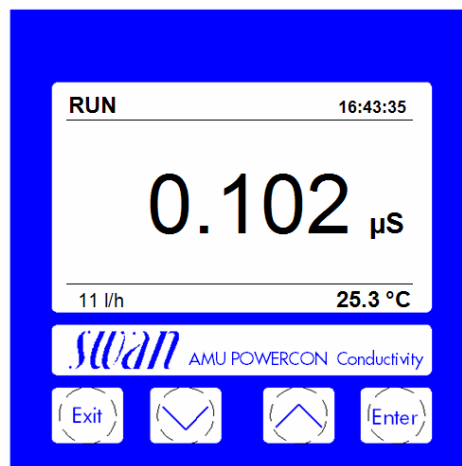


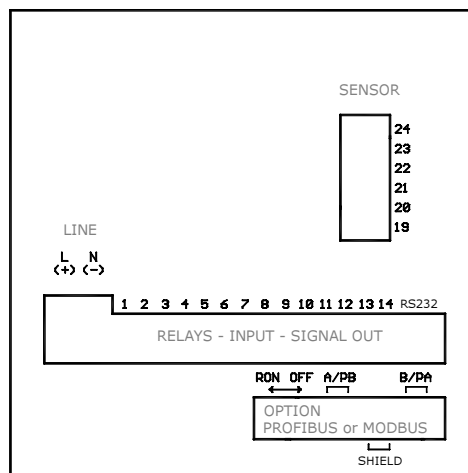
Electronic transmitter & controller for the measurement of the conductivity in power cycles. For the measurement before (specific resp. total conductivity) or after a cation exchanger (acid resp. cationic conductivity).

## 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  $\mu$ S/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, ethanol-amine, 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 .....                                                     |                   | ↑ | ↑ |   |
|                            | 24 VDC, direct current .....                                                       |                   | 1 | 2 |   |
| Communication option ..... | None .....                                                                         |                   |   |   | 0 |
|                            | Profibus DP interface .....                                                        |                   |   |   | 2 |
|                            | Modbus interface (for Webserver connection) .....                                  |                   |   |   | 4 |
| Alarm Relay .....          | Default: normally open; please contact dealer for configuration "normally closed". |                   |   |   |   |

## Conductivity Measurement

**Conductivity sensor type**  
for 2-electrode sensor.

| Measuring range                 | Resolution             |
|---------------------------------|------------------------|
| 0.005 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 $\text{mS/cm}$     | 0.01 $\text{mS/cm}$    |
| 3.0 to 9.9 $\text{mS/cm}$       | 0.1 $\text{mS/cm}$     |
| 10 to 30 $\text{mS/cm}$         | 1 $\text{mS/cm}$       |

Automatic range switching.

Values for cell constant  $0.0415 \text{ cm}^{-1}$   
(Swansensor UP-Con1000)

**Accuracy:**  $\pm 1 \%$  of measured value

### Sensor cell constant

Default value:  $0.0415 \text{ cm}^{-1}$   
or selectable from 0.005 to  $10 \text{ cm}^{-1}$

### Temperature compensations

- Non linear function (NLF) for high purity water
- Neutral salts
- Strong acids
- Strong bases
- Ammonia
- Ethanolamine
- Morpholine
- Linear coefficient in  $\%/^{\circ}\text{C}$
- Absolute (none)

### Temperature measurement

with Pt1000 type sensor (DIN class A)

Measuring range:  $-30$  to  $+250^{\circ}\text{C}$

Resolution:  $0.1^{\circ}\text{C}$

### Sample flow measurement

with digital SWAN sample flow sensor.

## Transmitter Specifications and Functionality

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

### Power supply

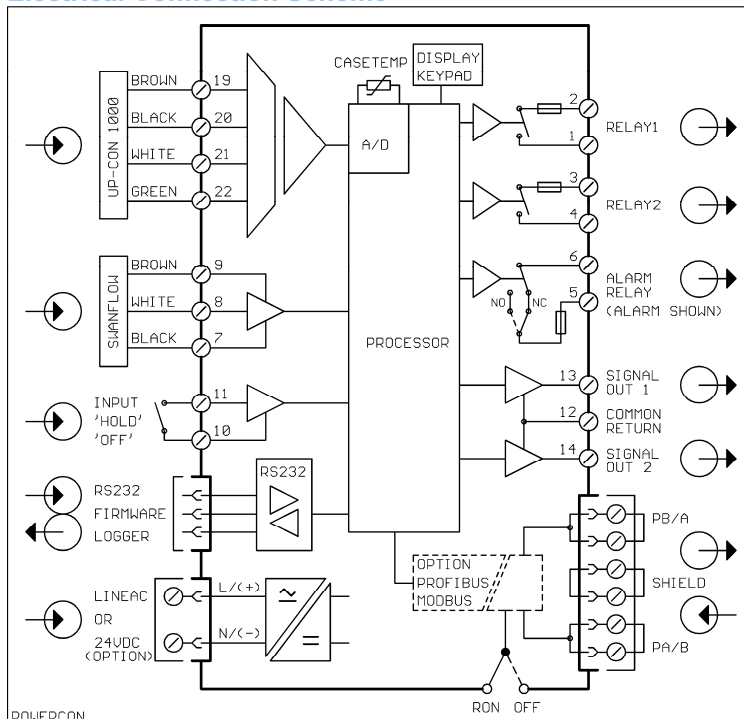
Voltage:  $100 - 240 \text{ VAC} (\pm 10 \%)$ ,  
 $50/60 \text{ Hz} (\pm 5 \%)$   
or  $24 \text{ VDC} (\pm 15 \%)$   
Power consumption: max.  $8 \text{ VA}$

### 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:  $100 \text{ mA} / 50 \text{ V}$   
Default: NO (option: NC)

### 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:  $100 \text{ mA} / 50 \text{ V}$

### 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:  $0/4 - 20 \text{ mA}$   
Maximum burden:  $510 \Omega$

### 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.