

Temperature Probe

Input Module for External Temperature Probes

User Manual Version: [0.1]_a

www.zennio.com

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1 INTRODUCTION

A variety of Zennio devices incorporate an input interface where it is possible to connect one or more temperature probes (such as models **ZN1AC-NTC68 S / E / F** from Zennio), among other accessories.

Please refer to the specific user manual and datasheet of each Zennio device in order to confirm whether this feature is available or not, and for instructions on how to connect the probe to the input interface of the device.

On the other hand, keep in mind that even if the model of the probe itself may be the same for all devices, **the functionality and the ETS configuration may slightly differ depending on the device and the version of the application program.** Please always ensure to download from the Zennio homepage (www.zennio.com) the user manual and annexes that correspond to the specific device and application program being configured.

2 CONFIGURATION

Connecting a temperature probe (such as models ZN1AC-NTC68 S / E / F from Zennio) to one of the inputs of the device will make it capable of receiving temperature measurements and monitor them, as well as of **sending those values to the bus** and of reporting the **detection of high / low temperature** events.

Please note that the screenshots and object names shown next may be slightly different depending on the device and on the application program.

ETS PARAMETERISATION

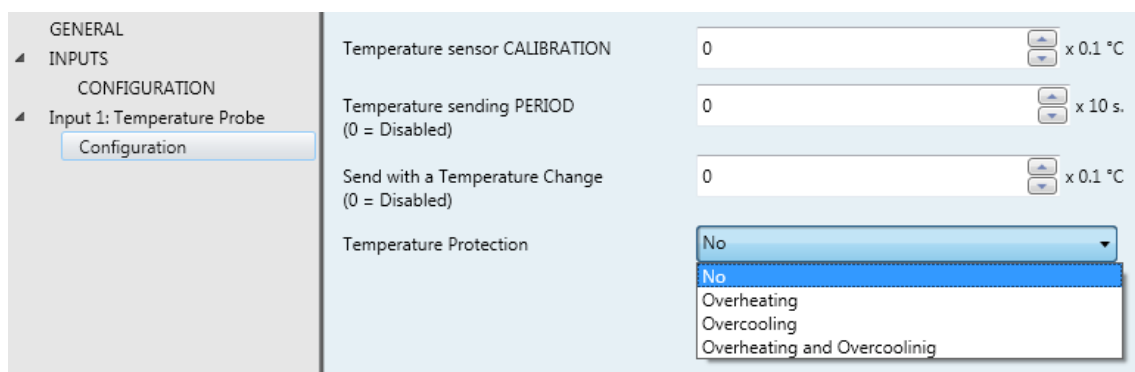


Figure 1. Temperature Probe - Configuration

When an input has been configured as Temperature Probe, objects “[**ix**] **Current Temperature**” (2 bytes) and “[**ix**] **Probe Error**” (1 bit) become visible. The former will report the current value of the temperature (periodically or after a certain increment/decrement, according to the parameter configuration), while the latter will notify (by sending the value “1” periodically) about an unexpected reading in the input line due to a **breakdown** or an incorrect connection of the temperature probe.

Apart from that, a specific entry will become visible in the tree on the left of the parameter window. This entry will itself comprise a tab called **Configuration**, containing the following parameters:

- **Temperature Sensor Calibration:** defines an offset to be applied to the measurement received from the probe to correct deviations due to external factors. The offset should be in the range [-50, 50] tenths of a degree.

- **Temperature Sending Period:** sets every how much time the value of the current temperature should be sent to the bus (through “[ix] Current Temperature”), in the range 0 – 255 tens of second. The value “0” leaves this periodical sending disabled.
- **Send with a Temperature Change:** defines a threshold (in the range 0 to 255 tenths of a degree) so that whenever a new reading of the current temperature is found to differ (from the last value sent to the bus) more than such threshold, an extra sending will take place.
- **Temperature Protection:** drop-down list with the following options:
 - No: no temperature protection is required.
 - Overheating: overheating protection is required. Two extra parameters will come up:
 - **Overheating Temp.:** maximum temperature permitted, in the range -30 to 125 °C. Temperature readings greater than this will be considered overheat, and therefore a “1” will be periodically sent through object “[ix] Overheat”. Once the overheat is over, a “0” will be sent (once).
 - **Hysteresis:** *dead band* or threshold (in the range 1 to 200 tenths of a degree; the default is 20 tenths of a degree –i.e., two degrees–) around the overheat temperature defined above. This dead band prevents the device from sending the overheat alarm and no-alarm over and over when the current temperature keeps fluctuating around the overheat limit (T): once the overheat alarm has been triggered, the no-alarm will not be sent until the current temperature is lower than that T minus the hysteresis. After that, if the current temperature reaches T again, the alarm will be re-sent.
 - Overcooling: overcooling protection is required. Two extra parameters (analogous to the above two) will come up:
 - **Overcooling Temp.:** minimum temperature permitted, in the range -30 to 125 °C. Temperature readings lower than this will be considered overcool, and therefore a “1” will be periodically sent through object “[ix] Overcool”. After the overcool is over, a “0” will be sent (once).

- **Hysteresis:** dead band or threshold (in the range 1 to 200 tenths of a degree; the default is 20 tenths of a degree) around the overcooling temperature. As for the overheat, once the alarm has been triggered, the no-alarm will not be sent until the current temperature is greater than T plus the hysteresis. After that, if the current temperature reaches T again, the alarm will be re-sent.

- Overheating and Overcooling: both overheating and overcooling protection are required. The following three parameters will come up:
 - **Overheating Temp.**

 - **Overcooling Temp.**

 - **Hysteresis.**

The three of them are analogous to those already explained separately.

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