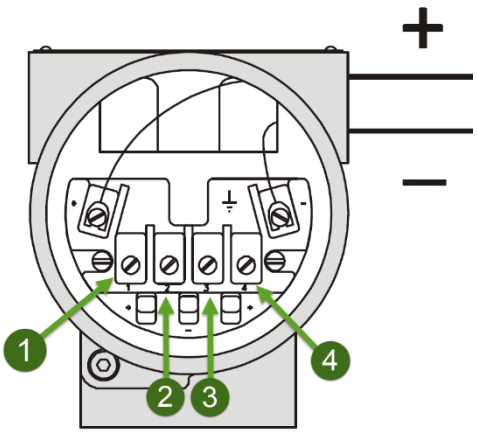
Connecting sensors to a TT301 Universal Temperature Transmitter

The Smar TT301 HART® Temperature Transmitter is also called universal because it can read inputs that provides millivolts or resistance that can be interpreted as a physical measurement.

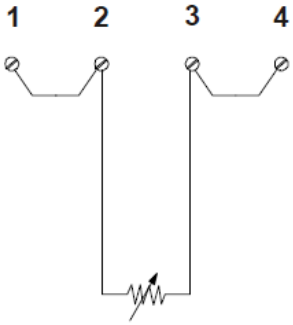
Herein, we show how to connect one or more sensors to the terminal block.

The terminal block has 4 terminals dedicated to the sensor(s) connections. (see details on the side)

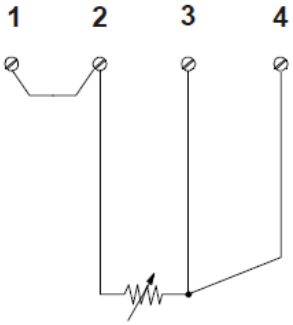


RTD or Resistance type of sensor

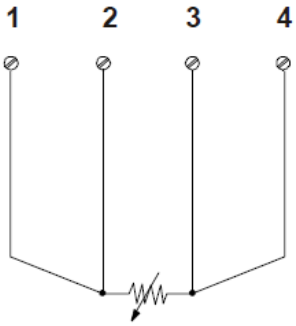
Starting with RTDs or Resistance type of sensors, there are the following possibilities to connect one sensor.



2 - WIRE RTD
OR OHM INPUT

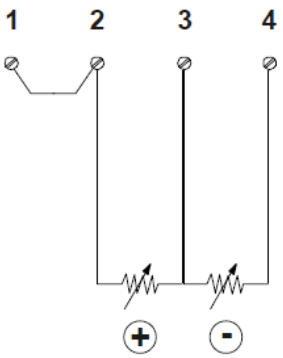


3 - WIRE RTD
OR OHM INPUT

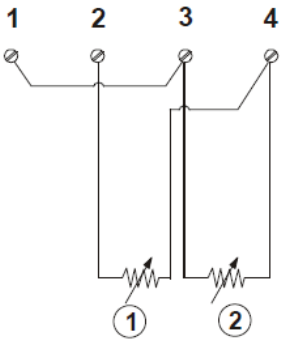


4 - WIRE RTD
OR OHM INPUT

It is also possible to connect 2 RTDs or 2 Resistance generic sensor if they are of the same type.



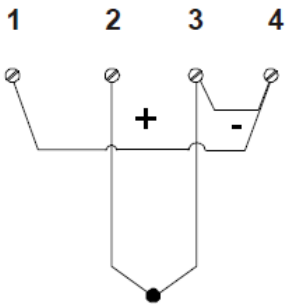
DIFFERENTIAL RTD
OR OHM INPUT



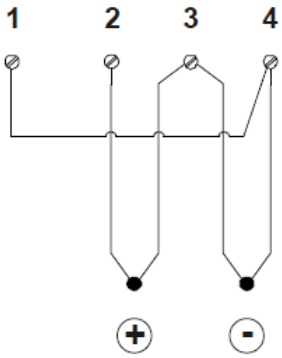
BACKUP, MINIMUM,
MAXIMUM OR AVERAGE
WITH 2 RTD OR OHM

TC or mV type of sensor

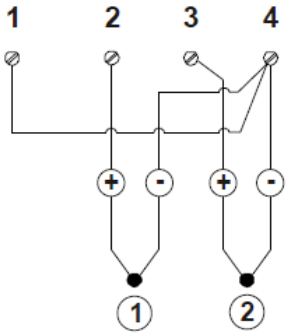
See below the possibilities to connect thermocouples. When more than one is used, they must be of the same type.



THERMOCOUPLE OR MILIVOLT INPUT



DIFFERENTIAL THERMOCOUPLE OR MILIVOLT INPUT



BACKUP, MINIMUM, MAXIMUM OR AVERAGE WITH 2 TC OR MILIVOLT

Notice that when you use a second sensor on a Smar TT301 HART® Temperature Transmitter is to have the output configured to show the differential value between both sensors. Also used or having the extra sensor as a Backup sensor, Maximum, Minimum, or Average indication.

While the Smar TT302 and the TT303 can indicate individual values coming from 2 connected sensors, the TT301 HART® Temperature Transmitter can only show one value.