

Electronic transmitter and controller for the measurement of specific conductivity in ultrapure water.

Application examples

- For the use in power cycles (feed water, steam, condensate). Measurement can be performed before (specific resp. total conductivity) or after a cation exchanger (acid resp. cationic conductivity).

Measuring range

- From 0.055 $\mu\text{S/cm}$ to 30 mS/cm .
- Temperature compensations: non-linear for high purity water, neutral salts, strong acids, strong bases, ammonia, ethanolamine, morpholine or linear with coefficient.
- Measured value is compensated to 25 °C.

Sensors

- Connections for a 2-electrode conductivity sensor with integrated Pt1000 temperature sensor.
- Use with high accuracy conductivity sensors: Swansensor UP-Con1000 for installation in dedicated SWAN flow cells or pipes, Swansensor Retracon for in-pipe applications requiring a wet-tap valve.
- Optional: connecting a SWAN sample flow sensor.



Instrument features

- Measuring and control transmitter in a rugged aluminum enclosure (IP66).
- Large, backlit LC display and simple, menu-driven operation.
- Various connection options: two or optionally three analog signal outputs, two limit relays, one alarm relay and one relay input.
- Modbus, Profibus, HART or USB as an option.
- Daily, automatic electronic zero calibration.

Order numbers:	AMI Powercon	A-13.423._00
Power supply	100 – 240 VAC, 50/60 Hz 10 – 36 VDC	1 2
Accessories	For all options and details, please visit our website at www.swan.ch . Third signal output (0/4 – 20 mA)..... RS485 interface with Modbus RTU or Profibus protocol USB interface HART interface Swansensor UPCon1000 Swansensor Retracon Flow cell QV-Flow UPCon Flow cell CATCON+ SL.....	A-81.420.050 A-81.420.020 A-81.420.042 A-81.420.060 A-87.334.XX0 A-87.38X.XXX A-83.43X.1X1 A-83.444.10X



Conductivity Measurement

Conductivity sensor type
2-electrode conductivity sensor

Measuring range	Resolution
0.055 to 0.999 $\mu\text{S/cm}$	0.001 $\mu\text{S/cm}$
1.00 to 9.99 $\mu\text{S/cm}$	0.01 $\mu\text{S/cm}$
10.0 to 99.9 $\mu\text{S/cm}$	0.1 $\mu\text{S/cm}$
100 to 999 $\mu\text{S/cm}$	1 $\mu\text{S/cm}$
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.

Accuracy (at 25 °C) $\pm 1\%$ of measured value
or ± 1 digit (whichever is greater)
Precision (at 25 °C) $< 1\% \pm 1$ digit

Ranges and accuracy with Swansensor
UP-Con1000 (cell constant $\sim 0.04 \text{ cm}^{-1}$).

For further information, refer to the data
sheets of the respective Swan sensors.

Sensor cell constants
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 $\%/^{\circ}\text{C}$
 - Absolute (none)
- Influence of temperature see PPChem 2012
14(7) [Wagner].

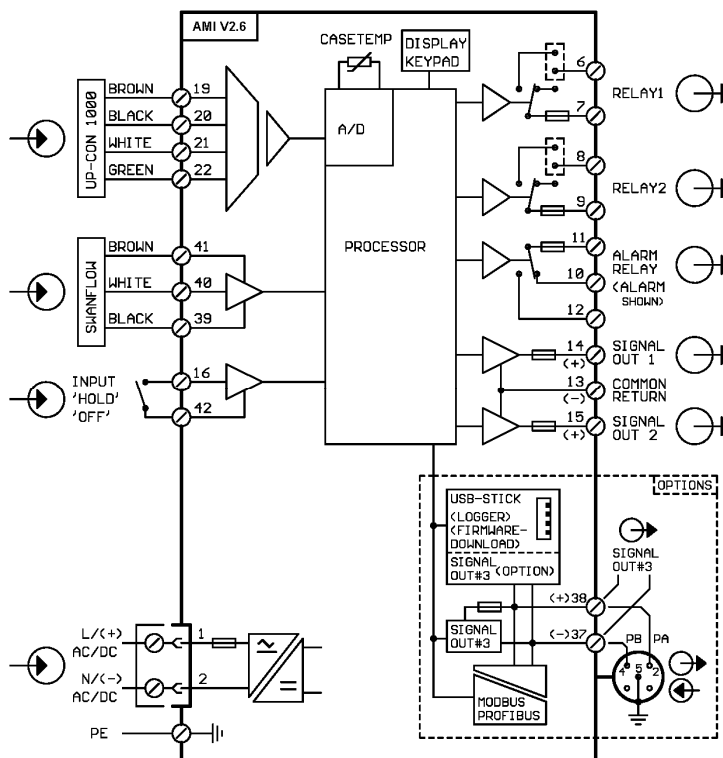
Auxiliary sensors

- Temperature measurement with Pt1000 type sensor (DIN class A).
Measuring range: -30 to $+250 \text{ }^{\circ}\text{C}$
Accuracy (0-50 °C) $\pm 0.25 \text{ }^{\circ}\text{C}$
Resolution: $0.1 \text{ }^{\circ}\text{C}$
- Sample flow measurement with digital SWAN sample flow sensor. Included as standard when ordering a Q-Flow, QV-Flow or Catcon+ flow cell.

Transmitter Specifications and Functionality

Electronics case:	Cast aluminum
Protection degree:	IP66 / 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 $+50 \text{ }^{\circ}\text{C}$
Humidity:	10 - 90% rel., non-condensing

Electrical Connection Scheme



Power supply

AC version: 100 – 240 VAC ($\pm 10 \%$),
50/60 Hz ($\pm 5 \%$)
DC version: 10 – 36 VDC
Power consumption: max. 35 VA

Operation

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

Safety features

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

Transmitter temperature monitoring

With programmable high/low alarm limits.

Real-time clock with calendar

For action time stamp and preprogrammed actions

Alarm relay

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

Input

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

Relay outputs

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

Signal outputs

Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as controller outputs.
Current loop: 0/4 – 20 mA
Maximum burden: 510 Ω
Type: current source
Third signal output available as an option. The third signal output can be used as a current source or as a current sink (selectable via switch).

Communication interface options

- RS485 interface with Modbus RTU or Profibus DP protocol, galvanically separated
- Third signal output
- USB interface for logger download
- HART interface

