1-Wire current loop transmitter TSA200

Short description

TSA200 is 0-20mA/4-20mA current loop transmitter with 1-Wire digital interface. The current loop input is electrically isolated from the 1-Wire bus.

TSA200 can be connected to almost any industrial sensor with 0-20/4-20mA output. Output readings in mA can be converted to other units, using offset and multiplier of controller. The sensor can be used for measuring of electrical and non electrical parameters - liquid levels, air pressure, gas concentration, illumination, acidity (pH) etc. The sensor is a passive device, for some applications external DC power supply will be needed - typically 12/24/36VDC.

TSA200 has two RJ11 connectors, for easy daisy chain arranging of 1-Wire bus. It is supported by TCW2xx Ethernet controllers.
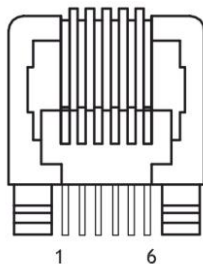
Technical parameters

Supply voltage range (1-Wire bus)	4.5 to 5.5 V
Maximum supply current (1-Wire bus)	40 mA
Input DC current range	0 to 20 mA
Resolution	0.01 mA
Accuracy	± 2%
Dimensions	85 x 35.1 x 23.5 mm
Operating temperature range	0 to +40 °C
Operating humidity range	0 to 70 %RH
Isolation voltage	1000 VDC

LED indicator

The status of device is shown by single LED, located on the front panel:

- If the LED blinks on period of 1 second, sensors works properly;
- If the LED blinks on period of 3 seconds, there isn't communication with TCW2xx controller;
- If LED doesn't blink, there isn't power supply.
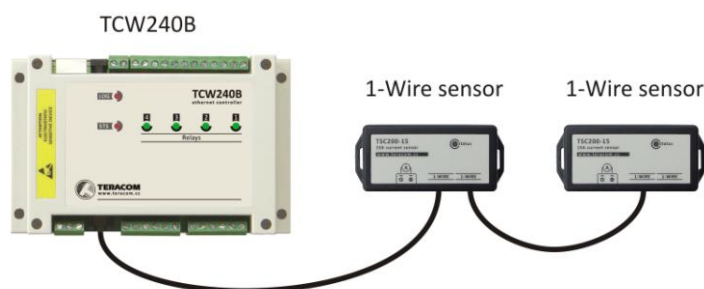
Pin out of RJ-11 connectors

Pin	Description	UTP wires color
1	1-Wire GND	White/Brown
2	1-Wire GND	White/ Green
3	1-Wire Data	Green
4	1-Wire GND	White/Orange
5	1-Wire +VDD	Orange
6	1-Wire +VDD	Brown

Sensor connection

1-Wire is a registered trademark of Maxim Integrated Products, Inc. It is designed to connect several sensors over a short wiring. It is not suitable for long distances or environments with EMC interference. Guidelines for reliable long line 1-wire networks can be found at http://www.maxim-ic.com/app-notes/index.mvp/id/148.

It is strongly recommended to use only UTP/FTP cables and keep total cable length up to 30 m.

It is strongly recommended to use "daisy chained" (linear topology) for multiple sensors:

 "Star" topology can be used only as a last resort for up to 4 sensors and total cable length up to 10 meters: