INDUCTIVE TYPE CONDUCTIVITY MEASUREMENT

TOR SERIES

startup

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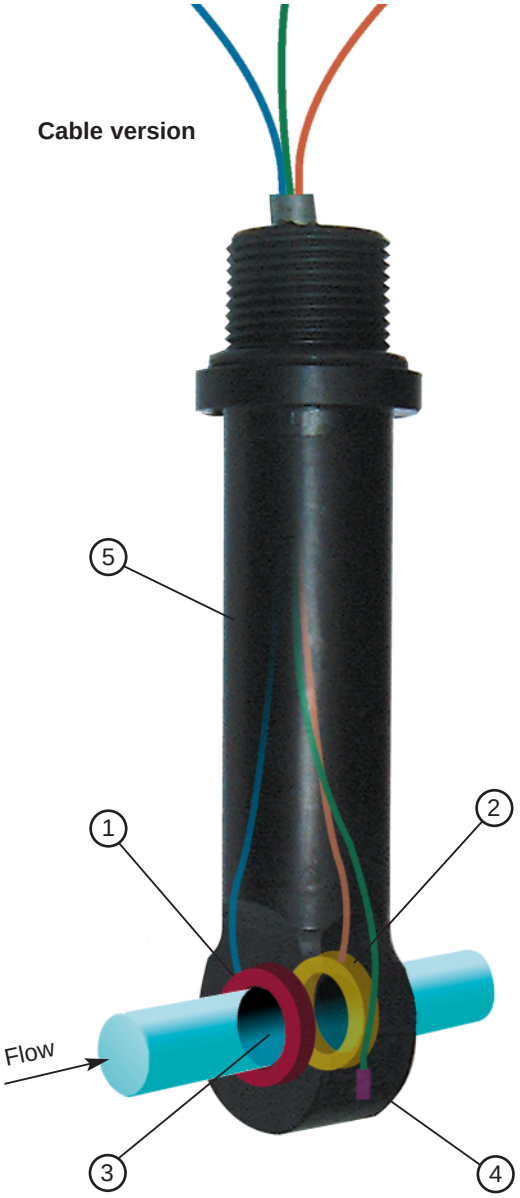
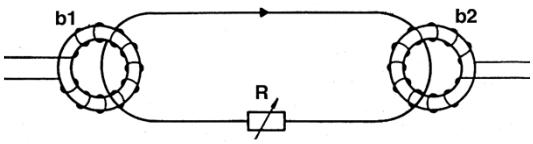
Emitting coil	PT 100 Ω	Receiving coil
Blue	Green	Orange
Blue/White	Green/White	Orange/White

Cable version



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



Inductive type conductivity measurement

When measuring inductive conductivity, an emitting coil produces an alternating magnetic field, which produces an inducted 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 inducted 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 inducted current in coil (2) is proportionnal 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 (BAMOCOR) 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.

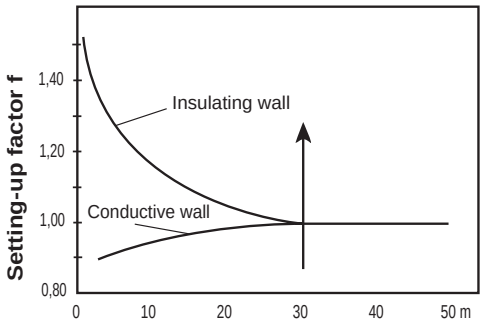
Consequently, it is recommended to set the sensor:

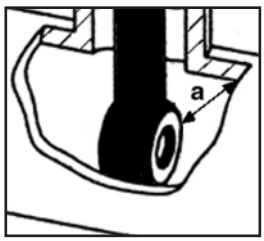
a) either in DN 50 tee
b) either at the end of an immersion stick, provided the sensor is at a minimum distance of 30 mm from any wall.
Any other positions are prohibited.

Maintenance:

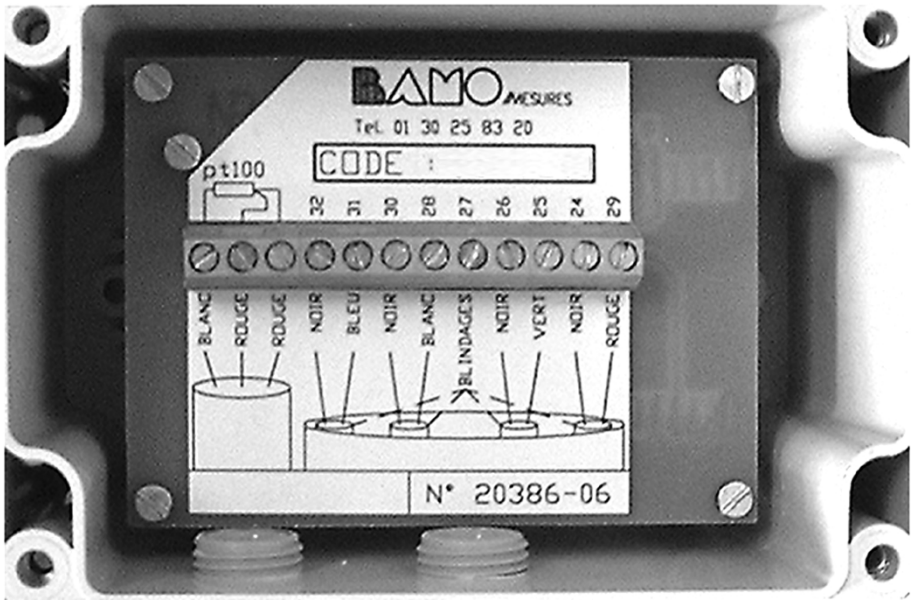
The only precaution is to make sure that the sensor orifice is not blocked.

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





ELECTRICAL CONNECTION



SENSOR CHARACTERISTICS

Measuring range	: 10 µs - 2000 mS
Sensor body	: PPH or PVDF
Max. temperature	: 110°C
Max. pressure	: 10 bar
Integrated temperature sensor for compensation	: Pt 100 Ω
Cable length	: 5 m length

SENSOR DIMENSIONS (mm)