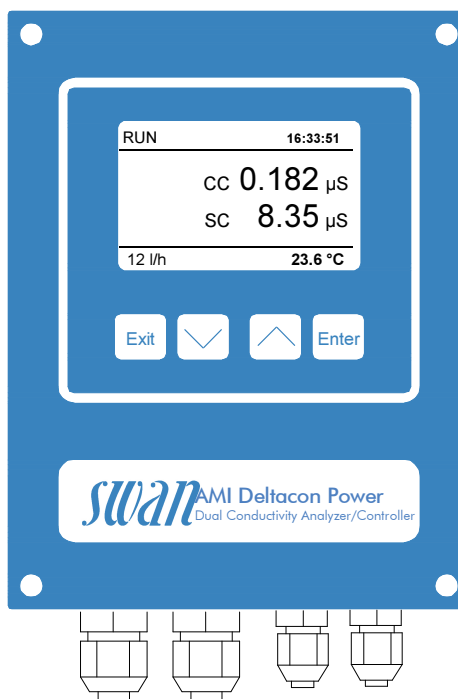


Two-channel electronic transmitter & controller for the conductivity measurement in power cycles. For simultaneous measurements before (specific / total conductivity) and after a cation exchanger (acid / cationic conductivity). Calculation of pH value and alkalizing reagent concentration based on differential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

### Transmitter AMI Deltacon Power

- Measuring and control transmitter in a rugged aluminum enclosure (IP 66).
- Conductivity measurement range from 0.055 to 1000  $\mu\text{S/cm}$ .
- Connections for two 2-electrode conductivity sensors with integrated Pt1000 temperature probe (e.g. 2x Swansensor UP-Con1000) and for a digital SWAN sample flow meter.
- Calculation of pH value (VGB-S-010-T-00) 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 AC	A-13.441.100
	Transmitter AMI Deltacon Power DC	A-13.441.200
Option:	<input type="checkbox"/> 3 <sup>rd</sup> current signal output (0/4 – 20mA)	A-81.420.050
	<input type="checkbox"/> Profibus DP & Modbus RTU interface (RS-485)	A-81.420.020
	<input type="checkbox"/> USB interface	A-81.420.042
	<input type="checkbox"/> HART interface	A-81.420.060

## Conductivity Measurement

**Conductivity sensor types**  
two 2-electrode sensors.

Measuring range	Resolution
0.055 to 0.999 $\mu\text{S}/\text{cm}$	0.001 $\mu\text{S}/\text{cm}$
1.00 to 9.99 $\mu\text{S}/\text{cm}$	0.01 $\mu\text{S}/\text{cm}$
10.0 to 99.9 $\mu\text{S}/\text{cm}$	0.1 $\mu\text{S}/\text{cm}$
100 to 1000 $\mu\text{S}/\text{cm}$	1 $\mu\text{S}/\text{cm}$

Automatic range switching.

**Accuracy**  
 $\pm 1\%$  of measured value or  $\pm 1$  digit  
(whichever is greater).

Ranges and accuracy with Swansensor  
UPCon-1000 (cell constant  $\sim 0.04 \text{ cm}^{-1}$ ).

**Sensor cell constants**  
Default value: 0.0415  $\text{cm}^{-1}$   
Selectable: from 0.0300 to 0.0600  $\text{cm}^{-1}$

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

**pH and alkalinizing 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

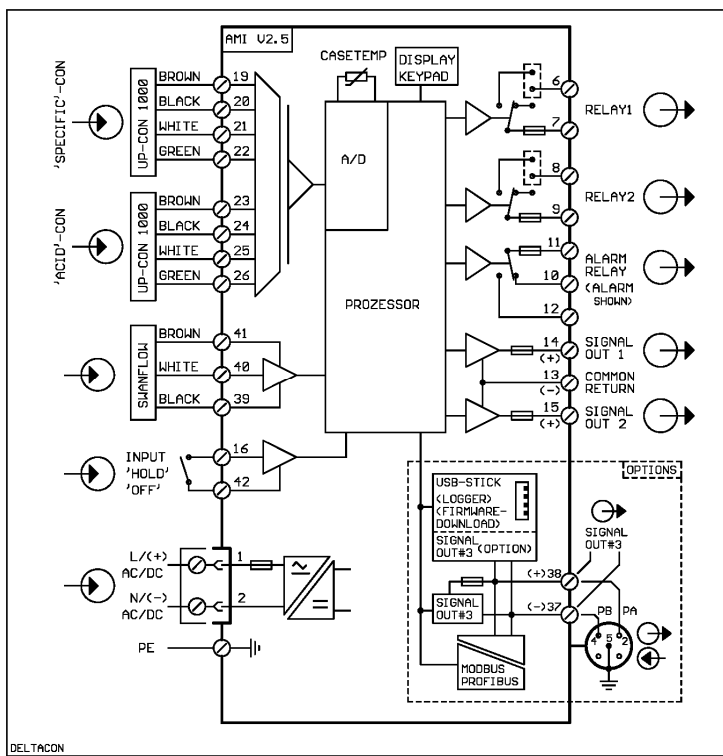
**Sample flow measurement**  
with digital SWAN sample flow sensor.

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

## Electrical Connection Scheme



### Operation

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

Separate menu specific password pro-  
tection.

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

Storage of event log, alarm log and cali-  
bration 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 prepro-  
grammed actions.

### Safety features

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

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

### Transmitter temperature monitoring

With programmable high/low alarm lim-  
its.

### 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 func-  
tion.

### 2 Relay outputs

Two potential-free contacts programma-  
ble as limit switches for measuring val-  
ues, controllers or timer for system  
cleaning with automatic hold function.

Rated load: 1A / 250 VAC

### 2 Signal outputs (3<sup>rd</sup> optional)

Two programmable signal outputs for  
measured values (freely scaleable, lin-  
ear or bilinear) or as continuous control  
outputs (control parameters program-  
mable) as current source. 3<sup>rd</sup> signal out-  
put selectable as current source or cur-  
rent sink.

Current loop: 0/4 - 20 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 Communication interface (option)

- RS485 interface (galvanically separa-  
ted) with Fieldbus protocol Modbus  
RTU or Profibus DP
- 3<sup>rd</sup> Signal output
- USB interface
- HART interface