

OPERATOR'S MANUAL

ST 3254.x
1.5" ELECTRODELESS CONDUCTIVITY
LOOP POWERED
TEMPERATURE COMPENSATED PROBES

ST 3254.1 10 mS
ST 3254.2 100 mS
ST 3254.3 1000 mS

Temperature sensor: Pt100
Power: 11/30 Vdc

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1 DESCRIPTION

This conductivity monitoring system consists of a loop powered transmitter and an electrodeless conductivity sensor in a single compact package.

Temperature compensation is accomplished with a RTD Pt100 built in to sensor.

The calibration of the transmitter is factory made.

Applications include water treatment, cooling tower water monitoring.

2 PRINCIPLE OF OPERATION

When the electrodeless conductivity sensor is immersed in the solution to be measured a conductive loop is created through the two toroidally wound coils.

An alternating current is applied to one of the coils which induces a current in the conductive loop. The second coil is used to measure the solution conductivity which is proportional to the induced current.

The advantages of the electrodeless method are more apparent in measurement applications in which electrodes contamination and polarisation of a conventional conductivity system can lead to erroneous readings.

This electrodeless probe contains:

- two measuring toroidal coils.
- RTD Pt100 temperature sensor.
- 4/20 current loop amplifier.

3 SPECIFICATIONS

Range ST3254.1	0/10 mS
Range ST3254.2	0/100 mS
Range ST3254.3	0/1000 mS
Power supply:	11/30 Vdc
Load:	600 Ω max. at 24 Vdc
Installation:	in-line or immersion
Cell:	inductive type
Temperature compensation:	automatic by Pt100
Temperature reference:	25 °C
Temperature coefficient:	2.2 %/°C
Length:	207 mm
Thread:	1.5" MNPT
Materials:	C-PVC
Operating Temperature:	50 °C max.
Max. Pressure:	10 bar 25 °C
Cable length:	3 m (other on request)

4 INSTALLATION

The conductivity cell must be mounted properly if the system is to operate accurately and efficiently.

It must meet the following requirements:

- the sample in the cell must be representative of the whole solution;
- the solution must circulate continuously through the cell;
- the flow velocity in the cell must not be so high as to cause cavitations;
- the position and orientation of the cell must not trap air-bubbles near the electrode area;
- sediments must not accumulate within the electrode area;
- in the immersion installations the water must be continuously agitated;
- in the applications in-line the cell must be installed in 100 mm pipes minimum.

Keep the cable away from power wires on the overall length

5 ELECTRICAL INSTALLATION

Connect the cable as follows:

- Black wire power (-)
- White wire power (+)

Note: the internal circuit is protected against inversion of the power supply.