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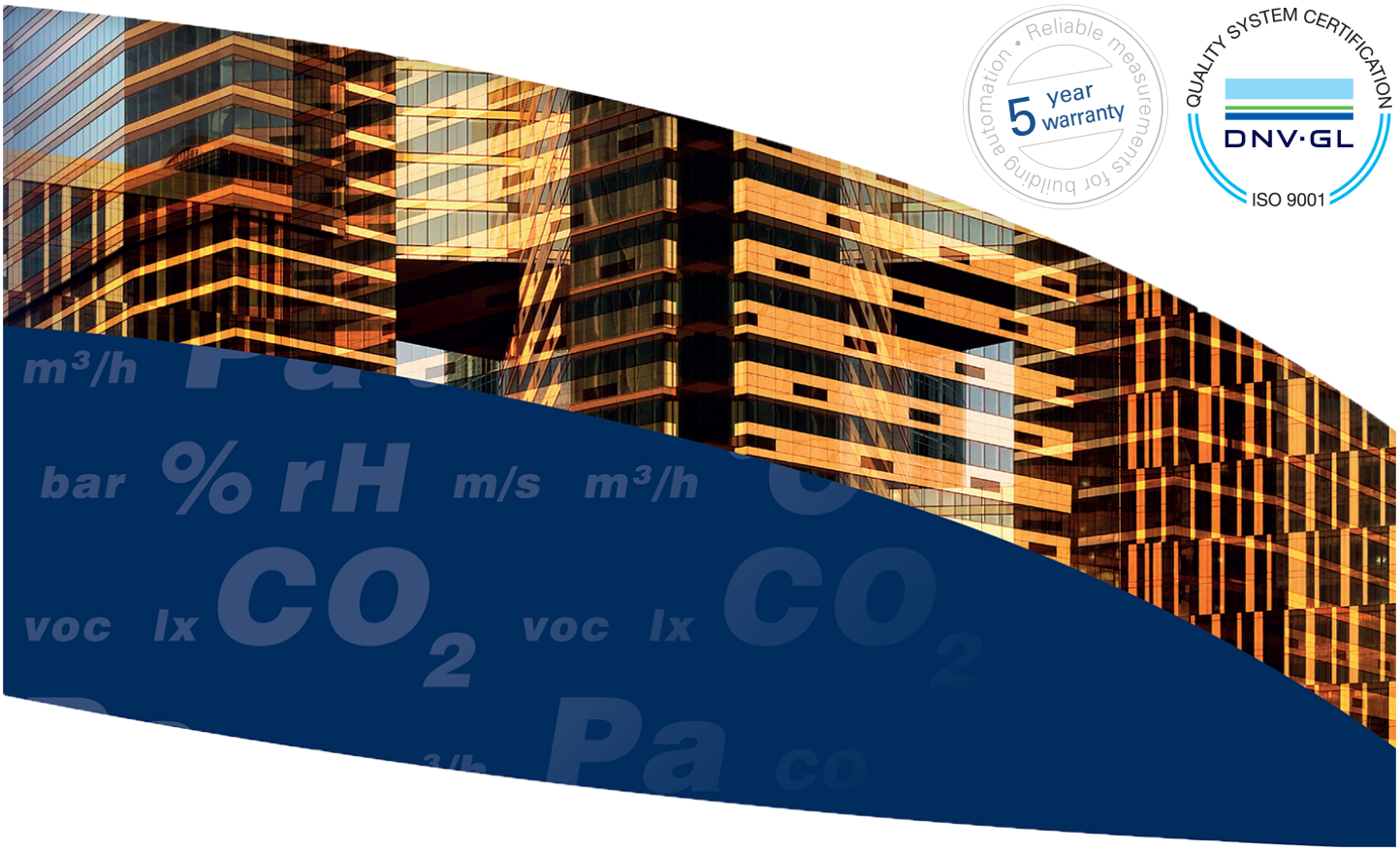
USER GUIDE

KLH-Passive

Produal

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KLH 100 (+ passive sensor) - Humidity transmitter/controller with passive temperature measurement

User Guide

This user guide is for devices with the software version 1.2.0 or newer.

PRODUAL
measure-be sure.

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1 Mounting room transmitters

The device can be installed in dry surroundings (IP20) by screws on the wall surface or on the standard flush mounting box. The recommended installation height is 150...180 cm.

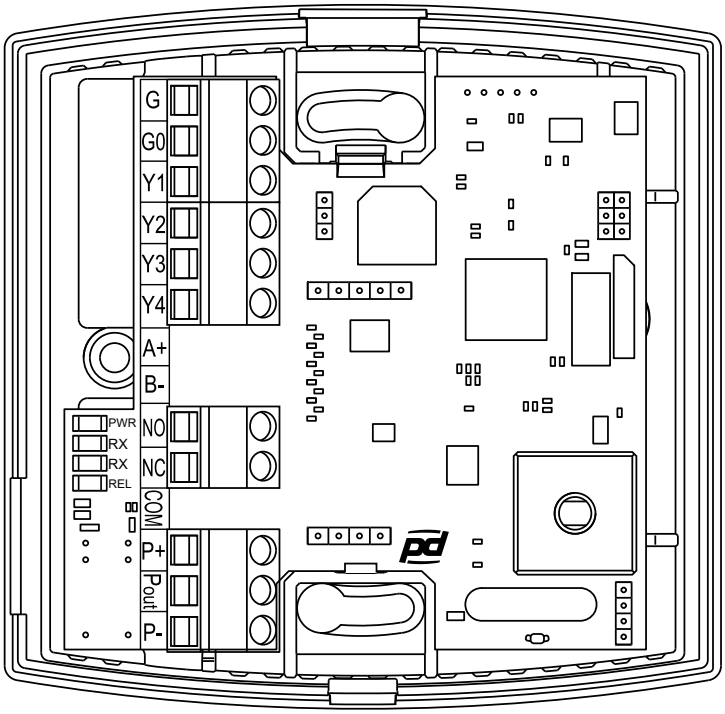
The device position should be selected carefully. All the error factors that can affect to the measurements should be eliminated as well as possible. The following list defines the typical measurement error factors.

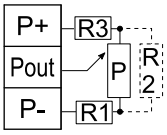
- direct sun light
- occupant proximity
- air flow coming from windows or doors
- air flow coming from ventilation nozzles
- air flow coming from the flush mounting box
- differential temperature caused by external wall

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2 Wiring

CAUTION: Device wiring and commissioning can only be carried out by qualified professionals. Always make the wirings while the power is switched off.

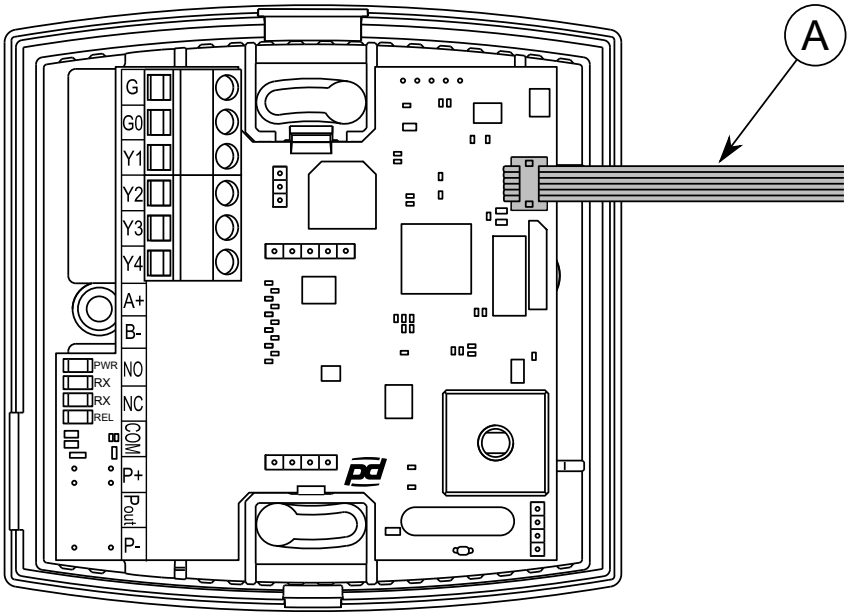


G	24 Vac/dc, 2 VA supply
G0	0 V
Y1	Not in use.
Y2	Temperature output, 0...10 Vdc / 2...10 Vdc, < 2 mA
Y3	Humidity output / active potentiometer output, 0...10 Vdc / 2...10 Vdc, < 2 mA
Y4	Control output / active potentiometer output, 0...10 Vdc / 2...10 Vdc, < 2 mA
NO	Passive sensor output.
NC	
P+	 Passive potentiometer output.
Pout	
P-	

3 ML-SER tool

3.1 Connecting ML-SER tool to the device

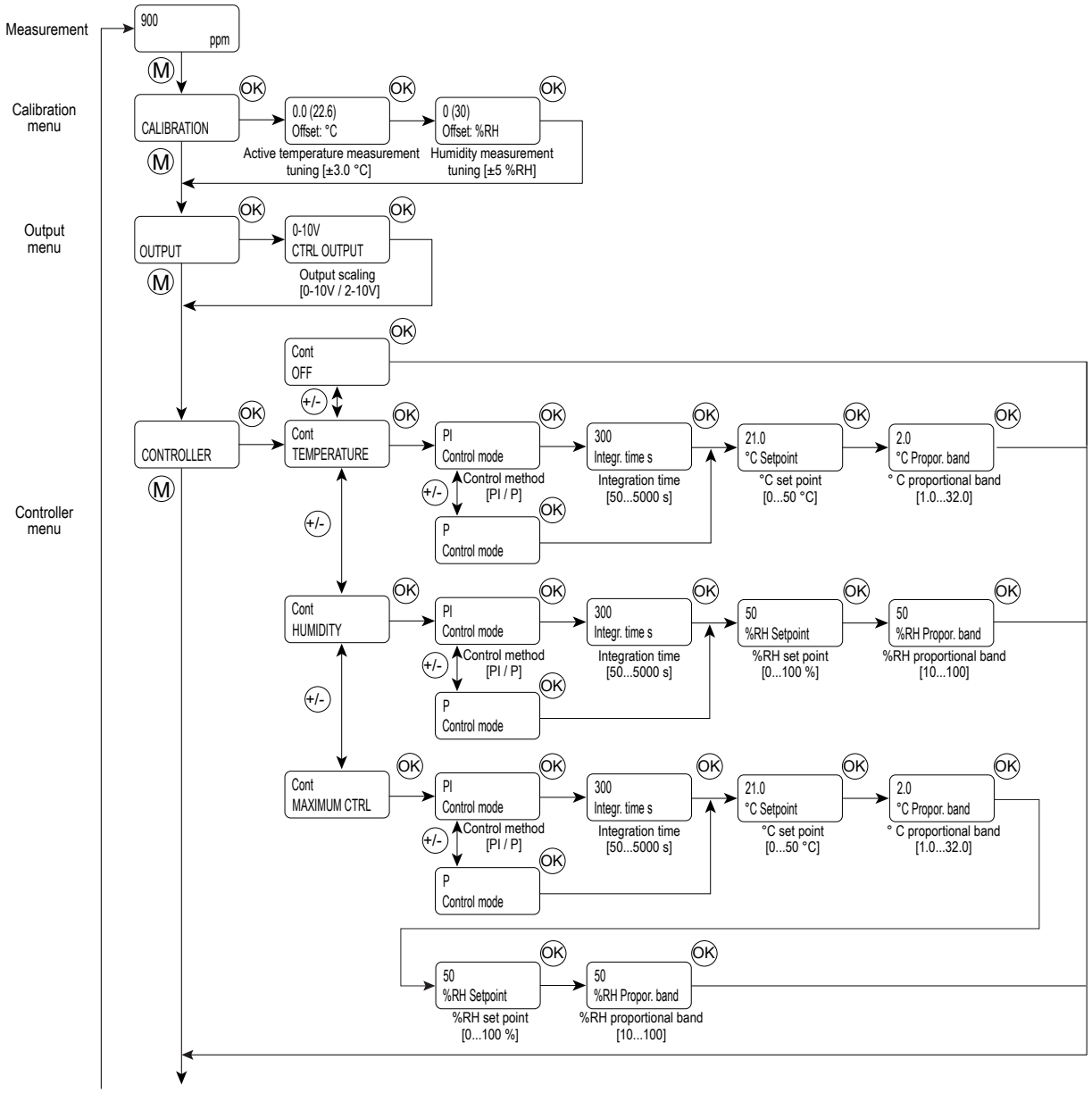
1. Open the cover.
2. Remove the display.
3. Connect the ML-SER cable to the display connector.



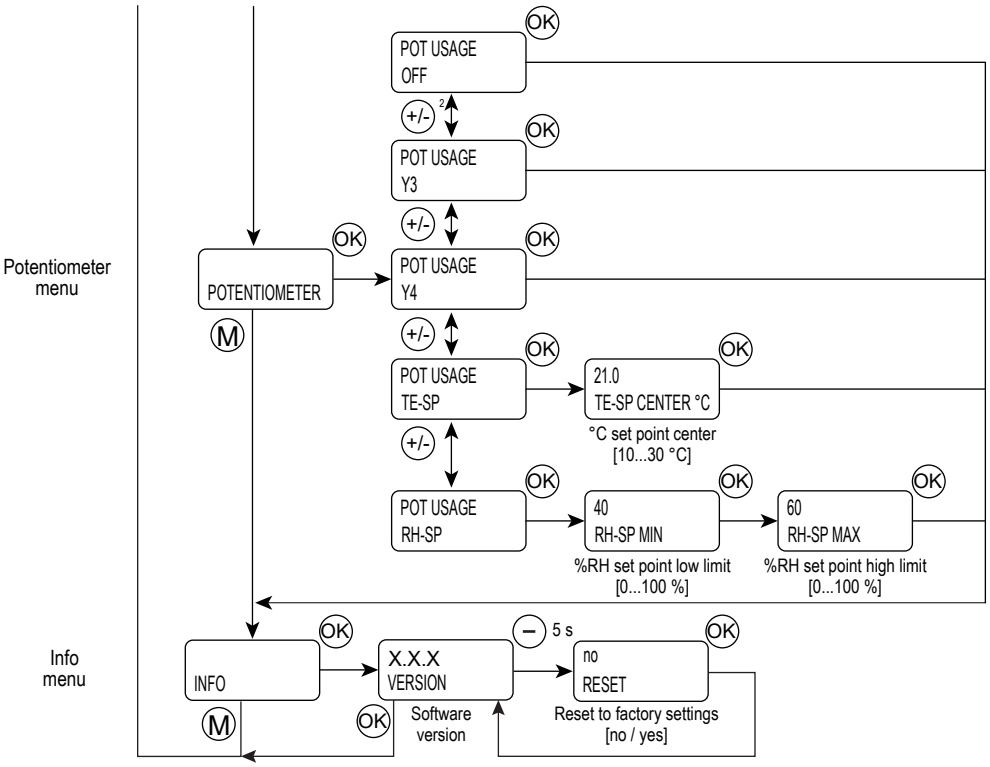
A. ML-SER cable

3.2 ML-SER menu

ML-SER menu opens by pressing the M button. The values can be changed with the ”+” and ”-” buttons. The menu is device-specific and the content depends on the device and installed options.

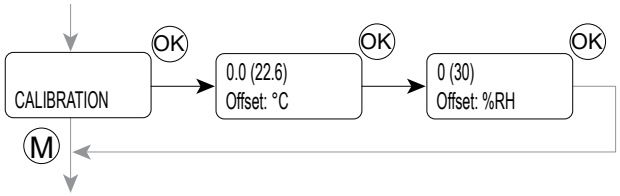


The diagram continues on the next page.



3.2.1 Calibration menu

All the measurements can be tuned through the calibration menu.

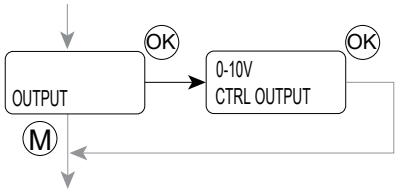


Parameter	Available values	Description
Offset °C	*-3,0...3,0*	Temperature measurement tuning. The value can be adjusted by 0,1 °C steps.
Offset %RH	*-5...5*	Humidity measurement tuning, RH models. The value can be adjusted by 1 % steps.

ML-SER tool display shows how much the current value is tuned. The measured value is shown in brackets after the tuning value.

3.2.2 Output menu

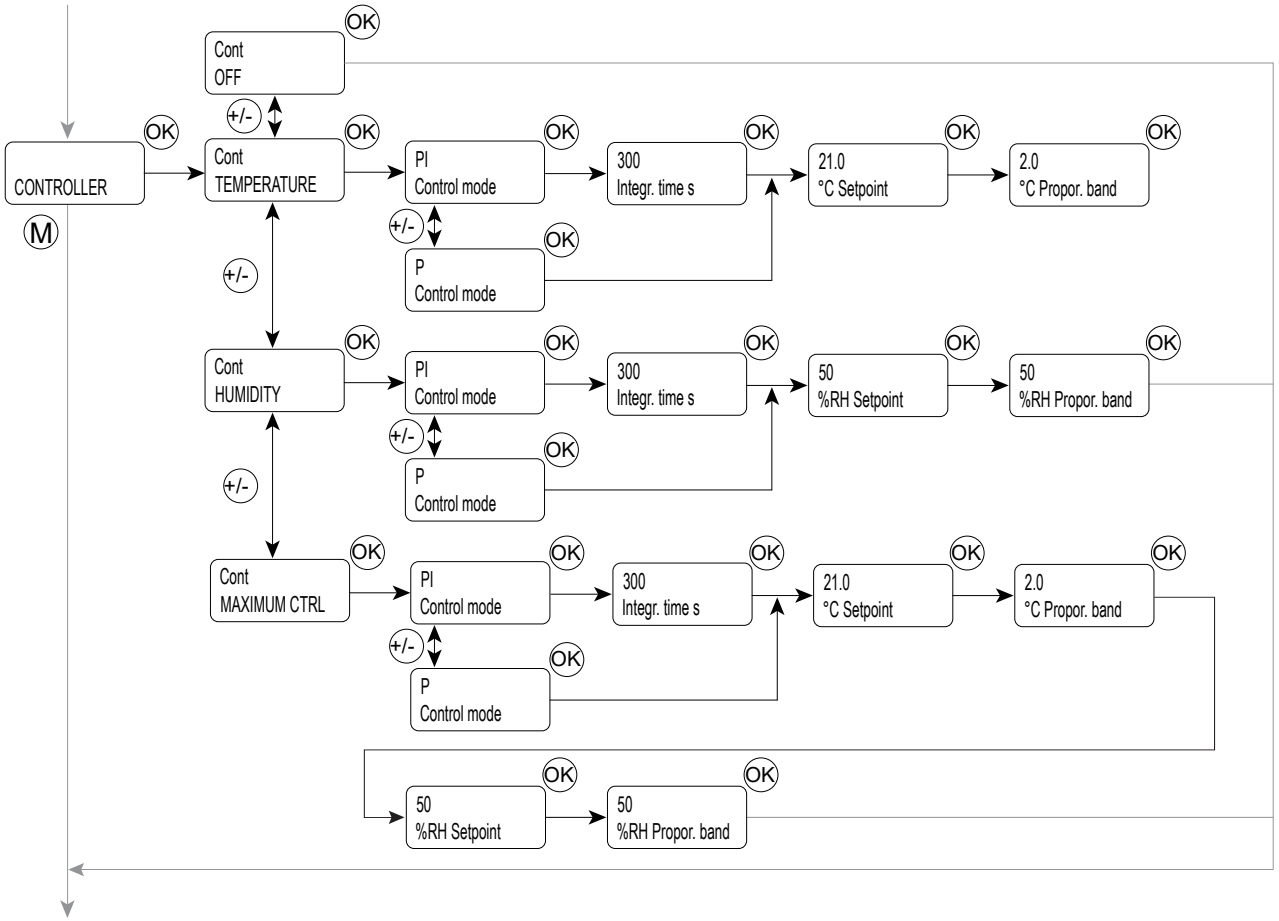
You can change the controller output scaling through the output menu.



Parameter	Available values	Description
CTRL OUTPUT	*0-10V / 2-10V*	Controller output scaling.

3.2.3 Controller menu

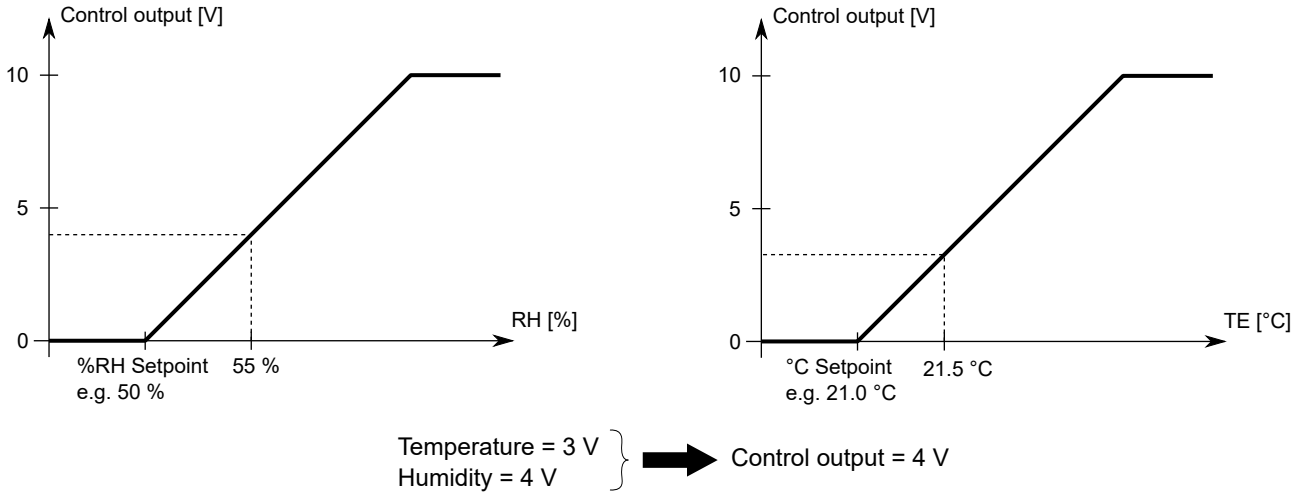
The control output can be controlled either according to a one measurement value or according to the maximum selection of all values.



Parameter	Available values	Description
Cont	*OFF / TEMPERATURE / HUMIDITY / MAXIMUM CTRL*	Controlled value. *OFF* — Controller off *TEMPERATURE* — Temperature *HUMIDITY* — Relative humidity *MAXIMUM CTRL* — Maximum selection control. See more details after the table.
Control mode	*P / PI*	Control method.
Integr. time s	*50...5000*	Integration time (s).
°C Setpoint	*0...50.0*	Set point for temperature (°C). The value can be adjusted by 0,1 °C steps.
°C Propor. band	*1.0...32.0*	Proportional band for temperature (°C). The value can be adjusted by 0,1 °C steps.
%RH Setpoint	*0...100*	Set point for humidity (%rH). The value can be adjusted by 5 % steps.
%RH Propor. band	*10...100*	Proportional band for humidity (%rH). The value can be adjusted by 5 % steps.

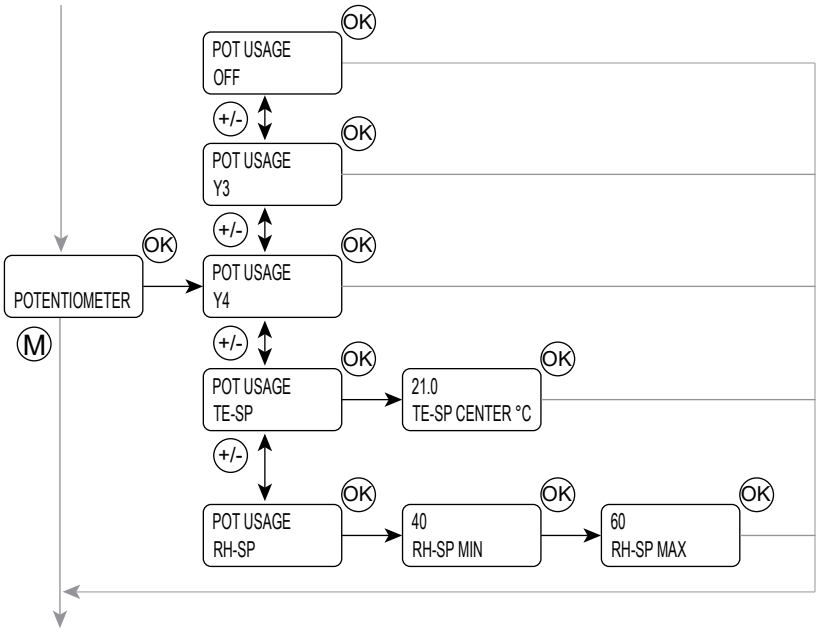
In the maximum selection control, the control output signal is formed according to the measurement that causes the largest control signal value. The following situation is described in the example figure:

- Temperature is 21.5 °C.
- Relative humidity is 55 %.



3.2.4 Potentiometer menu

Potentiometer menu is available if HD-PU option is installed. You can select the potentiometer output connector and disable the potentiometer through the menu. You can also set the potentiometer for the set point adjustment purposes. The potentiometer is connected to the Y4 output as factory setting.

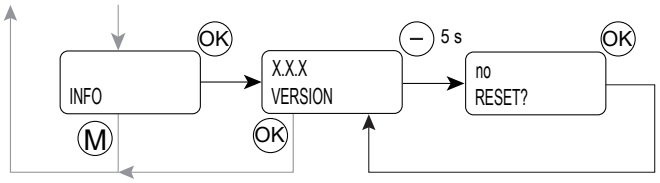


Parameter	Available values	Description
POT USAGE	*OFF / Y3 / Y4 / TE-SP / RH-SP*	Controlled value. *OFF* — Potentiometer is not in use. *Y3* — Potentiometer output is Y3. *Y4* — Potentiometer output is Y4. NOTE **Note:** You have to set the controller off, if the potentiometer is configured to Y4 output. *TE-SP* — Potentiometer is used to set the temperature setpoint. The potentiometer adjustment range is ±3 °C around the set point centre. *RH-SP* — Potentiometer is used to set the humidity setpoint.
TE-SP CENTER °C	*10.0...30.0 °C*	Temperature setpoint centre. The value can be adjusted by 0.1 °C steps.

Parameter	Available values	Description
RH-SP MIN	*0...100 %*	Humidity setpoint range, low limit. The value can be adjusted by 5 % steps.
RH-SP MAX	*0...100 %*	Humidity setpoint range, high limit. The value can be adjusted by 5 % steps.

3.2.5 Info menu

You can check the device software version and reset the device to factory settings through the menu.



Parameter	Available values	Description
VERSION	*X.X.X*	Device software version.
RESET?	*no / yes*	Reset to factory settings.