



MICRO THERMO TECHNOLOGIES™

MT Alliance – Temperature Sensor Calibration Procedure

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Table of Contents

1	Preface	1
1.1	About this guide	1
1.2	Conventions used in this guide	1
2	Introduction	2
3	Remote Sensor	2
4	Preparation	2
5	MT Alliance calibration	2
5.1	Plug-in sensor	2
5.2	Sensor-node sensor	3
5.3	Calibration window	3
6	Revision history	4

1 Preface

1.1 About this guide

This guide is intended for technicians who install sensor nodes. This guide is not a certified calibration procedure, but only a step by step guide to calibrate the sensors quickly and correctly to add an offset to the sensor reading to make a one point calibration.

1.2 Conventions used in this guide

To facilitate understanding screenshots were added to the description of the procedures.

Most of the technical names are in *italic* and names or expressions found in MT Alliance interface are imphased in **bold**.

2 Introduction

Here is the list of sensor type supported by MT Alliance:

- Current
- Flow
- Gas Concentration
- Humidity
- Illumination
- Percent
- Power
- Power Factor
- Pressure
- RPM
- Temperature

This guide will focus on the calibration of temperature sensors only because the procedure is similar for other Micro Thermo Technologies sensor type. MT Alliance does make the calibration at one point. The correction is done by reading offset (a constant is added or subtracted to the reading). The slope of the reading is not corrected. Therefore it must be done at the temperature close to the one normally used by the probe.

3 Remote Sensor

The calibration of universal remote (network) sensor must be done at the node information where the probe is physically connected.

4 Preparation

You should always do the calibration at the temperature where the sensor is normally used. The temperature should be stable. A standard temperature does not necessarily move at the same speed as the sensor temperature to calibrate. You must use a accurate and reliable standard. In some cases the customer requires to see the calibration certificate of the standard. When you place the standard thermometer, wait at least 10 minutes before starting the calibration process for the temperature to stabilize. Use a calibration form PUID 37-GAB-1002 to record calibration result.

5 MT Alliance calibration


5.1 Plug-in sensor

Make sure you are in **Configuration** mode then click the sensor plug-in button.

Example for a RTU node you must click on the Inputs tab and look for the calibration button of the physical input to calibrate. This button will not function as long as the sensor is not configured on a physical input. Go to section 5.3 to calibrate a sensor in a plug-in.

5.2 Sensor-node sensor

Make sure you are in **Configuration** mode then click the sensor info button.

Click on the **Hardware** tab and look for the calibration button . This button is not available as long as the sensor is not linked to a physical input.

5.3 Calibration window

Calibration – Click here to fix the error between the actual value and the value read by the sensor, the installer can calibrate the sensor by changing its offset. This is a repeated process during which the installer must read the value of the sensor, compare it to a standard and, if they differ, use the following methods:

- **By Value** – the user must enter the actual value (preferably from a standard) in the box **Calibration Value** and click the **Apply** button; the plug-in calculates the difference between this value and the sensor and sends the result to the sensor node. The sensor node save the sensor offset and sends a new reading to be displayed in the **Sensor Value** box after a moment. If the new sensor value is still different than the standard temperature enter the standard temperature in the **Calibration Value** box again.

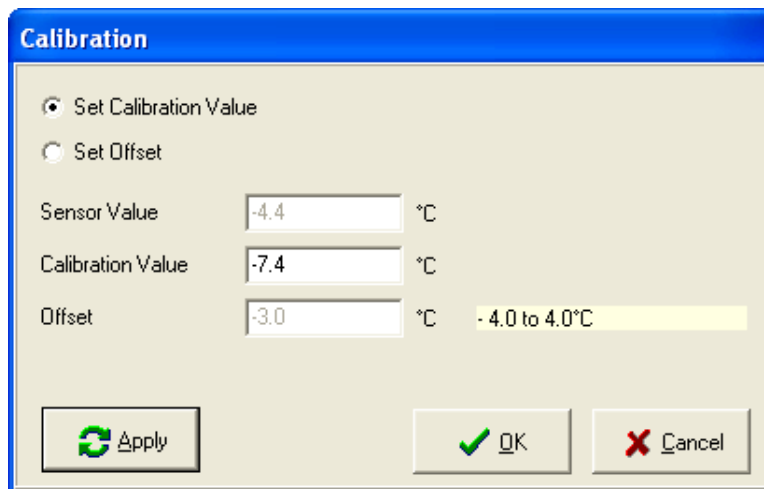


Figure 1 Calibration Window

- **By Offset** – sometimes the sensor comes from the factory or from another location with a known gap; the installer must select **Set Offset** and enter it directly into the **Offset** box to calibrate the sensor. It must then click the **Apply** or **OK** button. The sensor node save the sensor offset and sends a new reading in the **Sensor Value** box after a moment.

Done This button was used on older version to close the window without re-applying the calibration.

Warning!

If you need to apply an offset larger than the tolerance specified in the specification of the sensor (over 0.2 ° C in the case of a Micro Thermo thermistor) it is likely that there is a problem with the installation. It is better to solve the problem at the source than to hide it by having a big offset. It is very rarely a faulty probe. In case of huge shift, please check for:

- Bad choice of sensor at the installation (operating temperature exceeds the limit of the range specified for the sensor operating range or use too small or too large for the specific operating range of the sensor).
- Bad choice of sensor model in the Alliance software.
- Poor power at the sensor node (input card)
- Crosstalk between wires
- Bad or poor connections
- Defective probe
- Or other...

6 Revision history

REV	Description	Revised by	Date
1.A	Translation from french 73-MTA-1017-R1.2	RL	14-Oct-09
1.2	Publication for MTA V5.2	RL	14-Oct-09
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