.055 to 2.999 µS/cm	0.001 µS/cm
3.00 to 29.99 µS/cm	0.01 µS/cm
30.0 to 99.9 µS/cm	0.1 µS/cm
100 to 1000 µS/cm	1 µS/cm

Automatic range switching.

System accuracy

0.01 to 18.18 MΩ-cm	± 0.5 %
0.05 to 20 µS/cm	± 0.5 %
20 to 1000 µS/cm	± 1 %

Periodic accuracy test with ultra high precision resistors.

Temperature compensation
- High purity water (non-linear)
- Neutral salts (NaCl)
- Strong acids (HCl)
- Strong bases (NaOH)
- Ammonia, Ethanolamine
- Morpholine
- Linear coefficient in %/°C
- None (compensation switched off)

Test modus for transmitter according to USP<645> with test resistance.

Alarm function for limit values according to USP<645> Stage 1.

Temperature measurement Nt5k

Measuring range:	-30 to +130 °C
Resolution:	0.1 °C

Sample flow measurement with digital SWAN sample flow meter for extended temperature range.

Transmitter Specifications and Functionality

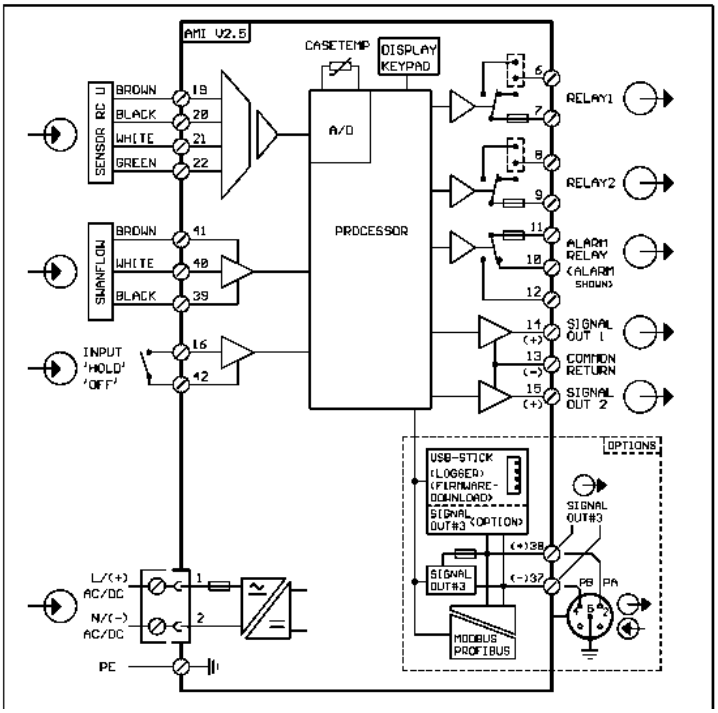
Electronics case:	Cast aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Dimensions:	180 x 140 x 70 mm
Weight:	1.5 kg
Ambient temperature:	-10 to +50°C
Humidity: 10 - 90% rel., non condensing	

Power supply

Voltage:	100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption:	max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”. User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log and calibration history.

Electrical Connection Scheme



Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable). as current source. 3rd signal output selectable as current source or current sink

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor Data

Sample conditions

Flow rate:	70 to 100 l/h
Temperature:	up to 95 °C
Inlet pressure (25 °C):	up to 2 bar
Outlet pressure:	pressure free

No sand, no oil

Flow cell and connections
Flow cell made of stainless steel with built-in flow adjustment valve and digital sample flow meter.

Sample inlet:	Swagelok ¼” tube adapter
Sample outlet:	G ½” adapter for flexible tube Ø 20 x 15 mm

Panel

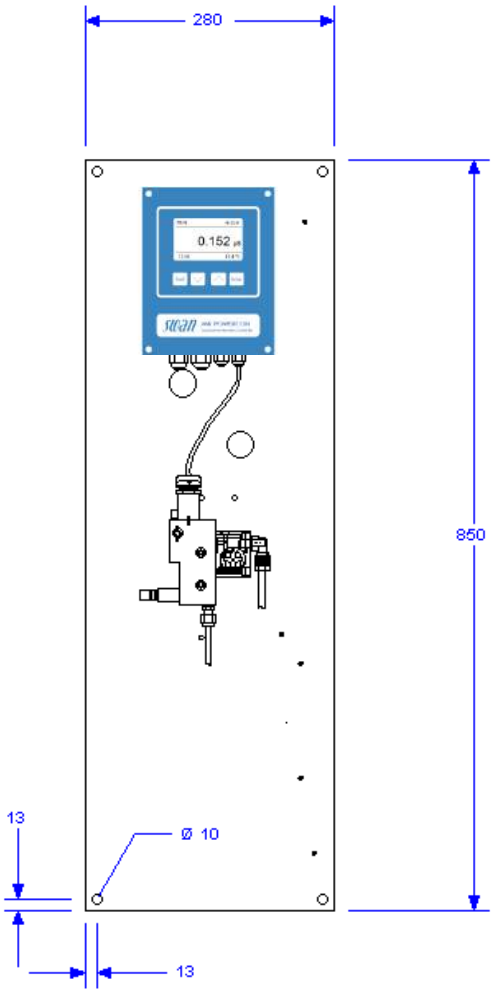
Dimensions:	280 x 850 x 180 mm
Material:	stainless steel
Total weight:	7.0 kg

Complete monitoring system for the automatic, continuous measurement of the specific (total) conductivity in feedwater, steam and condensate.

Monitor AMI Powercon Specific

Complete system mounted on stainless steel mounting panel:

- **Transmitter AMI Powercon** in a rugged aluminum enclosure (IP 66).
- **Swansensor UP-Con1000-SL** two-electrode conductivity sensor with slot-lock design and integrated Pt1000 temperature probe.
- **Flow cell QV-Flow UP-CON-SL** made of stainless steel with flow adjustment valve and digital sample flow meter. Quick sensor release with patented slot-lock design.
- Factory tested, ready for installation and operation.



Specifications:

- Conductivity measurement range: 0.055 to 1000 µS/cm
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow, temperature compensation type and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Wide range of selectable temperature compensations for different sample conditions.
- Electronic record of major process events and calibration data.
- Data logger for 1'500 data records stored at a selectable interval. (Data download to PC requires optional HyperTerminal interface).
- Two current outputs (0/4 - 20 mA) for measured signals.

Order Nr.	Monitor AMI Powercon Specific	A–23.441.100
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Monitor AMI Powercon Specific

Data sheet No. DenA23441100

Conductivity Measurement

Swansensor UP-Con1000-SL with integrated Pt1000 temperature probe (k = 0.0415 cm^{-1}).

Measuring range	Resolution
0.055 to 0.999 µS/cm	0.001 µS/cm
1.00 to 9.99 µS/cm	0.01 µS/cm
10.0 to 99.9 µS/cm	0.1 µS/cm
100 to 1000 µS/cm	1 µS/cm

Automatic range switching.

Accuracy: ± 1 % of measured value

Temperature compensations
- Non linear function (NLF) for high purity water
- Neutral salts
- Strong acids
- Strong bases
- Ammonia, Ethanolamine
- Morpholine
- Linear coefficient in %/°C
- Absolute (none)

Influence of temperature see PPChem 2012 14(7) [Wagner]

Temperature measurement
with Pt1000 type sensor

Measuring range:	-30 to +130 °C
Resolution:	0.1 °C

Sample flow measurement
with digital SWAN sample flow sensor.

Transmitter Specifications and Functionality

Electronics case:	Cast aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Dimensions:	180 x 140 x 70 mm
Weight:	1.5 kg
Ambient temperature:	-10 to +50°C

Humidity: 10 - 90% rel., non condensing

Power supply

Voltage:	100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %)
	or 24 VDC (± 10 %)
Power consumption:	max. 30 VA

Operation

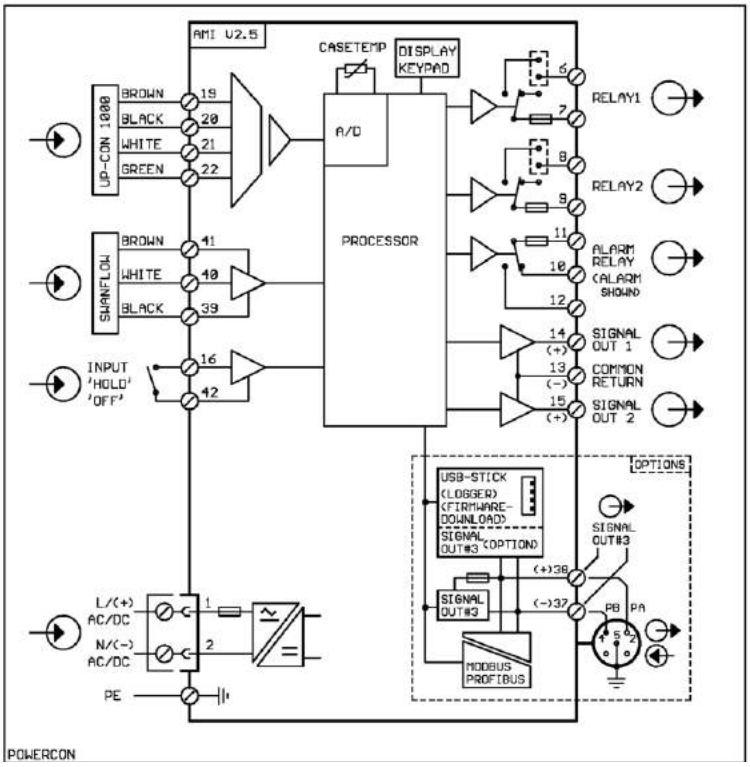
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”. User menus in English, German, French and Spanish.

Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation. Storage of event log, alarm log and calibration history.

Storage of the last 1’500 data records in logger with selectable time interval.

Electrical Connection Scheme



Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor Data

Sample conditions

Flow rate:	5 to 20 L/h
Temperature:	up to 50 °C
Inlet pressure (25 °C):	up to 2 bar
Outlet pressure:	pressure free

No sand, no oil

Flow cell and connections
Flow cell made of stainless steel with built-in flow adjustment valve and digital sample flow meter. Quick sensor release with patented slot-lock design.

Sample inlet: Swagelok ¼” tube adapter
Sample outlet: Elbow union 1/8” PA for Ø 8mm tube

Panel

Dimensions:	280 x 850 x 200 mm
Material:	stainless steel
Total weight:	7.0 kg

Complete monitoring system for the automatic, continuous measurement of the conductivity before (specific / total conductivity) and after a cation exchanger with electro deionization (acid / cation conductivity).
Calculation of the sample pH value and alkalizing reagent concentration based on differential conductivity measurement.

Monitor AMI CACE

Complete system mounted on stainless steel panel:

- **Transmitter AMI CACE** in a rugged aluminum enclosure (IP 66).
- **Swansensor UP-Con1000-SL**; two 2-electrode conductivity sensors with slot-lock design and integrated Pt1000 temperature probe, $k = 0.04\ cm^{-1}$.
- **Flow cell Catcon-Plus-SL CACE** made of stainless steel 316L with digital sample flow meter. Quick sensor release with patented slot-lock design. EDI-Module with exchangeable sample chamber module and automatic deaeration.
- Factory tested, ready for installation and operation.

Specifications:

- Conductivity measurement range: 0.055 to 1000 µS/cm.
- Calculation of pH value in the range from pH 7.5 to 11.5 (VGB-S-010-T-00).
- Calculation of alkalizing reagent concentration, e.g. ammonia in the range from 0.01 to 10 ppm.
- Simultaneous measurement and display of both conductivities, pH, alkalizing reagent, sample temperature and sample flow.
- Temperature compensation preset for strong acids but wide range of others selectable for other sample conditions.
- Two current outputs (0/4 - 20 mA) for measured signals (3rd as option).

Order Nr.	Monitor AMI CACE	A–23.462.000
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option:	[ ] Inlet filter	A-82.811.030
Accessory:	[ ] Backpressure Regulator, 1 channel with Manometer	A-82.581.001

Monitor AMI CACE

Data sheet No. DenA23462000

Conductivity Measurement

Swansensor UP-Con1000-SL with integrated Pt1000 temperature probe.

Measuring range	**Resolution**
0.055 to 0.999 µS/cm	0.001 µS/cm
1.00 to 9.99 µS/cm	0.01 µS/cm
10.0 to 99.9 µS/cm	0.1 µS/cm
100 to 1000 µS/cm	1 µS/cm

Automatic range switching.

Accuracy
± 1 % of measured value or ± 1 digit (whichever is greater).

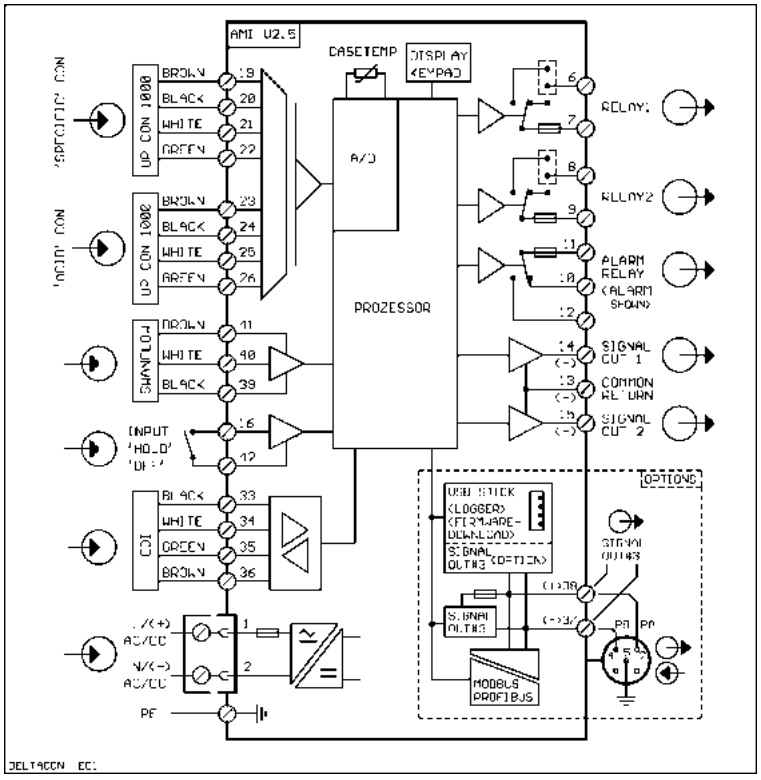
Temperature compensation
Strong acids or non-linear function for high purity water, neutral salts, strong bases, ammonia, ethanolamine, morpholine, linear coefficient in %/°C, absolute (none). Influence of temperature see PPChem2012 14(7) [Wagner]

pH and alkalizing reagent calculation
Ranges (25° C): pH 7.5 to 11.5
e.g. ammonia 0.01 to 10 ppm

Temperature measurement Pt1000
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement
With digital SWAN sample flow meter

Electrical Connection Scheme



Transmitter Specifications and Functionality

Electronics case:	Cast aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Dimensions:	180 x 140 x 70 mm
Weight:	1.5 kg
Ambient temperature:	-10 to +50°C
Humidity:	10 - 90% rel., non-condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”. User menus in English, German, French and Spanish.

Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation. Storage of event log, alarm log and calibration history.

Storage of the last 1’000 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.

Overvoltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP / 3rd Signal output / USB interface.

Monitor Data

Sample conditions

Flow rate:	3 to 4 L/h
Temperature:	up to 50 °C
Inlet pressure (25 °C):	0.5 bar
Outlet pressure:	pressure free

No sand, no oil

EDI Capacity:
sc_{max} = 40µS/cm as NH_4OH
sc_{max} = 350µS/cm as NaOH

The use of SWAN Back Pressure Regulator is highly recommended. Particle filtration recommended in case of high iron concentration. Use of film forming products may reduce lifetime of EDI-module.

Conditions for pH calculation
Only 1 alkalizing reagent, contamination is mostly NaCl, phosphates < 0.5 mg/L, if pH value < 8 the concentration of contaminant must be small compared to alkalizing reagent.

Sample connections

Inlet:	Swagelok ¼” tube adapter
Outlet:	G 3/8” adapter for tube for flexible tube Ø 20 x 15 mm

Panel

Dimensions:	280 x 850 x 200 mm
Material:	stainless steel
Total instrument weight:	14.0 kg

Complete monitoring system based on ASTM D4519-94 for the automatic, - continuous measurement of three conductivity values in water-steam cycles:

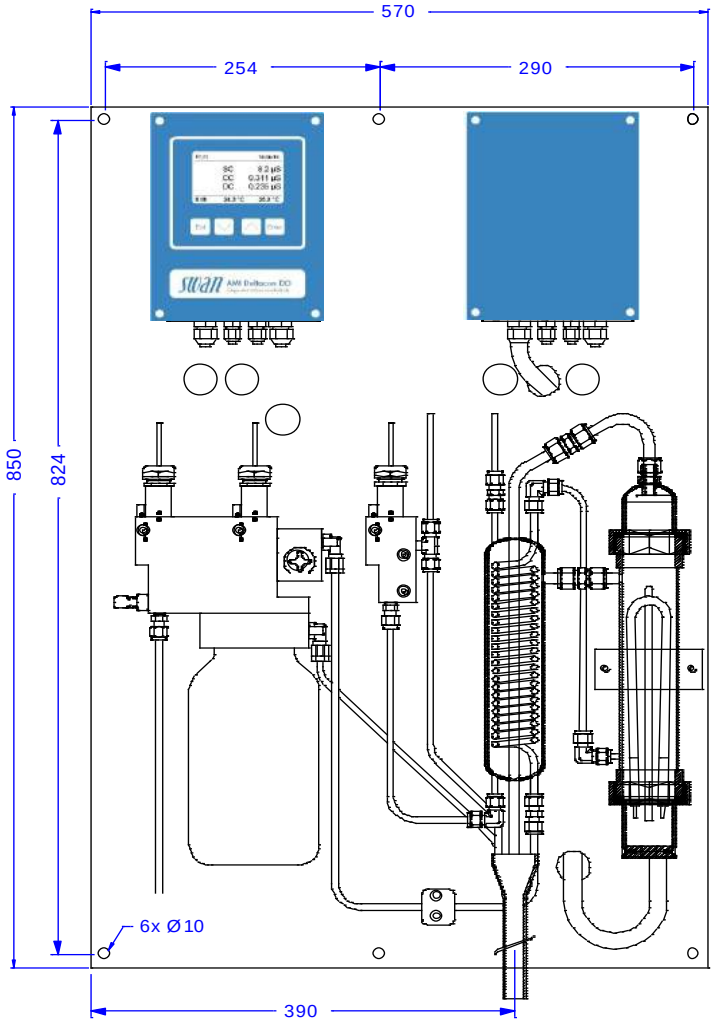
1. Specific (total) conductivity
2. Cation (acid) conductivity after a cation exchanger
3. Degassed conductivity after a sample reboiler

Calculation of sample pH and alkalizing reagent based on differential conductivity measurement.

Monitor AMI Deltacon DG

Complete system mounted on stainless steel panel:

- **Transmitter AMI Deltacon DG** in a rugged aluminum enclosure (IP 66).
- **Swansensors UP-Con1000-SL** Three 2-electrode conductivity sensors with integrated Pt1000 temperature probe.
- **Flow cell Catcon-Plus-SL** with sample flow adjustment valve, digital sample flow meter and integrated cation exchanger.
- **Sample reboiler unit** with heating and cooling system made of stainless steel.
- **DG electronic controller** for sample re-boiler with vapor pressure control (IP 66).
- Factory tested, ready for installation and operation.



Specifications:

- Conductivity measurement range: 0.055 to 1000 µS/cm.
- Calculation of pH value in the range from pH 7.5 to 11.5 (VGB-directive 450L).
- Calculation of alkalizing reagent concentration, e.g. ammonia in the range from 0.01 to 10 ppm.
- Simultaneous measurement and display of conductivities, pH, alkalizing reagent, sample temperature and sample flow.
- Two current outputs (0/4 - 20 mA) for measured signals.

Order Nr.	Monitor AMI Deltacon DG	A–23.481.100
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option:	[ ] Cation exchanger, 1 bottle with 1l resin	A-82.841.030

Monitor AMI Deltacon DG

Data sheet No. DenA23481100

Measuring System

Three **conductivity sensors** UP-Con1000-SL with integrated Pt1000 temperature probe.

Measuring range	**Resolution**
0.055 to 0.999 µS/cm	0.001 µS/cm
1.00 to 9.99 µS/cm	0.01 µS/cm
10.0 to 99.9 µS/cm	0.1 µS/cm
100 to 1000 µS/cm	1 µS/cm

Automatic range switching.

Accuracy ± 1 % of measured value

Temperature compensation
Absolute (none), linear coefficient in %/°C or non-linear function for strong acids, high purity water, neutral salts, strong bases, ammonia, ethanolamine and morpholine.
Influence of temperature see PPChem 2012 14(7) [Wagner].

pH and alkalizing reagent calculation
Ranges (25° C)
pH: 7.5 to 11.5
e.g. Ammonia: 0.01 to 10 ppm

Conditions for pH calculation
Only 1 alkalizing reagent, contamination is mostly NaCl, phosphates < 0.5 mg/L, if pH value < 8 the concentration of contaminant must be small compared to alkalizing reagent.

Temperature measurement Pt1000
Measuring range: up to +130 °C
Resolution: 0.1 °C

Atmospheric pressure measurement for boiling point compensation in sample reboiler.

Sample flow measurement with security shut-off for sample heater in reboiler if sample flow is too low.

Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Ambient temperature: -10 to +50°C
Humidity: 10 - 90% rel., non condensing

Operation

Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”. User menus in English, German, French and Spanish.

Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation.

Storage of event log, alarm log and calibration history.

Storage of the last 1’000 data records in logger with selectable time interval.

Safety features

No data loss after power failure, all data is saved in non-volatile memory.

Overvoltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.

Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.

Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.

Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor Data

Power supply
Voltage: 100 to 127 and 200 to 240 VAC (± 10 %) 50/60 Hz (± 5 %)

Max. current:
- Voltage at 90 VAC: 12 A
- Voltage at 140 VAC: 19 A
- Voltage higher than 180 VAC: 9.5 A

Max. power consumption:
- Voltage at 90 VAC: 1.1 kW
- Voltage at 140 VAC: 2.6 kW
- Voltage at 265 VAC: 2.6 kW

Average power consumption: 1.2kW

Mains connection: 2.5 mm² / AWG12 stranded wires with end sleeves

Sample conditions
Flow rate: 5 to 15 L/h
Temperature: up to 50 °C
Inlet pressure (25 °C): up to 2 bar
Outlet pressure: pressure free
No sand, no oil

The use of SWAN Back Pressure Regulator is highly recommended.

Sample connections
Inlet: Swagelok ¼” tube adapter
Outlet: 13/16” steel tube

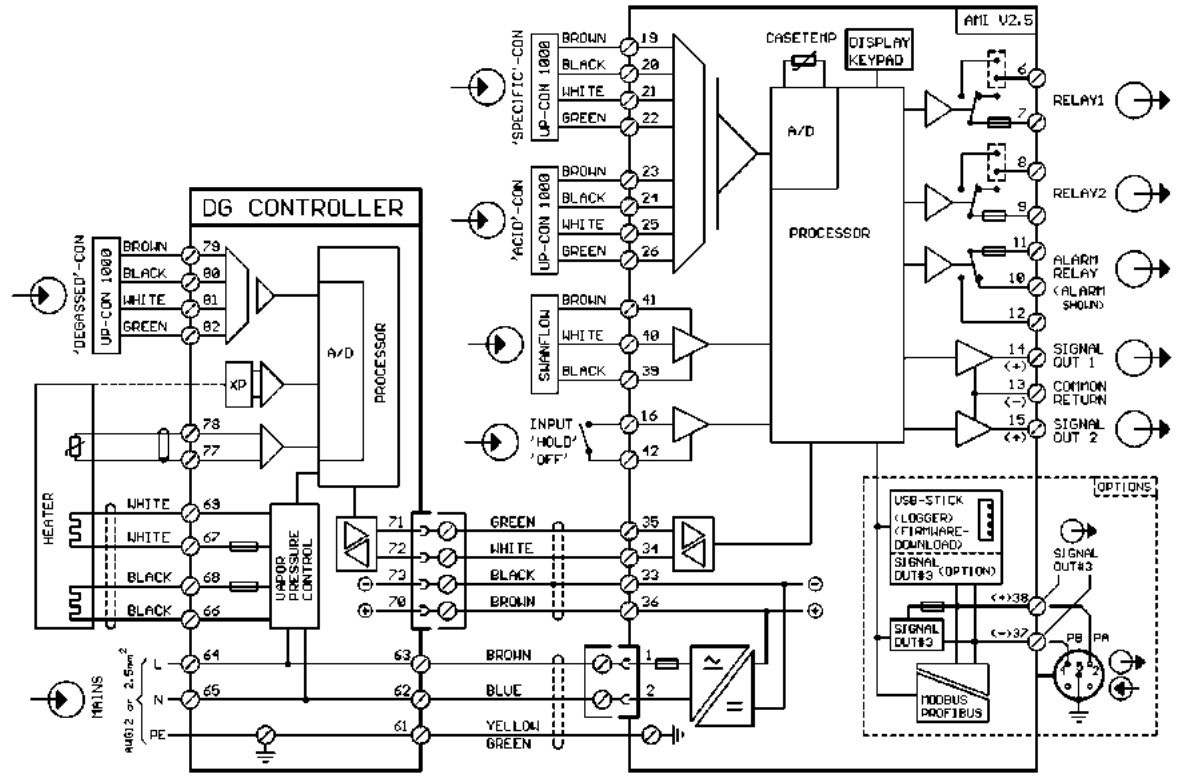
Cation exchanger
1L of rinsed resin with capacity indicator ready for operation.

Resin sufficient for alkalization with ammonia 1 mg/L (pH 9.4).

Resin capacity for 1L:
4 months at sample flow 10 L/h or 5 months at 5 L/h.

Panel
Dimensions: 570 x 850 x 200 mm
Material: stainless steel
Total instrument weight: 26.0 kg

Electrical Connection Scheme



Complete monitoring system for the automatic, continuous measurement of total organic carbon (TOC) in pure and high purity water.

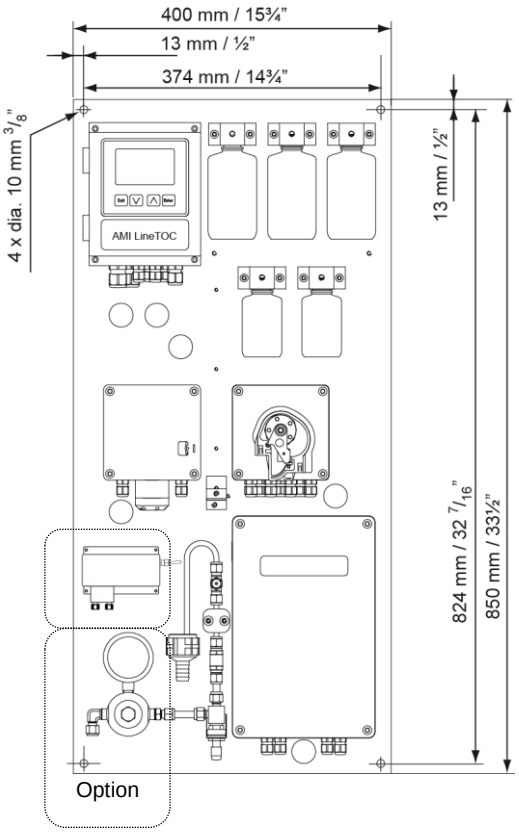
Monitor AMI LineTOC

Complete system mounted on stainless steel mounting panel:

- **Transmitter AMI LineTOC** in a rugged aluminum enclosure (IP 66).
- **Analyzing unit** with reagent free UV oxidation , two high precision two-wire conductivity electrodes made of stainless steel with integrated NTC temperature probe for automatic temperature compensation.
- 3-Channel **Peristaltic pump** with automatic dilution of standard solution (performance check).
- **Grab sample** measurement
- Continuous **sample flow** detection.
- Factory tested, ready for installation and operation.

Specifications:

- Measurement range: TOC: 0 to 1'000 ppb
- System suitability test according to USP<643>.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow, temperature compensation type and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Data logger for 1'500 data records stored at a selectable interval.
- Programmable, automatic sensor check (verification) using concentrated, durable standard and internal dilution.
- Two current outputs (0/4 - 20 mA) for measured signals.



Options:

- Communication interface.
- Inlet Pressure Regulator.
- Sample Cooler.

Order Nr.	Monitor AMI AMI LineTOC	A–23.612.100
Option 1:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option 2:	[ ] Inlet Pressure Regulator	A-82.589.000
Option 3:	[ ] Sample Cooler LineTOC	A-82.300.010

Monitor AMI LineTOC

Data sheet No. DenA23612100

TOC Measurement

Analyzing method; reagent free UV oxidation, differential conductivity.
Reaction time <2 min.

Swansensor TOCON with integrated NT5K temperature sensor.

UV Emitter
Lifetime 6 months
depending on application: up to 12 months
Power 11 W

Measuring range **Resolution**
0.1 to 1'000 ppb TOC 0.1 ppb
Reproducibility
0.1 to 50 ppb ± 1 ppb
50 to 1'000 ppb ± 2 %
Precision
0.055 to 2 µs/cm (20°C) +- 2%

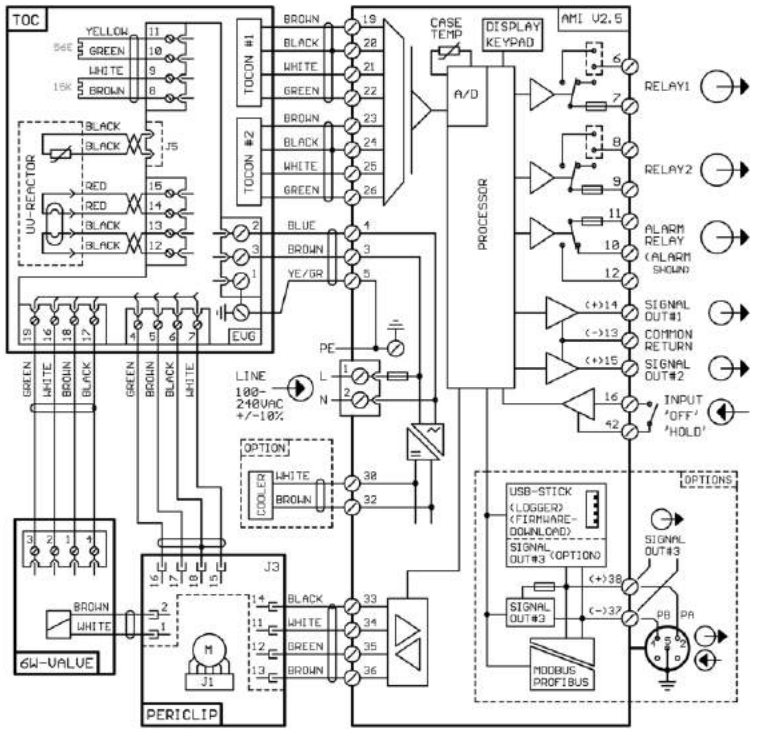
Periodic accuracy test with ultra high precision resistors.
Automatic sensor check (verification) using concentrated, durable standard and internal dilution.

System Suitability Test according to USP<643> and Ph.Eur.2.2.44.

Automatic **Temperature compensation**

Sample flow detection.

Electrical Connection Scheme



Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50°C
Humidity: 10 - 90% rel., non condensing

Power supply
Voltage: 100 - 240 VAC (± 10%), 50 /60 Hz (± 5%)
Power consumption: max. 55 W

Operation
Easy operation based on separate menus for "Messages", "Diagnostics", "Maintenance", "Operation" and "Installation". User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, alarm status and time during operation.
Storage of event log, alarm log and calibration history.
Storage of the last 1'500 data records in logger with selectable time interval (not suitable for Pharma).

Safety features
No data loss after power failure, all data is saved in non-volatile memory.

Overvoltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument errors.
Maximum load: 1A / 250 VAC

1 Input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB
- HART

Monitor Data

Sample conditions
Flow rate: 1 to 5 l/h
Temperature: 10 to 40 °C
with Sample Cooler (Option): up to 90°C
Inlet pressure$_{Abs.}$ (25 °C): up to 1.5 bar
with Pressure Regulator : up to 5 bar
Outlet pressure: pressure free
Conductivity: 0.055 to 2 µS/cm
Particle size: < 100 µm
No sand, no oil

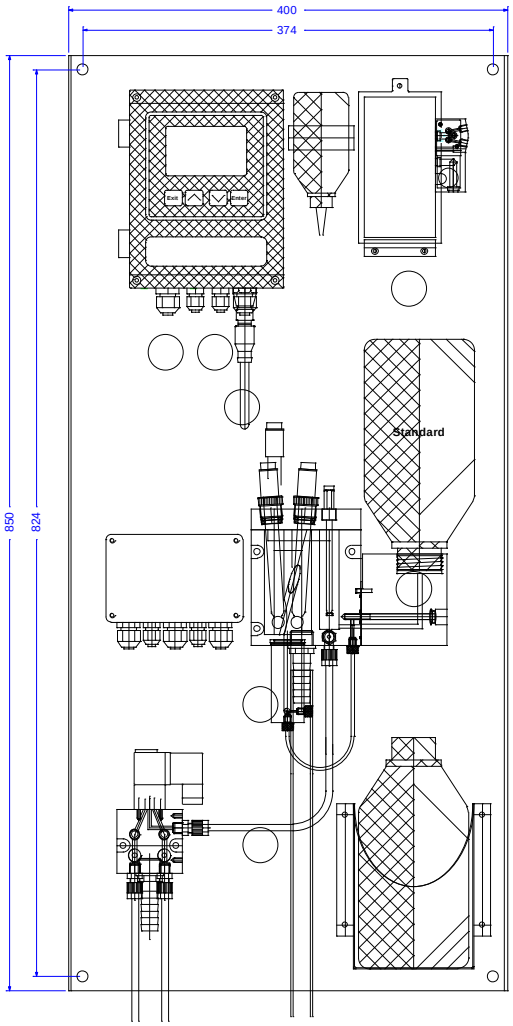
Sample connections
Sample inlet: Swagelok ¼" tube adapter
Sample outlet: G ½" adapter
for flexible tube Ø 20 x 15 mm

Panel
Dimensions: 400 x 850 x 180 mm
Material: stainless steel
Total weight: 18 kg

Analyzer for the continuous determination of dissolved sodium in the ppb-range for steam, condensate and high purity water. For samples with low pH (e.g. sampling after cation exchangers).

Analyzer AMI Sodium A

- Complete Sodium analyzer panel-mounted for easy wall installation.
- Measuring range: 0.1 – 10'000 ppb Na (under reference conditions) with automatic range switching.
- pH controlled alkalization reagent addition allows to monitor samples with pH ≥ 2.
- Option for second sample stream with programmable stream switching.
- Simple two-point calibration. Calibration history is stored in transmitter.
- Easy to use grab sample capability.
- Continuous sample flow detection.
- Automatic temperature compensation.
- Large backlit LCD display showing all measured values and status information simultaneously.
- Intuitive user interface with text menus. Simple input of all parameters by keypad.
- Factory tested, ready for installation and operation.



Analyzer with optional second sample stream

Order Nr.	Analyzer AMI Sodium A	A–24.451.100
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option:	[ ] 2nd sample stream	A-83.590.044

Analyzer AMI Sodium A

Data sheet No. DenA24451100

Analytical System

Sodium measurement
Galvanically separated inputs for sodium electrode and calomel reference electrode (liquid junction: ground glass sleeve).
pH-conditioning with diisopropylamine, consumption approx. 1 L / 30 d at pH 7.
Automatic temperature compensation.

Measuring ranges	**Resolution**
0 - 99.9 ppb	0.1 ppb
0 - 999 ppb	1 ppb
0 - 9.99 ppm	0.01 ppm

Automatic range switching.
Accuracy:
± 5% of reading after calibration
Repeatability: 5%
Response time: 180 s (95%)

Sodium calibration
Manual 1- or 2-point calibration with direct standard injection.

Sample specifications
pH value: ≥ pH 2.0
Ammonium concentration: < 50 ppm
Dissolved solids:
smaller than 10 ppm, no oil no grease
Flow rate: min. 100 ml/min.
Inlet pressure: 0.3 - 3 bar (4 - 43 PSI)
Outlet pressure: ambient pressure
Temperature: 5 - 45 °C (41 - 113 F)

Temperature measurement
Temperature sensor SWAN NT5K
Measuring range: -10 to +100 °C
Resolution: 0.1 °C

Flow cell
Made of acrylic glass with needle valve for flow adjustment.

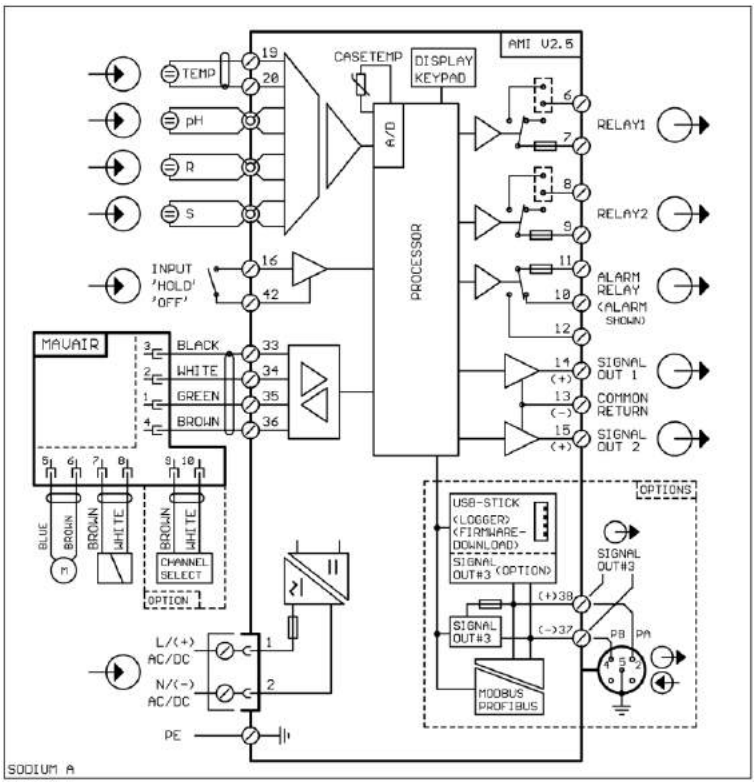
Process connections
Inlet connection: Serto PVDF 6 mm
Outlet connection: 1/2" for flexible tube
One or two (option) sample streams.
Stream switching time: ≥ 15 min.

AMI Transmitter

Electronic case: Aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 mm x 45 mm
Electrical connectors: screw clamps
Ambient temperature: -10 to +50 °C
Limit range of operation: -25 to +65 °C
Storage and transport: -30 to +85 °C
Humidity: 10 - 90 % rel., non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz(± 5 %)
or 24 VDC, isolated (± 10 %)
Power consumption: max. 30 VA

Electrical Connections



Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
Separate menu specific password protection possible.

Display of process value, sample flow, alarm status and time during operation.

Real-time clock with calendar for action time stamp and preprogrammed actions.
Storage of event log, alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Over voltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Monitoring of case temperature
Alarm if the temperature is higher than +65°C or lower than -25°C.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Max. load: 1A / 250 VAC

2 Signal outputs
Two freely scaleable signal outputs for measuring values:
Sodium 0.1 - 10’000 ppb, linear or log
Temperature 0 to +100 °C
Current loop: 0/4 - 20 mA
Max. burden: 510 Ω
Third signal output with same specifications as option.

2 Relay outputs
Two potential free contacts programmable as limit switches for measuring values.
Max. load: 1A / 250 VAC
Alarm delay: 0 - 6’000 s

1 Input
One input for potential-free contact, programmable as hold or remote off.

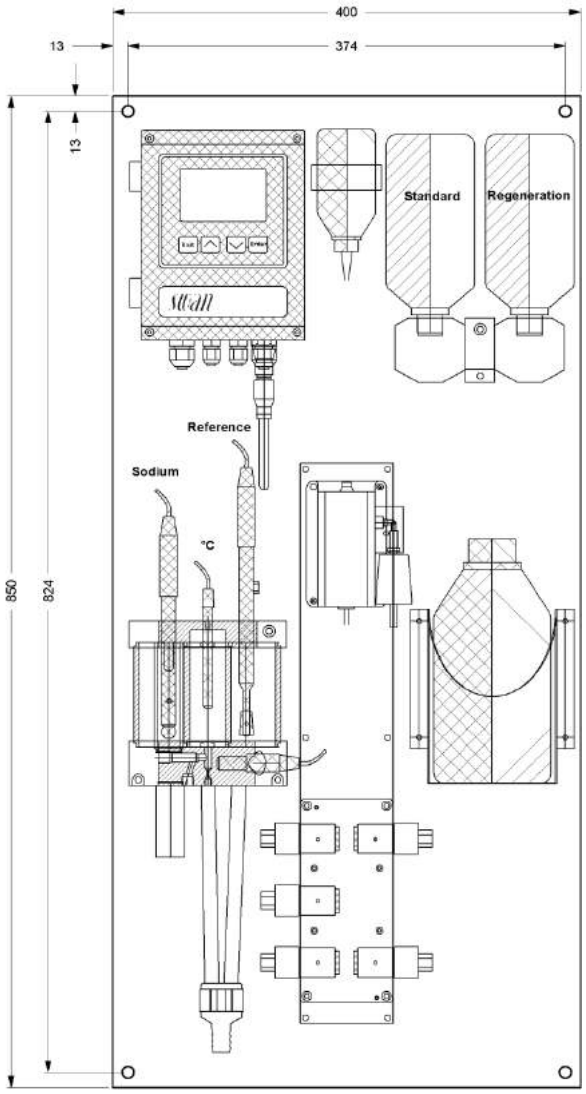
1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

System Data

Panel dimensions: 400 x 850 x 200 mm
Panel material: Stainless steel V4A
Total weight: 12 kg

Analyzer for the continuous measurement of sodium ions in trace amounts in high purity water applications and steam generation.

Analyzer AMI Soditrace



- Complete Sodium analyzer panel-mounted for easy wall installation.
- Lowest available detection limit for sodium ion concentrations of 0.001 ppb.
- Automatic :
  - 3 point known-addition calibration in the ppb range.
  - Regeneration of sodium electrode.
  - Control of sample pH conditioning.
  - Temperature compensation.
- Continuous monitoring of undervoltage, reagent exhaustion, sample flow, sample temperature.
- Galvanically separated connection for sodium and reference electrodes, temperature and conductivity sensor.
- Big backlit LC display for the reading of measuring value, sample temperature, pH (conductivity value) and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Data logger for 1'500 data records stored at a selectable interval. (Data download to PC requires optional HyperTerminal interface).
- Two current outputs (0/4 – 20 mA) for measured signals.
- Factory tested, ready for installation and operation.

Order Nr.	**Analyzer AMI Soditrace**	**A–24.611.000**
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042

Analyzer AMI Soditrace

Data sheet No. DenA24611000

Sodium measurement

Sodium measurement
Sodium glass electrode, screw cap.
Calomel reference electrode, screw cap.

Measuring range:	0.001 ppb – 10 ppm
Accuracy:	± 0.005 ppb or ± 10% of reading
Reproducibility:	± 0.001 ppb or ± 5% of reading
Response time:	120 s (90%)

Automatic:	3 point calibration Electrode regeneration Temperature compensation pH monitoring & control

Temperature measurement

Temperature sensor:	SWAN NT5K
Measuring range:	-30 to +130 °C
Resolution:	0.1 °C

Transmitter Specifications and Functionality

Electronic case:	Aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 mm x 45 mm
Electrical connectors:	screw clamps
Ambient temperature:	-10 to +50 °C
Limit range of operation:	-25 to +65 °C
Storage and transport:	-30 to +85 °C
Humidity:	10 - 90 % rel., non condensing

Power supply

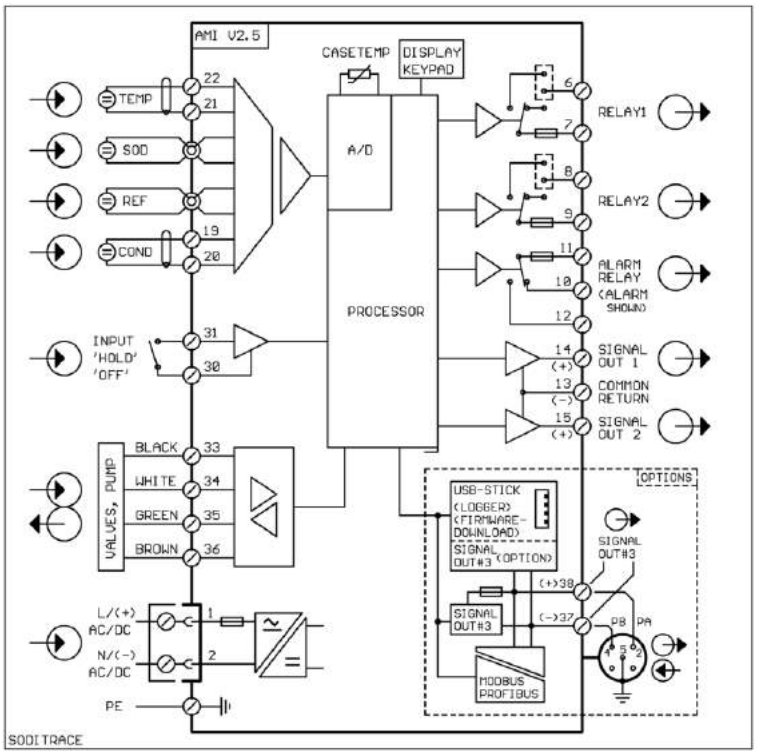
Voltage:	100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC, isolated (± 10 %)
Power consumption:	max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
Separate menu specific password protection possible.
Display of process value, alarm status and time during operation.
Storage of event log, alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Over voltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

Electrical Connections



1 Alarm relay
One potential free contact as summary alarm indication for programmable alarm values and instrument errors.
Max. load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential free contacts programmable as limit switches for measuring values.
Max. load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measuring values (freely scaleable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.

Current loop:	0/4 - 20 mA
Max. burden:	510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface

System Data

Sample conditions

Flow rate:	min. 100 ml/min.
Temperature:	5 - 45 °C (41 - 113 F)
Inlet pressure:	0.3 - 3 bar (4 - 43 PSI)
Outlet pressure:	ambient pressure
pH value:	≥ pH 7.0
Ammonium concentration:	< 10 ppm
Acidity:	< 50 ppm ($CaCO_3$)
Dissolved solids:	< 10 ppm, no oil and no grease

Note: Please correct the pH of the sample only with Diisopropylamine.

Flow cell and sample connections
Flow cell made of acrylic glass contains sodium electrode, reference electrode, conductivity and temperature sensor.

Inlet:	Serto PVDF 6 mm
Outlet:	1/2" for flexible tube

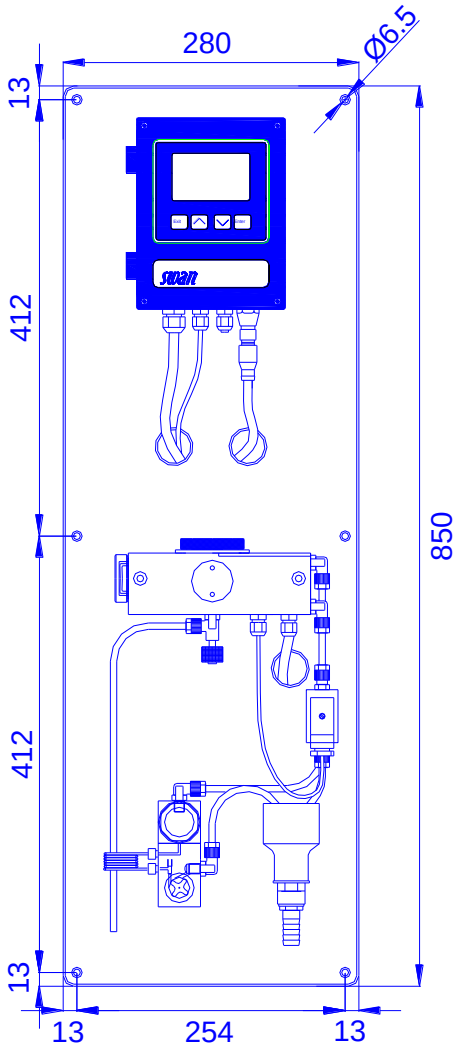
Panel

Panel dimensions:	400 x 850 x 200 mm
Panel material:	Stainless steel V4A
Total weight:	14 kg

Nephelometric system for the automatic and continuous measurement of low level turbidity in pure water with up to 10 bar sample pressure.

Monitor AMI Turbitrack

- High precision nephelometer complying with ISO 7027 (EN 27027, DIN 38404)
- Measurement range: 0.000 - 100.0 FNU/NTU Automatic range switching.
- Precision: ± 0.001 FNU/NTU or 1% of reading.
- Response time: typically T90 < 15 sec (after sample entry at 10 l/h)
- Manual verification with high precision secondary standards.
- Automatic purging of optical measurement chamber in programmable intervals.
- Pressure tight sample system up to 10 bar avoids outgassing of sample.
- Transmitter, turbidity sensor, flow cell, flow controller and sensor mounted on panel for immediate use.
- Transmitter with large backlit graphic display for the reading of measuring value, flow and operating status. Full text menu driven user interface. Storage of calibration history.
- Two signal outputs for measuring values or as control outputs.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.
- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact with programmable function.
- Factory tested and calibrated with formazine standards, ready for use.



Order Nr.	Monitor AMI Turbitrack	A–25.411.200
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Monitor AMI Turbitrack

Data sheet no. DenA25411200

Turbidimeter System

Turbidimeter with flow controller.

Measurement range:
0.000 - 100.0 FNU/NTU with automatic range switching

Precision:
±0.001 FNU/NTU or 1% of reading with automatic purging of optical chamber in programmable intervals.

Transmitter Specifications and Functions

Electronics case:	Cast aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Dimensions:	180 x 140 x 70 mm
Weight:	1.5 kg
Ambient temperature:	-10 to +50°C
Humidity:	10 - 90% rel., non condensing

Power supply

Voltage:	100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption:	max. 30 VA

Operation

Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”. User menus in English, German, French and Spanish.

Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation.

Storage of event log, alarm log and calibration history. Storage of the last 1’500 data records in logger with selectable time interval.

Safety features

No data loss after power failure, all data is saved in non-volatile memory.

Overvoltage protection of in- and outputs.

Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay

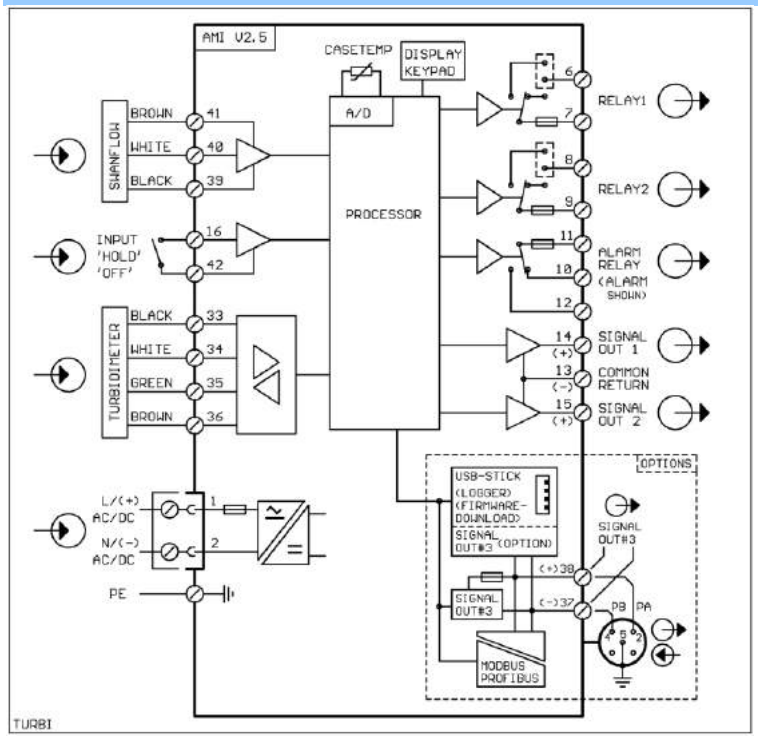
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.

Maximum load:	1A / 250 VAC

1 Input

One input for potential-free contact. Programmable hold or remote off function.

Electrical Connection Scheme



2 Relay outputs

Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.

Rated load:	1A / 250 VAC

2 Signal outputs (3rd as option)

Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control functions

Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.

Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)

- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor Data

Sample Conditions

Sample temperature:	1 - 40 °C
Sample flow:	5 - 20 l/h
Sample pressure:	1 - 10 bar

Connections

Sample inlet:	Serto 6 mm
Sample outlet:	pressure free (funnel with connection for flexible tube 15 x 20 mm)

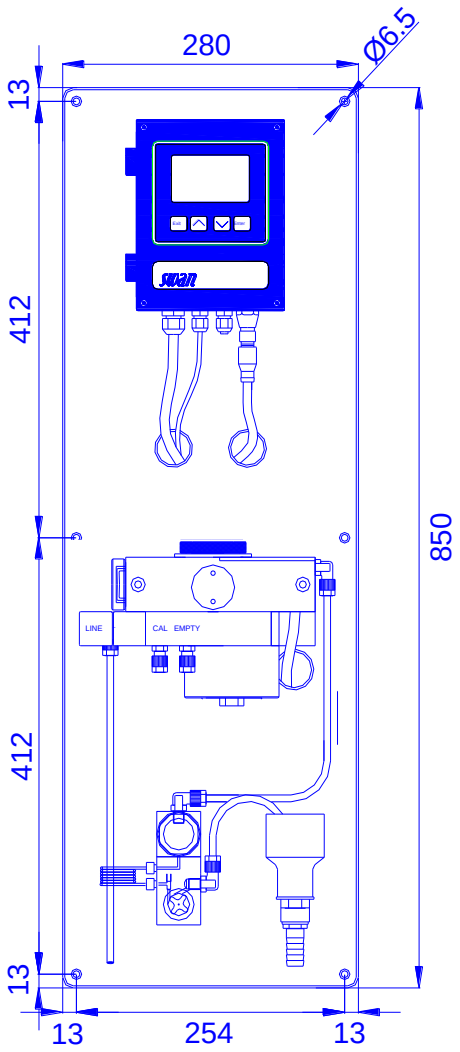
Panel

Panel dimensions:	280 x 850 x 200 mm
Panel material:	PVC
Total monitor weight:	7.6 kg

Nephelometric system for the automatic and continuous measurement of low level turbidity in pure and ultra pure water

Monitor AMI Turbitrace

- High precision nephelometer complying with ISO 7027 (EN 27027, DIN 38404)
- Measurement range: 0.000 - 100.0 FNU/NTU Automatic range switching.
- Precision: ± 0.001 FNU/NTU or ±1% of reading.
- Response time: typically T90 < 15 sec (after sample entry at 10 l/h)
- Programmable automatic zero point measurement for drift compensation by integrated sub-micron particle filter.
- Complete system including transmitter, turbidity sensor, flow cell with integrated sub-micron filter, flow controller and flow sensor. Installed on panel for immediate use.
- Valve and connector for slope calibration with formazine according to ISO 7027.
- Pressure tight sample system up to 10 bar avoids outgassing of sample.
- Transmitter with large backlit graphic display for the reading of measuring value, flow and operating status. Full text menu driven user interface. Storage of calibration history.
- Two signal outputs for measuring values or as control outputs.
- Alarm contact as summary alarm indication for programmable alarm values and for instrument faults. Alarm functions include: “Flow out of range”, “Cleaning required“ and “Replace filter”.
- Two potential-free contacts programmable as limit switches or PID-controllers.
- Input for potential-free contact with programmable function.



Order Nr.	Monitor AMI Turbitrace	A–25.411.500
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Monitor AMI Turbitrace

Data sheet no. DenA25411500

Turbidity Measurement

Turbidimeter with flow controller and programmable automatic zero point measurement for drift compensation by integrated sub-micron particle filter.

Measurement range:
0.000 - 100.0 FNU/NTU with automatic range switching

Precision:
±0.001 FNU/NTU or ±1% of reading

Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90% rel., non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %)
or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

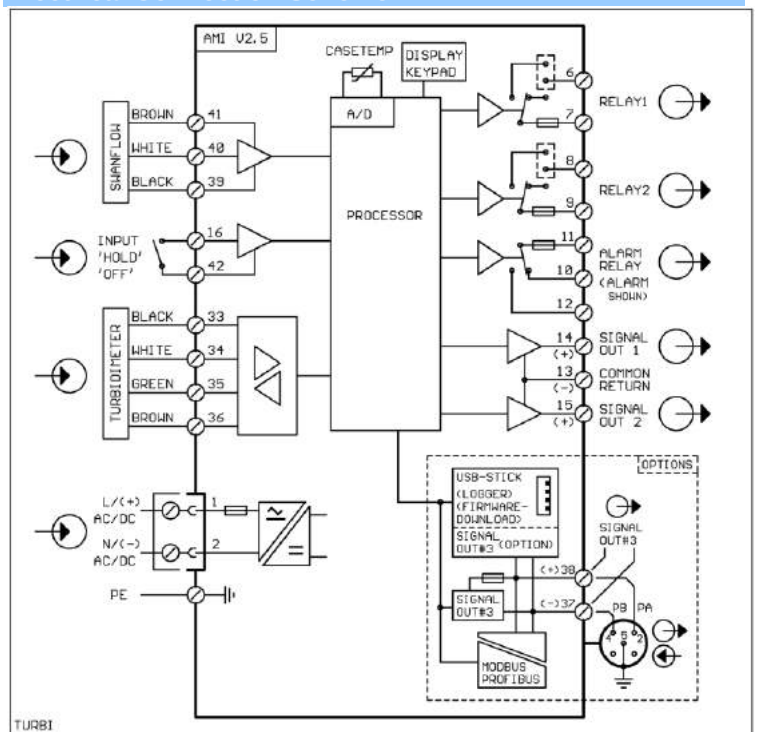
Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Over-voltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

Electrical Connection Scheme



2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor Data

Sample conditions
Sample temperature: 1 - 40 °C
Sample flow: 5 - 20 l/h
Sample pressure: 1 - 10 bar

Sample connections
Sample inlet: Serto connection for tube 6 mm
Sample outlet: Pressure free outlet (funnel with connection for flexible tube 15 x 20 mm)

Panel
Panel dimensions: 280 x 850 x 200 mm
Panel material: PVC
Total monitor weight: 9.0 kg

Monitor AMI Turbiwell

Data sheet no. DenA25411600X

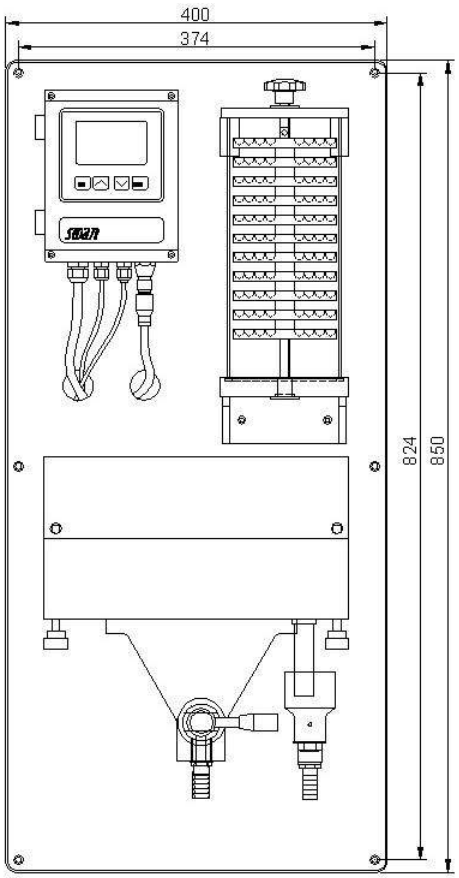
Nephelometric system based on ISO 7027 for the automatic and continuous measurement of turbidity in potable water, surface water and effluent.

Monitor AMI Turbiwell 7027

- Non-contact turbidimeter: System optics is not in direct contact with sample, no fouling on optical surfaces.
- Measuring range: 0.000 - 200.0 FNU/NTU
  Automatic range switching.
- Precision: ± 0.003 FNU/NTU or 1% of reading.
- Complete system including measurement control electronics, sample chamber and turbidimeter
- Manual or automated draining of the sample chamber.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Real-time clock for time stamp in data logs and for automated functions.
- Data logger for 1'500 data records stored at selectable intervals.
- Big back-lit LCD display for the reading of all measured values and status information simultaneously.
- Measurement values are available as analog output signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).
- Factory tested, ready for installation and operation.
- Optional s*ample degasser* to avoid the formation of interfering bubbles in the samples.

Accessories:

- Turbidity verification kits (dry verification)



Monitor AMI Turbiwell with manual drain valve and optional sample degasser

Optional:

- Communication *interfaces*
- *Sample degasser* to avoid the formation of interfering bubbles in the samples
- *SS deltaT* flow meter

Order Nr.	Monitor AMI Turbiwell 7027	A–25.411.600.1
	Monitor AMI Turbiwell 7027; Auto-drain	**A–25.411.600.2**
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option:	[ ] Sample degasser	A-82.321.000
Option:	[ ] SS Flow deltaT	A-87.933.010
	[ ] Flowcontroller	A-82.521.201

Monitor AMI Turbiwell

Data sheet no. DenA25411600X

Turbidimeter System

Nephelometer according to ISO 7027

Measuring range: 0.000 to 200.0FNU/NTU
Precision: ± 0.003 FNU/NTU or ± 1%, whichever is greater

Two-part turbidimeter body made of PETP with drain valve.
Heated optics to avoid condensation.

Easy cleaning of sample compartment.

Factory calibrated with Formazine.

Optional sample flow measurement with SWAN deltaT flow sensor.

Transmitter Specifications and Functionality

Electronics case: Aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Ambient temperature: -10 to +50 °C
Limit range of operation: -25 to +65 °C
Storage and transport: -30 to +85 °C
Humidity: 10 to 90 % relative, non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation

Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.

Separate, menu specific password protection.

Display of process value, alarm status and time during operation.

Storage of event log, alarm log and calibration history.

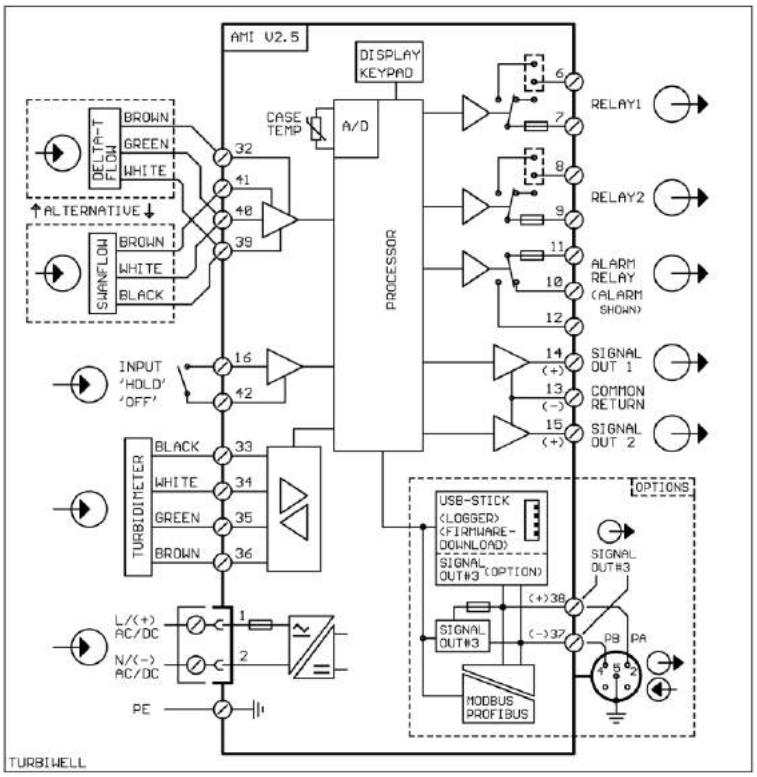
Storage of the last 1’500 data records in logger with selectable time interval.

Real-time clock with calendar
For action time stamp and preprogrammed actions.

Safety features
No data loss after power failure, all data is saved in non-volatile memory. Overvoltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
With programmable high/low alarm limits.

Electrical Connection Scheme



1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument errors.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Sample and Monitor Data

Sample conditions
Flow rate: approx. 20-60l/h
Temperature: up to 40 °C
Sample temperature max. 5°C over ambient temperature
Outlet pressure: pressure free, atmospheric drain

Sample connections
Inlet: nozzle, Ø 10mm
Drain: Ø 16 mm, tubing 15 x 20 mm

Panel
Dimensions: 400 x 850 x 200 mm
Material: white PVC
Weight: 11.0 kg

Monitor AMI Turbiwell W/LED

Data sheet no. DenA25411700X

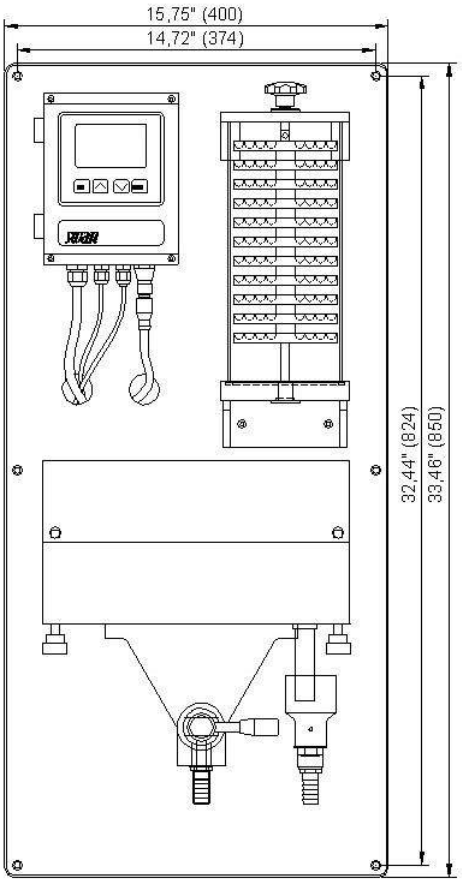
Nephelometric system, approved alternative method to US EPA 180.1, for the automatic and continuous measurement of turbidity in potable water, surface water and effluent.

Monitor AMI Turbiwell W/LED

- Non-contact turbidimeter: System optics are not in direct contact with sample, no fouling on optical surfaces.
- Measuring range: 0.000 - 100.0 NTU
  Automatic range switching.
- Precision: ± 0.003 NTU or ± 1% of reading.
- Complete system including transmitter, control electronics, sample chamber and turbidimeter.
- Manual or automatic valve for the drain of the sample chamber.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Real-time clock for time stamp in data logs and for automated functions.
- Data logger for 1'500 data records stored at selectable intervals.
- Big back-lit LCD display for the reading of all measured values and status information simultaneously.
- Measurement values are available as analog output signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument errors.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).
- Factory tested, ready for installation and operation.

Accessories:

- Turbidity verification kits (dry verification)



Monitor AMI Turbiwell W/LED with manual drain valve and optional sample degasser.

Optional:

- Communication *interfaces*
- *Sample degasser* to avoid the formation of interfering bubbles in the samples
- *SS deltaT* flow meter

Order Nr.	Monitor AMI Turbiwell W/LED	A–25.411.700.1
	Monitor AMI Turbiwell W/LED; Auto-drain	**A–25.411.700.2**
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option:	[ ] Sample degasser	A-82.321.000
Option:	[ ] SS Flow deltaT	A-87.933.010
	[ ] Flowcontroller	A-82.521.201

Monitor AMI Turbiwell W/LED

Data sheet no. DenA25411700X

Turbidimeter System

Nephelometer using a white light LED light source. Approved alternative method to US EPA 180.1.
Method number: SWAN AMI Turbiwell

Measuring range: 0.000 to 100.0 NTU
Precision: ± 0.003 NTU or ± 1%, whichever is greater

Two-part turbidimeter body made of PETP with drain valve.
Heated optics, windows and sample compartment to avoid condensation.

Easy cleaning of sample compartment.

Factory calibrated with Formazine.

Optional sample flow measurement with SWAN deltaT flow sensor.

Transmitter Specifications and Functionality

Electronics case: Aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 2,95 x 1,77”
Electrical connectors: screw clamps
Ambient temperature: 14 to 122 °F
Limit range of operation: -13 to 149 °F
Storage and transport: -22 to 185 °F
Humidity: 10 to 90 % relative, non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation

Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.

Separate, menu specific password protection.

Display of process value, alarm status and time during operation.

Storage of event log, alarm log and calibration history.

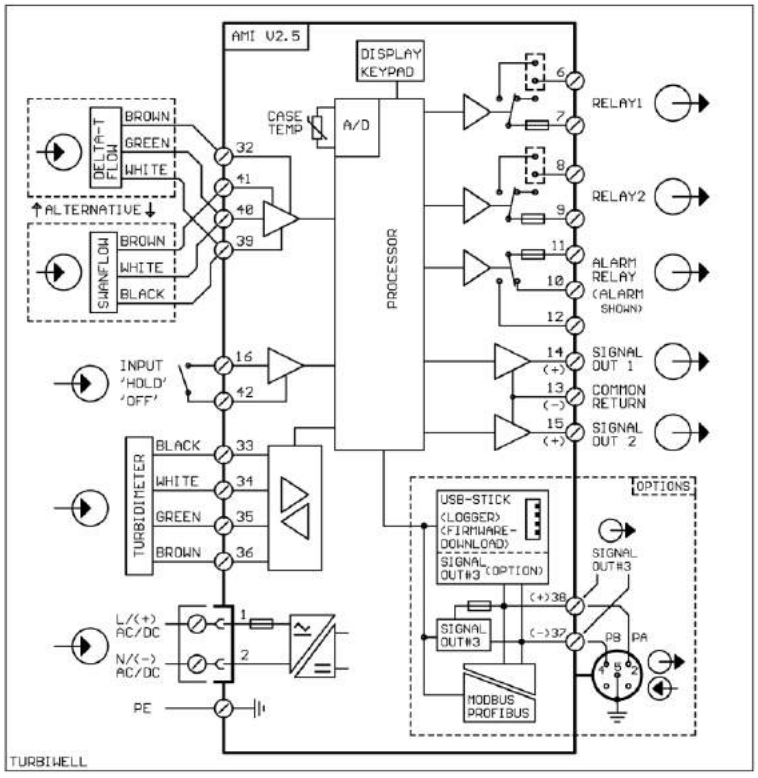
Storage of the last 1’500 data records in logger with selectable time interval.

Real-time clock with calendar
For action time stamp and preprogrammed actions.

Safety features
No data loss after power failure, all data are saved in non-volatile memory.
Over-voltage protection of in- and ouputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
With programmable high/low alarm limits.

Electrical Connection Scheme



1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument errors.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Sample and Monitor Data

Sample conditions
Flow rate: approx. 5 – 16 gal/h
Temperature: up to 104 °F
Sample temperature max. 9°F over ambient temperature
Outlet pressure: pressure free, atmospheric drain

Sample connections
Inlet: ¼” thread / nozzle, Ø 0,39” (10mm)
Drain: ½” thread / Ø 0,62” (16 mm), tubing 0,59 x 0,78” (15 x 20 mm)

Panel
Dimensions: 15,75 x 33,46 x 7,87” (400 x 850 x 200mm)
Material: white PVC
Weight: 30.0 lbs

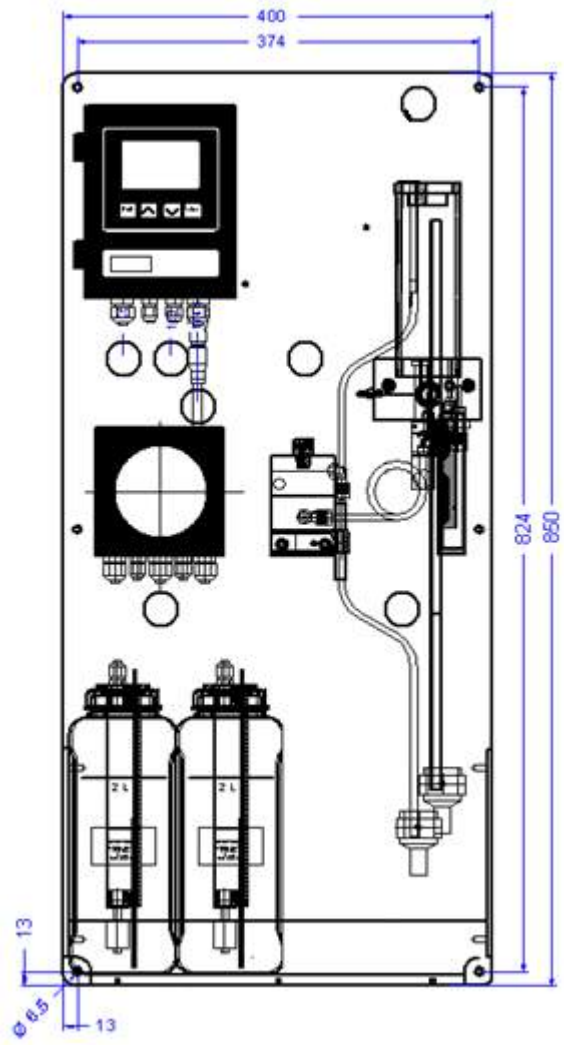
Complete monitoring system for the automatic, continuous measurement of phosphate in potable water, effluents and cooling water.

Monitor AMI Phosphate-II

- Measuring range: 0.01 to 10 ppm (mg/L) PO_4
- Based on colorimetric measurement principle according to EN ISO 6878 / APHA 4500 –P E.
- No interferences with silica.
- Complete system including measurement and control electronics, photometer, flow indicator, reaction chamber, reagent dosing system and reagent containers.
- Measurement values are available as analog output signals.
- Alarm display and activation of alarm relay when user defined, critical limits are reached.
- Continuous, automatic monitoring of main instrument functions (sample flow, reagent supply).
- Large back-lit LC display showing all measured values and status information simultaneously.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Data logger for 1'500 data records stored at a selectable interval. (Data download requires optional HyperTerminal interface).
- Factory tested, ready for installation and operation.

Accessories

- *Cleaning Module* for automatic chemical cleaning of flow cell and photometer. For details see separate data sheet no. DenA82312000.



Monitor AMI Phosphate-II

Order scheme	Monitor AMI Phosphate-II	A–25.421.100
Option 1:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042

Monitor AMI Phosphate-II

Data sheet no. DenA25421100

Analytical System

Phosphate (PO_4) measurement

Measuring range:	Resolution
0.01 to 0.99 ppm	0.01 ppm
1.0 to 4.9 ppm	0.1 ppm
5 to 10 ppm	1.0 ppm

Reproducibility:

up to 5 ppm	± 0.01 ppm or ± 2.5%, whichever is the greater
5 to 10 ppm	± 10%
Measurement time:	7 minutes
Cycle time:	10 minutes

Flow cell

Made of acrylic glass with water inlet filter and flow adjustment valve.

Transmitter Specifications and Functionality

Electronics case:	Aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Ambient temperature:	-10 to +50 °C
Limit range of operation:	-25 to +65 °C
Storage and transport:	-30 to +85 °C
Humidity:	10 to 90 % relative, non condensing

Power supply

Voltage:	100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption:	max. 30 VA

Operation

Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “ Installation”.

Separate menu specific password protection possible.

Display of process value, sample flow, alarm status and time during operation.

Storage of event log, alarm log and calibration history.

Storage of the last 1’500 data records in logger with selectable interval.

Real-time clock with calendar

For action time stamp and pre-programmed actions.

Safety features

Data storage in non-volatile memory.
Over voltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Reagents monitoring

Warning if low level is reached and alarm for lack of reagents.

Temperature monitoring

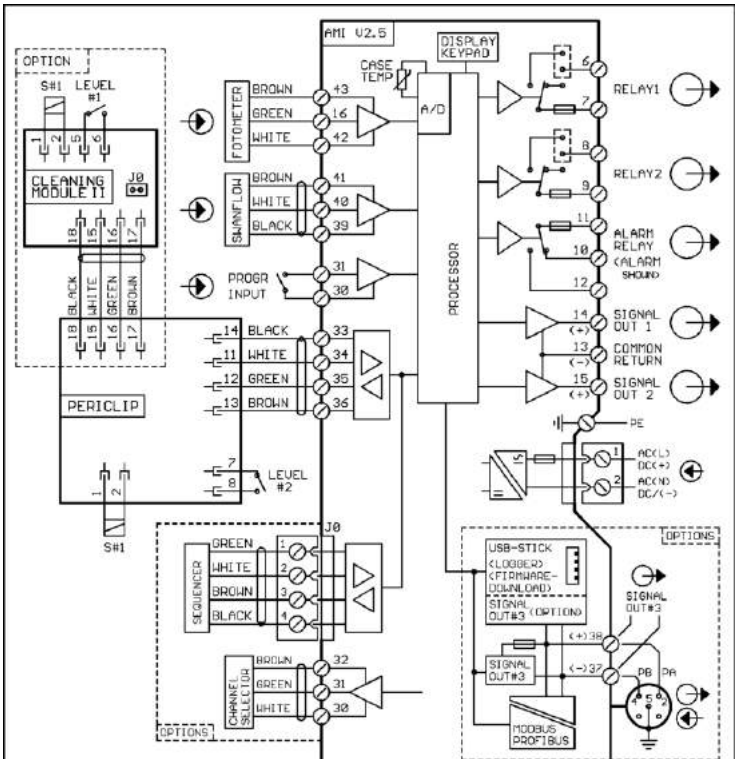
Alarm if the transmitter temperature is higher than +65 °C or lower than 0 °C.

1 Alarm relay

One potential free contact for summary alarm indication for programmable alarm values and instrument faults.

Maximum load:	1A / 250 VAC

Electrical Connection Scheme



1 Input

One input for potential-free contact. Programmable hold or remote off function

2 Relay outputs

Two potential-free contacts programmable as limit switches for measuring values, controllers or timer with automatic hold function.

Max. load:	1A / 250 VAC

2 Signal outputs (3rd as option)

Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control function

Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)

- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface

Sample and Monitor Data

Sample conditions

Flow rate:	min. approx. 10 l/h
Temperature:	up to 50 °C
Inlet pressure:	0.15 to 2 bar
Outlet pressure:	pressure free, atmospheric drain

Sample connections

Inlet:	Serto PVDF 8 mm (1/4”), for tubing tubing 6x8 mm
Drain:	Ø 16 mm, tubing 15x20 mm

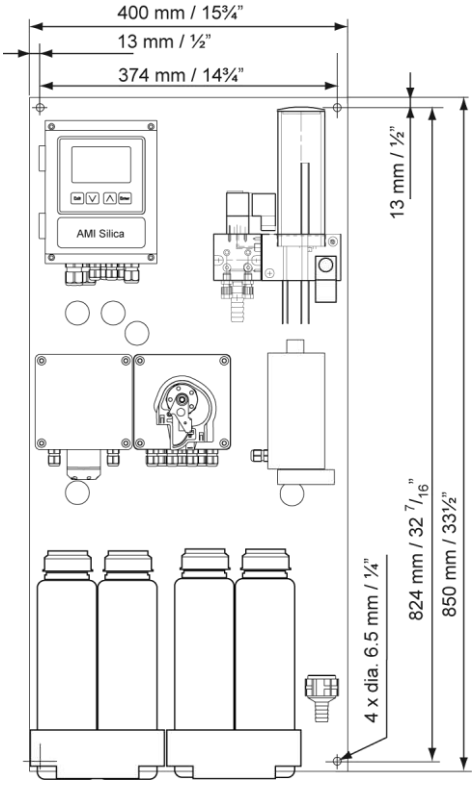
Panel

Dimensions:	400 x 850 x 200 mm
Material:	white PVC
Weight:	9.5 kg

Complete monitoring system for the automatic, continuous measurement of silica in water steam cycles.

Monitor AMI Silica

- Measuring range: 1 to 5'000 ppb
- Based on colorimetric measurement principle.
- Complete system including measurement and control electronics, photometer with integrated reaction chamber, flow indicator, reagent dosing system and reagent containers.
- Measurement values are available as analog output signals.
- Alarm display and activation of alarm relay when user defined, critical limits are reached.
- Continuous, automatic monitoring of main instrument functions (sample flow, reagent supply).
- Large back-lit LCD display showing all measured values and status information simultaneously.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Data logger for 1'500 data records stored at a selectable interval.
- Factory tested, ready for installation and operation.



Monitor AMI Silica

Instrument Options

- Communication interface (Profibus, Modbus, 3rd Signal Output, USB, HART).
- 2nd sample stream.

Accessories

- AMI Sample Sequencer, switching up to 6 sample streams.

Order Nr.	Monitor AMI Silica	A–25.431.000
Option 1:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option 2:	[ ] 2nd sample stream	A-83.590.043

Monitor AMI Silica

Data sheet no. DenA25431000

Analytical System

Colorimetric, Molybdosilicat method.

Silica measurement

Measuring range:	1 to 5'000 ppb
Reproducibility:	± 1 ppb or ± 5%, whichever is greater
Cycle time:	10'
Measurement interval:	10',15',20' or 30'

Flow cell

Made of acrylic glass with water inlet and flow adjustment valve.

Transmitter Specifications and Functionality

Electronics case:	Aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 mm x 45 mm
Electrical connectors:	screw clamps
Ambient temperature:	-10 to +50 °C
Limit range of operation:	-25 to +65 °C
Storage and transport:	-30 to +85 °C
Humidity:	10 to 90 % relative, non condensing

Power supply

Voltage:	100 - 240 VAC (± 10 %) 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption:	max. 30 VA

Operation

Easy operation based on separate menus for "Messages", "Diagnostics", "Maintenance", "Operation" and "Installation".
Separate menu specific password protection possible.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log and calibration history.
Storage of the last 1'500 data records in logger with selectable time interval.

Safety features

No data loss after power failure, all data is saved in non-volatile memory. Over voltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring

With programmable high/low alarm limits.

Real-time clock with calendar

For action time stamp and preprogrammed actions.

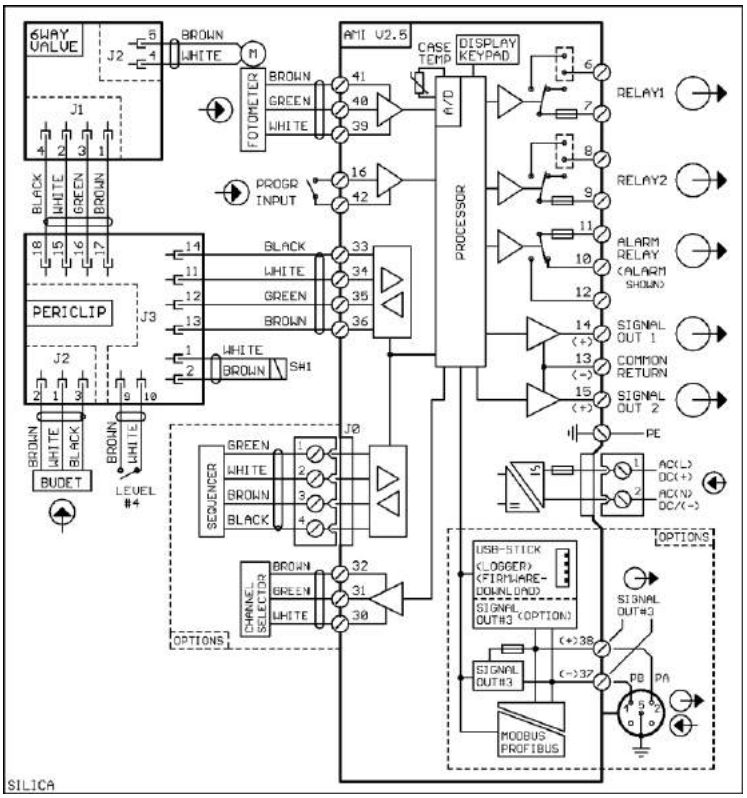
Monitoring of reagent consumption

Warning if low level is reached and alarm for lack of reagents.

1 Alarm relay

One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

Electrical Connection Scheme



1 Input

One input for potential-free contact. Programmable hold or remote off function

2 Relay outputs

Two potential-free contacts programmable as limit switches for measuring values, controllers or timer with automatic hold function.
Max. load: 1A / 250 VAC

2 Signal outputs (3rd as option)

Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control function

Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)

- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Sample and Monitor Data

Sample conditions

Flow rate:	min. approx. 10 l/h
Temperature:	up to 50 °C
Inlet pressure:	0.15 to 2 bar
Outlet pressure:	pressure free, atmospheric drain
Phosphate (as PO_4)	< 10 ppm

Sample connections

Inlet:	Serto PVDF 6 mm (1/8"), for tubing 4x6 mm
Drain:	Ø 16 mm, tubing 15x20 mm

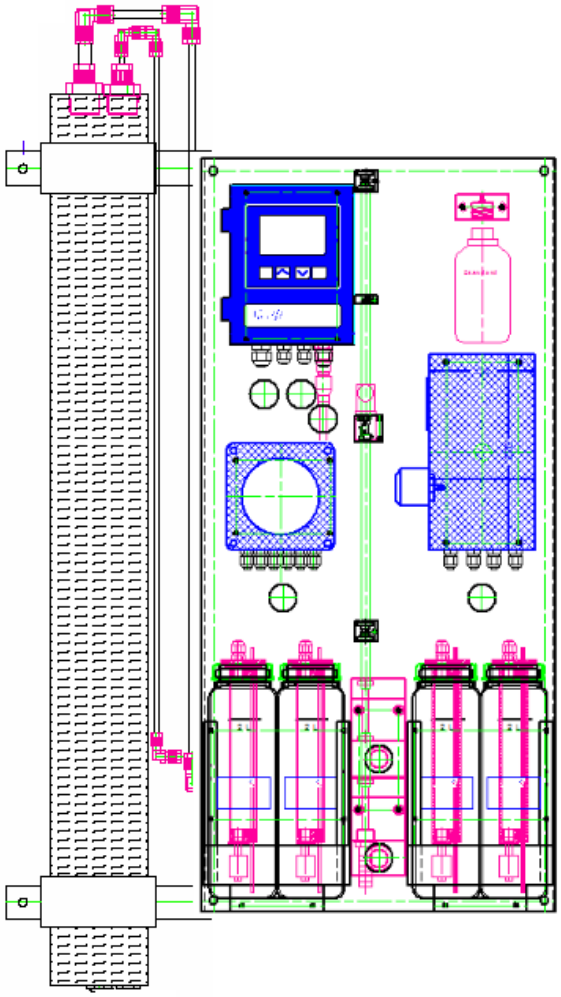
Panel

Dimensions:	400 x 850 x 160 mm
Material:	stainless steel
Weight:	16.0 kg

Complete monitoring system for the automatic, continuous measurement of trace amounts of silica in ultra pure water.

Monitor AMI Silitrace Ultra

- Measuring range: 5 ppt (0,005 ppb) to 25 ppb
- Based on colorimetric measurement principle.
- Programmable automatic calibration.
- Programmable automatic verification.
- Programmable automatic blank determination (Permeat).
- Manual Zero measurement.
- Complete system including measurement and control electronics, photometer with integrated constant-temperature reaction chamber, flow indicator, reagent dosing system and reagent containers using reversed osmosis system to concentrate the sample (Carrcentrator).
- Continuous, automatic monitoring of main instrument functions (sample flow, reagent supply, reaction temperature and pump tube integrity).
- Measurement values are available as analog output signals.
- Alarm display and activation of alarm relay when user defined, critical limits are reached.
- Large back-lit LCD display showing all measured values and status information simultaneously.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Data logger for 1'500 data records stored at a selectable interval.
- Factory tested, ready for installation and operation.



Monitor AMI Silitrace Ultra

Instrument Options

- Communication interface (Profibus, Modbus, 3rd Signal Output, USB, HART).

Order Nr.	Monitor AMI Silitrace; Ultra	A–25.431.150
Option 1:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060

Monitor AMI Silitrace Ultra

Data sheet no. DenA25431150

Analytical System

Colorimetric, Molybdosilicat method.
Temperature controlled high precision photometer with RO module.

Silica measurement
Measuring range: 0.005 ppb to 25 ppb
Reproducibility: ± 0.005 ppb or ± 5%, whichever is greater
Cycle time: 3'

Flow cell
Made of acrylic glass with water inlet and flow adjustment valve.

Transmitter Specifications and Functionality

Electronics case: Aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 mm x 45 mm
Electrical connectors: screw clamps
Ambient temperature: -10 to +50 °C
Limit range of operation: -25 to +65 °C
Storage and transport: -30 to +85 °C
Humidity: 10 to 90 % relative, non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %) 50/60 Hz (± 5 %)
Power consumption: max. 50 VA

Operation
Easy operation based on separate menus for "Messages", "Diagnostics", "Maintenance", "Operation" and "Installation".
Separate menu specific password protection possible.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log and calibration history.
Storage of the last 1'500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory. Over voltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

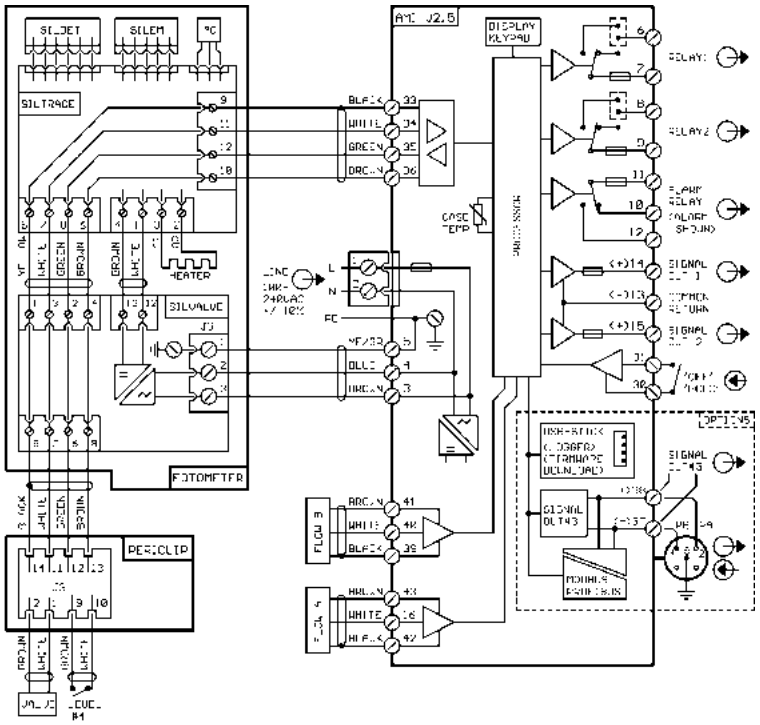
Transmitter temperature monitoring
With programmable high/low alarm limits.

Real-time clock with calendar
For action time stamp and pre-programmed actions.

Monitoring of reagent consumption
Warning if low level is reached and alarm for lack of reagents.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults. Maximum load: 1A / 250 VAC

Electrical Connection Scheme



1 Input
One input for potential-free contact. Programmable hold or remote off function

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer with auto-matic hold function.
Max. load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control function
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Sample and Monitor Data

Ambient temperature: 5 to 50 °C

Sample conditions Membrane:
Flow rate: min. 100 l/h
Temperature: 5 to 50 °C
Inlet pressure: 2 to 20 bar
Outlet pressure: pressure free, atmospheric drain
Feedwater pH: 3 to 10 pH

Sample connections Membrane
Inlet: ¾" NPT
Outlet 2: Ø 16 mm, tubing 15x20 mm

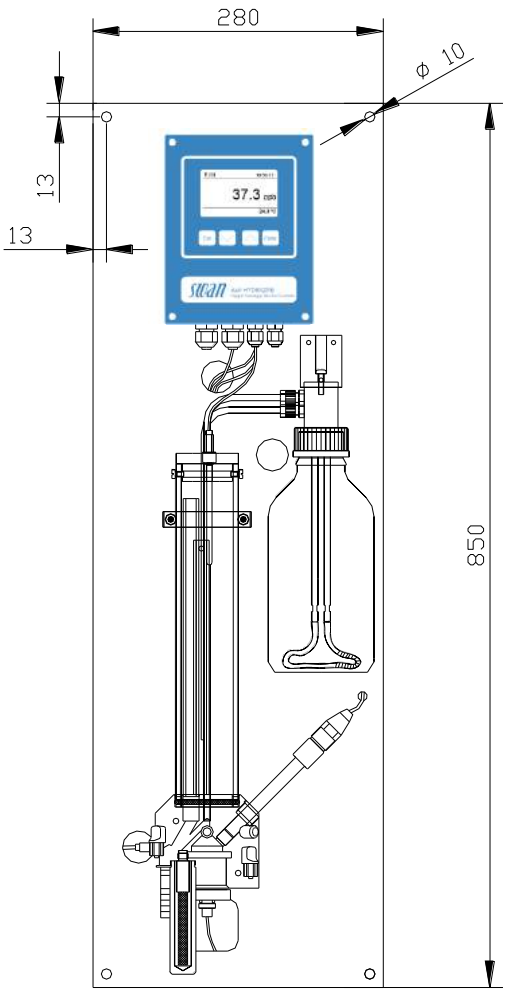
Panel incl Membrane
Dimensions: 640 x 1200 x 150 mm
Material: stainless steel
Weight: 30.0 kg

Microprocessor controlled system for the determination and control of hydrazine or carbohydrazide used as boiler feedwater oxygen scavengers

Monitor AMI Hydrazine

Complete system on stainless steel mounting panel:

- **Transmitter AMI Hydrazine**
  in a rugged aluminum enclosure (IP 66).
- **Sensor system**
  Self-cleaning three-electrode system for determination of hydrazine or carbohydrazide.
- **Flow cell**
  made of acrylic glass with flow adjustment valve, digital sample flow monitor and integrated temperature probe. Sample alkalinization with highly efficient diisopropylamine
- Factory tested, ready for installation and operation.



Specifications:

- Measurement range for hydrazine or carbohydrazide: 0.1 to 600 ppb
- Automatic temperature compensation.
- Automatic, continuous monitoring of sample flow and sensor cleanliness.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow and operating status.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Data logger for 1'500 data records stored at a selectable interval. (Data download to PC requires optional HyperTerminal interface).
- Two current signal outputs (0/4 - 20 mA), galvanically separated from sensor input, for hydrazine or carbohydrazide concentration and temperature or as continuous control outputs.

Order Nr.	Monitor AMI Hydrazine	A–26.541.000
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042

Monitor AMI Hydrazine

Data sheet no. DenA26541000

Hydrazine / Carbohydrazide Measurement

Self-cleaning three-electrode system with automatic temperature compensation. Maintenance-free reference electrode.

Range: 0.1 - 600 ppb

Accuracy: 5% of reading up to 200 ppb
± 15% up to 600 ppb
or ± 2 ppb (whichever is greater).

Stability: ± 5% of reading per month
or ± 2 ppb per month
(whichever is greater).

Response time: 90 % of change
60 sec after sample entered flow cell

Temperature measurement NT5K
Measuring range: up to 60 °C
Resolution: 0.1 °C

Sample flow measurement
With digital SWAN sample flow meter and alarm in case of insufficient sample flow.

Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50°C
Humidity: 10 - 90% rel., non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %)
or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation

Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”. User menus in English, German, French and Spanish.

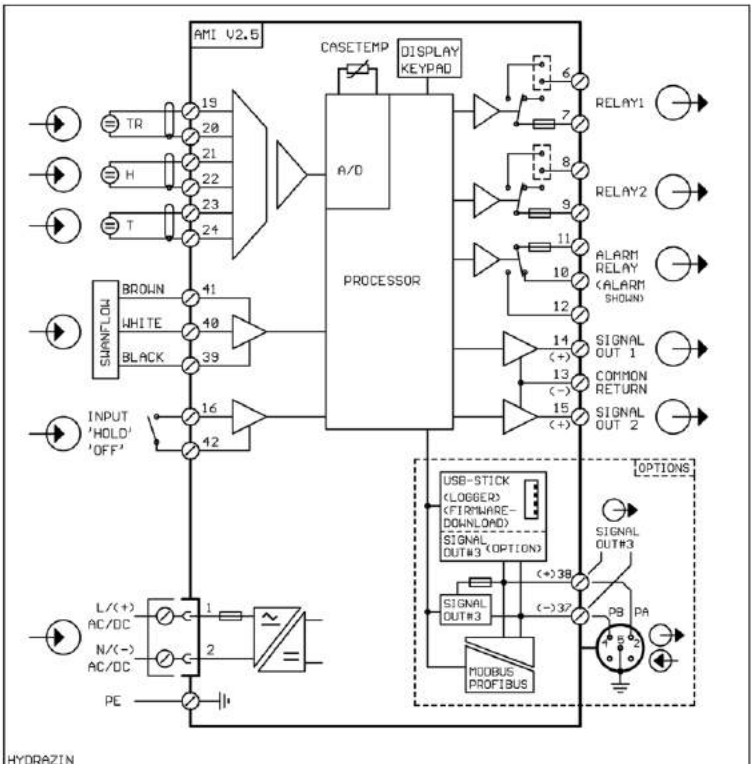
Separate menu specific password protection.

Display of process value, sample flow, alarm status and time during operation. Storage of event log, alarm log and calibration history.

Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Electrical Connection Scheme



Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface

Monitor Data

Sample conditions
Flow rate: approx. 15 L/h
Temperature range: 15 - 45 °C
Inlet pressure: 0.15 - 2 bar
Outlet pressure: pressure free
pH value: equal or higher than pH 7.0
Reagent consumption (at 25°C):
< 1L diisopropylamine per month

Flow cell and connections
Acrylic glass with safety filter, metering tap and sample tap, inserts for all sensors.

Sample inlet: tube adapter 4 x 6 mm
Sample outlet: tube adapter 15 x 20 mm

Panel
Dimensions: 280 x 850 x 200 mm
Material: stainless steel
Total weight: 10.0 kg

Monitor for continuous measurement of Ammonium, Nitrate or Fluoride in potable water.

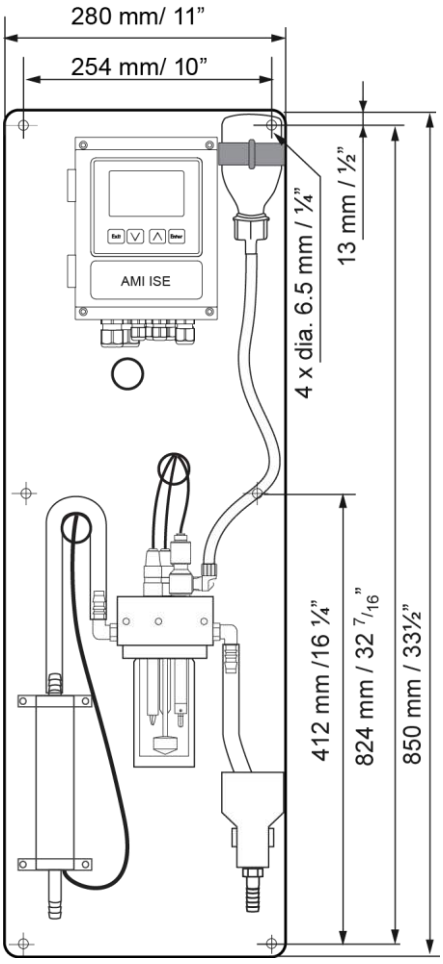
Monitor AMI ISE Universal

Complete system mounted on PVC panel:
- **Transmitter AMI ISE Universal** in a rugged aluminum enclosure (IP 66).
- **Flow cell M-Flow 10-3PG** including temperature sensor (NT5K).
- Factory tested, ready for installation and operation.

For use with:
- **Swansensor Ammonium, – Nitrate** or **- Fluoride**
- **Swansensor Reference FL**

Optional:
- Swansensor deltaT for flow detection

Specifications:
- Measuring ranges: 0.1 to 1'000 ppm (= mg/l).
- Simultaneous measurement of process value, sample temperature and sample flow (optional).
- Automatic temperature compensation according to Nernst.
- Big backlit LC display for the reading of measuring value, sample temperature, sample flow and operating status.
- Easy user menus with simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Real-time clock for time stamp in data logs and for automated functions.
- Data logger for 1'500 data records stored at a selectable interval. (Data download to PC requires optional HyperTerminal interface).
- Overvoltage protection for in- and outputs.
- Two current outputs (0/4 - 20 mA) for measured signals.
- Potential-free alarm contact as summary alarm indication for programmable alarm values and for instrument faults.
- Two potential-free contacts programmable as limit switch or PID-control.
- Input for potential-free contact to freeze the measuring value or to interrupt control in automated installations (hold function or remote-off).



Picture: Monitor AMI ISE Universal with deltaT-Flow detection, SS Ammonium, SS Temp NT5K and SS Reference FL.

Order Nr.	Monitor AMI ISE Universal	A–27.201.010
Option:	[ ] Swansensor Ammonium	A-87.710.010
	[ ] Swansensor Nitrate	A-87.730.010
	[ ] Swansensor Fluoride	A-87.760.010
Option:	[ ] Swansensor Reference FL	A-87.860.100
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
Option:	[ ] Swansensor deltaT Flow	A-87.933.010

Monitor AMI ISE Universal

Data sheet No. DenA27201010

NH4-N / NO3-N / F Measurement

Signal input galvanically separated
Input resistance: > 10^{13} Ω

Ammonium, Nitrate or Fluoride measurement with appropriate Sensor.
Measuring range: 0.1 to 1'000 ppm
Display: Resolution
0.00 to 9.99 0.01 ppm
10.0 to 99.9 0.1 ppm
100 to 1'000 1 ppm
Reference temperature: 25 °C
Automatic temperature compensation according to Nernst.

Restriction of use: direct control of fluoride dosing is not permitted.

Temperature measurement
with Swansensor Temperature (NT5K).
Measuring range: -10 to + 50 °C
Resolution: 0.1 °C

Transmitter Specifications and Functionality

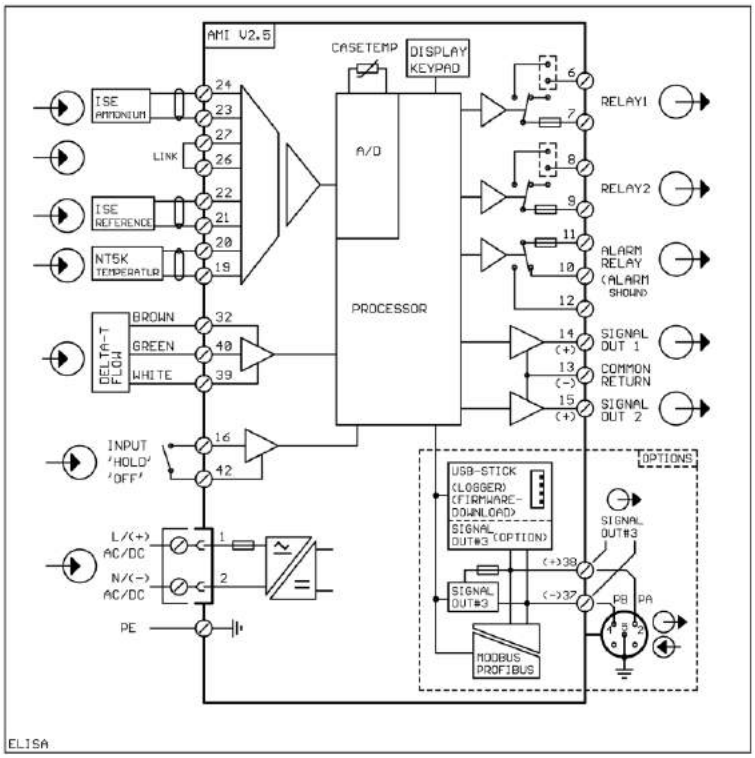
Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90% rel., non condensing

Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for "Messages", "Diagnostics", "Maintenance", "Operation" and "Installation".
User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status and time during operation.
Storage of event log, alarm log and calibration history.
Storage of the last 1'500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Electrical Connection Scheme



Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd as option)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve. Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface

Monitor Data

Sample conditions
Flow rate: 4 to 15 L/h
Temperature: up to 35 °C
Inlet pressure: up to 1 bar
Outlet pressure: pressure free

Flow cell and connections
Flow cell made of PVC and acrylic glass.
Sample inlet: Hose nozzle ¼"-10 elbow for Ø 10 mm tube
Sample outlet: G ½" adapter for flexible tube Ø 20 x 15 mm

Panel
Dimensions: 280 x 850 x 150 mm
Material: white PVC
Total weight: 6.0 kg

Hand-held instrument for the determination of disinfectants, dissolved iron, dissolved aluminium, pH-value and ORP/redox-potential

CHEMATEST 25

Photo- and pH-combimeter with state of the art microelectronics and clearly arranged display.

Well-devised analytical set in portable case.

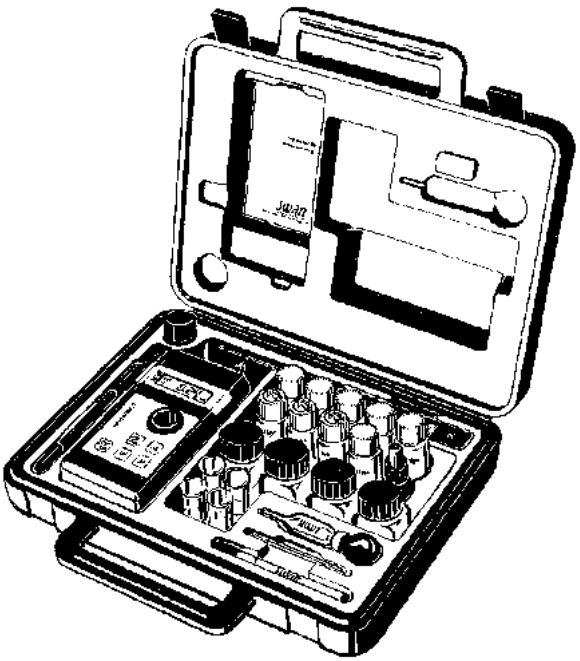
Choice between routine and expert mode.

Determination of pH-value and ORP/redox-potential by maintenance-free electrodes.

Determination of disinfectants with Oxycon reagents following the DPD method.

Determination of free and bound chlorine, chlorine dioxide, ozone, iodine, bromine, cyanuric acid, pH-value and ORP/redox-potential.

Additional determination of dissolved iron and dissolved aluminium.



Options:

- ORP/redox electrode with cable, BNC-connector.
- pH electrode with cable, BNC-connector.
- Reagent for 200 determinations of disinfectants
- Reagents for the determination of carbonate hardness
- Reagent for the determination of dissolved iron.
- Reagent for the determination of dissolved aluminium.

P.O. No.	CHEMATEST 25	A-70.065.001

Delivery includes: Combimeter CHEMATEST 25 in carrying case, electronic thermometer, 4 glass cuvettes, 1 cuvette lid, 2 glass rods, 3 sample flasks, 1 waste flask, 1 ball pipette, 1 note pad, 1 waterproof pen, 4 batteries

CHEMATEST 25

Data sheet No. DenA70065001

Instrument:

Combined photo- and pH-meter, microprocessor controlled
Digital display
Battery powered with economical power circuit for about 2000 determinations

Dimensions, weight:

Instrument:	10 x 20 x 4 cm 450 g
Carrying case:	38 x 27 x 10 cm 2.900 kg (complete)

Specifications pH (optional):

Maintenance-free pH electrode with cable and BNC-connector

Measuring range:	0 - 14 pH
Resolution:	0.01 pH
Accuracy:	± 0.01 pH

Automatic temperature compensation
Automatic buffer recognition
ISO/DIN or technical buffer

Specifications temperature:

Electronic thermometer

Measuring range:	- 50 to + 170 °C
Resolution:	1 °C
Accuracy:	± 1 °C
Probe:	InAisi316, length 130 mm, ∅ 3 mm
Size:	142 x 29 x 15 mm
Battery:	4 x 1.4 V
Battery life:	approx. 1000 hours

Specifications ORP/redox (optional):

Maintenance-free ORP/redox electrode with cable and BNC-connector

Measuring range:	- 400 mV to + 1500 mV
Resolution:	1 mV
Accuracy:	± 0.5 mV

Automatic temperature compensation
Automatic buffer recognition
ISO/DIN or technical buffer

Photometric specifications:

measuring range in mg/l	***low***	***medium***	***high***
chlorine	0,00 - 2,49	2,5 - 4,9	5 - 10
chlorine dioxide	0,00 - 4,99	5,0 - 9,9	10 - 20
bromine	0,00 - 4,99	5,0 - 9,9	10 - 20
iodine	0,00 - 9,99	10,0 - 19,9	20 - 35
ozone	0,000 - 0,499	0,50 - 0,99	1,0 - 2,5
accuracy as % of measuring range	± 1 %	± 2,5 %	± 5 %

cyanuric acid	0 - 100 mg/l	± 10 %	
dissolved iron	0,0 - 2,5 mg/l	± 1 %	
dissolved aluminium	0 - 0,8 mg/l	± 5 %	of measuring range

Repeatability better than accuracy
Automatic range switching

CHEMATEST 20n

Data sheet Nr. DenA70065020

Hand-held instrument for the determination of disinfectants, dissolved iron, dissolved aluminium and pH-value

CHEMATEST 20n

Photometer with state of the art micro-electronics and clearly arranged digital display.

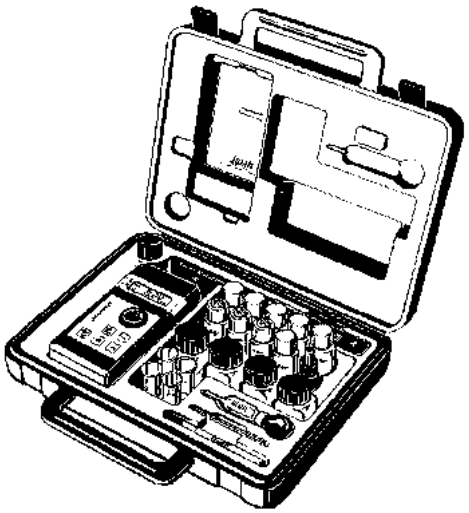
Well-devised analytical set in portable case.

Photometric determination of pH-value with phenolred.

Determination of disinfectants with Oxycon reagents following the DPD method.

Determination of free and bound chlorine, chlorine-dioxid, ozone, iodine, bromine, cyanuric acid and pH-value.

Additional determination of dissolved iron and dissolved aluminium.



Options:

- Electronic thermometer
- Reagents for 200 determinations of disinfectants
- Reagents for the determination of carbonate hardness
- Reagent for the determination of dissolved iron.
- Reagent for the determination of dissolved aluminium.

Technical data:

Instrument:

Photometer, microprocessor controlled
Digital display
Battery powered with economical power circuit for about 2000 determinations

Dimensions, weight:

Instrument:	10 x 20 x 4 cm, 450 g
Carrying case:	38x27x10 cm, 2.900 kg (compl.)

Specifications Temperature (optional):

Electronic thermometer

Measuring range:	- 50 to + 170 °C
Resolution:	1 °C
Accuracy:	± 1 °C
Probe:	InAisi316, length 130 mm, ∅ 3 mm
Size:	142 x 29 x 15 mm
Battery:	4 x 1,4 V
Battery life:	approx. 1000 hours

Photometric specifications:

		Measuring range mg/l low	medium	high
Chlorine	0.00	-2.49	-4.9	-10
Colorine-dioxide	0.00	-4.99	-9.9	-20
Ozone	0.000	-0.499	-0.99	-2.5
Iodine	0.00	-9.99	-19.9	-35
Bromine	0.00	-4.99	-9.9	-20
Accuracy:		± 1 %	± 2.5 %	± 5 %
		of measuring range		

pH-Value	6.50	-	8.00 pH	± 0.1 pH
Cyanuric acid	0	-	100 mg/l	± 10 %
Iron	0.00	-	2.5 mg/l	± 1 %
Aluminium	0	-	0.8 mg/l	± 5 %
			of measuring range	

Repeatability better than accuracy

Automatic range switching

P.O. No.	CHEMATEST 20n	A-70.065.020

Delivery includes: Photometer CHEMATEST 20 in carrying case, 4 glass cuvettes, 1 cuvette lid, 2 glass rods, 3 sample flasks, 1 waste flask, 1 ball pipette, 1 note pad, 1 waterproof pen,4 batteries

CHEMATEST 20s

Data sheet No. DenA70065021

Hand-held instrument for the determination of disinfectants, dissolved iron, dissolved aluminium and pH-value

CHEMATEST 20s

Photometer with state of the art micro-electronics and clearly arranged display.

Well-devised analytical set in portable case.

Photometric determination of pH-value with phenolred.

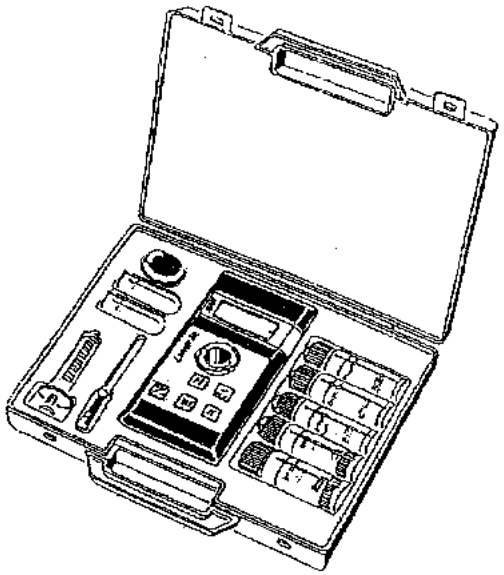
Determination of disinfectants with Oxycon reagents following the DPD method.

Determination of free and bound chlorine, chlorine-dioxid, ozone, iodine, bromine, cyanuric acid and pH-value.

Additional determination of dissolved iron and dissolved aluminium.

Options:

- Reagents for 200 determinations of disinfectants
- Reagent for the determination of dissolved iron.
- Reagent for the determination of dissolved aluminium.



Technical data:

Instrument:

Photometer, microprocessor controlled
Digital display
Battery powered with economical power circuit for about 2000 determinations

Dimensions, weight:

Instrument:	10 x 20 x 4 cm 450 g
Carrying case:	32 x 25 x 5 cm 1.200 kg (complete)

Photometric specifications:

			Measuring range mg/l low	medium	high
Chlorine	0.00		- 2.49	- 4.9	- 10
Chlorine-dioxide	0.00		- 4.99	- 9.9	- 20
Ozone	0.000		- 0.499	- 0.99	- 2.5
Iodine	0.00		- 9.99	- 19.9	- 35
Bromine	0.00		- 4.99	- 9.9	- 20
Accuracy:			± 1%	± 2.5%	± 5%
			of measuring range		
pH-value	6.50	- 8.00 pH		± 0.1 pH	
Cyanuric acid	0	- 100 mg/l		± 10 %	
Iron	0.00	- 2.5 mg/l		± 1 %	
Aluminium	0	- 0.8 mg/l		± 5 %	
		of measuring range			

Repeatability better than accuracy

Automatic range switching

P.O. No.	CHEMATEST 20s	A-70.065.021

Delivery includes: Photometer CHEMATEST 20 in carrying case, 2 glass cuvettes, 1 cuvette lid, 1 pipette, 1 syringe and 4 batteries.

Portable inspection equipment for quality assurance of pH monitors.

AMI INSPECTOR pH

Complete portable system mounted on small, aluminum panel:

- **Transmitter AMI INSPECTOR pH** in a rugged aluminum enclosure (IP 66).
- **Swansensor pH SI** combined electrode with liquid electrolyte.
- **Flow cell QV-Flow IS1000** made of stainless steel with quick release vessel, flow adjustment valve, digital sample flow meter and temperature sensor.
- Rechargeable battery for stand-alone operation.
- Carrying case
- USB Stick for data logging.
- Factory tested, ready for installation and operation.

Specifications:

- Measuring range: 1 to 12 pH
- Big LC display for the reading of measuring value, sample temperature, sample flow, temperature compensation type, operating status and battery charge condition.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Data logger for 1'500 data records stored at a selectable interval.
- One current output (0/4 - 20 mA) for measured signal.

Optional:

- Instrument certificate

Order Nr.	AMI INSPECTOR pH	A–75.100.000
Option:	[ ] Instrument certificate	A-97.017.100

AMI INSPECTOR
pH
Data sheet No. DenA751000000

pH Measurement

Swansensor pH SI combined electrode with liquid electrolyte.

Measuring range	**Resolution**
pH 1 to pH 12	0.01 pH

Temperature measurement Pt1000

Measuring range:	-30 to +130 °C
Resolution:	0.1 °C

Sample flow measurement
with digital SWAN sample flow sensor.

Transmitter Specifications and Functionality

Electronics case:	Cast aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Dimensions:	180 x 140 x 70 mm
Weight:	1.5 kg
Ambient temperature:	-10 to +50°C
Humidity:	10 - 90% rel., non condensing

Power supply - Battery
Use original power adapter only.

Voltage:	85 - 265 VAC, 50/60 Hz
Power consumption:	max. 20 VA
Charging time:	~ 6h
Battery type:	Li-Ion

During charging protect from heat impact and keep splash-proof (not IP66).

Operating time

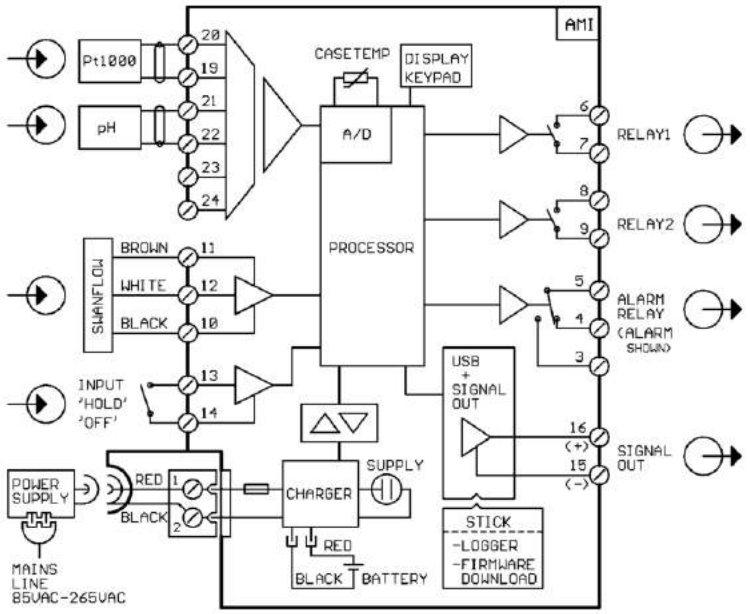
Stand-alone (Battery):	> 24h
Connected adapter:	continuous

Controlled shut-down when battery is empty, remaining time is displayed.

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”. User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status, time and battery charge condition.
Storage of event log, alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Electrical Connection Scheme



Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument errors.

Maximum load:	1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.

Rated load:	100 mA / 50 V

1 Signal output
One programmable signal output for measured value (freely scalable, linear or bilinear) or as continuous control outputs (control parameters programmable).

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control functions
Relays or current output programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface
USB Stick for logger data.

Monitor Data

Sample conditions

Flow rate:	5 to 10 L/h
Temperature:	up to 50 °C
Inlet pressure (25 °C):	0.2 to 2 bar
Outlet pressure:	pressure free

No sand, no oil

Flow cell and connections
Flow cell made of stainless steel with quick release vessel, with built-in flow adjustment valve and digital sample flow meter.

Inlet:	¼” Swagelok tube adapter
Outlet:	Ø 16 mm, tubing 15 x 20 mm

Panel

Dimensions:	275 x 320x 240 mm
Material:	anodized aluminum
Total weight:	4.5 kg

Portable inspection equipment for quality assurance of trace oxygen monitors.

AMI INSPECTOR Oxygen

Complete portable system mounted on small, aluminum panel:

- **Transmitter AMI INSPECTOR Oxygen** in a rugged aluminum enclosure (IP 66).
- **Swansensor Oxytrace G** with three electrode setup (cathode, anode and guard) and integrated NT5k temperature sensor.
- **Flow cell QV-Flow PMMA OTG** made of acrylic glass with needle valve and digital sample flow meter.
- Rechargeable battery for stand-alone operation.
- Carrying case
- USB Stick for data logging.
- Factory tested, ready for installation and operation.

Specifications:

- Measuring range:
  0.01 ppb to 20ppm O_2 (at 25°C) or
  0 – 200% saturation
- Big LC display for the reading of measuring value, sample temperature, sample flow, operating status and battery charge condition.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Data logger for 1’500 data records stored at a selectable interval.
- One current output (0/4 - 20 mA) for measured signal.

Optional:

- Instrument certificate

Order Nr.	AMI INSPECTOR Oxygen	A–75.200.000
Option:	[ ] Instrument certificate	A-97.017.200

AMI INSPECTOR
Oxygen
Data sheet No. DenA75200000

Dissolved Oxygen measurement

Swansensor Oxytrace G with three electrode setup (cathode [gold], anode and guard [silver]) with integrated NT5k temperature sensor.

Measuring range	**Resolution**
0.01 to 9.99 ppb	0.01 ppb
10 to 199.9 ppb	0.1 ppb
200 to 1999 ppb	1 ppb
2 to 20 ppm	0.01 ppm
0 – 200% saturation	0.1% saturation

Automatic range switching.

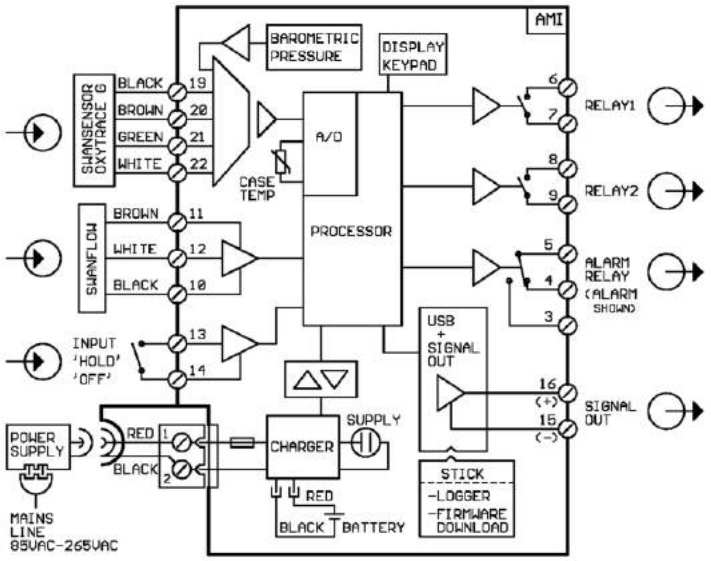
Accuracy / Repeatability:
Accuracy ± 1.5 % of reading or ± 0.2 ppb
Repeatability:± 1 % of read. or ± 0.15 ppb

Response time
t_{90} < 30 sec. (rising concentration)

Temperature measurement NT5k
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement
with digital SWAN sample flow sensor.

Electrical Connection Scheme



Transmitter Specifications and Functionality

Electronics case:	Cast aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Dimensions:	180 x 140 x 70 mm
Weight:	1.5 kg
Ambient temperature:	-10 to +50°C
Humidity:	10 - 90% rel., non condensing

Power supply - Battery
Use original power adapter only.

Voltage:	85 - 265 VAC, 50/60 Hz
Power consumption:	max. 20 VA
Charging time:	~ 6h
Battery type:	Li-Ion

During charging protect from heat impact and keep splash-proof (not IP66).

Operating time

Stand-alone (Battery):	> 24h
Connected adapter:	continuous

Controlled shut-down when battery is empty, remaining time is displayed.

Operation
Easy operation based on separate menus for "Messages", "Diagnostics", "Maintenance", "Operation" and "Installation". User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status, time and battery charge condition.
Storage of event log, alarm log and calibration history.
Storage of the last 1'500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument errors.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 100 mA / 50 V

1 Signal output
One programmable signal output for measured value (freely scalable, linear or bilinear) or as continuous control outputs (control parameters programmable).

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface
USB Stick for logger data.

Monitor Data

Sample conditions

Flow rate:	8 to 25 l/h
Temperature:	up to 45 °C
Inlet pressure (25 °C):	0.2 to 1 bar
Outlet pressure:	pressure free
pH:	not lower than pH 4
Suspended solids:	less than 10 ppm

Flow cell and connections
Flow cell made of acrylic glass with built-in flow adjustment valve and digital sample flow meter.

Inlet:	¼" Swagelok tube adapter
Outlet:	flexible tube 8 x 6 mm

Panel

Dimensions:	275 x 320 x 240 mm
Material:	anodized aluminum
Total weight:	4.5 kg

Portable inspection equipment for quality assurance of resistivity monitors.

AMI INSPECTOR Resistivity

Complete portable system mounted on small, aluminum panel:

- **Transmitter AMI INSPECTOR Resistivity** in a rugged aluminum enclosure (IP 66).
- **Swansensor RC-U** high precision two-wire electrode made of stainless steel with integrated NTC temperature probe.
- **Flow cell QV-HFlow** made of stainless steel with flow adjustment valve and digital, high-temperature sample flow meter.
- Rechargeable battery for stand-alone operation.
- Carrying case
- USB Stick for data logging.
- Factory tested, ready for installation and operation.

Specifications:

- Resistivity measurement range: 0.01 to 18.18 MΩ-cm
- Big LC display for the reading of measuring value, sample temperature, sample flow, temperature compensation type, operating status and battery charge condition.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Wide range of selectable temperature compensations for different sample conditions.
- Electronic record of major process events and calibration data.
- Data logger for 1'500 data records stored at a selectable interval.
- One current output (0/4 - 20 mA) for measured signal.

Optional:

- Instrument certificate

Order Nr.	AMI INSPECTOR Resistivity	A–75.300.000
Option:	[ ] Instrument certificate	A-97.017.300

AMI INSPECTOR
Resistivity

Data sheet No. DenA753000000

Resistivity Measurement

Swansensor RC-U (k = 0.01 cm^{-1}) with integrated NT5K temperature probe.

Measuring range **Resolution**
0.01 to 18.18 MΩ-cm 0.01 MΩ-cm
Automatic range switching.

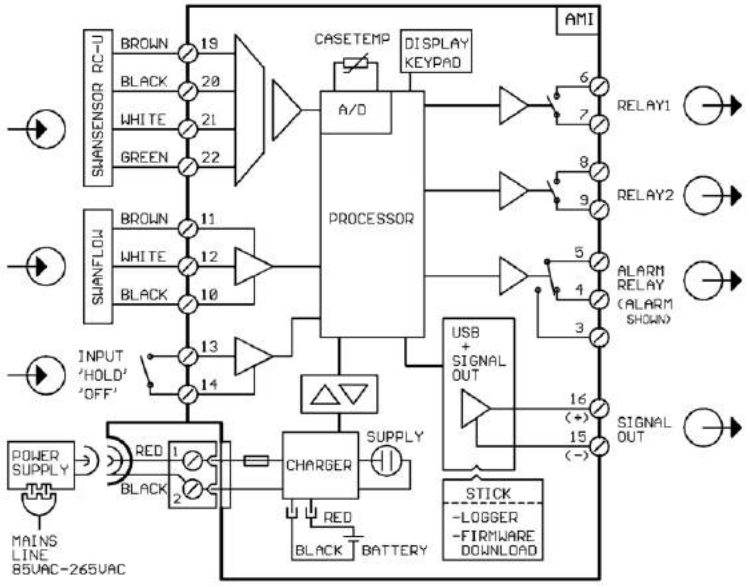
Accuracy: ± 0.5 %

Temperature compensations
- High purity water (non-linear)
- Neutral salts (NaCL)
- Strong acids (HCl)
- Strong bases (NaOH)
- Ammonia, Ethanolamine
- Morpholine
- Linear coefficient in %/°C
- Absolute (no compensation)

Temperature measurement
Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement
with digital SWAN sample flow sensor for extended temperature range.

Electrical Connection Scheme



Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP 66 / NEMA 4X
Display: LCD, 75 x 45 mm
Electrical connectors: screw clamps
Dimensions: 180 x 140 x 70 mm
Weight: 1.5 kg
Ambient temperature: -10 to +50°C
Humidity: 10 - 90% rel., non condensing

Power supply - Battery
Use original power adapter only.
Voltage: 85 - 265 VAC, 50/60 Hz
Power consumption: max. 20 VA
Charging time: ~ 6h
Battery type: Li-Ion
During charging protect from heat impact and keep splash-proof (not IP66).

Operating time
Stand-alone (Battery): > 24h
Connected adapter: continuous
Controlled shut-down when battery is empty, remaining time displayed.

Operation
Easy operation based on separate menus for "Messages", "Diagnostics", "Maintenance", "Operation" and "Installation". User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status, time and battery charge condition.

Storage of event log, alarm log and calibration history.
Storage of the last 1'500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument errors.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.
Rated load: 100 mA / 50 V

1 Signal outputs
One programmable signal output for measured value (freely scalable, linear or bilinear) or as continuous control outputs (control parameters programmable).
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, sole-noid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface
USB Stick for logger data.

Monitor Data

Sample conditions
Flow rate: 70 to 100 L/h
Temperature: up to 95 °C
Inlet pressure (25 °C): up to 2 bar
Outlet pressure: pressure free
No sand, no oil

Flow cell and connections
Flow cell made of stainless steel with built-in flow adjustment valve and digital sample flow meter.
Inlet: ¼" Swagelok tube adapter
Outlet: flexible tube adapter 8 x 6 mm

Panel
Dimensions: 275 x 320x 240 mm
Material: anodized aluminum
Total weight: 4.5 kg

Portable inspection equipment for quality assurance of conductivity monitors.

AMI INSPECTOR Conductivity

Complete portable system mounted on small, aluminum panel:

- **Transmitter AMI INSPECTOR Conductivity** in a rugged aluminum enclosure (IP 66).
- **Swansensor UP-Con1000-SL** two-electrode conductivity sensor with slot-lock design and integrated Pt1000 temperature probe.
- **Flow cell QV-Flow UP-CON-SL** made of stainless steel with flow adjustment valve and digital sample flow meter. Quick sensor release with patented slot-lock design.
- Rechargeable battery for stand-alone operation.
- Carrying case
- USB Stick for data logging.
- Factory tested, ready for installation and operation.

Specifications:

- Conductivity measurement range: 0.055 to 1000 µS/cm
- Big LC display for the reading of measuring value, sample temperature, sample flow, temperature compensation type, operating status and battery charge condition.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Wide range of selectable temperature compensations for different sample conditions.
- Electronic record of major process events and calibration data.
- Data logger for 1'500 data records stored at a selectable interval.
- One current output (0/4 - 20 mA) for measured signal.

Optional:

- Instrument certificate

Order Nr.	AMI INSPECTOR Conductivity	A–75.310.000
Option:	[ ] Instrument certificate	A-97.017.310

AMI INSPECTOR
Conductivity

Data sheet No. DenA753100000

Conductivity Measurement

Swansensor UP-Con1000-SL with - integrated Pt1000 temperature probe ($k = 0.04\ cm^{-1}$).

Measuring range	**Resolution**
0.055 to 0.999 µS/cm	0.001 µS/cm
1.00 to 9.99 µS/cm	0.01 µS/cm
10.0 to 99.9 µS/cm	0.1 µS/cm
100 to 1000 µS/cm	1 µS/cm

Automatic range switching.

Accuracy: ± 1 % of measured value

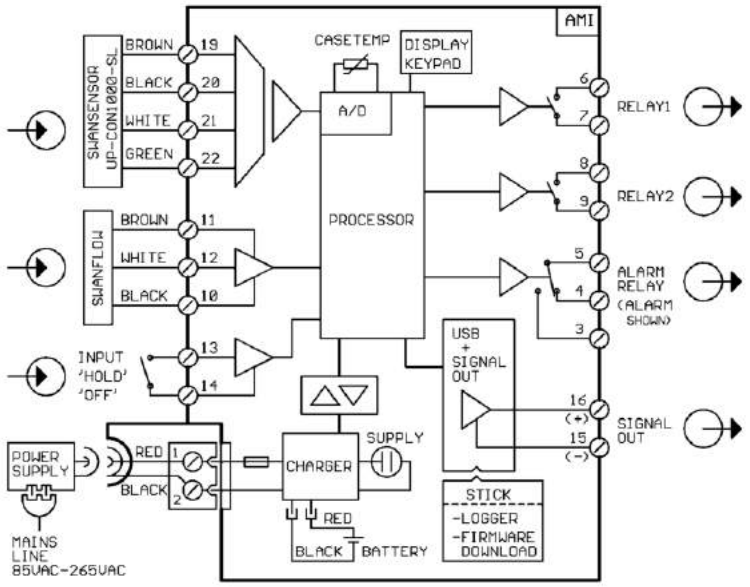
Temperature compensations
- Non linear function (NLF) for high purity water
- Neutral salts
- Strong acids
- Strong bases
- Ammonia, Ethanolamine
- Morpholine
- Linear coefficient in %/°C
- Absolute (none)

Temperature measurement

Measuring range:	-30 to +130 °C
Resolution:	0.1 °C

Sample flow measurement
with digital SWAN sample flow sensor.

Electrical Connection Scheme



Transmitter Specifications and Functionality

Electronics case:	Cast aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Dimensions:	180 x 140 x 70 mm
Weight:	1.5 kg
Ambient temperature:	-10 to +50°C
Humidity:	10 - 90% rel., non condensing

Power supply - Battery
Use original power adapter only.

Voltage:	85 - 265 VAC, 50/60 Hz
Power consumption:	max. 20 VA
Charging time:	~ 6h
Battery type:	Li-Ion

During charging protect from heat impact and keep splash-proof (not IP66).

Operating time

Stand-alone (Battery):	> 24h
Connected adapter:	continuous

Controlled shut-down when battery is empty, remaining time is displayed.

Operation
Easy operation based on separate menus for "Messages", "Diagnostics", "Maintenance", "Operation" and "Installation". User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status, time and battery charge condition.
Storage of event log, alarm log and calibration history.
Storage of the last 1'500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
with programmable high/low alarm limits.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument errors.

Maximum load:	1A / 250 VAC

1 Input
One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.

Rated load:	100 mA / 50 V

1 Signal output
One programmable signal output for measured value (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable).

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, sole-noid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface
USB Stick for logger data.

Monitor Data

Sample conditions

Flow rate:	5 to 20 L/h
Temperature:	up to 50 °C
Inlet pressure (25 °C):	up to 2 bar
Outlet pressure:	pressure free

No sand, no oil

Flow cell and connections
Flow cell made of stainless steel with built-in flow adjustment valve and digital sample flow meter. Quick sensor re-lease with patented slot-lock design.

Inlet:	¼" Swagelok tube adapter
Outlet:	flexible tube adapter 6 x 8 mm

Panel

Dimensions:	275 x 320x 240 mm
Material:	anodized aluminum
Total weight:	4.5 kg

Portable inspection equipment for quality assurance of conductivity in Pharmawater.

AMI INSPECTOR Pharmacon

Complete portable system mounted on small, aluminum panel:

- **Transmitter AMI INSPECTOR Pharmacon** in a rugged aluminum enclosure (IP 66).
- **Swansensor UP-Con1000-SL** two-electrode conductivity sensor with slot-lock design and integrated Pt1000 temperature probe.
- **Flow cell QV-Flow UP-CON-SL** made of stainless steel with flow adjustment valve and digital, high-temperature sample flow meter. Quick sensor release with patented slot-lock design.
- Rechargeable battery for stand-alone operation.
- Carrying case
- USB Stick for data logging.
- Factory tested, ready for installation and operation.

Specifications:

- Conductivity measurement range: 0.055 to 1000 µS/cm
- Big LC display for the reading of measuring value, sample temperature, sample flow, temperature compensation type, operating status and battery charge condition.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Wide range of selectable temperature compensations for different sample conditions.
- Electronic record of major process events and calibration data.
- Data logger for 1'500 data records stored at a selectable interval.
- One current output (0/4 - 20 mA) for measured signal.

Optional:

- Instrument certificate

Order Nr.	AMI INSPECTOR Pharmacon	A–75.311.000
Option:	[ ] Instrument certificate	A-97.017.311

AMI INSPECTOR Pharmacon

Data sheet No. DenA75311000

Conductivity Measurement

Swansensor UP-Con1000-SL with - integrated Pt1000 temperature probe ($k = 0.04\ cm^{-1}$).

Measuring range	**Resolution**
0.055 to 0.999 µS/cm	0.001 µS/cm
1.00 to 9.99 µS/cm	0.01 µS/cm
10.0 to 99.9 µS/cm	0.1 µS/cm
100 to 1000 µS/cm	1 µS/cm

Automatic range switching.

Accuracy: ± 1 % of measured value

Temperature compensations
- Non linear function (NLF) for high purity water
- Neutral salts
- Strong acids
- Strong bases
- Ammonia, Ethanolamine
- Morpholine
- Linear coefficient in %/°C
- Absolute (none)

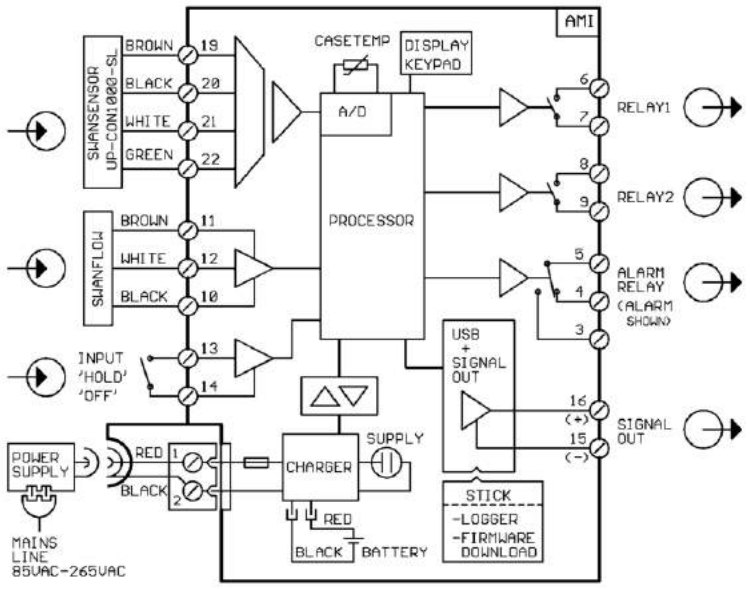
Temperature measurement

Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement

with digital SWAN sample flow sensor for extended temperature range.

Electrical Connection Scheme



Transmitter Specifications and Functionality

Electronics case:	Cast aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Dimensions:	180 x 140 x 70 mm
Weight:	1.5 kg
Ambient temperature:	-10 to +50°C
Humidity:	10 - 90% rel., non condensing

Power supply - Battery

Use original power adapter only.

Voltage:	85 - 265 VAC, 50/60 Hz
Power consumption:	max. 20 VA
Charging time:	~ 6h
Battery type:	Li-Ion

During charging protect from heat impact and keep splash-proof (not IP66).

Operating time

Stand-alone (Battery):	> 24h
Connected adapter:	continuous

Controlled shut-down when battery is empty, remaining time is displayed.

Operation

Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”. User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status, time and battery charge condition.
Storage of event log, alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

Safety features

No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring

with programmable high/low alarm limits.

1 Alarm relay

One potential free contact for summary alarm indication for programmable alarm values and instrument errors.

Maximum load:	1A / 250 VAC

1 Input

One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs

Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.

Rated load:	100 mA / 50 V

1 Signal output

One programmable signal output for measured value (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable).

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control functions

Relays or current outputs programmable for 1 or 2 pulse dosing pumps, sole-noid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface

USB Stick for logger data.

Monitor Data

Sample conditions

Flow rate:	5 to 20 L/h
Temperature:	up to 95 °C
Inlet pressure (25 °C):	up to 2 bar
Outlet pressure:	pressure free

No sand, no oil

Flow cell and connections

Flow cell made of stainless steel with built-in flow adjustment valve and digital sample flow meter. Quick sensor re-lease with patented slot-lock design.

Inlet:	¼” Swagelok tube adapter
Outlet:	flexible tube adapter 6 x 8 mm

Panel

Dimensions:	275 x 320x 240 mm
Material:	anodized aluminum
Total weight:	4.5 kg

Portable inspection equipment for trace measurement of dissolved hydrogen in water steam cycle.

AMI INSPECTOR Hydrogen

Complete portable system mounted on small, aluminum panel:

- **Transmitter AMI INSPECTOR Hydrogen** in a rugged aluminum enclosure (IP 66).
- **Swansensor Hydrogen** with platinum anode, silver cathode and integrated NT5k temperature sensor.
- **Flow cell QV-Flow PMMA OTG** made of acrylic glass with needle valve and digital sample flow meter.
- Rechargeable battery for stand-alone operation.
- Carrying case
- USB Stick for data logging.
- Factory tested, ready for installation and operation.

Specifications:

- Measuring range:
  0.1 ppb to 800 ppb H_2 (at 25°C, 1013hPa) or
  0 – 50% saturation
- Big LC display for the reading of measuring value, sample temperature, sample flow, operating status and battery charge condition.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Electronic record of major process events and calibration data.
- Data logger for 1’500 data records stored at a selectable interval.
- One current output (0/4 - 20 mA) for measured signal.

Order Nr.	AMI INSPECTOR Hydrogen	A–75.400.000

AMI INSPECTOR
Hydrogen

Data sheet No. DenA75400000

Dissolved Hydrogen measurement

Swansensor Hydrogen with platinum anode, silver cathode and integrated NT5k temperature sensor.

Measuring range	**Resolution**
0.1 to 199 ppb	0.1 ppb
200 to 800 ppb	1 ppb
0 – 50% saturation	0.1% saturation

Automatic range switching.

Accuracy / Repeatability:

Accuracy ± 3 % of reading or ± 0.5 ppb
Repeatability: ± 1 % of read. or ± 0.5 ppb
(whichever is greater)

Response time

t_{90} < 40 sec. or ± 1 ppb
(rising concentration, whichever greater)

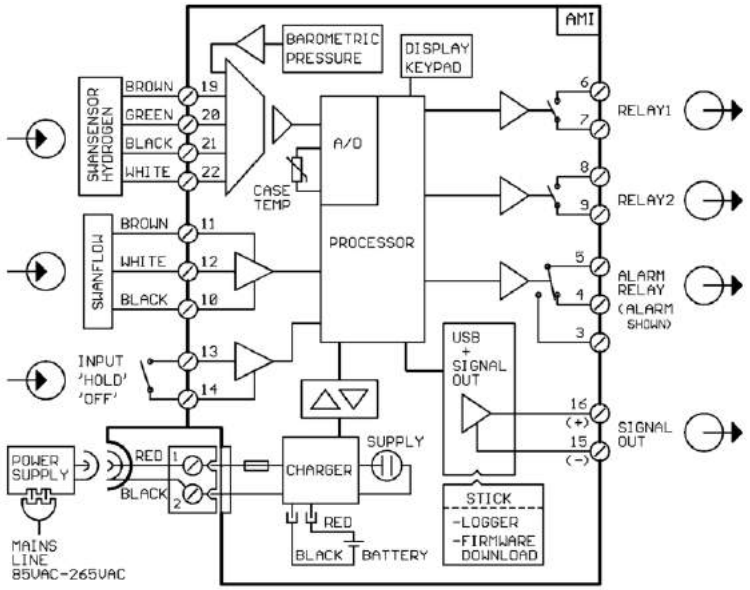
Temperature measurement NT5k

Measuring range: -30 to +130 °C
Resolution: 0.1 °C

Sample flow measurement

with digital SWAN sample flow sensor.

Electrical Connection Scheme



Transmitter Specifications and Functionality

Electronics case:	Cast aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Dimensions:	180 x 140 x 70 mm
Weight:	1.5 kg
Ambient temperature:	-10 to +50°C
Humidity:	10 - 90% rel., non condensing

Power supply - Battery

Use original power adapter only.

Voltage:	85 - 265 VAC, 50/60 Hz
Power consumption:	max. 20 VA
Charging time:	~ 6h
Battery type:	Li-Ion

During charging protect from heat impact and keep splash-proof (not IP66).

Operating time

Stand-alone (Battery):	> 24h
Connected adapter:	continuous

Controlled shut-down when battery is empty, remaining time is displayed.

Operation

Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”. User menus in English, German, French and Spanish.
Separate menu specific password protection.
Display of process value, sample flow, alarm status, time and battery charge condition.
Storage of event log, alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

Safety features

No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring

with programmable high/low alarm limits.

1 Alarm relay

One potential free contact for summary alarm indication for programmable alarm values and instrument errors.

Maximum load:	1A / 250 VAC

1 Input

One input for potential-free contact.
Programmable hold or remote off function.

2 Relay outputs

Two potential-free contacts programmable as limit switches for measuring values, controllers or timer for system cleaning with automatic hold function.

Rated load:	100 mA / 50 V

1 Signal outputs

One programmable signal output for measured value (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable).

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control functions

Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface

USB Stick for logger data.

Monitor Data

Sample conditions

Flow rate:	6 to 20 l/h
Temperature:	up to 45 °C
Inlet pressure (25 °C):	0.2 to 1 bar
Outlet pressure:	pressure free
Suspended solids:	less than 10 ppm

Flow cell and connections

Flow cell made of acrylic glass with built-in flow adjustment valve and digital sample flow meter.

Inlet:	¼” Swagelok tube adapter
Outlet:	flexible tube 8 x 6 mm

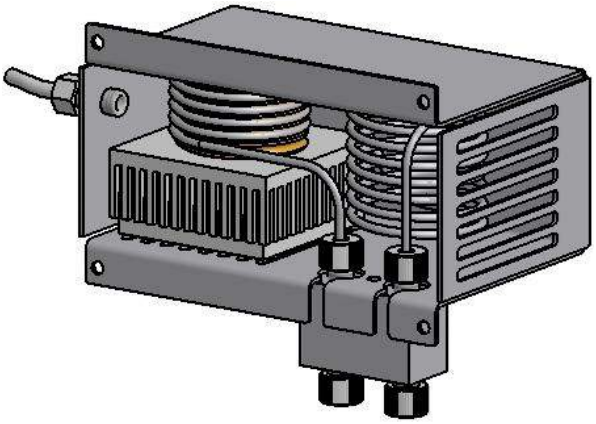
Panel

Dimensions:	275 x 320 x 240 mm
Material:	anodized aluminum
Total weight:	4.5 kg

Sample Cooler LineTOC

For applications in WFI and Ultrapure Water.

- As an option to the Monitor AMI LineTOC sample with a temperature of up to 90°C is cooled by forced convection (Fan) down to at least 45°C at a maximum environment temperature of 35°C.
- Mounted on panel of Monitor AMI LineTOC.
- Powered by AMI transmitter with two wire cable (1m length with end sleeves).
- Continuous operation.
- Fluidics: Sample Cooler is inserted between “Sample Overflow” and “3-Way Valve” by FEP tubes.



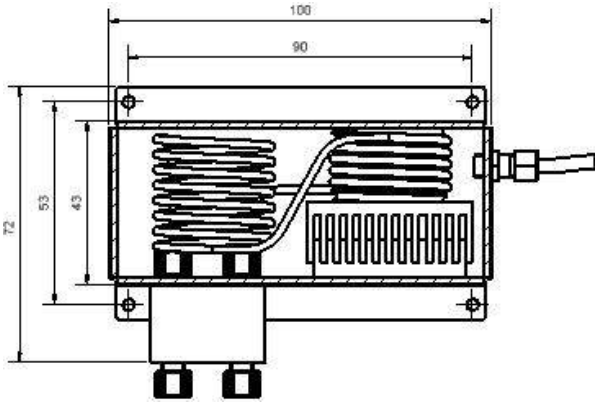
Inside view

Electrical Connection to AMI Transmitter:

AMI Terminal	Wire
30	White (minus)
32	Brown (plus)

Specifications:

Dimensions (W x H x D):	100 x 45 x 60 mm
Max. sample inlet temperature:	90 °C
Target sample temperature:	45 °C or less (at inlet to UV reactor)
Max. environmental temperature:	35 °C
Sample in- and outlet:	SWAN FEP tube



Front view

Requirement:

- Environment temperature max: 35°C
- Sample inlet temperature max: 90°C
- For use with: Monitor AMI LineTOC

Delivery: Sample cooler with fixed cable (0.8m, end sleeves), two FEP tubes (400 mm length), 4 screws.

Order Nr.	Sample Cooler LineTOC	A–82.300.010

Sample degasser for the removal of dissolved gases, e.g. air, CO_2, H_2S etc.

Sample Degasser Turbiwell

For applications in pure water. Establishes an equilibrium to ambient atmosphere (Henry's Law).

- Functional principle:

  The sample is introduced to the degasser at the sample inlet, rises through the hollow tube in the center and is released to the top disk.

  The sample degasser contains twelve disks where the samples is exposed to the environment. On each disc the samples flows through a labyrinth to lengthen the distance of way.

  At the end of each discs labyrinth the sample falls through a hole to the next lower disc. After the last disc the sample drops to the bottom plate and is then provided to the constant head of the Turbiwell.
- Recommended only for samples with typical turbidity below 1 FNU/NTU

For use with:

- Monitor AMI Turbiwell 7027 & W/LED

Requirement:

• Regulated flow rate:	approx. 10 l/h. max. 12 l/h
• Typical turbidity	< 1 FNU/NTU

Specifications:

Dimensions (W x L x H):	135 x 380 x 130mm
Material (wetted):	PVC / PMMA
Sample temperature:	5 - 35 °C
Sample Inlet:	Serto PA 6mm
Sample Outlet to constant head:	for tubing Ø 10 - 11 mm
Sample Outlet to Drain:	for tubing Ø 10 - 11 mm

Order Nr.	Sample Degasser Turbiwell	A–82.321.000

Sampling accessory to regulate flow with pressure reducing valve including flow measurement.

Flowcontroller

Pressure reducing valve (0-4 bar), maximum inlet pressure 10bar.
Flowmeter made of Acrylglas with capillary tube including SWAN Flowmeter (Hallsensor) with 1m cable length.
Sample in- and outlets with female threads ⅛" for Serto 8 mm connections.

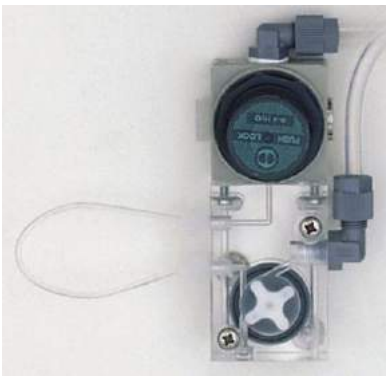
Functional principle

Flow regulation: when valve turning knob is pulled out the flow can be regulated. Lock the adjustment by pushing in the turning knob.
The flow measurement is displayed at the AMI transmitter.
The standard capillary tube (FEP, Inner-diameter 1mm, length 500mm) can be exchanged with shorter tubes if inlet pressure is low or if higher flow is required.
The controller performs only if the inlet pressure at the pressure reducing valve is at least 0,5bar higher than the outlet pressure (pressure before capillary tube); over the capillary tube the pressure needs to be reduced at least 0,5bar. Therefore the sample inlet pressure needs to be at least 1 bar (better 1,5bar).

Dimensions

- Width: 150 mm
- Front-to-back: 80 mm
- Height: 120 mm

Panel mounting: 2 screws M4x40



Technical data

Sample connections

- Inlet and outlet: G 1/8" thread
  Each equipped with Serto fitting (PA) for 6mm tube.

Sample conditions
(for the flow cell without sensor!)

- Flow rate: 4 to 15 l/h
- Temperature: up to 50 °C
- Inlet pressure @ 25 °C: at least 1bar
  up to 10 bar
- Pressure-free outlet (atmospheric drain)
- Particle size: below 0.5 mm
- No strong acids and bases
- No organic solvents

Delivery

Sample Distribution Manifold ready for installation as specified in the order scheme:

Order Nr.:	**Flowcontroller**	**A–82.521.201**
Accessory:	Tubing kit with 1 short and 1 long, assembled capillary tube	A-86.190.050

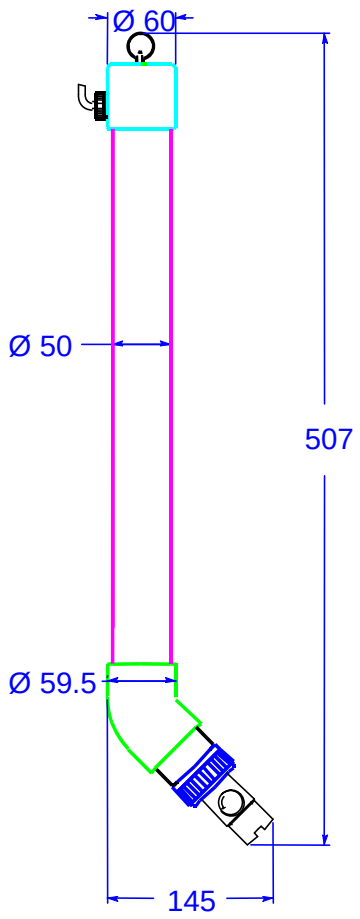
Immersion assembly for oxygen measurement in open basins and tanks

Immersion assembly Oxydip

The immersion assembly is used for the Swansensor OXYSAFE.

Because the sensor is installed in an angular position, air accumulations at the measuring membrane are avoided.

The cable is led through threaded joints.



Technical data:

Material:	PVC
Total length (with sensor):	705 mm
Operating pressure: pressure-free against atmosphere	
Protection:	IP68 (at 20 °C)
Ambient temperature:	-10 … +50 °C

Order number	**Oxydip**	**A-83.111.010**

Accessories:

A-89.300.110 Plastic chain (red-white), 4 m, to mount the Oxydip

Stainless steel flow cell for 2 sensors with integrated temperature probe

Flow cell B-Flow IS1000

Flow cell for two PG13.5 sensors with built-in Pt1000 temperature probe.
Suitable for all sensors with PG13.5 screw head and a max. shaft length of 120 mm.
Connection to tubes with selectable Swagelok fittings.

Technical data

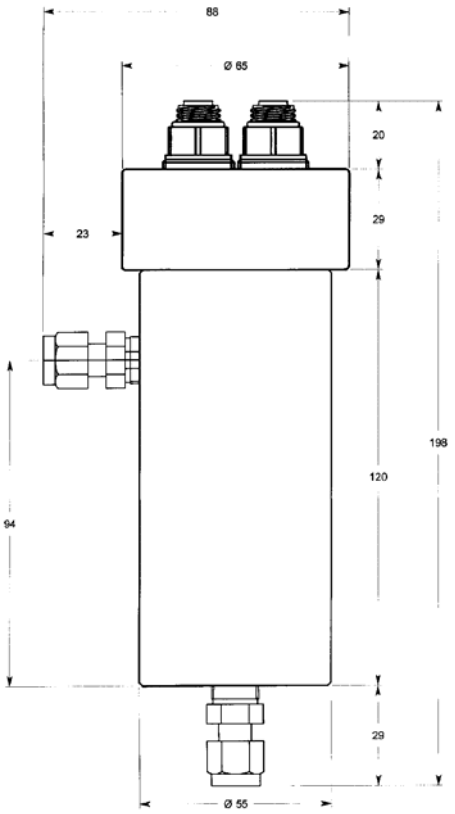
Flow cell and removable cover made of stainless steel SS316L.

Operating temperature
- for flow cell: up to +130 °C
- for pH/Redox sensors: max. 50 °C

Operating pressure
- for flow cell: max. 10 bar at +130 °C
- for sensor: max. 5 bar

Process connections at inlet and outlet:
2 x ¼" NPT female thread

Temperature sensor connection:
Screw head



Flow cell with optional Swagelok fittings.

Delivery:

Flow cell with integrated temperature probe and 1 blind plug with O-ring for PG13.5 thread.

Order number:	**Flow cell B-Flow IS1000**	**A – 83 . 228 . 027**

Accessories:

Swagelok fittings are not included. Please order them separately according to your installation requirements:

A-86.530.020 Swagelok fitting ¼" NPT female thread to ¼" tube (∅ 6.35 mm), straight
A-86.530.020 Swagelok fitting ¼" NPT female thread to ¼" tube (∅ 6.35 mm), angle
A-86.530.040 Swagelok fitting ¼" NPT female thread to 10 mm tube
A-86.530.050 Swagelok fitting ¼" NPT female thread to 8 mm tube

A-89.300.040 Mounting set for complete flow cell (pipe clip ∅ 55 mm with holder)

Flow cell for the connection to tubes

B-flow L 70

Flow cell to connect to tubes for one sensor with ¾" NPT thread, fitting length 40 mm.

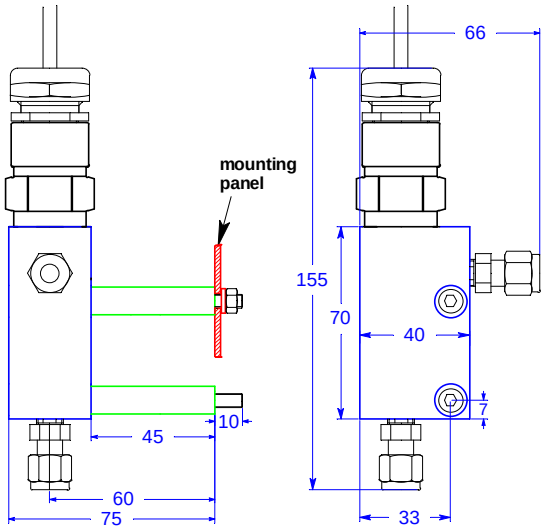
Made of stainless steel (SS316L).

Technical data:

Flow cell made of stainless steel SS316L.

1 insert for one sensor with ¾" NPT thread, max. length 40 mm.

Operating temperature:	-10 .... +130 °C
Pressure:	max. 10 bar at +130 °C
Connection:	2x female thread 1/8 ISO
Length: without Swagelok:	70 mm
with sensor (with cable):	ca. 155 mm
Width without Swagelok:	40 mm
Front-to-back size (mounted):	75 mm



(Swagelok fittings must be ordered separately)

Delivery:

Stainless steel flow cell B-flow L 70. Process connection: 2x female thread 1/8 ISO.

Mounting kit.

(Swagelok fittings must be ordered separately).

Order number	**B-flow L 70**	**A-83.228.123**

Accessories:

C-86.530.060 Swagelok fitting ISO 1/8 female → tube ¼" (SS-400-1-2RT)

Flow cell for continuous conductivity measurements in water

Flow cell B-Flow UP-CON-SL

Flow cell for sensor with SWAN slot-lock adapter, e.g. Swansensor UP-Con1000-SL.

Connections to sample tubing with Swagelok fittings.

Technical data

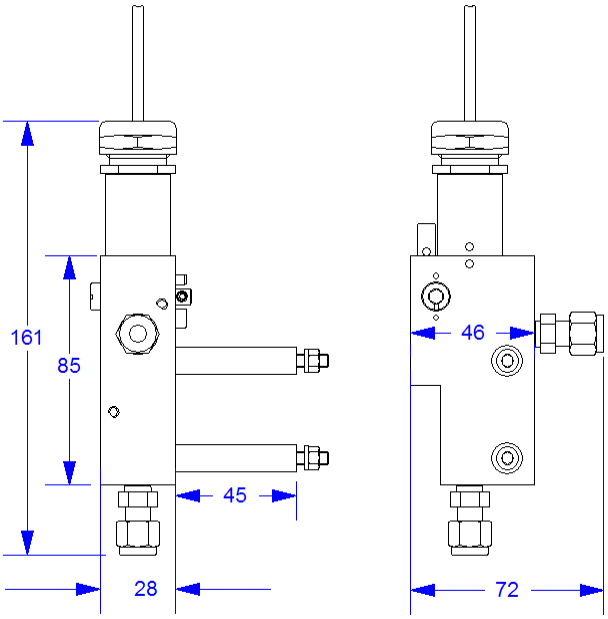
Flow cell made of stainless steel SS316L.

Insert for sensor with patented SWAN slot-lock adapter for quick sensor release.

Operating temperature: up to +130 °C

Operating pressure: max. 10 bar at +130 °C

Process connections at inlet and outlet:
2 x ⅛" female ISO tapered thread



Flow cell side and front view with optional Swagelok fittings and conductivity sensor.

Order number:	Flow cell B-Flow UP-CON-SL	A – 83 . 228 . 128

Delivery: Flow cell with mounting parts (screws and distance sleeves).

Accessories:

Swagelok fittings are not included; please order separately 2 pcs.

C-86.530.060 Swagelok tube fitting
Male connector, ¼" tube OD x ⅛" male ISO tapered thread (SS-400-1-2RT)

Flow cell for the connection to tubes

B-Flow SS316L L130

Flow cell to connect to tubes for one sensor with ¾" NPT thread.

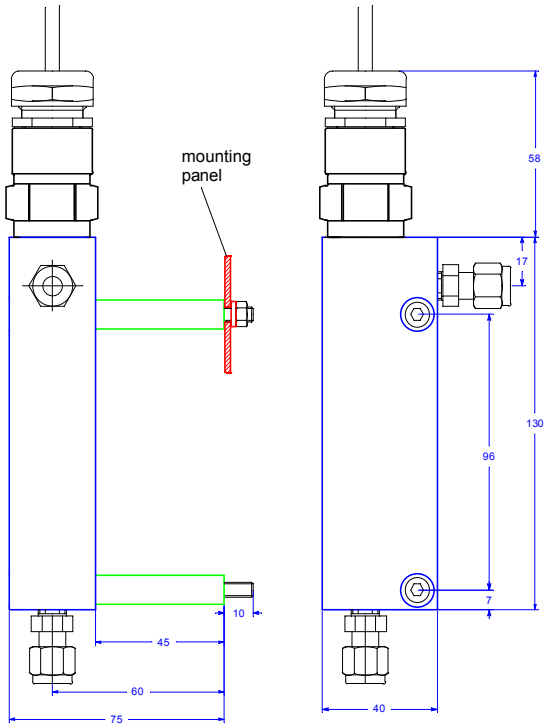
Made of stainless steel (SS316L).

Technical data:

Flow cell made of stainless steel SS316L.

1 insert for one sensor with ¾" NPT thread, max. length 89 mm.

Operating temperature:	-10 .... +130 °C
Pressure:	max. 10 bar at +130 °C
Connection:	2x female thread ⅛" ISO
Length: without Swagelok:	130 mm
with sensor (with cable):	ca.190 mm
Width without Swagelok:	40 mm
Front-to-back size (mounted):	75 mm



(Swagelok fittings must be ordered separately)

Delivery:

Stainless steel flow cell B-Flow SS316L L130. Process connection: 2x female thread ⅛" ISO.
Mounting kit.
(Swagelok fittings must be ordered separately).

Order number	B-Flow SS316L L 130	A-83.228.133

Accessories:

C-86.530.060 **Swagelok fitting** ISO ⅛" female → tube ¼" (SS-400-1-2RT)

Pressure-resistant flow cell for Oxytrace G sensor

B-Flow SS316L OTG

Flow cell made of stainless steel for one oxygen sensor Oxytrace G.

Technical data:

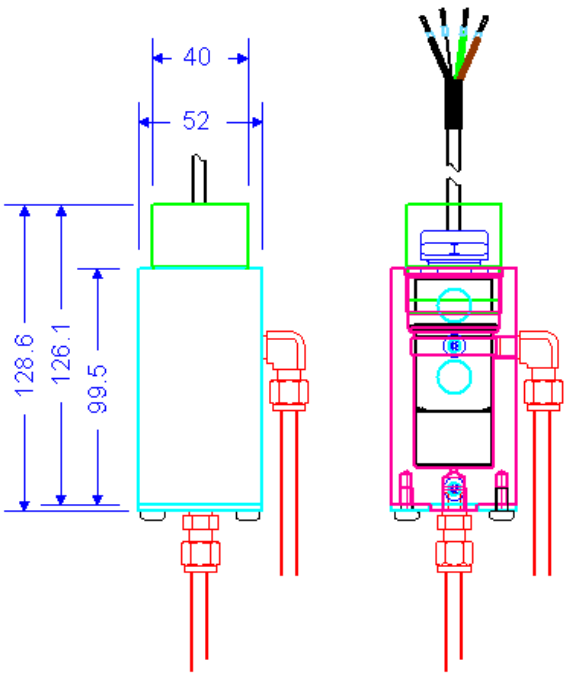
Cylindrical flow cell made of stainless steel SS316L.

1 insert for one oxygen sensor Oxytrace G.

Operating temperature:	-10 .... +130 °C
Sensor:	max. 50 °C
Operating pressure:	max. 5 bar at +130 °C
Sensor:	max. 3 bar
Connection:	2x female thread 1/8" ISO

Dimensions:

Height:	102 mm
Diameter:	52 mm
Height with sensor and adapter:	128.6 mm



(Pictures with sensor, Swagelok connections, tubes, mounting angle and sensor adapter)

Delivery includes:

Flow cell B-Flow SS316L OTG, mounting angle and two M5 screws.

Process connections (2x Swagelok connection for ¼" tube) and sensor adapter are **NOT** included in delivery.

Order number	**B-flow SS316L OTG**	**A – 8 3 . 2 2 8 . 3 2 9**

Accessories:

C-86.530.060 Swagelok fitting 1/8 ISO male thread →¼" tube, straight
C-86.530.090 Swagelok fitting 1/8 ISO male thread →¼" tube, 90° angle

Flow cell for wastewater applications with pH, redox/ORP and ion selective sensors. Sensor cleaning available as option.

Flow cell M-Flow 10-3PG

Flow cell made of PVC and acrylic glass with three PG 13.5 sensor screw connections. Suitable for Ø 12 mm sensors like pH, redox/ORP, ammonium, nitrate, reference and temperature.

Removable transparent vessel allows easy sensor calibration and maintenance.

Optional cleaning nozzle for sensor water spray cleaning.

Technical data

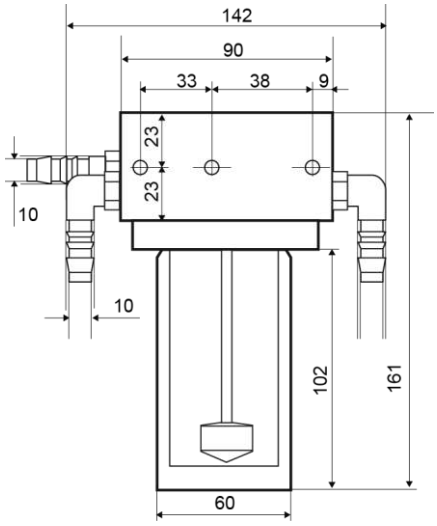
Connections
- Sample: G ¼" thread
- Cleaning water: G ¼" thread

Equipped with elbow hose nozzle for 10mm tube.

Sample conditions
(for the flow cell without sensors!)
- Flow rate: 4 to 15 l/h
- Temperature: up to 50 °C
- Inlet pressure: up to 1 bar @ 25 °C
- Pressure-free outlet (atmospheric drain)
- Cleaning water pressure: approx. 3-4 bar
- Particle size: below 0.5 mm
- No strong acids and bases
- No organic solvents

Dimensions
- Width: 90 … 142 mm
- Front-to-back: 138 mm
- Height: 161 mm
- Panel mounting: 3 screws M5

Suitable sensors
- Swansensor pH Standard or - AY
  or
  ORP/Redox versions alternatively
- Swansensor Ammonium or Nitrate
- Swansensor Temperature (Pt1000, Nt5k or RefTemp)



M-Flow 10-3PG with sensor cleaning option

Delivery includes:

Flow cell M-Flow 10-3PG with two blind plugs PG 13.5, blind plug at cleaning water inlet, and two 90° elbow hose nozzle ¼" for 10mm tube at sample in- and outlet. Set of mounting screws.

Order Nr.	**M-Flow 10-3PG**	**A–83.416.330**
Option:	[ ] Spray nozzle for sensor cleaning	A-83.491.120
Accessory	[ ] Mounting panel for flow cell made of white PVC. Dimensions (w x h x d): 280 x 200 x 10 mm	A-89.410.110
	[ ] Swansensor deltaT Flow	A-87.933.010

Flow cell for the Swansensor Oxysafe1000.

Flow cell M-Flow M40

Flow cell made of PVC and acrylic glass with one M40 x 1.5 sensor opening. Suitable for Ø 32 mm sensors with M40 adapter.

Removable transparent vessel allows easy sensor calibration and maintenance.

Technical data

Sample connections

- Inlet and outlet: G ¼" thread

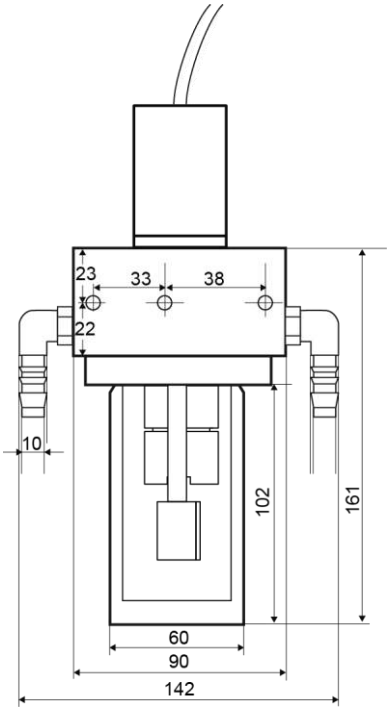
Equipped with hose nozzle for 10mm tube.

Sample conditions
(for the flow cell without sensor!)

- Flow rate: 4 to 15 l/h
- Temperature: up to 50 °C
- Inlet pressure @ 25 °C: up to 1 bar
- Pressure-free outlet (atmospheric drain)
- No strong acids and bases
- No organic solvents

Dimensions

- Width: 90 … 142 mm
- Front-to-back: 105 mm
- Height: 161 mm
- Panel mounting: 3 screws M5



M-Flow M40 with Swansensor Oxysafe1000 (not included).

Delivery includes:

Flow cell M-Flow M40 with sensor incident flow tube, and two 90° elbow hose nozzle ¼" for 10mm tube at sample in- and outlet. Set of mounting screws. Sensor mounting adapter for Ø 32 mm sensor in M40 thread (A-83.910.060)

Order Nr.	M-Flow M40	A–83.422.330
Accessory	[ ] Mounting panel for flow cell made of white PVC. Dimensions (w x h x d): 280 x 200 x 10 mm	A-89.410.110
	[ ] Swansensor deltaT Flow	A-87.933.010

pH sensor with reference electrode for the measurement of pH in power plants

Swansensor pH SI

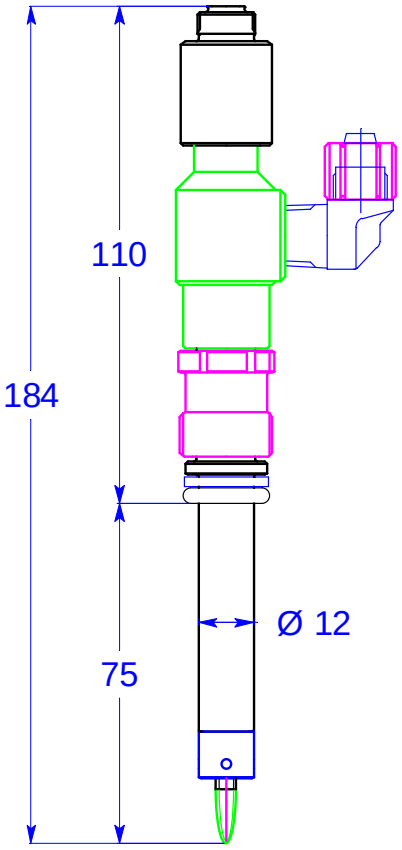
pH electrode including reference electrode in mechanically and chemically inert plastic case (IP68).

Poisoning protected Ag/AgCl-reference system.

Clogging of the reference system by insoluble silver compounds is eliminated by a AgCl-free electrolyte.

Technical data pH electrode:

Operative and measuring range:	1 - 12 pH
Reference system:	Ag/AgCl
Electrolyte: KCl-solution, 3,5 M (without AgCl)	
Diaphragm:	annular gap
Operating temperature:	0 .... 50 °C
Pressure:	pressure-free
Min. conductivity:	0.055 µS/cm
Flow speed:	5 to 10 l/h
Case material:	PETP/POM
Connection:	plug PG 13,5
Weight:	40 g



Order number	Swansensor pH SI	A-87.110.200

Accessories:

A-87.893.500	Filling solution (KCl 3,5M) 200ml
A-87.893.600	Filling solution (KCl 3,5M) 500ml

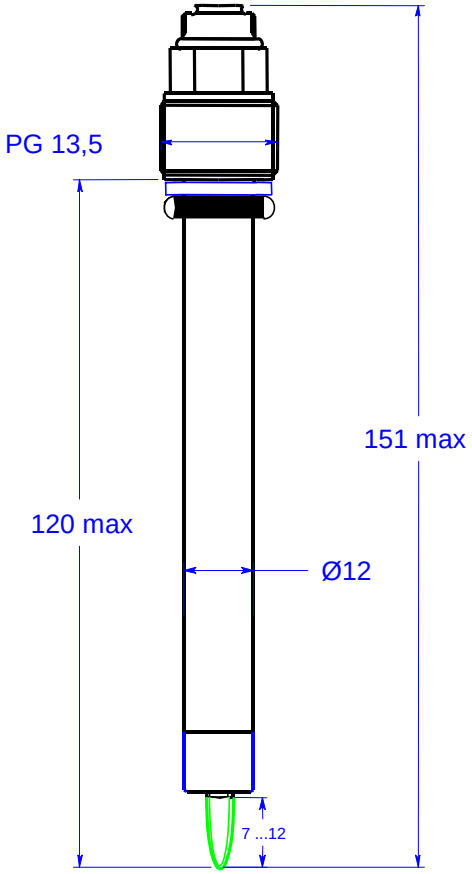
pH sensor for the measurement of pH in high purity water

Swansensor pH FL

Only in combination with Swansensor Reference FL, A-87.860.100.

Technical data:

Operative and measuring range:	1 - 12 pH
Reference electrode:	Reference FL
Operating temperature:	0 .... 50 °C
Pressure:	pressure-free
Min. conductivity:	0.055 µS/cm
Flow speed:	5 to 10 l/h
Case material:	PETP/POM
Connection:	plug PG 13,5
Weight:	40 g
Protection degree:	IP 68



Order number	**Swansensor pH FL**	**A-87.150.200**
	Swansensor Reference FL	**A-87.860.100**

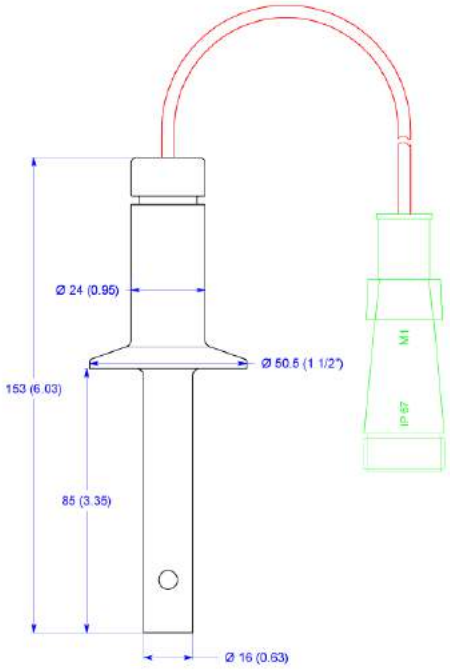
Two-electrode conductivity sensor for the inline measurement of purified water and water for injection of pharmaceutical water.

Swansensor PHARMACON, SAN

For high purity water applications in the pharmaceutical industry. With sanitary flange.
Polished surface, no dead volume.
Sensor will be accompanied with following certificates: cell constant, material specification and inspection certificate (according to EN 10204), surface roughness.

Specifications:

Recommended measuring range:	0,055 – 1'000 µS/cm
Accuracy (at 25°C):	> ± 2 % up to 500 µS/cm ± 3% above 500 µS/cm up to 1'000µS/cm
Cell constant:	0.1 cm^{-1}
Material:	
Shaft & Electrode:	SS 316L (1.4435), stainless steel
Isolator:	PEEK
Roughness:	R_a < 0.4 µm
Temperature sensor:	Pt1000, accuracy ± 0.2 °C
Sensor mounting:	sanitary flange 1 ½"
Operating temperature:	-10 - 120 °C
Sterilisation temperature:	-10 - 155 °C
Operating pressure:	17 bar at 25°C max. 7 bar at + 95°C
Length totally:	153 mm
Insertion length:	85 mm

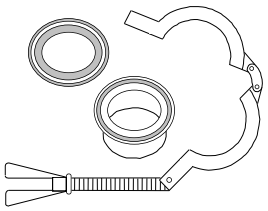


Sensor is equipped with fixed cable (~30cm, PTFE) and an M16 male plug.

Order scheme	Swansensor PHARMACON, SAN	A-87.335.	1	0	0

Accessories:

A-88.155.120	1m cable with M16 female plug and sleeves
A-88.155.520	5m cable with M16 female plug and sleeves
A-88.155.720	15m cable with M16 female plug and sleeves
C-87.329.010	Clamp for sanitary flange (max. 6 bar) incl. welding nipple
C-87.329.012	Clamp for sanitary flange (max. 20 bar) incl. welding nipple
C-87.329.011	Sealing made of PTFE for sanitary flange
C-87.329.013	Sealing made of EPDM for sanitary flange
V-9710055	Recertification Swansensor Pharmacon, in-house

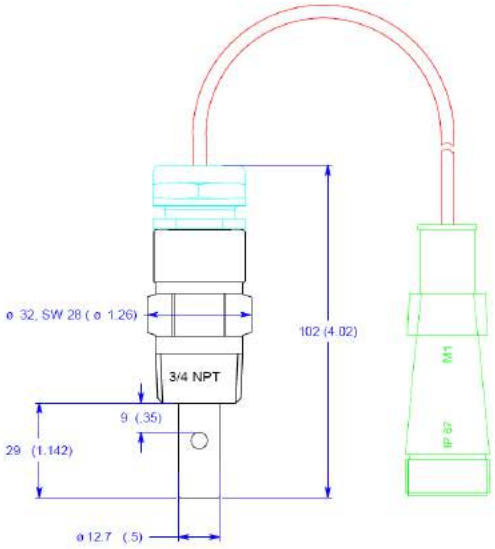


Two-electrode conductivity sensor for the inline measurement of purified water and water for injection of pharmaceutical water.

Swansensor PHARMACON, NPT

For high purity water applications in the pharmaceutical industry. With NPT ¾" thread.
Polished surface, no dead volume.
Sensor will be accompanied with following certificates: cell constant, material specification and inspection certificate (according to EN 10204).
Sensor with fixed cable and M16 male plug.

Specifications:



Recommended measuring range:	0,055 – 1'000 µS/cm
Accuracy (at 25°C):	> ± 2 % up to 500 µS/cm ± 3% above 500 µS/cm up to 1'000µS/cm
Cell constant:	0.1 cm^{-1}
Material: Shaft & Electrode: SS 316L (1.4435), stainless steel, Titan Isolator:	 PEEK
Temperature sensor:	Pt1000, accuracy ± 0.2 °C
Sensor mounting:	NPT thread ¾"
Operating temperature: Sterilisation temperature (short-time):	-10 - 120 °C -10 - 155 °C
Operating pressure:	17 bar at 25°C max. 7 bar at + 95°C
Length totally: Insertion length:	102 mm 29 mm

Sensor is equipped with fixed cable (~30cm, PTFE) and an M16 male plug.

Order scheme	Swansensor PHARMACON, NPT	A-87.335.	2	0	0

Accessories:

A-88.155.120	1m cable with M16 female plug and sleeves
A-88.155.520	5m cable with M16 female plug and sleeves
A-88.155.720	5m cable with M16 female plug and sleeves
V-9710055	Recertification Swansensor Pharmacon, in-house

Sensor for the measurement of the specific conductivity. Four electrode design with integrated temperature sensor.

Swansensor Shurecon S

For applications in surface water, potable water and cooling water.
Unaffected by fouling. No measuring errors due to polarization effects. Sterilizable.

Sensor with plug. For the use together with the SWAN conductivity transmitters AMI Solicon4 and AMU Solicon4.

Specifications:

Recommended conductivity range:
0.1 µS/cm - 100 mS/cm

Accuracy: ± 1 % or ± 0.2 µS/cm whichever is greater

Cell constant k: 0.45 cm^{-1}

Temperature sensor type:
Pt1000, DIN class A

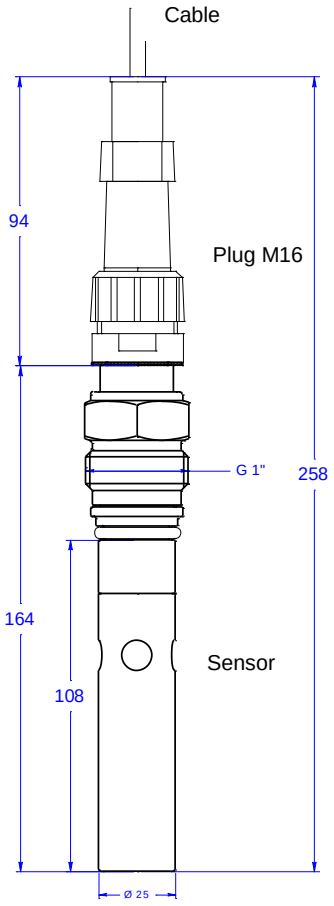
Operating conditions:
- Max. temperature: 120°C at 6.5 bar
- Max. pressure: 12 bar at 20°C
- Sterilizable at: 120°C / 5 bar / 30 min.

Materials:
- Body: PPSU
- Shaft: stainless steel SS 316L
- Current electrodes: SS 316L
- Isolation: PEEK
- Voltage electrodes: Platinum
- Cover: PVDF

Electrical connection: Plug M16 male (IP 67)

Process connection: G 1" thread

Free space around sensor tip: 20 mm



Sensor with cable (not included)

Order number	Swansensor Shurecon S	A – 8 7. 3 4 1 . 0 0 0

Accessories:

A-88.175.120	**Sensor cable 1 m**, M16 female plug - sleeves
A-88.175.520	**Sensor cable 5 m**, M16 female plug - sleeves
A-88.175.720	**Sensor cable 15 m**, M16 female plug - sleeves
A-83.910.110	**Welding connector**, G 1" thread, Ø 38 mm, length 55 mm, 60 °, stainless steel
A-83.438.330	**Flow cell M-Flow G1** (details please see the separate data sheet no. DenA83438330)

Redox (ORP) sensor with reference electrode for the measurement of redox (ORP) value in power plants

Swansensor Redox SI

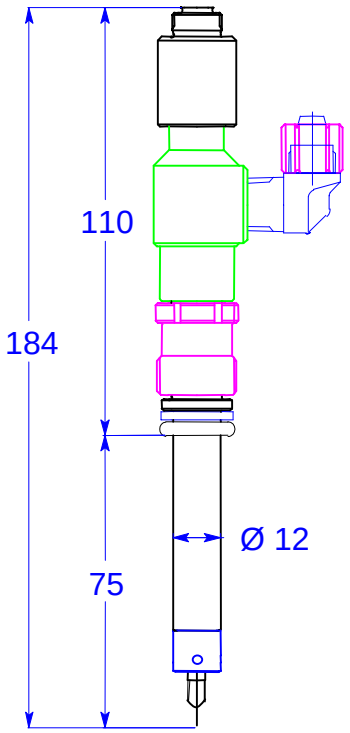
ORP electrode including reference electrode in mechanically and chemically inert plastic case (IP68).

Poisoning protected Ag/AgCl-reference system.

Clogging of the reference system by insoluble silver compounds is eliminated by a AgCl-free electrolyte.

Technical data Redox (ORP) electrode:

Operative and measuring range:	-500 to +1500 mV
Reference system:	Ag/AgCl
Electrolyte:	KCl-solution, 3.5 M (without AgCl)
Diaphragm:	annular gap
Operating temperature:	0 .... 50 °C
Pressure:	pressure-free
Min. conductivity:	3 µS/cm
Flow speed:	5 to 10 l/h
Case material:	PETP
Connection:	plug PG 13,5
Weight:	40 g



Order number	Swansensor Redox (ORP) SI	A-87.410.200

Accessories:

A-87.893.500	Filling solution (KCl 3,5M) 200ml
A-87.893.600	Filling solution (KCl 3,5M) 500ml

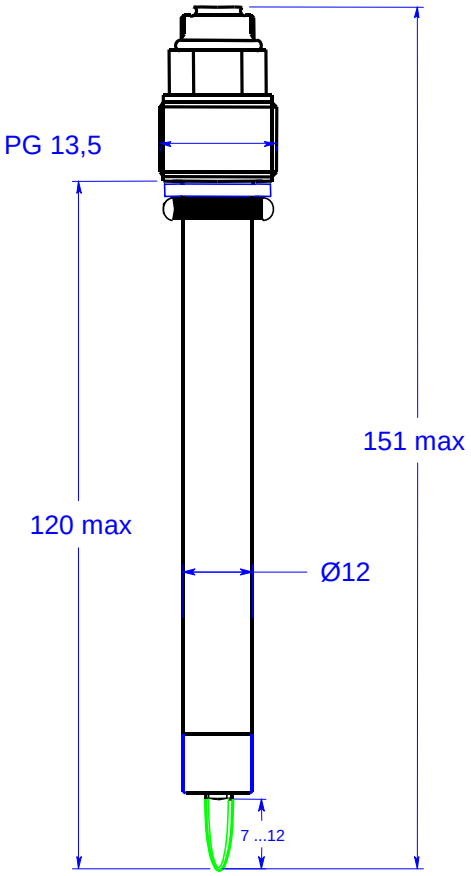
Sensor for the measurement of the redox potential (ORP) in high purity water.

Swansensor Redox FL

Only in combination with Swansensor Reference FL, A-87.860.100.

Technical data:

Operative and measuring range:	-500 to +1500 mV
Reference electrode:	Reference FL
Operating temperature:	0 .... 50 °C
Pressure:	pressure-free
Min. conductivity:	0.055 µS/cm
Flow speed:	5 to 10 l/h
Case material:	PETP
Connection:	plug PG 13,5
Weight:	40 g
Protection degree	IP 68



Order number	Swansensor Redox FL	A-87.411.200
	Swansensor Reference FL	A-87.860.100

Ammonium-sensitive electrode system for measuring in potable water.

Swansensor Ammonium (NH_4-N)

- Sensor with ion sensitive membrane in mechanically and chemically inert plastic case (IP 68) with excellent life time.

- Automatic compensation of ion interference with Swansensor Potassium (only with FAM Ammonium)

Specification for
Swansensors Ammonium & Potassium:

Operative and measuring range:
0.1 to 1000 ppm (=mg/l)

Measurement: ion sensitive membrane

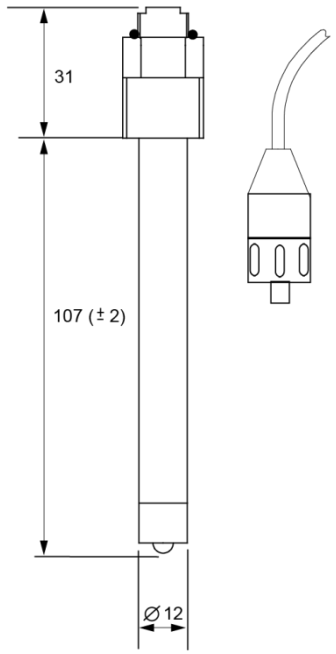
Operating temperature: 5 to 35 °C

Pressure: < 2 bar

Case material:
isotactic polypropylene, PPO

Connection: plug PG13.5

Swansensor Ammonium/
Potassium/Fluoride/Nitrate



(Dimensions in mm)

Specification for reference electrode:

See separate datasheet.

For use with:
- Swansensor Reference FL / Swansensor Temperature (NT5K) / AMI ISE Universal
- Swansensor RefTemp / FAM Ammonium

Order number	**Swansensor Ammonium**	**A-87.710.010**
	Swansensor Reference FL	A-87.860.100
	Swansensor Temperature (NT5K)	A-87.020.200
	Swansensor RefTemp	A-87.810.010
	Swansensor Potassium (for compensation of K^+ ion interference)	A-87.740.010

Fluoride-sensitive electrode system for measuring in potable water.

Swansensor Fluoride

Sensor with ion sensitive membrane in mechanically and chemically inert plastic case (IP 68) with excellent life time.

Specification for Swansensor Fluoride:

Operative and measuring range:
0.1 to 1'000 ppm (=mg/l)

Measurement: ion sensitive membrane

Operating temperature: 5 to 35 °C

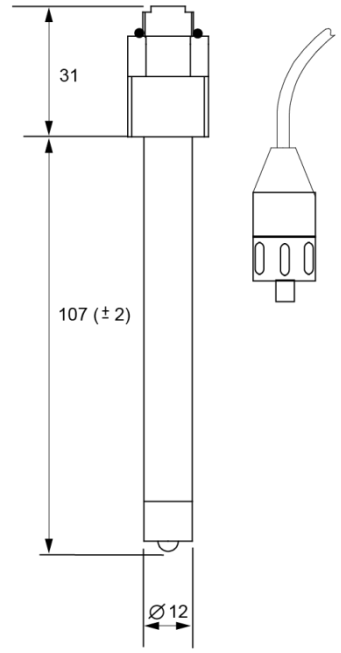
Pressure: < 2 bar

Case material:
isotactic polypropylene, PPO

Connection: plug PG13.5

Application: Potable Water

Swansensor Ammonium/
Potassium/Fluoride/Nitrate



(Dimensions in mm)

Specification for reference electrode:

See separate datasheet.

For use with:
- Swansensor Reference FL / Swansensor Temperature (NT5K) / AMI ISE Universal
- Swansensor RefTemp / FAM Fluorid

Order number	Swansensor Fluorid	A-87.760.010
	Swansensor Reference FL	A-87.860.100
	Swansensor Temperature (NT5K)	A-87.020.200
	Swansensor RefTemp	A-87.810.010

Sensor RefTemp

Data sheet no. DenA87810010

Combined electrode (reference and temperature) for ion sensitive electrode system for measuring in potable water and effluents.

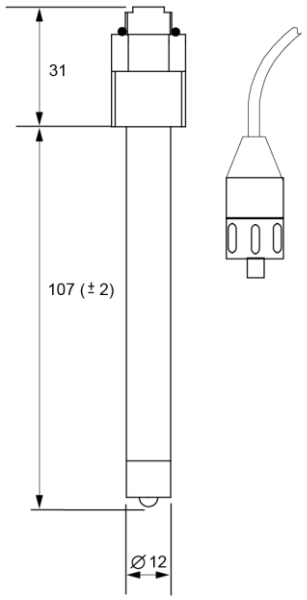
Reference electrode: Swansensor RefTemp

- Maintenance-free reference electrode in mechanically and chemically inert plastic case (IP 68) with excellent life time.
- Integrated temperature sensor.
- Ag/AgCl-reference system protected against poisoning.

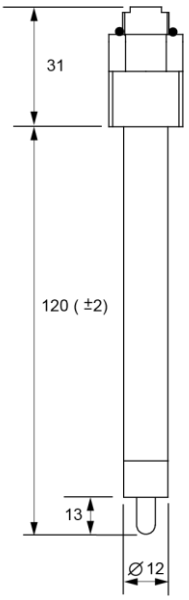
Specification for Swansensor RefTemp:

Temperature sensor:	NT5K (NTC)
Temp. measuring range:	-10 to +50 °C
Operating temperature:	0 to 50 °C
Diaphragm:	annular gap
Reference system:	Ag/AgCl
Electrolyte:	KCl-gel, 3.5 M (without AgCl)
Pressure:	< 2 bar
Case material:	isotactic polypropylene, PPO
Connection:	plug PG 13.5

Swansensor Ammonium/ Potassium/Fluoride/Nitrate



Swansensor RefTemp



(Dimensions in mm)

For use with:

- Swansensor Ammonium (- Potassium)	and	FAM Ammonium
- Swansensor Nitrate	and	FAM Nitrate
- Swansensor Fluoride	and	FAM Fluoride

Order number	Swansensor RefTemp	A-87.810.010
	Swansensor Ammonium	A-87.710.010
	Swansensor Potassium (for compensation of K^+ ion interference)	A-87.740.010
	Swansensor Nitrate	A-87.730.010
	Swansensor Fluoride	A-87.760.010

Reference electrode for Swansensor pH FL or Swansensor Redox FL and ISE-electrodes.

Swansensor Reference FL

Electrode in mechanically and chemically inert plastic case (IP68).

Poisoning protected Ag/AgCl-reference system.

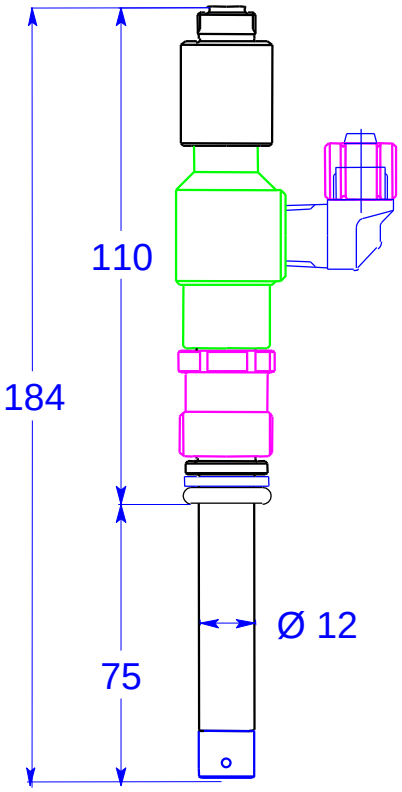
Clogging of the reference system by insoluble silver compounds is eliminated by a AgCl-free electrolyte.

For use with:

- Swansensor pH FL or -Redox FL and the transmitter AMI pH/Redox
- Swansensor Nitrate, -Ammonium or –Fluorid and the transmitter AMI ISE Universal

Technical data :

Reference system:	Ag/AgCl
Electrolyte: KCl-solution, 3,5 M (without AgCl)	
Diaphragm:	annular gap
Operating temperature:	0 .... 50 °C
Pressure:	pressure-free
Min. conductivity:	0.055 µS/cm
Flow speed:	5 to 10 l/h
Case material:	PETP
Connection:	plug PG 13,5



Order number	Swansensor Reference FL	A-87.860.100

Accessories:

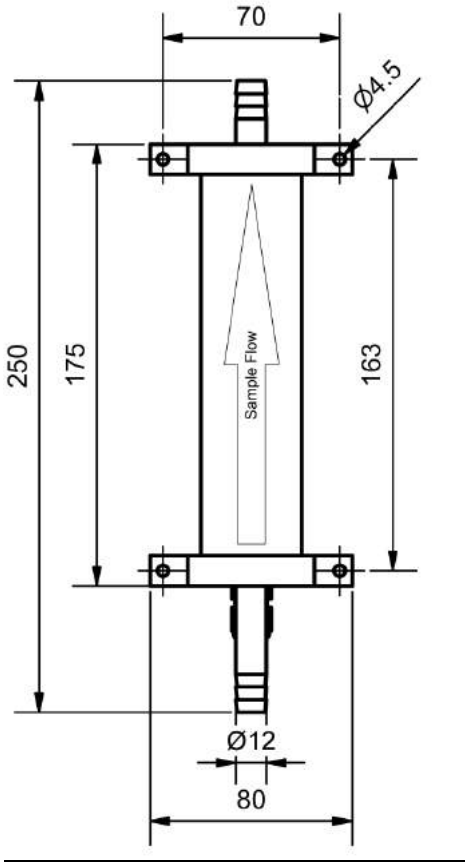
A-87.893.500	Filling solution (KCl 3,5M) 200ml
A-87.893.600	Filling solution (KCl 3,5M) 500ml

Calorimetric flow meter based on heat dissipation.

Swansensor deltaT

For applications in potable water, surface water treatment and effluent.

- Based on heat dissipation for flow indication.
- Sensor including stainless steel tube (1.4404), heating module and two temperature sensors.
- Free flow through tube with Ø 10mm inner diameter.
- Easy cleaning if necessary (simple tube). No fouling.
- Sensor assembled with fixed cable (1m length) and core end sleeves.
- Factory calibrated (Accuracy: ± 20%). Can be calibrated in the field if higher accuracy is required.



For use with:

- AMI pH-Redox* & AMI pH/mV:pH/mV
- AMI Solicon4*
- AMI Oxysafe*
- AMI Turbiwell 7027* and Turbiwell W/LED*
- AMI ISE Universal

* see requirement regarding firmware and mainboard.

Specifications:

Measuring range / Flow rate:	0 - 40 l/h
Accuracy:	± 20%
Response time t_{90}:	~1min
Dimensions (W x L x H):	80 x 250 x 60mm
Material (wetted):	stainless steel; 1.4404
Sample temperature:	5 - 35 °C
Sample pressure:	accord. specs. of Analyzer
Sample In-/Outlet:	For tubing Ø 10 - 11 mm

Requirement:

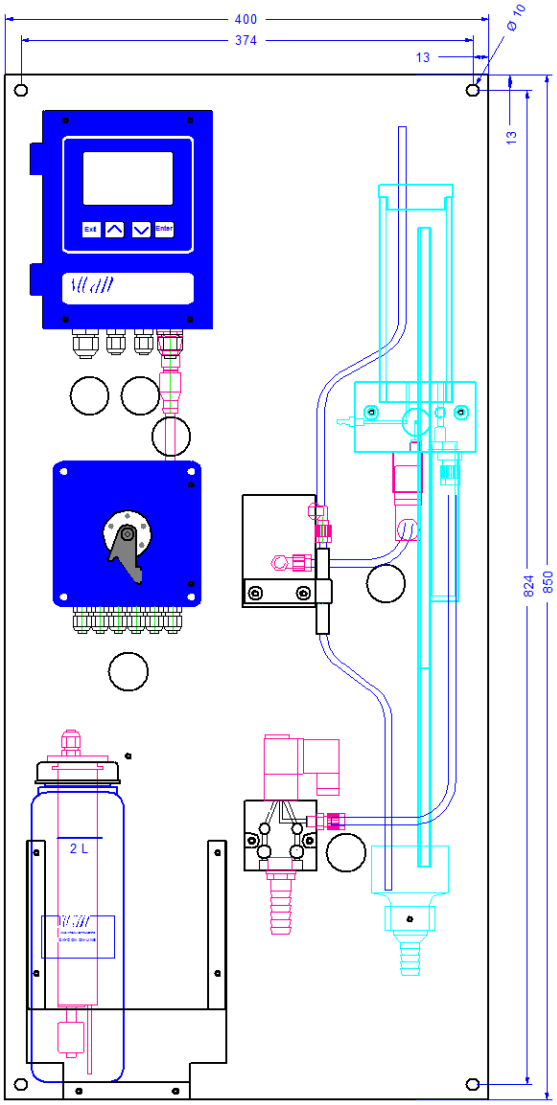
- Vertical installation with cable plug at the bottom and the sample flow from bottom to top.
- To ensure laminar flow sample inlet must not be restricted; e.g. any fitting which creates turbulences.
- AMI Mainboard: V2.3 or higher
- Firmware: AMI Turbiwell V4.61, AMI pH-Redox V5.0, AMI Solicon4 V4.70, AMI Oxysafe V5.0, or higher.

Order Nr.	Swansensor deltaT	A–87.933.010

Complete monitoring system for the automatic, continuous measurement of ortho-phosphate in boiler water, district heating, cooling water and waste water.

Monitor AMI Phosphate HL

- Measuring range:
  0.1 to 50 ppm (mg/l) as PO_4 or
  0.1 to 16 ppm (mg/l) as P-PO_4
- Based on vanadomolybdophosphoric acid colorimetric method according to APHA 4500-P C.
- No interferences with silica.
- Complete system including measurement and control electronics, photometer, flow indicator, reaction chamber, reagent dosing system and reagent container.
- Measurement values are available as analog output signals.
- Alarm display and activation of alarm relay when user defined, critical limits are reached.
- Continuous, automatic monitoring of main instrument functions (sample flow, reagent supply).
- Large back-lit LC display showing all measured values and status information simultaneously.
- Easy user menus in English, German, French and Spanish. Simple programming of all parameters by keypad.
- Data logger for 1'500 data records stored at a selectable interval. (Data download requires optional USB-Stick).
- Factory tested, ready for installation and operation.



Monitor AMI Phosphate HL
incl. 2nd sample stream option

Instrument Options

- Communication interface (Profibus, Modbus, 3rd Signal Output, USB)
- 2nd sample stream
- Cleaning-module-II
- AMI Sample Sequencer

Order scheme	Monitor AMI Phosphate HL	A–25.421.300.0
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
Option:	[ ] 2nd sample stream	A-83.590.043

Monitor AMI Phosphate HL

Data sheet no. DenA25421300

Analytical System

Phosphate (PO_4) measurement

Measuring range:	Resolution
0.1 to 50.0 ppm as PO_4	0.1 ppm
0.1 to 16.0 ppm as P-PO4	0.1 ppm

Reproducibility:

0.1 to 10 ppm	± 0.1 ppm or ± 2.5%, whichever is the greater
10 to 50 ppm	± 0.3 ppm or ± 5%, whichever is the greater

Measurement cycle: min. 5 minutes

Flow cell

Made of acrylic glass with water inlet filter and flow adjustment valve.

Transmitter Specifications and Functionality

Electronics case:	Aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Ambient temperature:	-10 to +50 °C
Limit range of operation:	-25 to +65 °C
Storage and transport:	-30 to +85 °C
Humidity:	10 to 90 % relative, non condensing

Power supply

Voltage:	100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption:	max. 30 VA

Operation

Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “ Installation”.

Separate menu specific password protection possible.

Display of process value, sample flow, alarm status and time during operation.

Storage of event log, alarm log and calibration history.

Storage of the last 1’500 data records in logger with selectable interval.

Real-time clock with calendar

For action time stamp and preprogrammed actions.

Safety features

Data storage in non-volatile memory.
Over voltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Reagents monitoring

Warning if low level is reached and alarm for lack of reagents.

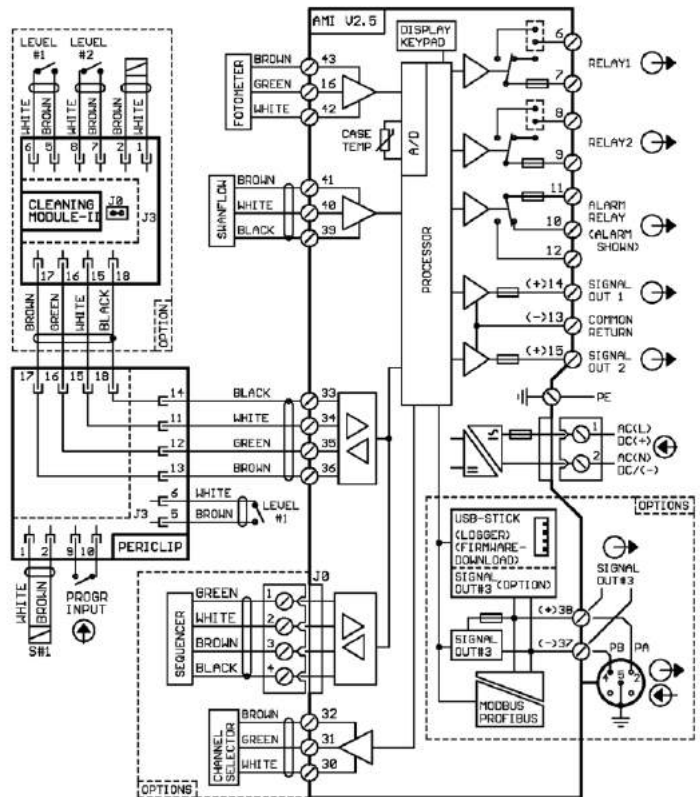
Temperature monitoring

Alarm if the transmitter temperature is higher than +65 °C or lower than 0 °C.

1 Alarm relay

One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

Electrical Connection Scheme



1 Input

One input for potential-free contact. Programmable hold or remote off function

2 Relay outputs

Two potential-free contacts programmable as limit switches for measuring values, controllers or timer with automatic hold function.
Max. load: 1A / 250 VAC

2 Signal outputs (3rd as option)

Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as continuous control output (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control function

Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)

- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface

Sample and Monitor Data

Sample conditions

Flow rate:	min. approx. 10 l/h
Temperature:	up to 50 °C
Inlet pressure:	0.15 to 2 bar
Outlet pressure:	pressure free, atmospheric drain

Sample connections

Inlet:	Serto PVDF 6mm (1/4” thread), for tubing 6x4 mm
Inlet with 2nd sample stream option:	2x Serto PA 6mm (1/8” thread), for tubing 6x4 mm
Drain:	Ø 16 mm, tubing 15x20 mm

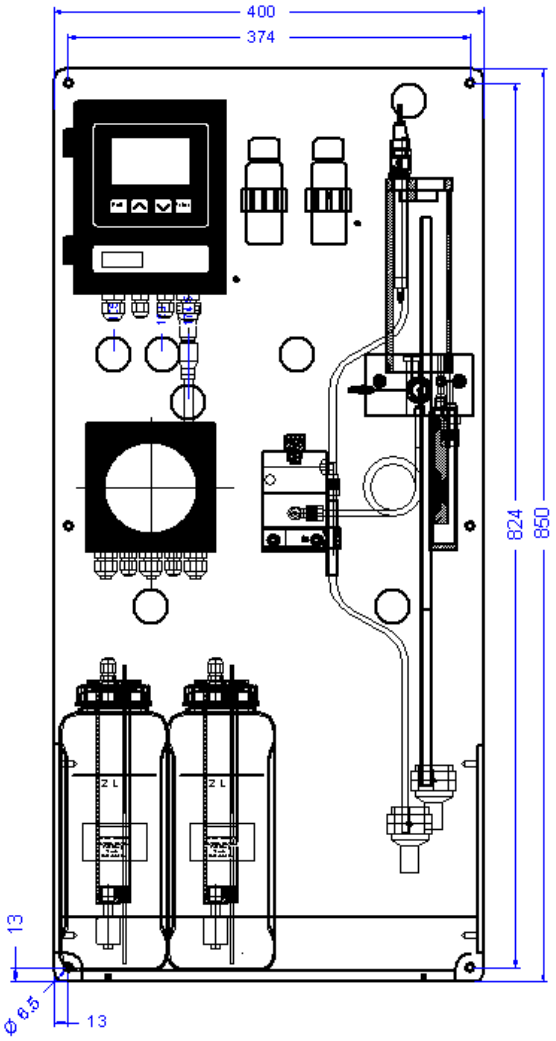
Panel

Dimensions:	400 x 850 x 200 mm
Material:	stainless steel
Weight:	14.5 kg

Complete monitoring system for the automatic, continuous measurement of chlorine and other disinfectants (e.g. monochloramine) in potable water, swimming pools, cooling water, hot water loops and effluent.

Monitor AMI Codes-II

- For the continuous online determination of disinfectants based on the DPD colorimetric method (EN ISO 7393-2; APHA 4500 Cl-G).
- Measurement values : free chlorine / chlorine dioxide / iodine or bromine using DPD+Buffer or monochloramine / ozone using DPD+Buffer&KI, flow and if installed pH and temperature.
- Also applicable for water containing additives like cyanuric acid.
- Complete system including measurement and control electronics, photometer, flow indicator, reaction chamber, reagent dosing system and reagent containers.
- Integrated pH measurement with temperature compensation (available as option).
- All usual dosing devices for disinfectants and pH control can be connected either through relays or analog output signals. Two independent controllers can operate simultaneously.
- Dosing of disinfectant can be interrupted automatically with an external signal, e.g. during sample flow interruption or filter backwashing.
- Two (optionally three) selectable measurement values are available as analog output signals.
- Alarm display and activation of alarm relay when user defined, critical limits for a measurement value are reached.
- Continuous, automatic monitoring of main instrument functions (dirty photometer, sample flow, reagents).
- Large back-lit LCD display showing all measured values and status information simultaneously.
- Factory tested, ready for installation and operation.



Options:
- Communication interface
- pH option containing pH sensor, temperature sensor, cables and electronics board.

Accessory:
- Chemical cleaning module. For details please see separate data sheet no. DenA82312000.

Order Nr.	Monitor AMI Codes-II	A–25.441.100.0
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
	[ ] HART interface	A-81.420.060
Option:	[ ] pH and temperature measurement	A-87.127.020

Monitor AMI Codes-II

Data sheet no. DenA254411000

Disinfectant measurement

Measuring range:	Accuracy:
Ozone	
0.000 – 1.000 ppm	± 0.005 ppm
HOCl, free chlorine, monochloramine	
0.00 – 1.00 ppm	± 0.01 ppm
1.00 – 3.00 ppm	± 0.06 ppm
3.00 – 5.00 ppm	± 0.2 ppm
Chlorine dioxide, iodine, bromine	
0.00 – 2.00 ppm	± 0.02 ppm
2.00 – 6.00 ppm	± 0.12 ppm

Response time:
90% of change of excessive Cl in 60 seconds after sample entered flow cell.

Cycle time free chlorine: 1 – 12 min.

pH (option):
Measuring range: pH 2 - 12
Resolution: 0.01 pH

Temperature measurement (Option)
with Nt5k sensor
Measuring range : -30 to +100 °C
Resolution : 0.1 °C

Transmitter Specifications and Functionality

Electronics case: Aluminum
Protection degree: IP 66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Ambient temperature: -10 to +50 °C
Limit range of operation: -25 to +65 °C
Storage and transport: -30 to +85 °C
Humidity: 10 to 90 % relative, non condensing

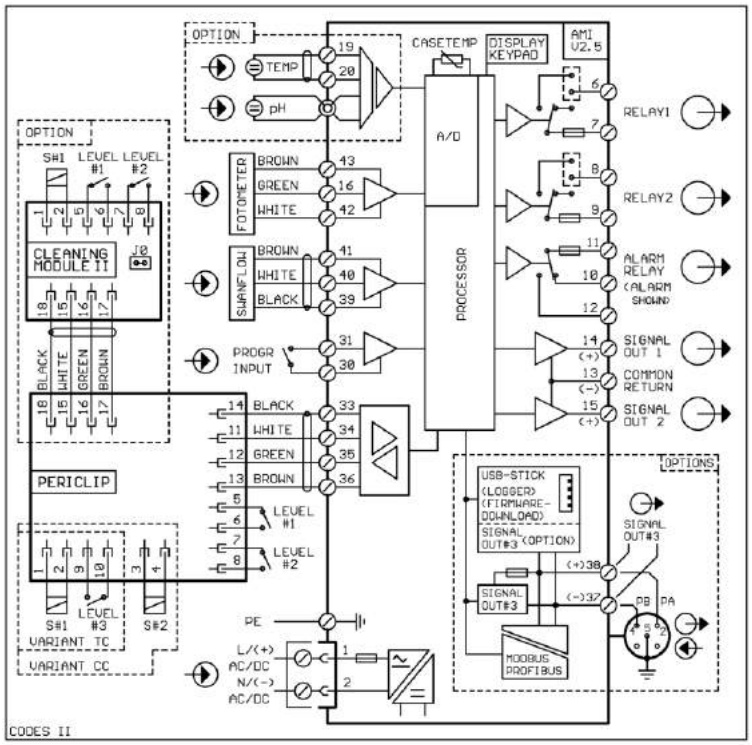
Power supply
Voltage: 100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption: max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
User menus in English, German, French and Spanish
Separate, menu specific password protection.
Display of process value, alarm status and time during operation.
Storage of event log, and alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory. Over-voltage protection of in- and outputs.
Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
With programmable high/low alarm limits.

Electrical Connection Scheme



Real-time clock with calendar
For action time stamp and preprogrammed actions.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer with automatic hold function.
Rated load: 1A / 250 VAC

2 Signal outputs (3rd optional)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.
Current loop: 0/4 - 20 mA
Maximum burden: 510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface
- HART interface

Monitor Data

Sample conditions
Water consumption: min. 10 l/h
Water inlet pressure 0.15 to 2 bar
Sample temperature: 5 to 50 °C

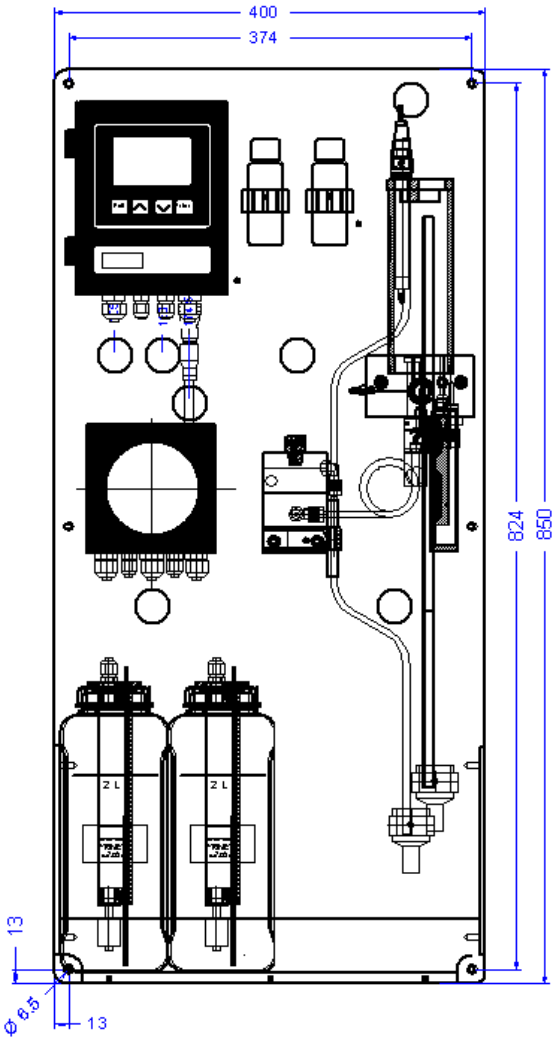
Flow cell and connections
Made of acrylic glass with water inlet filter and needle valve.
Openings for pH and temperature sensors.
Inlet tubing: 6 x 8 mm
Outlet pressure: atmospheric drain
Outlet tubing: 15 x 20 mm (1/2")

Panel
Panel dimensions: 400 x 850 x 200 mm
Panel material: PVC
Weight: 12.0 kg

Complete monitoring system for the automatic, continuous measurement of total chlorine in potable water, sanitary water, cooling water and effluent.

Monitor AMI Codes-II TC

- For the continuous online determination of disinfectants based on the DPD colorimetric method (EN ISO 7393-2; APHA 4500-Cl G).
- Measurement values : total chlorine 1, total chlorine 2, calculated dichloramine, flow and if installed pH and temperature.
- Complete system including measurement and control electronics, photometer, flow indicator, reaction chamber, reagent dosing system and reagent containers.
- Integrated pH measurement with temperature compensation (available as option).
- All usual dosing devices for disinfectants and pH control can be connected either through relays or analog output signals. Two independent controllers can operate simultaneously.
- Dosing of disinfectant can be interrupted automatically with an external signal, e.g. during sample flow interruption or filter backwashing.
- Two (optionally three) selectable measurement values are available as analog output signals.
- Alarm display and activation of alarm relay when user defined, critical limits for a measurement value are reached.
- Continuous, automatic monitoring of main instrument functions (dirty photometer, sample flow, reagents).
- Large back-lit LCD display showing all measured values and status information simultaneously.
- Factory tested, ready for installation and operation.



Options:

- Communication interface
- pH option containing pH sensor, temperature sensor, cables and electronics board.

Accessory:

- Chemical cleaning module. For details please see separate data sheet no. DenA82312000.

Order Nr.	Monitor AMI Codes-II TC	A–25.441.600.0
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
Option:	[ ] pH and temperature measurement	A-87.127.020

Monitor AMI Codes-II TC

Data sheet no. DenA254416000

Disinfectant measurement

Total chlorine (tc1 & tc2) measurement

Measuring range (Standard)	Accuracy
0.00 - 1.00 ppm	± 0.01 ppm
1.00 - 3.00 ppm	± 0.06 ppm
3.00 - 5.00 ppm	± 0.2 ppm

Measuring range (Extended)	Accuracy
0.0 – 10 ppm	± 10%

Measurement time tc1:	3-5 sec.
Measurement time tc2:	2 min.
Cycle time:	3 - 60 min.

tc1: measurement 3-5 seconds after injection of DPD & KI
tc2: measurement 2 minutes after injection of DPD & KI

Dichloramine: calculated by the difference of tc1 and tc2.

pH measurement (option)

Measuring range:	pH 2 - 12
Resolution:	0.01 pH

Temperature measurement (Option)
with Nt5k sensor

Measuring range :	-30 to +100 °C
Resolution :	0.1 °C

Transmitter Specifications and Functionality

Electronics case:	Aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Ambient temperature:	-10 to +50 °C
Limit range of operation:	-25 to +65 °C
Storage and transport:	-30 to +85 °C
Humidity:	10 to 90 % relative, non condensing

Power supply

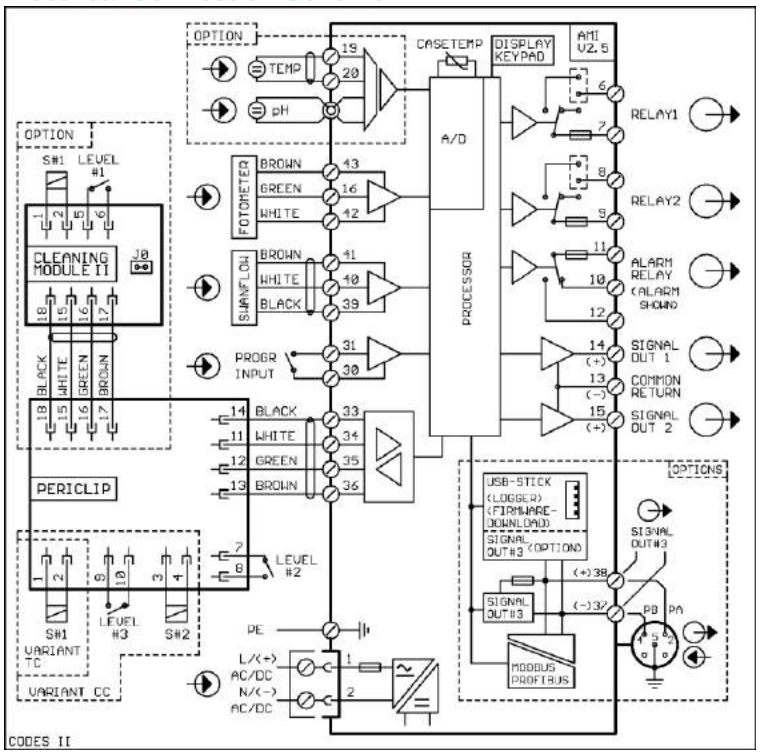
Voltage:	100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption:	max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
User menus in English, German, French and Spanish
Separate, menu specific password protection.
Display of process value, alarm status and time during operation.
Storage of event log, and alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory. Over-voltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
With programmable high/low alarm limits.

Electrical Connection Scheme



Real-time clock with calendar
For action time stamp and preprogrammed actions.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.

Maximum load:	1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer with automatic hold function.

Rated load:	1A / 250 VAC

2 Signal outputs (3rd optional)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface

Monitor Data

Sample conditions

Water consumption:	min. 10 l/h
Water inlet pressure	0.15 to 2 bar
Sample temperature:	5 to 50 °C

Flow cell and connections
Made of acrylic glass with water inlet filter and needle valve.
Openings for pH and temperature sensors.

Inlet tubing:	6 x 8 mm
Outlet pressure:	atmospheric drain
Outlet tubing:	15 x 20 mm (1/2")

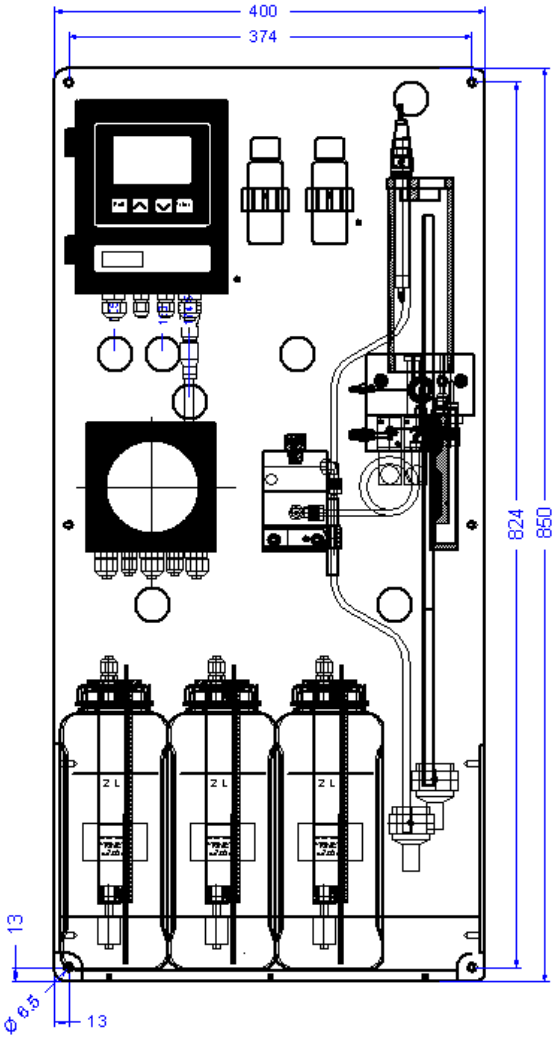
Panel

Panel dimensions:	400 x 850 x 200 mm
Panel material:	PVC
Weight:	12.0 kg

Complete monitoring system for the automatic, continuous measurement of free chlorine, monochloramine, total residual chlorine and combined chlorine in potable water, sanitary water and effluent.

Monitor AMI Codes-II CC

- For the continuous online determination of disinfectants based on the DPD colorimetric method (EN ISO 7393-2; APHA 4500-Cl G).
- Measurement values : free chlorine, monochloramine, total residual chlorine, combined chlorine, flow and if installed pH and temperature.
- Also applicable for water containing additives like cyanuric acid.
- Complete system including measurement and control electronics, photometer, flow indicator, reaction chamber, reagent dosing system and reagent containers.
- Integrated pH measurement with temperature compensation (available as option).
- All usual dosing devices for disinfectants and pH control can be connected either through relays or analog output signals. Two independent controllers can operate simultaneously.
- Dosing of disinfectant can be interrupted automatically with an external signal, e.g. during sample flow interruption or filter backwashing.
- Two (optionally three) selectable measurement values are available as analog output signals.
- Alarm display and activation of alarm relay when user defined, critical limits for a measurement value are reached.
- Continuous, automatic monitoring of main instrument functions (dirty photometer, sample flow, reagents).
- Large back-lit LCD display showing all measured values and status information simultaneously.
- Factory tested, ready for installation and operation.



Options:

- Communication interface
- pH option containing pH sensor, temperature sensor, cables and electronics board.

Accessory:

- Chemical cleaning module. For details please see separate data sheet no. DenA82312000.

Order Nr.	Monitor AMI Codes-II CC	A–25.441.700.0
Option:	[ ] 3rd current signal output (0/4 – 20mA)	A-81.420.050
	[ ] Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	[ ] USB interface	A-81.420.042
Option:	[ ] pH and temperature measurement	A-87.127.020

Monitor AMI Codes-II CC

Data sheet no. DenA254417000

Disinfectant measurement

Free chlorine, monochloramine, total residual chlorine

Measuring range	Accuracy
0.00 - 1.00 ppm	± 0.01 ppm
1.00 - 3.00 ppm	± 0.06 ppm
3.00 - 5.00 ppm	± 0.2 ppm

Combined chlorine: calculated by the difference of total residual chlorine and free chlorine.

Measurement time:	2 min.
Cycle time free chlorine:	Off, 1 - 12 min.
Cycle time total chlorine:	Off, 10 - 60 min.

pH measurement (option)

Measuring range:	pH 2 - 12
Resolution:	0.01 pH

Temperature measurement (Option)
with Nt5k sensor

Measuring range :	-30 to +100 °C
Resolution :	0.1 °C

Transmitter Specifications and Functionality

Electronics case:	Aluminum
Protection degree:	IP 66 / NEMA 4X
Display:	backlit LCD, 75 x 45 mm
Electrical connectors:	screw clamps
Ambient temperature:	-10 to +50 °C
Limit range of operation:	-25 to +65 °C
Storage and transport:	-30 to +85 °C
Humidity:	10 to 90 % relative, non condensing

Power supply

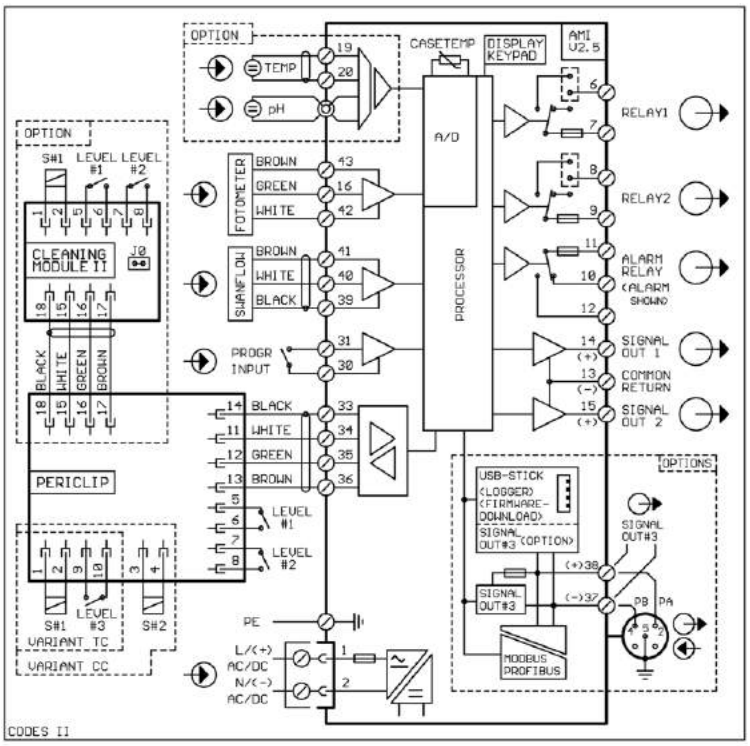
Voltage:	100 - 240 VAC (± 10 %), 50/60 Hz (± 5 %) or 24 VDC (± 10 %)
Power consumption:	max. 30 VA

Operation
Easy operation based on separate menus for “Messages”, “Diagnostics”, “Maintenance”, “Operation” and “Installation”.
User menus in English, German, French and Spanish
Separate, menu specific password protection.
Display of process value, alarm status and time during operation.
Storage of event log, and alarm log and calibration history.
Storage of the last 1’500 data records in logger with selectable time interval.

Safety features
No data loss after power failure, all data is saved in non-volatile memory. Overvoltage protection of in- and outputs. Galvanic separation of measuring inputs and signal outputs.

Transmitter temperature monitoring
With programmable high/low alarm limits.

Electrical Connection Scheme



Real-time clock with calendar
For action time stamp and preprogrammed actions.

1 Alarm relay
One potential free contact for summary alarm indication for programmable alarm values and instrument faults.

Maximum load:	1A / 250 VAC

1 Input
One input for potential-free contact. Programmable hold or remote off function.

2 Relay outputs
Two potential-free contacts programmable as limit switches for measuring values, controllers or timer with automatic hold function.

Rated load:	1A / 250 VAC

2 Signal outputs (3rd optional)
Two programmable signal outputs for measured values (freely scaleable, linear or bilinear) or as continuous control outputs (control parameters programmable) as current source. 3rd signal output selectable as current source or current sink.

Current loop:	0/4 - 20 mA
Maximum burden:	510 Ω

Control functions
Relays or current outputs programmable for 1 or 2 pulse dosing pumps, solenoid valves or for one motor valve.
Programmable P, PI, PID or PD control parameters.

1 Communication interface (option)
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus RTU or Profibus DP
- 3rd Signal output
- USB interface

Monitor Data

Sample conditions

Water consumption:	min. 10 l/h
Water inlet pressure	0.15 to 2 bar
Sample temperature:	5 to 50 °C

Flow cell and connections
Made of acrylic glass with water inlet filter and needle valve.
Openings for pH and temperature sensors.

Inlet tubing:	6 x 8 mm
Outlet pressure:	atmospheric drain
Outlet tubing:	15 x 20 mm (1/2")

Panel

Panel dimensions:	400 x 850 x 200 mm
Panel material:	PVC
Weight:	12.0 kg

По вопросам продаж и поддержки обращайтесь:

Архангельск (8182)63-90-72
Астана (7172)727-132
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

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