

Calibration Guide



RH1 RH2
RH5 RH6

General Information

On the basis of this calibration guide you are able to recalibrate the measuring instruments humimeter RH1, RH2, RH5 and RH6 by using humidity standards and the calibration device. If the accuracy check performed before the recalibration shows that the accuracy is still high enough, you do not need to recalibrate your device. Depending on your accuracy you have two options to recalibrate or adjust your RHx. To reach the specified tolerance of $\pm 1,5\%$ in the range from 0% to 90%rh you should calibrate your instrument with the two point calibration. The second option is a one point recalibration.

An overview of proceeding the two point calibration.

- Assemble the sword sensor and the calibration device with the 35% humidity standard
- The time for conditioning is two hours.
- Switch on the device and annotate the shown measuring value.
- If the difference between the shown value and the calibration value is bigger than 2,0 % rh, we advice you to recalibrate your RHx.
 - Navigate to the menu **Calibrate – Ic => V** assume the active IC-Calibration value of the 35% and annotate this.
 - Don't push any key until the device switches off automatically after 4 minutes.
- Assemble the sword sensor and the calibration device with the 80% humidity standard
- The time for conditioning is two hours.
- Switch on the device and annotate the shown measurement value.
- If the difference between the shown value and the calibration value is bigger than 2,0%rh, we advice you to recalibrate your RHx.
- Navigate to the menu **Calibrate – Ic => V** assume the active IC-Calibration value of the 80% and annotate this.
- Don't push any key until the device switches off automatically after 4 minutes.
- From the menu **Calibrate – Ic => V** enter the original IC- Values of the device to the MS-Excel-Calculating sheet at the associated Voltages (V). Also fill in the values which are taken and annotated at 35% and 80% humidity.
- At the menu **Calibrate – Ic => V** you have to enter the calculated new IC-values to the associated voltages
- After entering the new values, leave the menu **Ic => V** by pressing **Escape** (Keys **⇧** and **⌘**) to save the new calibration.
- The recalibration is finished now.

Details of proceeding the calibration

Prepare the calibration

To reach the best results, the calibration device, the humidity standard and the measuring instrument must have the same temperature. This Temperature should be between 20°C and 25°C. The best way to manage this is, when you store all three components together in a room without a thermal fluctuation over night.

Assemble the sensor-sword and the calibration device:



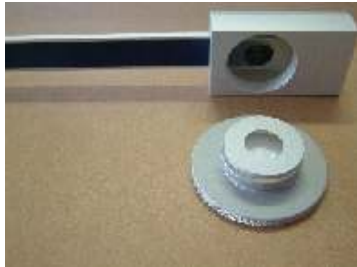
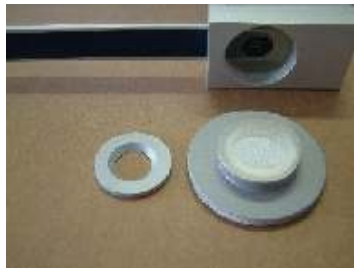
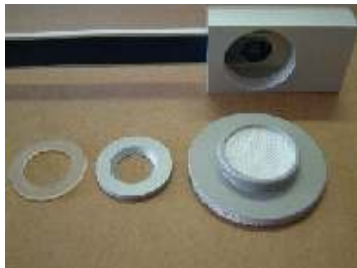
In this picture you see the single parts of the calibration device and a vial with the humidity standard next to an RH5 and an RH1.



Put in the first gasket ring in the upper part of the calibration device. Push in the Sensor-sword in the upper part as shown at the picture. Now put the second gasket ring into the upper part.

Lay in the textile pad in the bottom part of the calibration device, and pour the humidity standard carefully at the textile pad.

Now put the third gasket ring in the bottom part of the case. Attach the metal ring on the third gasket.



Take the upper part with the RHx and attach these carefully at the bottom part of the calibration device. Screw it up like shown in the picture

Pick up the RHx together with the calibration device STRAIGHT and DON'T TURN IT AROUND.

For RH1 and RH2, place the textile pad in the bottom Part, pour the humidity standard carefully on it and screw on the top part. Then stick the sensor carefully into the hole.



At least put the RHX with the calibration device down, leave it for two hours alone and follow the guide.

Conditioning the sensor

To achieve best results, let the sensor condition for two hours.

Read and annotate the measuring value

Annotate the shown measuring value and also the temperature.

Evaluation of the real humidity













At ideal temperature of 23°C (measuring instrument, calibration device, calibration liquid) the reference value of the calibration liquid is valid. If there is a different to the ideal temperature you have to evaluate the real humidity of the liquid. You may find this in the following table.

Temperatur	Kalibrierlösungen		
	35%	50%	80%
°C			
15	34,0%	49,4%	79,8%
18	34,4%	49,6%	79,9%
20	34,6%	49,8%	79,9%
21	34,8%	49,8%	80,0%
22	34,9%	49,9%	80,0%
23	35,0%	50,0%	80,0%
24	35,1%	50,1%	80,0%
25	35,2%	50,2%	80,0%
26	35,4%	50,2%	80,1%
28	35,6%	50,4%	80,1%
30	35,8%	50,5%	80,1%

Annotate the real humidity. If the difference between the real humidity and the shown value on display is smaller than 2,0% relative humidity, we advice you, to do no recalibration of your measuring instrument. If the difference is bigger than 2,0% rh you should recalibrate the instrument, do this as following.

Ascertain the IC-values

You have to ascertain the IC-calibration values both **with the 35%rh liquid and with the 80%rh liquid!**

1. Let your RHx in the calibration device and switch on the device.
2. Press the rolling menu key  as often until you get to the main menu.
3. Choose the **Options** menu by pressing  and confirm this with .
4. Go to the Menu **unlock** and confirm with .
5. Enter the SuperUser-password with the **0..9** and **A..Z** keys and confirm with 
 - The SuperUser-password, if not changed, is the serial number of the instrument which is shown at the start-up logo and in the menu **Status**.
6. Choose the menu **Calibrate** with the  key and confirm with .
7. Next go to the menu **I => V** and confirm with . Now the 1st index (**Idx:[1]**) will be shown.
8. Press  key to assume the active IC-value.
9. The Ic-value (upper line) must be changed..
 - If there appears an IC-value of -32768lc (**Idx:[5]**) on the display after releasing the  key, you pressed it to long.
 - In this case press the key  to get back to the Index 1, and press the  key again.
10. Annotate the new IC-value to the associated real humidity value of the calibration liquid.
11. DON'T Press any key on your RHx until the device switches off automatically.



You haven't done any changes in the calibration yet.!

Repeat the procedure from point 1 to 11 with 80%r.H. liquid.


Enter the calibration Values into the MS-Excel-calculating sheet

Enter all relevant values, these are the real humidity values and the old and new IC-values into the sheet.

If there is a value missing, the calculation will be wrong.

Enter the new calibration values into the RHx

Do this as follow:








1. Press the **Rolling Menu Key**  as often until you get to the main menu.
2. Press the **▼** key to get to the menu **Options** and confirm with **↵**.
3. Navigate to **Unlock** by pressing the **▼** key and confirm it with **↵**.
4. Enter with the **0..9** and **A..Z** keys your SuperUser-password and confirm it with **↵**.
 - The SuperUser-password, if not changed, is the serial number of the instrument which is shown at the start-up logo and in the menu **Status**.
5. Navigate to **Calibrate** by pressing the **▼** key and confirm it with **↵**.
6. Next go to the menu **I => V** and confirm with **↵**. Now the 1st index (**Idx:[1]**) will be shown.
7. Now the 1st index (**Idx:[1]**) will be shown on display.
 - To enter the new Ic-value, press the **0..9** key until you get to the correct number and confirm this with **↵**.
 - If the number is taken, the cursor jumps to the next number. Like that you enter the whole Ic-value for this Index.
 - At the end of the line press **↵** once more, to get to the next line. This is the V-Value; it must not be changed. Press **↵** to get to **Idx:[2]**
 - The 2nd function of the key **0..9** is fast forward. This function will be activated by holding down the key a few seconds.
8. Now enter the values of the MS-Excel-calculating sheet for all indices (**Idx:[2]** to **Idx:[5]**).
9. DON't change anything at **Idx:[6]** and possibly other indices!
10. Press the **↶** and **↷** keys together to save the settings and leave the calibration menu.
11. Press **↶** as often until you get to the measuring window. The calibration is done.

Trouble shooting

If you recognize that there was something wrong with the calibration cycle, it is possible to reset the factory settings.

ATTENTION: In this case all changes you have done will be reseted. Also your self calibrated moisture curves will be deleted.

Reset the original calibration

1. Press the **Rolling Menu** Key  until you get to the main menu.
2. Press the **▼** key to get to the menu **Options** and confirm with .
3. Navigate to **Unlock** by pressing the **▼** key and confirm it with .
4. Enter with the **0..9** and **A..Z** keys your SuperUser-password and confirm it with .
5. The SuperUser-password, if not changed, is the serial number of the instrument which is shown at the start-up logo and in the menu **Status**.
 1. Navigate to **Reset** by pressing the **▼** key and confirm it with 
 - On the display the query **[Reload ?]** appears on the display **reset?** erscheint am Display.
 2. Confirm this query by pressing the  key , and the original calibration will be loaded.
 - During the instrument is reloading the calibration data, a bar is rising from the left to the right side on the display. This will take about 30 seconds. Don't remove the batteries in this time. If the reload is finished successfully the instrument starts up with the logo again.
 3. If you press the  key at the query, the reload will be canceled.

For Technical Assistance contact:

Electromatic Equipment Company

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