VAISALA

USER'S GUIDE

Calibration of Series HMD/W20/30 and HMP130 Transmitters with Vaisala HUMICAP® Indicator HMI41

U220EN11

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Contents

1. INTRODUCTION 1

1.1 HMI41 with calibration option 1

1.2 Selecting the HMI41 calibrator function 1

2. CALIBRATION 3

2.1 Getting started 3

2.2 Calibration 4

APPENDIX 1: QUICK REFERENCE GUIDE

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1. INTRODUCTION

1.1 HMI41 with calibration option

The HMI41 can be used as a field calibrator for various Vaisala humidity transmitters. There are three different calibration cables available:

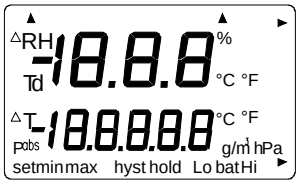
- 19116ZZ for the calibration of Vaisala's HMD/W 60/70 and HMP140 series analogue transmitters
- 19164ZZ for the calibration of HMP230 series digital transmitters
- **19165ZZ for the calibration of the HMD/W 20/30 and HMP130 series analogue transmitters**

In this manual, only the calibration of HMD/W 20/30 and HMP130 series analogue transmitters is dealt with. For other calibration options, please refer to corresponding manuals.

Calibration is quick and easy to perform. In calibration, the HMI41 measures relative humidity with the reference probe and receives the RH information from the transmitter. These two values are then compared on the HMI41 display and the transmitter is adjusted with calibration potentiometers inside the transmitter.

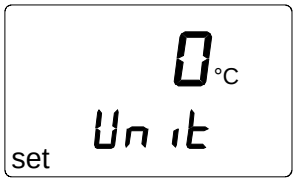
1.2 Selecting the HMI41 calibrator function

The desired calibrator function is selected in the HMI41 setup menu. To enter the setup mode, first press the ON/OFF button and the following appears:

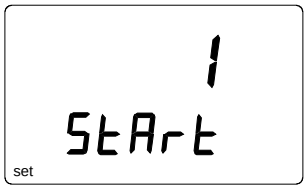


Then release the ON/OFF button and within 1...2 seconds press both ENTER and MODE buttons until the following text appears on the display:

After a few seconds, the text changes automatically to show the following:



If the basic settings of the HMI41 (display units, automatic power off function, display quantities and pressure) have to be changed, please refer to the HMI41 Operating Manual. Otherwise, press ENTER repeatedly until the following text appears:



The number on the first line of the display corresponds to the following HMI41 functions:

1 = HMI41 as a humidity and temperature indicator
2 = HMI41 as a calibrator for HMD/W 60/70 and HMP140 series analogue transmitters
3 = HMI41 as a calibrator for HMP230 series digital transmitters
4 = HMI41 as a calibrator for the HMD/W20/30 and HMP130 series analogue transmitters

To calibrate the HMD/W 20/30 or HMP130 series transmitters, select number 4 with buttons ▲ (number up) and ▼ (number down) and then turn the HMI41 off. When the HMI41 is turned on again, it will automatically assume the calibrator function for the HMD/W 20/30 and HMP130 series transmitters. If you wish to calibrate transmitters of some other type or use the HMI41 as an indicator, this selection has to be made accordingly; refer to corresponding manuals for further details.

2. CALIBRATION

For a successful calibration, it is essential that the probe of the HMI41 and that of the transmitter are at the same temperature, and that the reference probe has been previously calibrated. Always allow enough time for the readings to stabilize. Note that the stabilization time depends on the ambient conditions and may vary from 10 minutes to a couple of hours.

2.1 Getting started

After having selected the desired function (Chapter 1.2), turn the HMI41 off and connect the calibration cable to the EXT connector at the bottom of the HMI41 (Figure 2.1). Connect the other end of the cable to the appropriate connector in the transmitter (Figures 2.2 - 2.4).

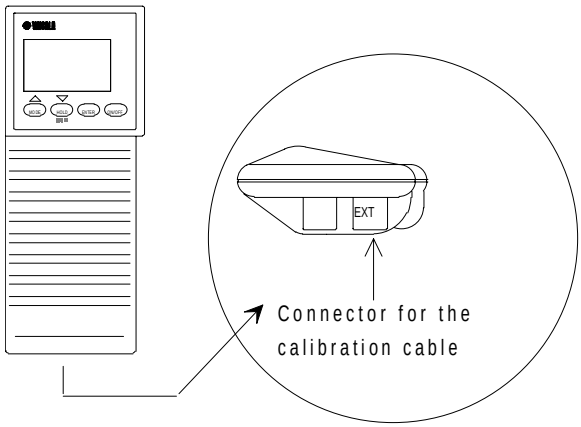


Figure 2.1 Location of the HMI41 calibration connector

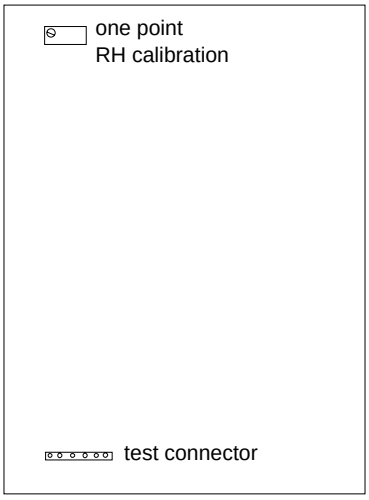


Figure 2.2 Calibration connector and potentiometer in the HMP130 series transmitters

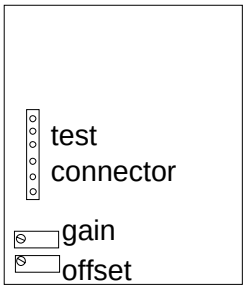


Figure 2.3 Calibration connector and potentiometers in the HMD 20/30UB/YB transmitters

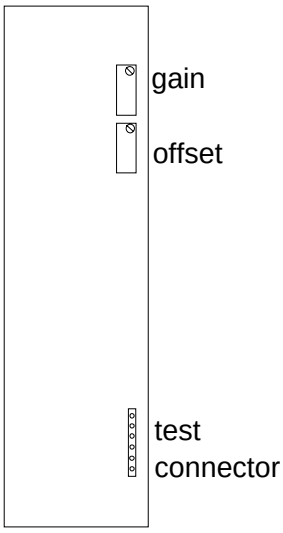
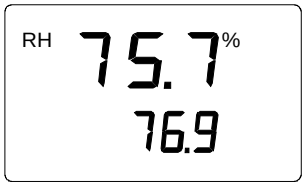


Figure 2.4 Calibration connector and potentiometers in the HMW 20/30UB/YB transmitters

2.2 Calibration

After having connected the cable, turn the HMI41 on with the ON/OFF button and wait until a text similar to the following appears on the display:

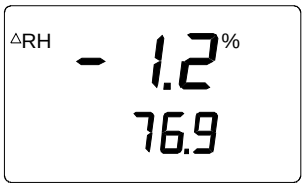


Numbers on the first line indicate the RH measured by the transmitter, and numbers on the second line indicate the RH measured by the HMI41 reference probe. If you wish, you can now adjust the transmitter:

- Wait until the readings have stabilized and adjust the calibration potentiometers (Figures 2.2 - 2.4) until the readings on the first and the second line are the same. It is recommended to use the offset potentiometer if the RH is <65 %RH and the gain potentiometer if the RH is ≥65 %RH.

- After having completed the calibration, press ON/OFF and disconnect the cable.

If you prefer, you can change the HMI41 display to show the difference in the readings and then adjust the transmitter. To do this, press MODE when both readings are on the display and a text similar to the following is displayed:



Numbers on the first line indicate how much the RH measured by transmitter differs from that of the reference probe. Numbers on the second line indicate the RH measured by the reference probe. If you wish, you can now calibrate the transmitter (by pressing MODE again the measured values appear on the display):

- Wait until the readings have stabilized and adjust the calibration potentiometers (Figures 2.2 - 2.4) until the numbers on the first line are as close to zero as possible. It is recommended to use the offset potentiometer if the RH is <65 %RH and the gain potentiometer if the RH is ≥65 %RH.
- After having completed the calibration, press ON/OFF and disconnect the cable.

GUARANTEE

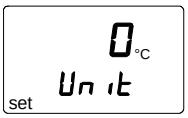
Vaisala issues a guarantee for the material and workmanship of this product under normal operating conditions for one (1) year from the date of delivery. Exceptional operating conditions, damage due to careless handling and mis-application will void the guarantee.

APPENDIX 1: QUICK REFERENCE TO CALIBRATION

It is recommended that this quick reference guide is used only as a checking list for those who already know how to operate the HMI41 as a calibrator. For those who take it into use for the first time, the Operating Manual gives useful information that is not included in this quick reference guide.

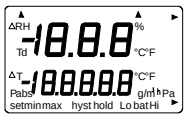
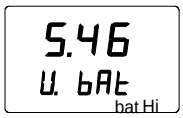
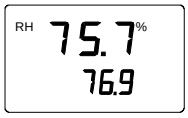
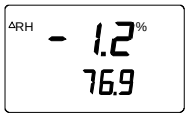
1. Selecting the calibrator function

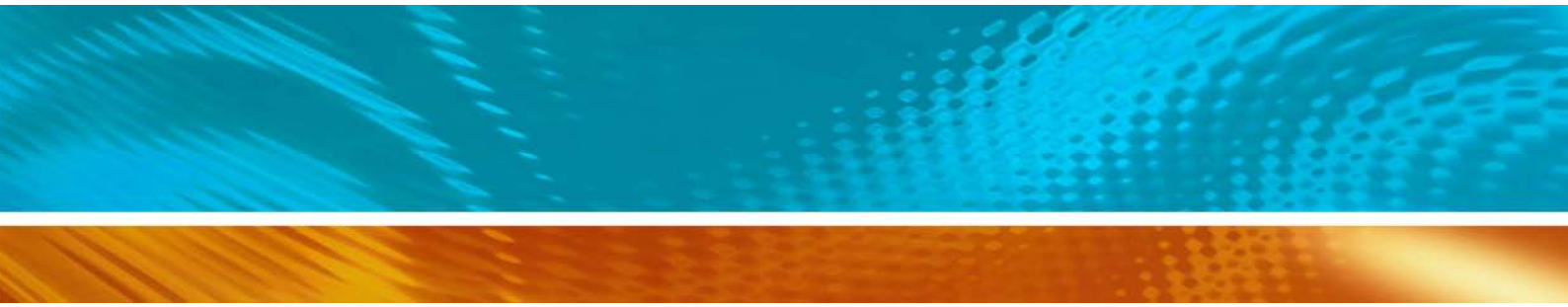
For selecting the calibrator function, press ON/OFF until you can see some text on the display. Then release the ON/OFF button and press within 1...2 seconds both ENTER and MODE buttons until the text "setup" appears on the display. Then follow the instructions of the table below.

DISPLAY	WHAT TO DO	PRESS:
	Wait for a few seconds.	
	If the basic settings have been given, press ENTER. If they have not been given, refer to the HMI41 Operating Manual.	press ENTER repeatedly:
	select the HMI41 function: 1 = indicator 2 = calibrator for HMD/W 60/70 and HMP140 series analogue transmitters 3 = calibrator for HMP230 transmitters **4 = calibrator for HMD/W20/30 and HMP130 series transmitters**	▲ (number up) or ▼ (number down) ON/OFF

2. Calibration

After having connected the cable, turn the HMI41 on and follow the instructions of the table below:

DISPLAY	WHAT TO DO	PRESS:
	The HMI41 has been turned on.	
	Indication of the software version (if the version is 1.02 or more)	
	Indication of the battery voltage.	
	Let the readings stabilize and then adjust the transmitter potentiometers until the readings are the same. offset: <65 %RH gain : ≥65 %RH Alternatively, you can adjust the transmitter when the display shows the difference in readings.	MODE to have the difference in readings on the display ON/OFF if you have completed the calibration
	Let the readings stabilize and then adjust the transmitter potentiometers until the reading on the first line is as close to zero as possible. offset: <65 %RH gain : ≥65 %RH	MODE to return the measured values on the display ON/OFF if you have completed the calibration



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