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Monitor AMI Deltacon DG

Data sheet No. DenA23481100

Complete monitoring system based on ASTM D4519-94 for the automatic, - continuous measurement of three conductivity values in water-steam cycles:

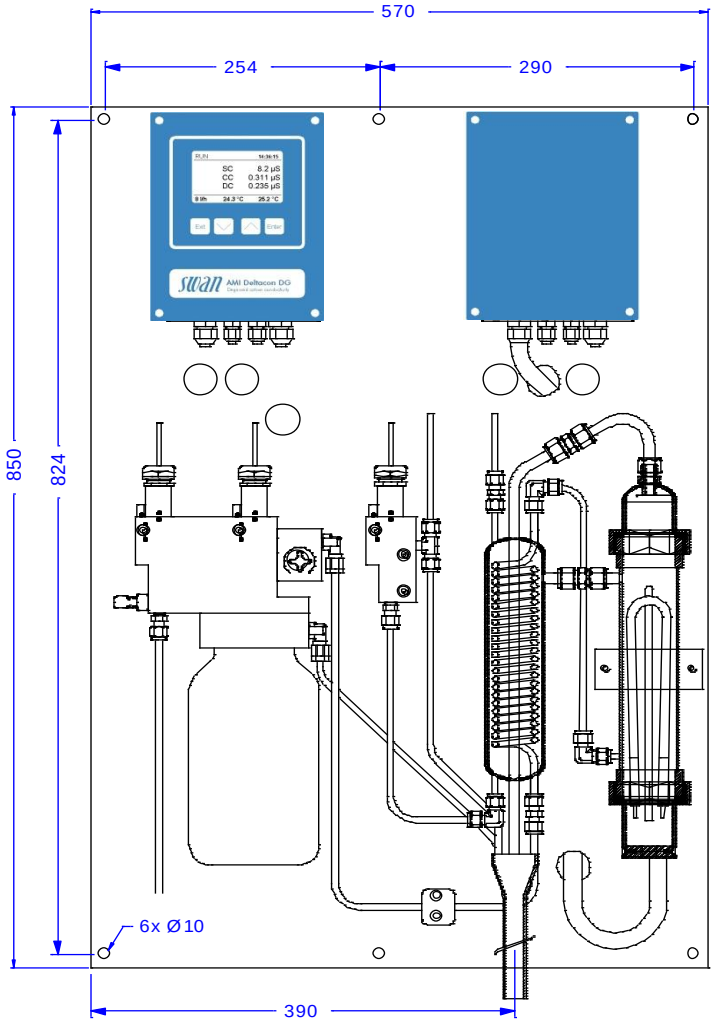
1. Specific (total) conductivity
2. Cation (acid) conductivity after a cation exchanger
3. Degassed conductivity after a sample reboiler

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-81.410.020
	[ ] Profibus DP interface	A-81.420.020
	[ ] HyperTerminal interface (RS-232)	A-81.420.010
	[ ] Modbus interface	A-81.420.022
	[ ] USB interface	A-81.420.040
Option:	[ ] Cation exchanger, 1 bottle with 1l resin	A-82.841.030

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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).
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)
- RS232 interface for logger download to PC with SWANTerminal
- RS485 interface (galvanically separated) with Fieldbus protocol Modbus or Profibus DP
- 3rd Signal output
- USB 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: 20.0 kg

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Electrical Connection Scheme