

Using the TMP36 temperature sensor in PSTrace

TMP36 temperature sensor

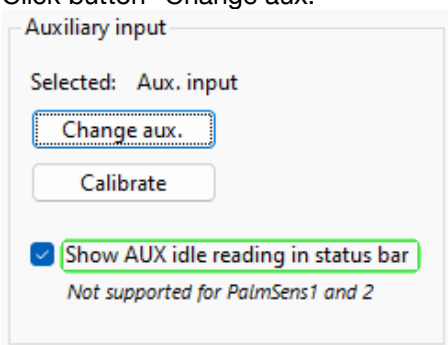
To convert the voltage from the TMP36 to temperature, the following formula is used:

$$Temp\ in\ ^\circ C = \frac{(V_{out\ in\ mV}) - 500}{10}$$

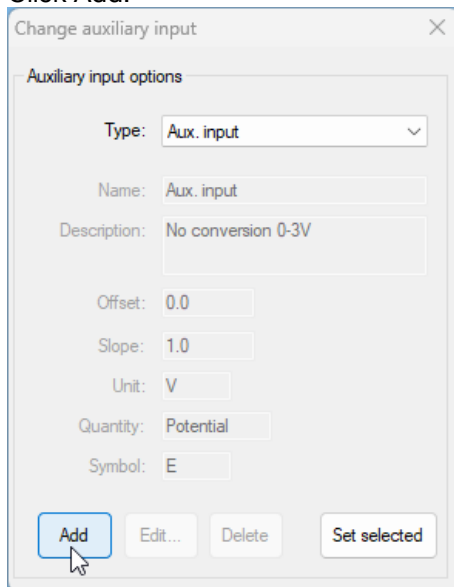
Configuring the TMP36

Follow the steps below in order to use a TMP36 temperature sensor in PStace. Make sure to connect to the instrument with the TMP36 extension connected to its auxiliary port first.

1. Go to menu: Tools → General settings...
2. Click button "Change aux."



3. Click Add:



4. Enter the following values:

Change auxiliary input

Auxiliary input options

Type: custom

Name: TMP36

Description: Temp sensor

Offset: -50.0

Slope: 100.0

Unit: C

Quantity: T

Symbol: T|

Save

Add Edit... Delete Set selected

5. Click Save
6. Make sure 'TMP36' is selected from the drop-down list and click "Set selected"

Change auxiliary input

Auxiliary input options

Type: TMP36

Name: TMP36

Description: Temp sensor

Offset: -50.0

Slope: 100.0

Unit: C

Quantity: T

Symbol: T

Set selected

Add Edit... Delete

7. It is advised to also enable the checkbox "Show AUX idle reading in status bar"

Auxiliary input

Selected: TMP36

Change aux.

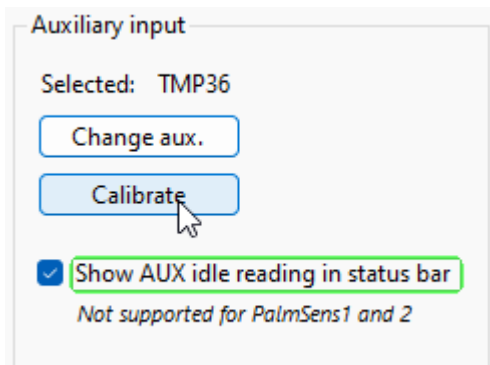
Calibrate

Show AUX idle reading in status bar

Not supported for PalmSens1 and 2

Calibration

Make sure the instrument is connected in PStTrace.
Click the 'Calibrate' button in the Settings window.



The TMP36 gives a voltage of 10 mV per measured centigrade.

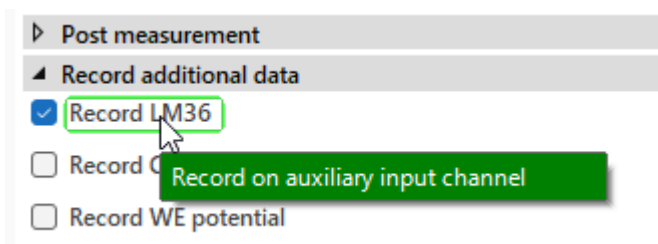
Calibration can be done by setting two points to determine both offset and slope of the linear relation or by just adjusting the offset.

The known actual temperature of the room or liquid the TMP36 is emerged in can be entered in the field for Offset calibration to determine the offset. This is the easiest way to calibrate the TMP36 sensor.

A more precise two-point calibration can also be used. In this case a high precision thermometer can be used in a low temperature and high temperature medium to enter two different values, e.g. room temperature and 100 degree Celsius by using the 'set point 1' and 'set point 2' buttons. This will determine both the offset and slope for the linear relation.

Measuring temperature as auxiliary input

Make sure to tick the 'TMP36' checkbox in the method editor in PStTrace to record the temperature simultaneous with a measurement.



Please don't hesitate to contact PalmSens for more details:
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