NIEUWKOOP

METEN.NL

USER MANUAL

EC5501

EC TRANSMITTER

“ELECTRODELESS” CONDUCTIVITY

TO MEASURE = TO KNOW

Available ranges:

ST 3214.4 : scale 20 mS
ST 3214.5 : scale 200 mS
ST 3214.6 : scale 2000 mS

Temperature sensor: Pt100
Power: 11/30 Vdc

Cod. 280153214 – Rev. B 10/18

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1 GENERAL WARNINGS AND INFORMATION FOR ALL USERS

1.1 CE MARKING

This sensor is manufactured according to the following European Community directives:

- 2011/65/EU "Restriction of the use of certain hazardous substances in electrical and electronic equipment"
- 2014/30/EU "Electromagnetic compatibility" EMC

- EN 61326-2-3/2013 "Electromagnetic compatibility" EMC
  - Controlled electromagnetic environment
- EN 55011/2009 "Radio-frequency disturbance characteristics"
  - Class A (devices for usage in all establishment other than domestic)
  - Group 1 (Industrial equipment that do not exceed 9kHz)

1.2 SAFETY WARNINGS

It is important to underline the fact that electronic instruments are subject to accidents. For this, it is important to take all necessary precautions to avoid damages caused by malfunctions.
All types of operations must be performed by authorized and trained staff.

2 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.

3 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 polarization 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.

4 SPECIFICATIONS

ST 3214.4 scale	: 0/20 mS
ST 3214.5 scale	: 0/200 mS
ST 3214.6 scale	: 0/2000 mS
Power supply	: 11/30 Vdc
Output	: 4/20 mA isolated
Load	: 600 Ω max. at 24 Vdc
Temperature compensation	: automatic by Pt100
Temperature reference	: 20 °C
Temperature coefficient	: 2.0 %/°C
Operating Temperature	: 50 °C max.
Max. Pressure	: 10 bar 25 °C
Cell	: inductive type
Length	: 207 mm
Diameter	: 48 mm max.
Submersed part	: 88 mm, diameter 31 mm
Threads	: 1.5" MNPT
Materials	: C-PVC
Cable length	: 3 m (other on request)
Installation	: in-line or immersion

5 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

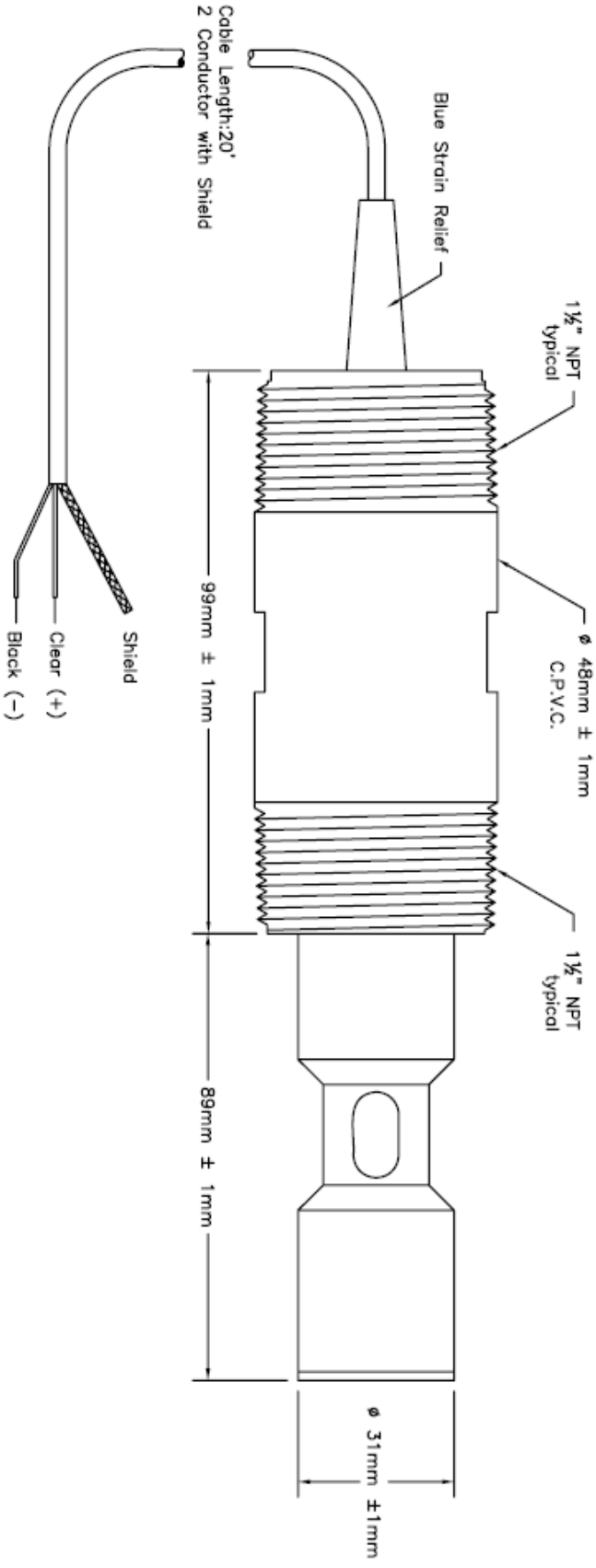
5.1 ELECTRICAL INSTALLATION

Connect the cable as follows:

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

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

DIMENSIONS


Cable Length:20'
2 Conductor with Shield
Blue Strain Relief
1½" NPT typical
ø 48mm ± 1mm C.P.V.C.
1½" NPT typical
99mm ± 1mm
89mm ± 1mm
ø 31mm ±1mm
Shield
Clear (+)
Black (-)

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