

INDUCTIVE CONDUCTIVITY PROBE

TOR SERIES

Scales: 0-2 mS / 0-20 mS / 0-200 mS / 0-2000 mS



INSTRUCTION MANUAL

BAMO MESURES

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INDUCTIVE
CONDUCTIVITY PROBE
TOR SERIES

16-10-2009

364 M1 03 F

MES

364-03/1

Emitting coil

PT 100 Ω

Receiving coil

Inductive type conductivity measurement

When measuring inductive conductivity, an emitting coil produces an alternating magnetic field, which produces an induced tension in a liquid. Thus, an electric current crosses the ions in the liquid. It increases with the ions concentration. This current in the liquid generates in its turn an alternating magnetic field in a receiving coil. Finally, an induced current is generated in the receiving coil. The measurement of this current gives the conductivity.

To resume, considering a pure electric scheme:

The coil (1) is feeded with a constant alternating voltage. The liquid reacts as a secondary winding of the coil (1) and as the primary winding of the coil (2). The induced current in coil (2) is proportional to the liquid conductivity.

Cell constant and setting-up factor

Electric conductivity of a liquid depends essentially on the ions concentration. But during the measurement, it is important to consider the setting-up conditions and the sensor geometry. All our sensors and transmitters (BAMO-COR) are calibrated to work without any re-calibration.

The setting-up factor is insignificant when the distance with the wall ($a > 30$ mm) is enough large.

For smaller distances, the setting-up increases in case of electrically insulated pipes and decreases in case of conductive pipes.

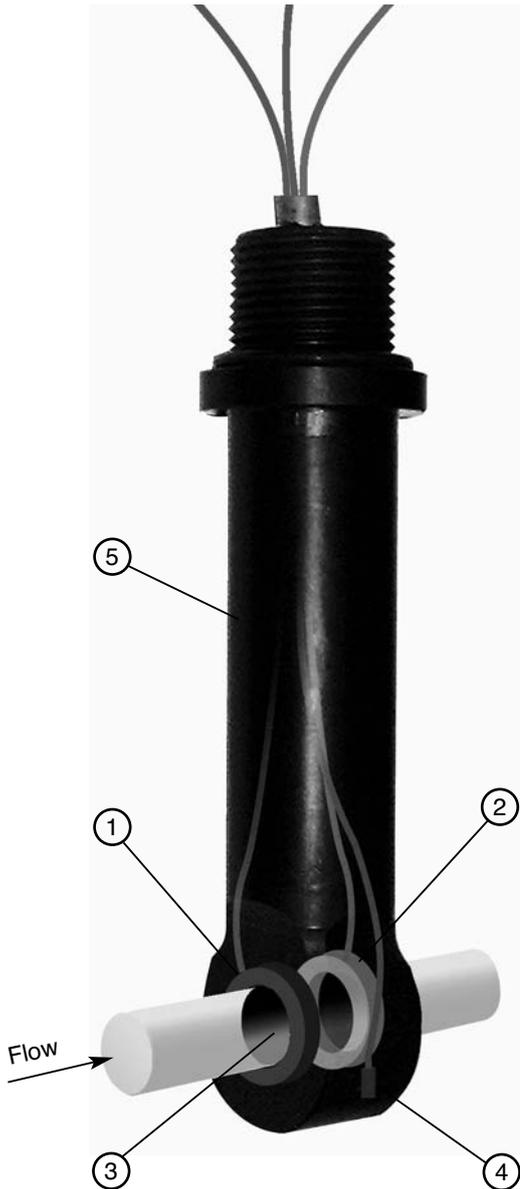
Any mounting without this minimum distance of 30 mm is to avoid.

Consequently, it is recommended to set the sensor:

- a) either in DN 50 tee
- b) either at the end of an immersion stick, provided the sensor is at a minimum distance of 30 mm from any wall. Any other positions are prohibited.

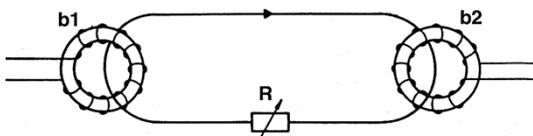
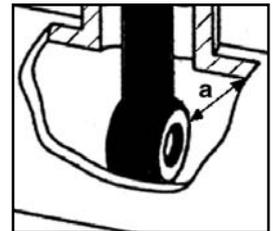
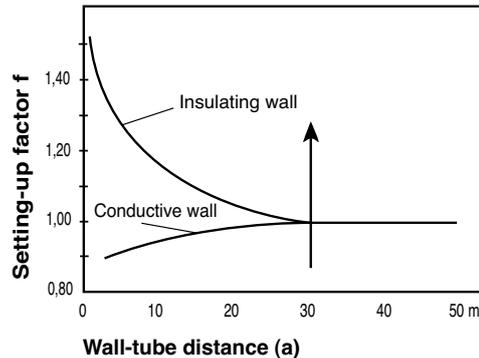
Maintenance:

The only precaution is to make sure that the sensor orifice is not blocked.



- 1 - Emitting coil
- 2 - Receiving coil
- 3 - Sensor orifice
- 4 - Moulded Pt 100 Ω sensor
- 5 - Sensor body

Setting-up factor as a function of wall-tube distance

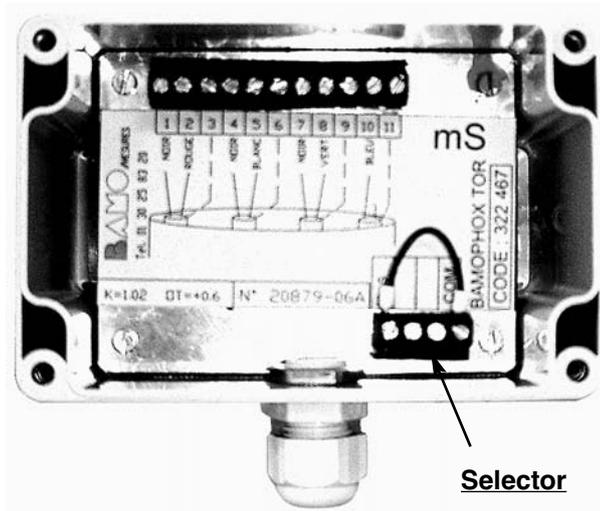


INSTALLATION:

Verify that measure ring may be not beep air bubble.

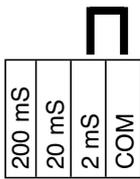
- Set the probe in circulating liquid.
- or
- Set the probe in angle position, for an immersion in a stagnant liquid.

WIRING

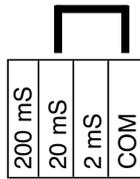


Selector

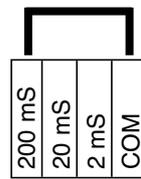
Ranges: 0-2 mS
 0-20 mS
 0-200 mS
 0-2000 mS



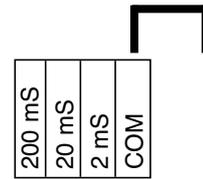
0-2 mS



0-20 mS



0-200 mS



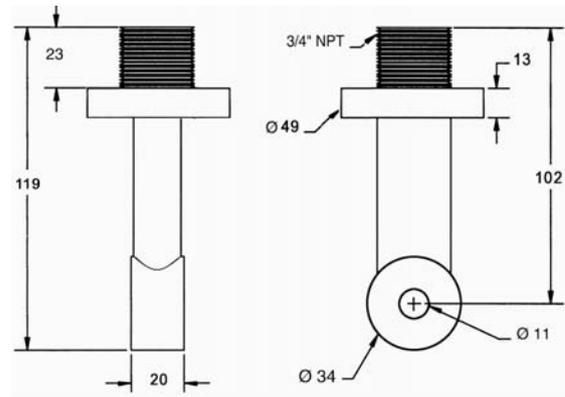
0-2000 mS

SENSOR CHARACTERISTICS

Measuring range: 0-2 mS
 0-20 mS
 0-200 mS
 0-2000 mS

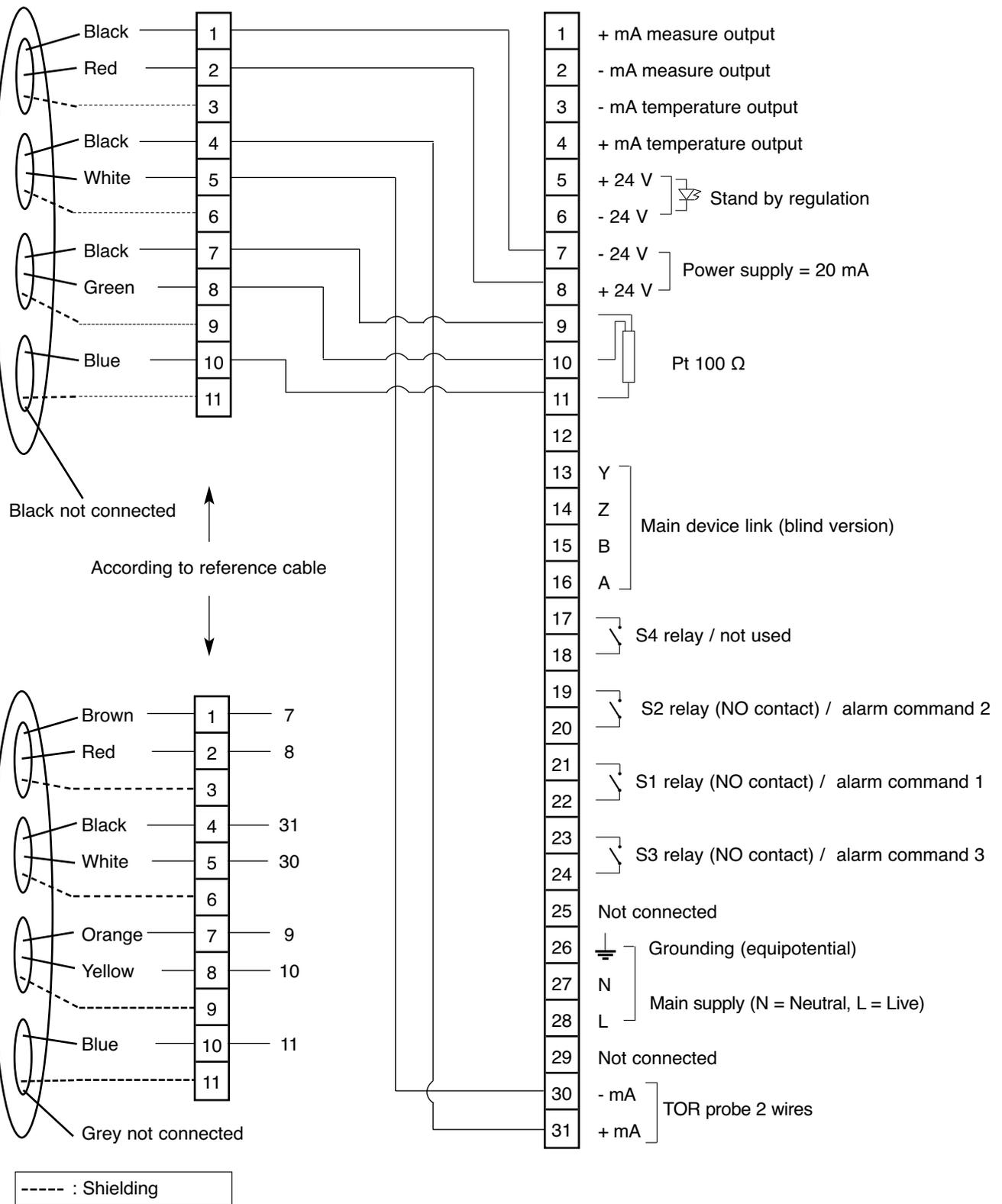
Sensor body: NORYL
 Maximal temperature: 105 °C
 Maximal pressure: 10 bar
 Integrated T° compensator: Pt 100 Ω
 Cable length: 5 m length

SENSOR DIMENSIONS (mm)



Probe terminals

BamPHOX terminal



According to reference cable

Wirering to the blind device "Extension"

Link:

max lenght = 500 meter

Cable:

Cables network
or shielded cable /4 wire
cross-section $\geq 0,25 \text{ mm}^2$

