

QUICK REFERENCE GUIDE

Vaisala INTERCAP® Humidity and Temperature Transmitter HMD53



- Temperature compensated RH and T transmitter for ducts in building automation applications
- 0 ... 100 %RH range
- ±3 %RH accuracy
- Various output signal options
- Uses the Vaisala INTERCAP® sensor, no recalibration needed when sensor is replaced



MOUNTING

The HMD53 humidity and temperature transmitter is a three-wire transmitter. HMD53 is duct mounted, and the electronics can be disconnected without dismantling the installation.

Mount the transmitter with two screws. Place the drilling template on the duct surface and drill the holes as indicated.

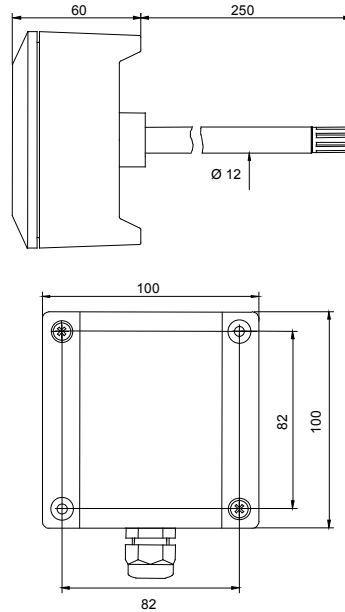


Figure 1 HMD53 Dimensions

ELECTRICAL CONNECTIONS AND INSTALLATION OF THE CURRENT MODULE

Signal cables are connected to a removable 5-pole screw connector. Make the connections according to Figure 2.

NOTE The trimmers on the component board are reserved for factory use. Do not touch them.

The HMD53 transmitters can also be connected to an AC supply without an external rectifier. However, when more than one transmitter is connected to one AC transformer, a common loop is formed and there is an increased risk of a short-circuit. To avoid this, use a separate floating supply for each transmitter (see Figure 3).

If several transmitters have to share one transformer, the phase (~) must always be connected to U_s connector in each transmitter (see Figure 4).

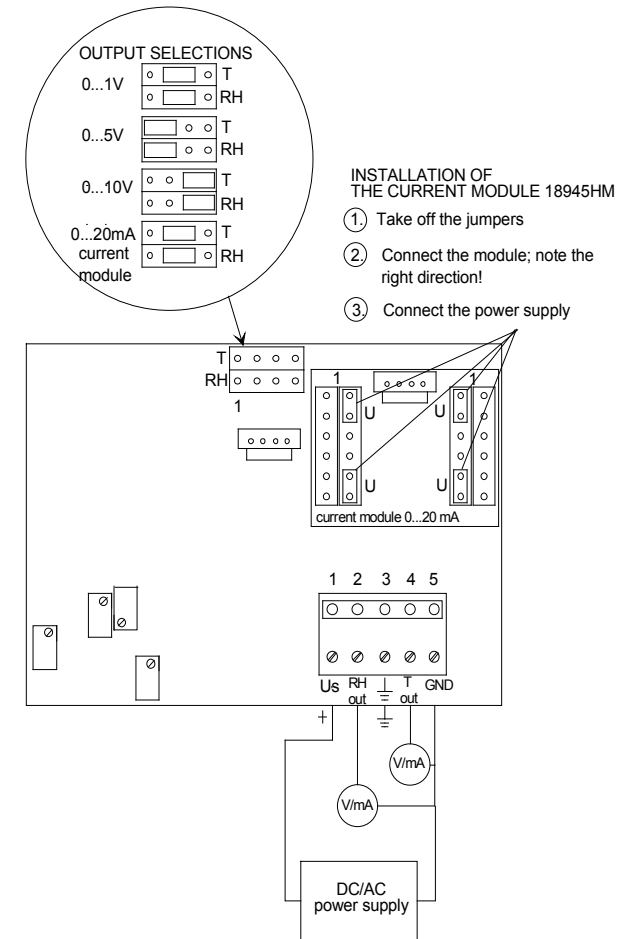


Figure 2 Electrical Connections

CONNECTION TO AN AC SUPPLY

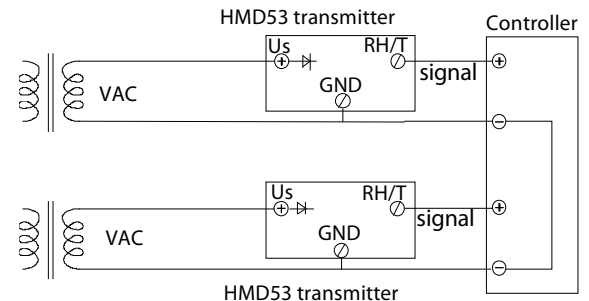


Figure 3 The Recommended AC Connection

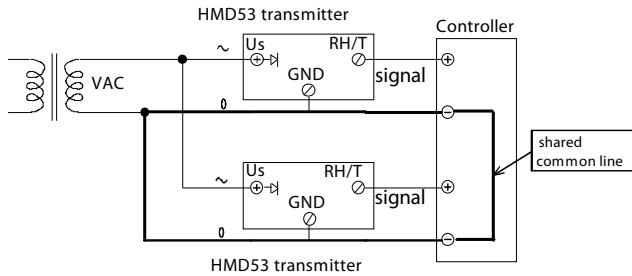


Figure 4 Common Loop Formed in an AC Connection
– NOT RECOMMENDED

GROUNDING

Open the lid and mount the cable bushing set. If your transmitter has a cable gland bushing (part no. 18941HM), do the grounding according to Figure 2. When connecting the signal cable to the transmitter housing, fold the cable braid between the brass disk in order to achieve the best EMC performance.

CAUTION Do not leave the bare shield of the connected wires so that it can short circuit the electronics!

Note the following requirements for the signal cable:

- Use a cable with flexible wires, size 0.5 mm² (AWG20)
- Stranded wires recommended
- Use a cable with diameter 7 ... 10 mm. If the cable diameter is less than 7 mm, use a shrinking tube or adhesive tape.

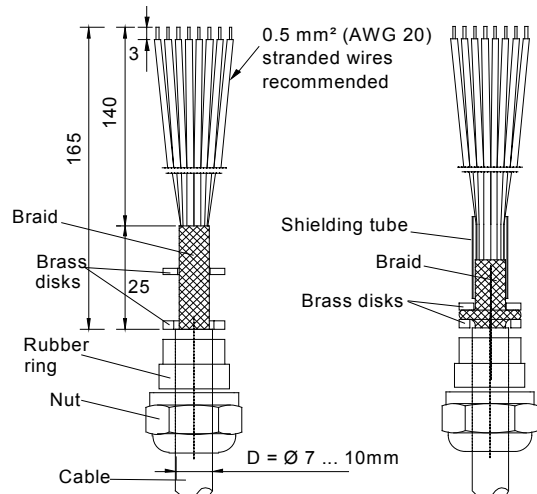


Figure 5 Signal Cable Grounding with Bushing 18941HM

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ELECTRONICS

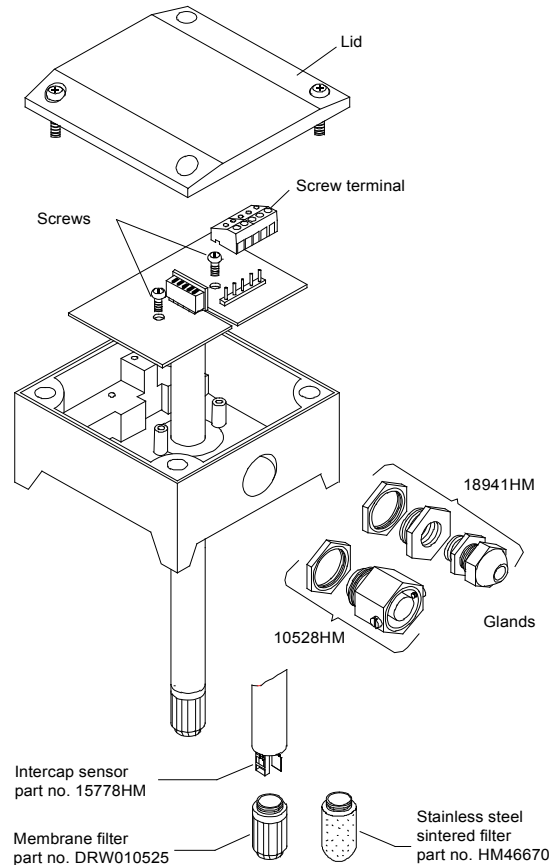


Figure 6 Electronics, Accessories, Spare Parts

Removing and Reinstalling the Sensor Head

1. Open the lid.
2. Disconnect the screw terminal.
3. Open the screws (2 pcs).
4. Pull the sensor head out carefully.
5. To reinstall, push in the sensor head.
6. Reassemble in reverse order.

Replacement of the Intercap Sensor

If the INTERCAP® sensor is damaged, remove it and insert a new one. Recalibration is not needed.

If the filter is dirty, replace it to ensure a maximum lifetime and fast response for the sensor. Do not attempt to clean the filter.

TECHNICAL DATA

Relative Humidity

Measurement range	0 ... 100 %RH
Typical accuracy	
Temperature range	0 ... +40 °C (+32 ... +104 °F)
0 ... 90 %RH	±3 %RH
90 ... 100 %RH	±5 %RH
Temperature range	-20 ... 0 °C, +40 ... +60 °C (-4 ... +32 °F, +104 ... +140 °F)
0 ... 90 %RH	±5 %RH
90 ... 100 %RH	±7 %RH
Humidity sensor	Vaisala INTERCAP®
Stability	±2 %RH / 2 years
Response time at 20°C (+68 °F), 90% response	15 s

Temperature

Measurement range	-20 ... +60 °C (-4 ... +140 °F)
Output scale	-40 ... +60 °C (-40 ... +140 °F)
Accuracy	
0 ... 40 °C (+32 ... +104 °F)	±0.4 °C (±0.72 °F)
-20 ... 0 °C, +40 ... +60 °C (-4 ... +32 °F, +104 ... +140 °F)	±0.6 °C (±1.08 °F)
Sensor	Pt1000 IEC 751 Class B

General

Supply voltage depends on output signal		
Output signal	DC	AC
0 ... 1 V	10 ... 35 V	9 ... 24 V
0 ... 5 V	14 ... 35 V	12 ... 24 V
0 ... 10 V	19 ... 35 V	16 ... 24 V
With optional current module		
0 ... 20 mA (R _L = 0 Ω)	10 ... 35 V	11 ... 24 V
0 ... 20 mA (R _L = 500 Ω)	20 ... 35 V	17 ... 24 V
Power consumption @ 24VAC		12 mA typical
Operating temperature range		
Electronics	-5 ... +55 °C (+23 ... +131 °F)	
Probe	-20 ... +60 °C (-4 ... +140 °F)	
Storage temperature range	-40 ... +60 °C (-40 ... +140 °F)	
Maximum flow speed		50 m/s
Housing material		Cast aluminium
Probe material		Stainless steel
Housing classification		IP65 (NEMA 4)
Connections	Screw terminals, 0.5 ... 1.5 mm ²	
Included cable bushing for 7 ... 10 mm (PG9)		18941HM
Complies with EMC standards EN61326-1 and EN55022		

