

## INSTRUCTION FOR USE

By means of this tool it is possible to verify measurement accuracy (calibration) and optionally also new setting (adjustment) of instruments measuring air relative humidity. In many cases costly special device for humidity generation (calibration chamber) can be substituted. In the vessel, air tightly connected to the humidity transmitter, relative humidity is generated. The value depends on solution applied inside of the vessel. Solutions for generation of selected humidity levels (humidity standards) are not a part of calibration vessel MD046 and must be ordered separately.

---

### Warning

---

- Solutions of humidity standards are dangerous to health! In case of contact with them eyes and skin are irritated. In case of skin or eyes contamination wash skin or eyes by large amount of water!
  - In case of ingesting the solution, find out a medicine doctor!
  - Manipulate carefully with glass ampoules!
- 

## GENERAL CONDITIONS FOR CALIBRATION OR ADJUSTMENT WITH MD046

- calibration vessel is possible to use for all hygrometers using replaceable sensor cover with G 3/8" thread (see the list of COMET devices in the appendix)
- calibration (optionally adjustment) is performed at temperature of  $23\text{ °C} \pm 2\text{ °C}$
- calibrated instrument (or its external humidity probe), calibration vessel and solution in the vessel must have identical temperature. For comparison: temperature difference of  $1\text{ °C}$  between humidity sensor itself and the solution in calibration vessel causes humidity measurement error up to 6 %RH!
- from the above reason calibration vessel including connected humidity sensor should not be exposed to solar radiation or air draught – ambient temperature must not change during the settling time and during reading of measured values. The best way is to put entire device under calibration and the vessel to a thermo box of suitable size (e.g. polystyrene box with tight lid).

- if ambient temperature differs from recommended value of 23 °C, it is possible to use correction table of humidity standard specified on the humidity standard packaging. Table describes dependence of humidity standard on its temperature. In that case accurate ambient temperature is necessary to measure by a thermometer.
- ampoule with humidity standard as well as the textile application pads are designed for unrepeatable use

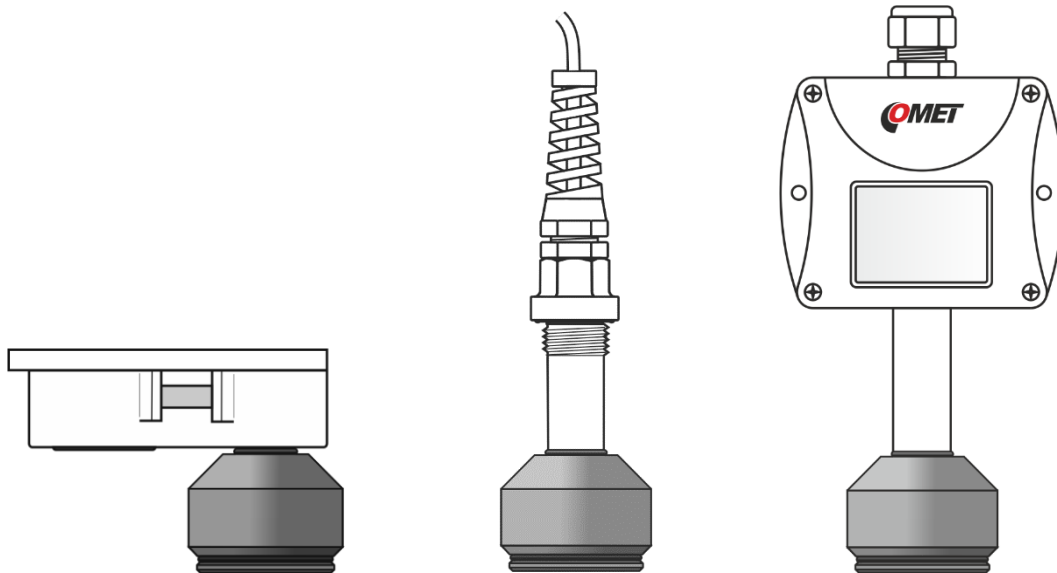
## **CALIBRATION OR ADJUSTMENT PROCEDURE WITH CALIBRATION VESSEL**

- the below procedure only describes, how to substitute large humidity calibration chamber with calibration vessel for humidity calibration of the concrete instrument. The calibration procedure of the concrete instrument itself is not affected by this and it is necessary to follow the calibration procedure of the concrete instrument!
- check before calibration if both sealing O-rings are undamaged and required humidity standards including textile application pads are available. For adjustment two humidity standards are necessary (typically 10 %RH and 80 %RH).
- wash out open calibration vessel carefully before the procedure by water (best way is to use distilled water) and carefully dry out (it is recommended to use air flow). Even minimum remains of pollution or water influence the ingredients of the humidity standard solution and this way the value of generated humidity!
- carefully unscrew from calibrated instrument (or its external probe) the sensor cover and replace it with dry calibration vessel without a lid and tighten gently. Do not touch the humidity sensor of the instrument and keep the sensor from the damage by the sensor cover or calibration vessel!
- insert new unused textile application pad to the dry clean lid of calibration vessel
- check if instrument under calibration with calibration vessel, lid and ampoule with humidity standard solution have identical temperature (temperature differences can occur e.g. due to drying of calibration vessel by hot air, storing humidity standards at different place etc.). Let components together to allow temperature to stabilize.
- break the seal of the ampoule at marked narrowed point
- empty the entire ampoule content to the center of textile pad in the lid and continue without delay with the following step
- hold the instrument with calibration vessel opening for the lid downwards and screw the lid with applied humidity standard. Tighten lid carefully – calibration vessel must be air tightly closed. The working position of the instrument or probe with applied calibration vessel is with lid downwards. No other positions are allowed (see figures)!

- put all set in working position to suitable thermo box to ensure correct condition for temperature and humidity settling. The minimum required time for humidity settling inside of the calibration vessel is 3 hours at constant ambient temperature.
- after necessary settling time read humidity value from calibrated instrument and compare with the value of humidity standard
- before next step with different humidity standard it is necessary the wash out calibration vessel perfectly and dry out and use new textile pad
- repeat all procedure as described above

## WORKING POSITION OF DEVICES WITH APPLIED CALIBRATION VESSEL

Do not flip over calibration vessel with applied humidity standard – the only **allowed position is with lid downwards** (see figures).



## LIQUIDATION OF WASTE

All waste material must be disposed of ecologically!

## LIST OF COMET DEVICES

The list contains devices that can be calibrated or adjusted using the MD046 calibration vessel.

### Txxxx devices

T1110	T0210	T3311	T3411	T3510	T3610
T3110	T0211	T3313	T3413	T3511	T3611
T3110Ex	T0211P	T3319	T3413D	T3511P	T6640
T3111	T0213	T3319P	T3417	T6540	T6641
T3111Ex	T0213D	T6340	T3417D	T6541	T7610
T3111P		T6341	T3419	T7510	T7611
T3113		T7310	T3419P	T7511	T7613D
T3113D		T7311	T6440		
T3113Ex			T6441		
T3117			T7410		
T3117D			T7411		

### Hxxxx devices

H3020	H3331	H3430	H3530	H3541R
H3021	H3331P	H3431	H3531	H7531R
H3021P	H6320	H3431P	H3531P	
H3023	H6321	H3433	H6520	
H3060	H7331	H6420	H6521	
H3061		H6421	H7530	
H3061P		H7430	H7531	
H6020		H7431		

### Other devices

C3121	D3121	P3110E	S3120	W3810
C3121P	D3121P		S3120E	W7810
C4141	D4141		S3121	
			R3120	
			R3121	

### RH+T probes

DSRH/C	<i>devices P8511, P8541, P8552, P8611, P8641, P8652</i>
DSRHxx	<i>devices P8511, P8541, P8552, P8611, P8641, P8652</i>
DIGIL/E	<i>devices U3121, U3121M, W3811, W7811</i>
DIGIL/M	<i>devices M1140, M1220, M1320, M1321, M1322, M1323, M1440</i>

© Copyright: COMET SYSTEM, s.r.o., Bezrucova 2901, 756 61 Roznov pod Radhostem, Czech Republic

It is prohibited to copy and make any changes in this manual, without explicit agreement of company COMET SYSTEM, s.r.o. All rights reserved.

COMET SYSTEM, s.r.o. makes constant development and improvement of their products. Manufacturer reserves the right to make technical changes to the device without previous notice. Misprints reserved.