Transmitter AMI Pharmacon

Data sheet no. DenA13640X00

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

Application examples

- Monitoring of production, storage and distribution systems for purified water (PW) and water for injection (WFI) in accordance with the requirements of the Pharmacopoeias.

Measuring range

- From 0.055 to 2000 µS/cm.
- Displays uncompensated and temperature-compensated (25 °C) conductivity simultaneously.

Sensors

- Connections for a 2-electrode conductivity sensor with integrated Pt1000 temperature sensor.
- Use with high accuracy conductivity sensor: Swansensor Pharmacon: delivery including traceable calibration and material certificates.

Compliance

- Pre-programmed USP ‹645› stage 1 conductivity limits with individual action limit of 20–100 % configurable.
- Verification of conductivity and temperature measurement circuits with optional traceable high accuracy test resistor kit.
- On-site verification of conductivity measurement with optional portable conductivity meter AMI Inspector Pharmacon.

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.

Order numbers:	AMI Pharmacon	A–13.640._00
Power supply	100 – 240 VAC, 50/60 Hz	1
	10 – 36 VDC	2
Accessories	For all options and details, please visit our website at www.swan.ch.	
	Third signal output (0/4 – 20 mA)	A-81.420.050
	RS485 interface with Modbus RTU or Profibus protocol	A-81.420.020
	USB interface	A-81.420.042
	HART interface	A-81.420.060
	Swansensor Pharmacon	A–87.335.X00
	Test resistance plug	A–85.134.020

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Conductivity Measurement

Conductivity sensor type
2-electrode conductivity sensor

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 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.

Ranges and accuracy with Swansensor Pharmacon (cell constant ~0.08 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
- Absolute (none)
- Non-linear function (NLF) for high purity water
- Linear coefficient 0.00 – 10.00 %/°C
- Various chemicals

USP <645>
Pre-programmed stage 1 conductivity limits. Individual action limit of 20–100 % configurable.

Auxiliary sensors
- Temperature measurement with Pt1000 type sensor (DIN class A).
  Measuring range: -30 to +250 °C
  Accuracy (0-50 °C) ±0.25 °C
  Resolution: 0.1 °C
- Optional: sample flow measurement with digital SWAN sample flow sensor.

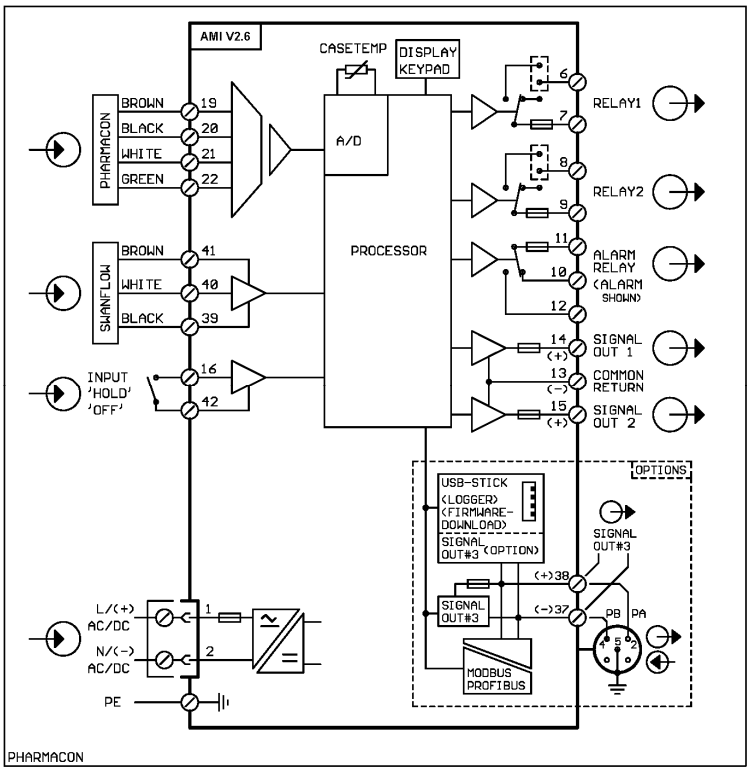
Transmitter Specifications and Functionality

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 °C
Humidity:	10 - 90% rel., non-condensing

Power supply

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

Electrical Connection Scheme



Operation
User menus in English, German, French and Spanish.
Multi-level user management / access control.
Histories for events / performance verifications.

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