7.   HUMIDITY/TEMPERATURE CALIBRATION

The EE29/31 transmitter series can be calibrated in two ways.

- 1-point humidity/temperature calibration: quick and simple calibration on a defined humidity/temperature point (working point).
- 2-point humidity/temperature calibration: simple calibration for accurate measuring results over the whole humidity/temperature working range.

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- To reach a temperature balance it is recommended to keep the transmitter and the reference chamber (e.g. HUMOR 20,...) for minimum 4 hours in the same room.
- During stabilisation period and calibration procedure it is important to keep the temperature constant in the reference climate chamber.
- For calibration the humidity sensor probe must be stabilised at least 20 minutes into the reference chamber.
- Replace a used dirty filter cap before calibration!

7.1   2-point humidity calibration

For accurate adjustment over the whole working range or in case of sensor exchanges a two point calibration is recommended.

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- Start calibration at the low humidity calibration point!
- The humidity difference between the two points should be > 30%RH
- Low humidity point < high humidity point
- Two point calibration may be performed directly on the circuit board, or for convenience, using the configuration software supplied (for more details, see Configuration Software, chapter 5.4 "Calibration")

2-point humidity calibration procedure on the circuit board!

low calibration point:

1. Insert the sensor probe into the reference humidity 1 (low calibration point) and stabilise for at least 20 minutes.

D2 green
S2

2. BUTTON S2: Pressing the button for 5 seconds starts the procedure for the calibration mode RH. The calibration mode is indicated by the lit LED "D2" on the circuit board.
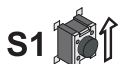
D2 green
S2   **"CALIB LOW"**

3. BUTTON S2: Pressing the button for 5 seconds starts the procedure for the low calibration point. The calibration mode is indicated by the lit LED "D2" and the symbol "CALIB LOW" will appear on the optional LC display.

D1 red   **D2** green
S1   **S2**

4. BUTTON S1 (up) and **S2 (down)**: Pressing one of the two buttons will adjust the measuring value in steps of 0.1% up or down to the reference value. The actual measuring value is indicated on the display or can be measured with the analogue output. As soon as the measured value is changed, "D1" is flashing.

D2 flashing green

S1

5. BUTTON S1 (store): Pressing the button for 5 seconds stores the calibration value and the procedure is ended. LED "D2" flashes to indicate exiting of the calibration mode and the symbol "CALIB LOW" will disappear from the optional LC display.

D2 flashing green

S2

BUTTON S2 (cancel): Pressing the button for 5 seconds the calibration procedure will be ended without storing the calibration values. LED "D2" flashes to indicate exiting of the calibration mode and the symbol "CALIB LOW" will disappear from the optional LC display.

Hardware

high calibration point:

D2 green

S2

D2 green

S1

"CALIB HIGH"

D1 red   D2 green

S1 ⇑   S2 ⇓

D2 flashing green

S1

D2 flashing green

S2

6. Insert the sensor probe into the reference humidity 2 (<u>high calibration point</u>) and stabilise for at least 20 minutes.

7. BUTTON S2: Pressing the button for 5 seconds starts the procedure for the <u>calibration mode RH</u>. The calibration mode is indicated by the lit LED "D2" on the circuit board.
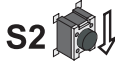
8. BUTTON S1: Pressing the button for 5 seconds starts the procedure for the <u>high calibration point</u>. The calibration mode is indicated by the lit LED "D2" and the symbol "CALIB HIGH" will appear on the optional LC display.

9. BUTTON S1 (up) and **S2 (down)**: Pressing one of the two buttons will adjust the measuring value in steps of 0.1% up or down to the reference value. The actual measuring value is indicated on the display or can be measured with the analogue output. As soon as the measured value is changed, "D1" is flashing.

10. BUTTON S1 (store): Pressing the button for 5 seconds <u>stores the calibration value</u> and the procedure is ended. LED "D2" flashes to indicate exiting of the calibration mode and the symbol "CALIB HIGH" will disappear from the optional LC display.
BUTTON S2 (cancel): Pressing the button for 5 seconds the <u>calibration procedure will be ended without storing</u> the calibration values. LED "D2" flashes to indicate exiting of the calibration mode and the symbol "CALIB HIGH" will disappear from the optional LC display.

## 7.2   2-point temperature calibration

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- Start calibration at the low calibration point!
- The temperature difference between the two points should be at least 30 degC (86°F)!
- Low temperature point < high temperature point
- <u>Attention:</u> A two point temperature calibration is not supported by the configuration software and must therefore be done directly on the circuit board! (see the following procedure)

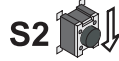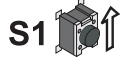## 2-point temperature calibration procedure on the circuit board!

low calibration point:

D1 🔴 **red**

S1 ⬛
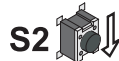
1. Insert the sensor probe into the reference temperature 1 (low calibration point) and stabilise for at least 10 minutes.

2. BUTTON S1: Pressing the button for 5 seconds starts the procedure for the calibration mode temperature. The calibration mode is indicated by the lit LED "D1" on the circuit board.

S2 ⬛   **"CALIB LOW"**

3. BUTTON S2: Pressing the button for 5 seconds starts the procedure for the low calibration point. The calibration mode is indicated by the symbol "CALIB LOW" on the optional LC display.

D1 🔴 **red**

S1 ⬛⇧   **S2** ⬛⇩

4. BUTTON S1 (up) and **S2 (down):** Pressing one of the two buttons will adjust the measuring value in steps of 0.1 degC up or down to the reference value. The actual measuring value is indicated on the display or can be measured with the analogue output. As soon as the measured value is changed, "D1" is flashing.

D2 🟢 **flashing green**

S1 ⬛

5. BUTTON S1 (store): Pressing the button for 5 seconds stores the calibration value and the procedure is ended. LED "D2" flashes to indicate exiting of the calibration mode and the symbol "CALIB LOW" will disappear from the optional LC display.

D2 🟢 **flashing green**

S2 ⬛

BUTTON S2 (cancel): Pressing the button for 5 seconds the calibration procedure will be ended without storing the calibration values. LED "D2" flashes to indicate exiting of the calibration mode and the symbol "CALIB LOW" will disappear from the optional LC display.

high calibration point:

D1 🔴 **red**

S1 ⬛

6. Insert the sensor probe into the reference temperature 2 (high calibration point) and stabilise for at least 10 minutes.

7. BUTTON S1: Pressing the button for 5 seconds starts the procedure for the calibration mode temperature. The calibration mode is indicated by the lit LED "D1" on the circuit board.

S1 ⬛   **"CALIB HIGH"**

8. BUTTON S1: Pressing the button for 5 seconds starts the procedure for the high calibration point. The calibration mode is indicated by the symbol "CALIB HIGH" on the optional LC display.

D1 🔴 **red**

S1 ⬛⇧   **S2** ⬛⇩

9. BUTTON S1 (up) and **S2 (down):** Pressing one of the two buttons will adjust the measuring value in steps of 0.1 degC up or down to the reference value. The actual measuring value is indicated on the display or can be measured with the analogue output. As soon as the measured value is changed, "D1" is flashing.

D2 🟢 **flashing green**

S1 ⬛

10. BUTTON S1 (store): Pressing the button for 5 seconds stores the calibration value and the procedure is ended. LED "D2" flashes to indicate exiting of the calibration mode and the symbol "CALIB HIGH" will disappear from the optional LC display.

D2 🟢 **flashing green**

S2 ⬛

BUTTON S2 (cancel): Pressing the button for 5 seconds the calibration procedure will be ended without storing the calibration values. LED "D2" flashes to indicate exiting of the calibration mode and the symbol "CALIB HIGH" will disappear from the optional LC display.

Hardware

7.3 1-point humidity calibration

When the working range is limited to a certain more narrow range, a calibration at one humidity point is absolutely sufficient.

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- In accordance with the working range, either the high or low calibration point should be selected. (CP > or < 50% RH)

- This calibration causes an extra inaccuracy for the rest of the working range.

- The one point humidity calibration may be done directly on the circuit board, or for convenience, using the configuration software supplied. (for more details, see the Configuration software, 5.4 "Calibration" / 1-point humidity calibration)

1-point humidity calibration procedure on the circuit board!

1. Insert the sensor probe into the reference humidity (calibration point) and stabilise for at least 20 minutes.

D2 green
S2

2. BUTTON S2: Pressing the button for 5 seconds starts the procedure for the calibration mode RH. The calibration mode is indicated by the lit LED "D2" on the circuit board.

D2 green
S1
"CALIB HIGH"

D2 green
S2
"CALIB LOW"

3. BUTTON S1: Pressing the button for 5 seconds starts the procedure. The calibration mode is indicated by the lit LED "D2" and the symbol "CALIB HIGH" will appear on the optional LC display (CP = 50% RH).
or
BUTTON S2: Pressing the button for 5 seconds starts the procedure. The calibration mode is indicated by the lit LED "D2" and the symbol "CALIB LOW" will appear on the optional LCD (CP < 50% RH).

D1 red D2 green
S1   S2

4. BUTTON S1 (up) and **S2 (down)**: Pressing one of the two buttons will adjust the measuring value in steps of 0.1% up or down to the reference value. The actual measuring value is indicated on the display or can be measured with the analogue output.

D2 flashing green
S1

D2 flashing green
S2

5. BUTTON S1 (store): Pressing the button for 5 seconds stores the calibration value and the procedure is ended. LED "D2" flashes to indicate exiting of the calibration mode and the symbol "CALIB LOW" or "CALIB HIGH" will disappear from the optional LC display.
BUTTON S2 (cancel): Pressing the button for 5 seconds the calibration procedure will be ended without storing the calibration values. LED "D2" flashes to indicate exiting of the calibration mode and the symbol "CALIB LOW" or "CALIB HIGH" will disappear from the optional LC display.
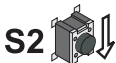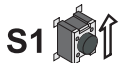
7.4 1-point temperature calibration on the circuit board

When the working range is limited to a certain more narrow range, a calibration at one temperature point is absolutely sufficient.

- In accordance with the working range, either the high or low calibration point should be selected. (CP $\geq$ or $<$ 45 degC / 113°F)

- This calibration causes an extra inaccuracy for the rest of the working range.

- The one point temperature calibration may be performed directly on the circuit board, or for convenience, using the configuration software supplied. (for more details, see "Software" manual, 1-point temperature calibration)

1-point temperature calibration procedure on the circuit board!

1. Insert the sensor probe into the reference temperature (calibration point) and stabilise for at least 30 minutes.

D1 red

S1

2. BUTTON S1: Pressing the button for 5 seconds starts the procedure for the calibration mode temperature. The calibration mode is indicated by the lit LED "D1" on the circuit board

S1 "CALIB HIGH"

S2 "CALIB LOW"

3. BUTTON S1: Pressing the button for 5 seconds starts the procedure. The calibration mode is indicated by the symbol "CALIB HIGH" on the optional LC display (CP $\geq$ 45 degC / 113°F).
or
BUTTON S2: Pressing the button for 5 seconds starts the procedure. The calibration mode is indicated by the symbol "CALIB LOW" on the optional LC display (CP $\geq$ 45 degC / 113°F).

D1 red

S1 **S2**

4. BUTTON S1 (up) and **S2 (down)**: Pressing one of the two buttons will adjust the measuring value in steps of 0.1degC up or down to the reference value. The actual measuring value is indicated on the display or can be measured with the analogue output.

D2 flashing green

S1

D2 flashing green

S2

5. BUTTON S1 (store): Pressing the button for 5 seconds stores the calibration value and the procedure is ended. LED "D2" flashes to indicate exiting of the calibration mode and the symbol "CALIB LOW" or "CALIB HIGH" will disappear from the optional LC display.
BUTTON S2 (cancel): Pressing the button for 5 seconds the calibration procedure will be ended without storing the calibration values. LED "D2" flashes to indicate exiting of the calibration mode and the symbol "CALIB LOW" or "CALIB HIGH" will disappear from the optional LC display.

7.5 Resetting the customer calibration to the factory calibration on the circuit board:

D1 short flash red   **D2** flashing green

S1   **S2**

1. RH + T RESET: BUTTON S1 and S2: In neutral mode pressing both buttons simultaneously for 10 seconds customer calibration settings are reset to factory calibration.
A short flash of the LED "D1" indicates the reset.
or

D2 green

S2

D1 short flash red

S1   **S2**

2. RH RESET: BUTTON S2: Pressing the button for 5 seconds starts the <u>procedure for the calibration mode RH</u>. <u>Pressing both buttons simultanously for 10 seconds customer calibration settings are reset to factory calibration</u>.
A short flash of the LED "D1" indicates the reset.
or

D1 red

S1

3. Temp. RESET: BUTTON S1: Pressing the button for 5 seconds starts the <u>procedure for the calibration mode T.</u> <u>Pressing both buttons simultanously for 10 seconds customer calibration settings are reset to factory calibration</u>.
A short flash of the LED "D2" indicates the reset.

D2 short flash green

S1   **S2**

Hardware

16