HIDRO TRANS LSP-TCT

Conductivity and temperature transmitter for industrial applications

Brief description

The LSP-TCT conductivity transmitter is designed to measure the conductivity, resistivity and temperature of the liquids with the corresponding sensor. This instrument is suitable for high-purity water monitoring and water treatment applications as reverse osmosis or ion exchanger.
With its DIN rail mountable housing, easy to install into industrial environments. For advanced usage, a configuration software is provided to configure the conductivity meter options.

Features

- Conductivity, resistivity and temperature measurement.
- Configurable signal output for the conductivity (0 -20mA; 4-20mA; 0-24mA; 0-10V).
- Configurable signal output for the temperature (0 -20mA; 4-20mA; 0-24mA; 0-10V).
- Switching digital output Relay (Switching point is configurable through setup program).
- Cyclical self calibration.
- Linear temperature compensation.
- Electrically isolated input, output and supply.
- DIN rail mounting.
- Compensation of the cable capacity.
- Calibration of the cell constant.

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Specification

Inputs

Conductivity sensor input (Analog)

Compatible: any 2-wire electrolytic conductivity cells with the cell constants 0.01; 0.1; 10
The recommended conductivity sensor is the provided one with the transmitter.

Cable capacity compensation

Capacity of the cable can affect the measuring, this error can be adjusted with the cable compensation function of the transmitter.

A/D converter

Resolution 16 bit

Input ranges

Conductivity: 0 to 2000 mS/cm
Resistivity: 0 to 10 MΩ

Accuracy

0 to 200 µS/cm ±0.02 µS/cm
0 to 2000 µS/cm ±0.1 µS/cm

Temperature sensor input (Analog)

Compatible: Pt100 temperature sensor
Using the setup program, the cable resistivity can be entered to correct the measured value.
Reference temperature for temperature compensation is 25 °C.
Temperature: -20 to +100 °C

Accuracy

±0.5 °C after calibration

Environment

Ambient temperature: -20 to +60 °C
Storage temperature: -40 to 80 °C
Humidity : 0 to 95% RH at 40 °C, no condensation

Outputs

Analog output of the measured conductivity

Configurable output: 0 to 10 V , 4 to 20 mA, 0 to 20 mA
Output signal is electrically isolated from the inputs.

Analog output of the measured temperature

Configurable output: 0 to 10 V , 4 to 20 mA, 0 to 20 mA
Output signal is electrically isolated from the inputs.

Relay output

Changeover contact. Configurable changeover rate with the setup software. High/Low process alarms, selected from conductivity or temperature.
Contact rating: 0.5 A 24 VDC/AC

Enclosure

Rating: IP20
Dimension: 165 (L) x 190 (D) x 60 (H)
Weight: approx. 50g
DIN rail mountable housing to DIN 60715
Screw terminals with maximum 2.5 mm^2 cable cros-section

Power supply

Supply voltage 20 to 30 VDC
Power consumption < 100mW
Reverse-polarity protection

Communication

Rs485 communication with the setup program
Fixed communication speed at 9600 Baud rate.

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Calibrations

Calibration of the cell constant

Every electrolytic conductivity cell has a constant (provided by the manufacture). This constant can be manually entered into the calibration section, using the setup software or it can be calculated automatically. The automatic calibration of the cell constant is essential periodically, due to the deposits or wear of the cells. Automatic calibration for the high precision measuring is recommended even with the brand new cells because the cell constant can be differ from the nominal value due to the manufacturing tolerances. For the automatic cell constant calibration procedure, see the manual of the Hidro Config software.

Compensation of the cable capacity

Depending on the conductivity cell cable length and the environment where the cable is installed, the cable capacity is differing. If this cable capacity is not compensated, then it will influence the measuring.

Process of the compensation:

Step 1: Make sure that the conductivity cell and the transmitter is installed and wired at their final place.

Step 2: The conductivity cell has to be in dry condition (no water between the cells)

Step 3: Supply the transmitter and in the same time, push the button on the front of the transmitter (the button can be pushed through the hole using a screwdriver).

Step 4: Hold the button till the indicator LED goes off and on again.

New calibration is only required if there was a wire or conductivity probe change, otherwise the transmitter saves the calibration.

Compensation of the cable resistivity

The resistivity of the cable can affect the measured temperature value. In order to compensate the resistivity of the cable, the cable resistivity has to measured manually. By entering the measured resistivity value into the setup program, we can compensate the affect of the resistivity in the temperature measurement.

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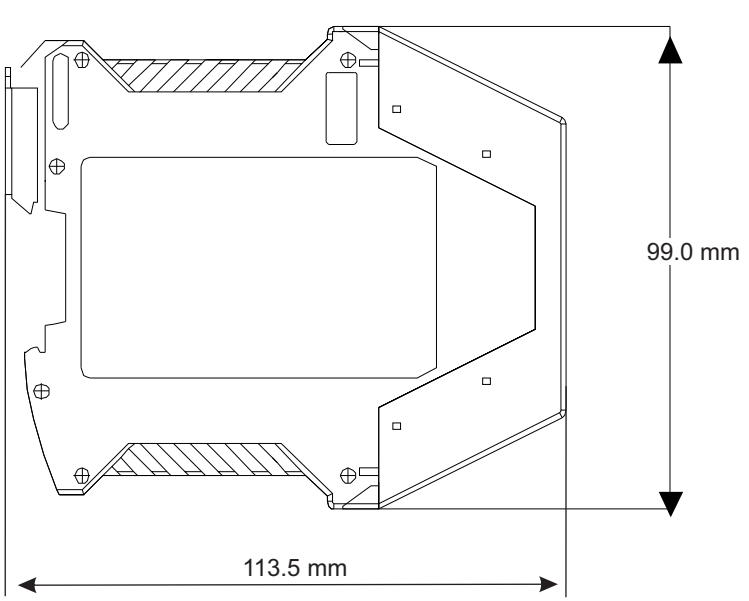
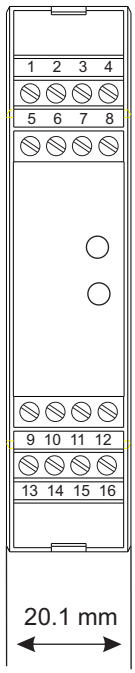
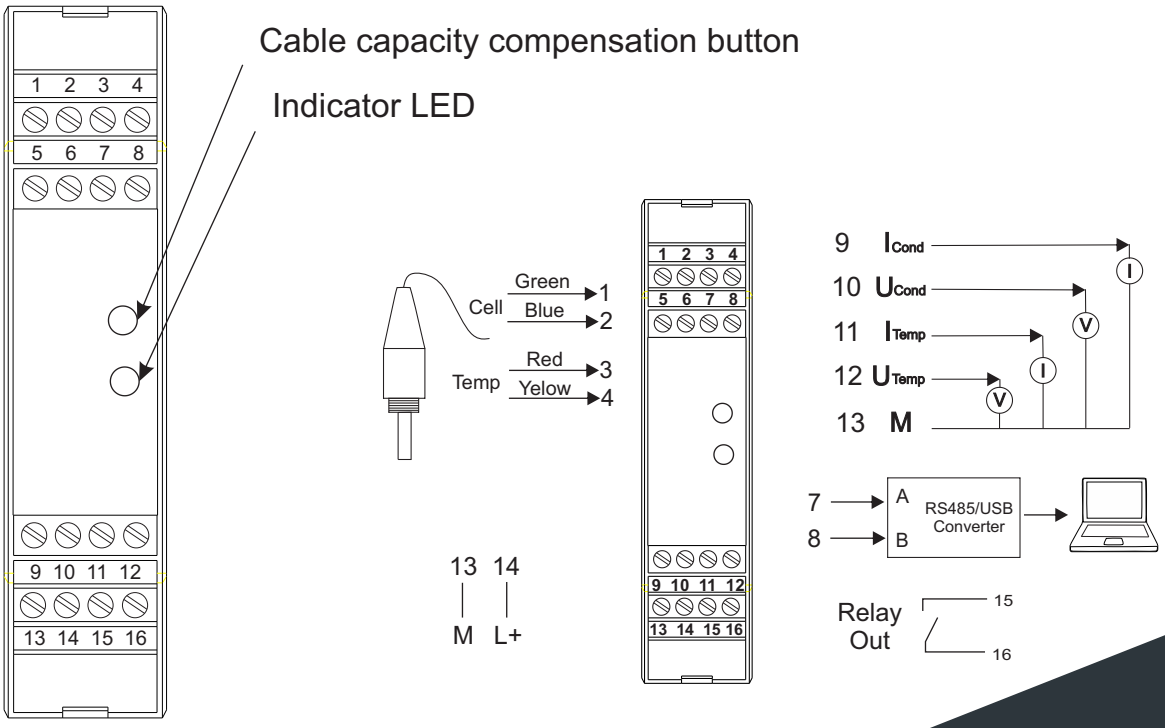
Dimensions





Connections



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Terminal assignment

Terminal number	Type	Description
1	Input	Conductivity sensor wire (Blue Wire)
2	Input	Conductivity sensor wire (Green Wire)
3	Input	Temperature sensor wire (Yellow wire)
4	Input	Temperature sensor wire (Orange wire)
5	Supply	GND
6	Communication	GND
7	Communication	RS485 A
8	Communication	RS485 B
9	Output	Temperature value milliamp output
10	Output	Temperature value voltage output
11	Output	Conductivity value milliamp output
12	Output	Conductivity value voltage output
13	Supply	0V
14	Supply	+24V
15	Output	Relay output
16	Output	Relay output

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