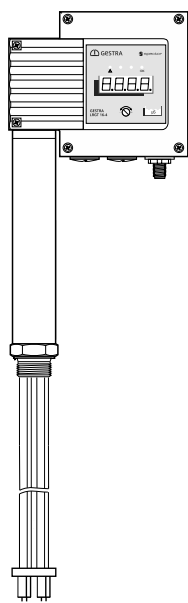
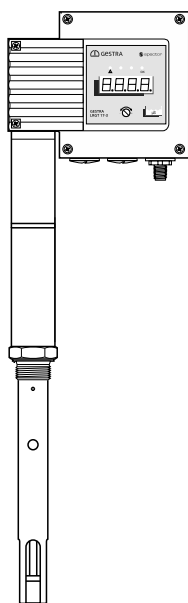


LRGT 16-3



LRGT 16-4



LRGT 17-3

Conductivity Transmitter

LRGT 16-3

LRGT 16-4

LRGT 17-3

Description

LRGT 16-3, LRGT 16-4 and LRGT 17-3 conductivity transmitters can be used as conductivity limiters and blowdown controllers to continually measure conductivity in steam boiler and hot-water plants. They present a linear profile of conductivity in the parametrized measuring range via a 4 - 20 mA current output.

In combination with secure diagnostic testers, LRGT 16-3, LRGT 16-4 and LRGT 17-3 conductivity transmitters are suitable for safety functions up to SIL 2.

Function

Transmitter function

The transmitter function is the ability of the electrode to provide a scalable measuring range on the 4-20 mA current output interface, and to make this available to one or more recipients for analysis.

This equipment does not have any controlling or limiting functions.

Measuring process of the LRGT 16-3 and LRGT 17-3

LRGT 16-3 and LRGT 17-3 conductivity transmitters use the conductometric two-electrode measuring process. A measuring current with a suitable frequency for the measuring range is introduced into the fluid. This produces a potential gradient between the electrode and the measuring tube, which is analysed as a measuring voltage.

Measuring process of the LRGT 16-4

The LRGT 16-4 conductivity transmitter uses the conductometric four-electrode measuring process. It consists of two current and two voltage electrodes. The current electrodes introduce a measuring current with a fixed frequency into the fluid. This gives rise to a potential gradient between these electrodes. This potential gradient is then picked up by the voltage electrodes and analysed as measuring voltage.

Temperature compensation of readings based on a reference temperature (25 °C)

The electrical conductivity changes as a function of the temperature. In order to base the readings on a reference temperature, an integrated resistance thermometer measures the temperature of the fluid. The electrical conductivity is calculated from the measuring current and measuring voltage, and then based on the reference temperature of 25 °C through temperature compensation.

Compensation process

Based on a set temperature coefficient, the conductivity reading is corrected to form a linear characteristic. The coefficient (default 2.1 % per °C) is normally used for steam generating units with a constant pressure.

Automatic self-test

An automatic self-test periodically monitors the safety and function of the conductivity transmitters and measured value acquisition. Faults in the electrical connection or electronic measuring equipment trigger a fault indication on the display, and the current output is set to 0 mA.

Behaviour in the event of faults

The error state or malfunction is shown on the display by an error code, e.g. E.005.

Every time there is a fault, 0 mA is output via the current output.

Technical data

Model and mechanical connection

■ LRGT 16-3, LRGT 16-4, LRGT 17-3:

Thread G1 A, EN ISO 228-1

Nominal pressure rating, admissible service pressure and temperature

■ LRGT 16-3:	PN 40	32 bar (abs) at 238°C
■ LRGT 16-4:	PN 40	32 bar (abs) at 238°C
■ LRGT 17-3:	PN 63	60 bar (abs) at 275°C

Materials

- Terminal box: 3.2581 G AISI12, powder-coated
- Sheath: 1.4301 X5 CrNi 18-10
- Measuring electrodes: 1.4571 X6CrNiMoTi17-12-2
- Electrode insulation: PTFE
- Screw-in body:
 - ◆ Measuring tube/screw of LRGT 16-3 and LRGT 17-3: 1.4571, X6CrNiMoTi17-12-2
 - ◆ Spacer disc of LRGT 16-3, LRGT 16-4 and LRGT 17-3: PEEK

Available electrode lengths (do not shorten)

- LRGT 16-3, LRGT 17-3:
200, 300, 400, 500, 600, 800, 1000 (mm)
- LRGT 16-4:
180, 300, 380, 500, 600, 800, 1000 (mm)

Temperature sensor

- Resistance thermometer: Pt1000
- Measuring range for fluid temperature: 0 to 280 °C

Conductivity range at 25 °C

- LRGT 16-3, LRGT 17-3:
0.5 µS/cm to 6000 µS/cm, 0.25 - 3000 ppm *
◆ Preferred measuring range up to 1000 µS/cm
 - LRGT 16-4:
50 µS/cm to 10,000 µS/cm, 25 - 5000 ppm *
◆ Preferred measuring range from 500 µS/cm
- * Conversion µS/cm in ppm (parts per million):
1 µS/cm = 0.5 ppm

Measuring cycle

- 1 second

Temperature compensation

- The temperature compensation process is linear and set via parameter tC.

Supply voltage

- 24 V DC ± 20%

Power consumption

- Max. 7 W

Current input

- Max. 0.35 A

LRGT 17-3

Please note our general terms of business.

Maximum cable length = 100 m.

* see Fig. 1

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■ Power supply unit: SITOP PSU100C 24 V/0.6 A

● A M12 connector, 5-pin, A-coded