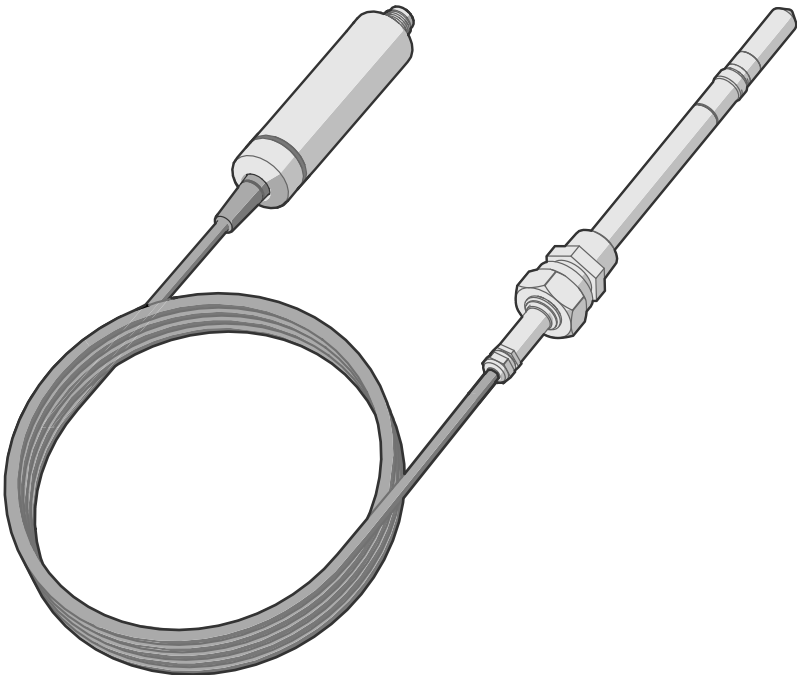


Quick Guide

Vaisala Indigo-compatible
dew point and temperature probes

DMP Series



VAISALA

PUBLISHED BY

Vaisala Oyj
Vanha Nurmijärventie 21, FI-01670 Vantaa, Finland
P.O. Box 26, FI-00421 Helsinki, Finland
+358 9 8949 1
www.vaisala.com
docs.vaisala.com

© Vaisala 2023

No part of this document may be reproduced, published or publicly displayed in any form or by any means, electronic or mechanical (including photocopying), nor may its contents be modified, translated, adapted, sold or disclosed to a third party without prior written permission of the copyright holder. Translated documents and translated portions of multilingual documents are based on the original English versions. In ambiguous cases, the English versions are applicable, not the translations.

The contents of this document are subject to change without prior notice.

Local rules and regulations may vary and they shall take precedence over the information contained in this document. Vaisala makes no representations on this document's compliance with the local

rules and regulations applicable at any given time, and hereby disclaims any and all responsibilities related thereto.

This document does not create any legally binding obligations for Vaisala towards customers or end users. All legally binding obligations and agreements are included exclusively in the applicable supply contract or the General Conditions of Sale and General Conditions of Service of Vaisala.

This product contains software developed by Vaisala or third parties. Use of the software is governed by license terms and conditions included in the applicable supply contract or, in the absence of separate license terms and conditions, by the General License Conditions of Vaisala Group.

Table of contents

Product overview	5
Probe structure.....	5
Basic features and options.....	5
Output parameters.....	6
Installation	7
DMP5 probe	8
Installing with Mounting Flange 210696.....	9
DMP6 probe	10
Installing probe head with Cooling Set DMP246CS.....	12
Cooling Set installation example.....	14
DMP7 probe	15
DMP8 probe	16
Tightening the clasp nut.....	18
Wiring	19
Configuring environmental compensations	20
Using probe with Indigo transmitters	21
Connecting probe to Indigo200 series transmitters.....	21
Connecting probe to Indigo300 transmitter.....	22
Connecting probes to Indigo500 series transmitters.....	23
Using probe with Indigo80 handheld indicator	24
Indigo80 handheld indicator.....	24
Probe compatibility.....	24
Connecting probes to Indigo80.....	25
Vaisala Insight software	27
Connecting to Insight software.....	27
Modbus	29
Default communication settings.....	29
Measurement data registers.....	29
Diagnostic data registers.....	30
Configuration registers.....	30
Maintenance and calibration services	32
Warranty	32
Technical support	32

Recycling..... 32

Product overview



This document is a quick guide for installation of DMP series probes. For the complete user guide including, for example, further information on the optional installation kits available, see [DMP Series User Guide \(M212357EN\)](#).

DMP series probes are dew point and temperature measurement probes with a digital output (Modbus® protocol). The probes are designed for demanding dew point measurement applications. The probes have a two-part structure, with measurement electronics contained in the probe body and sensor(s) in the probe head. The probe body and the probe head are connected by a fixed cable. Length options for this connecting cable depend on the probe model.

The probes are compatible with Vaisala Indigo transmitters and Vaisala Indigo80 Handheld Indicator. They can also be connected to Vaisala Insight PC software for configuration, calibration, diagnostics, and temporary online monitoring.

Probe structure

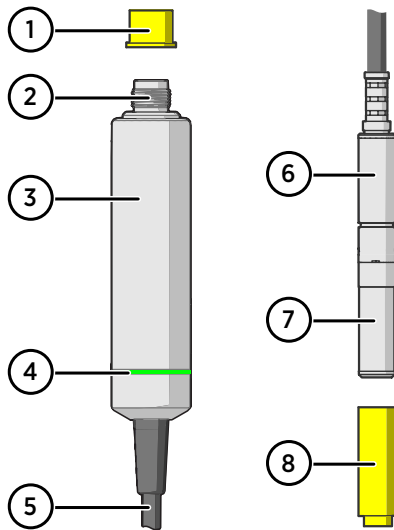


Figure 1 Probe parts

- 1 Protection cap (remove before use)
- 2 5-pin M12 connector
- 3 Probe body with type label
- 4 Status indicator LED:

Green Power on and probe online, flashes when communicating
Red Error
Off Power off, or indicator disabled

- 5 Fixed probe cable, variable length (do not cut).
- 6 Probe head (DMP7 model shown)
- 7 Location of sensors on the probe head. DMP series probes have a removable filter over the sensors that can be replaced if it gets dirty or damaged.
- 8 Protection cap (remove before use)

Basic features and options

- Comprehensive list of output parameters
- Sensor purge provides superior chemical resistance
- Condensation prevention feature minimizes condensation on probe
- Traceable calibration certificate
- Standalone Modbus® RTU over RS-485
- Compatible with Indigo transmitters and Indigo80 handheld indicator

- Can be connected to Vaisala Insight PC software for configuration, calibration, diagnostics, and temporary online monitoring

Output parameters



Values of all available output parameters are locked (showing the latest valid value) when sensor purge, autocalibration, or condensation prevention functions are active.

- Output parameter is available on this model.
- ⓘ Output parameter is unavailable during sensor warming unless temperature is written to register 0334_{hex} from an external source
- Output parameter is not available on this model.

Table 1 Availability of output parameters

Output parameter	Output unit	DMP5	DMP6	DMP7	DMP8
Relative humidity	%RH	ⓘ	–	ⓘ	ⓘ
Temperature	°C	ⓘ	–	ⓘ	ⓘ
Dew point temperature	°C	●	●	●	●
Dew/frost point temperature	°C	●	●	●	●
Dew/frost point temperature at 1 atm	°C	●	●	●	●
Dew point temperature at 1 atm	°C	●	●	●	●
Absolute humidity	g/m ³	ⓘ	–	ⓘ	ⓘ
Mixing ratio	g/kg	●	●	●	●
Water concentration	ppm _v	●	●	●	●
Water vapor pressure	hPa	●	●	●	●
Water vapor saturation pressure	hPa	ⓘ	–	ⓘ	ⓘ
Enthalpy	kJ/kg	ⓘ	–	ⓘ	ⓘ
Dew point temperature difference	°C	ⓘ	–	ⓘ	ⓘ
Absolute humidity at NTP	g/m ³	ⓘ	–	ⓘ	ⓘ
Water mass fraction	ppm _w	●	●	●	●
Diagnostic parameters ¹⁾					
Sensor saturation ratio (SSR)	%	–	●	–	–
Sensor temperature (T _s)	°C	–	●	–	–

1) Selectable as output parameters using the Indigo80 handheld indicator and the Modbus protocol.

Installation

When you choose the installation location for the probe, consider the following:

- Verify the operating environment specification of the probe model. The probe head typically has a much wider operating temperature range than the probe body.
- If the temperature of the measured environment differs greatly from ambient temperature, the entire probe head and preferably plenty of cable must be inside the measured environment. This prevents measurement inaccuracy caused by heat conduction along the cable.
- Probe mounting options are model-specific.

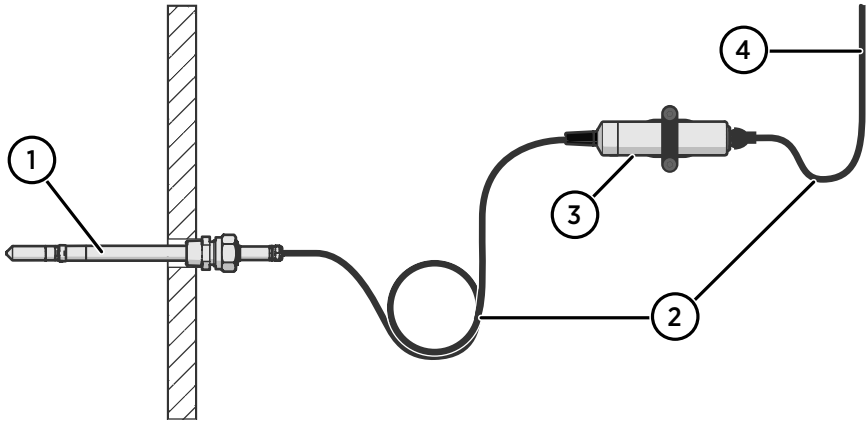


Figure 2 Example installation

- 1 Mount the probe head horizontally to prevent any water condensing on the probe head from running to the sensors.
- 2 Let the cable hang loosely to prevent condensed water from running along the cable to the probe body or probe head.
- 3 Attach the probe body to a wall or other surface using supplied probe holder (item code ASM213582).
- 4 Cable to Modbus master or Indigo device.

DMP5 probe

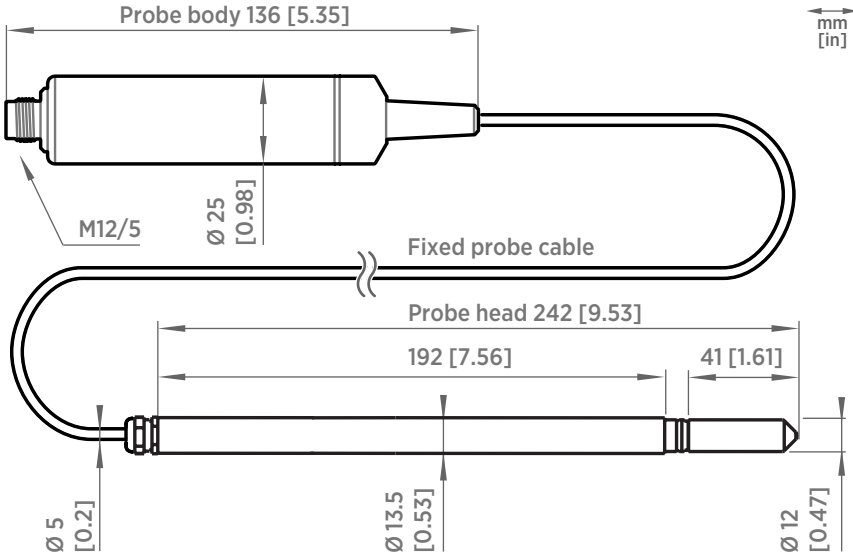


Figure 3 DMP5 dimensions

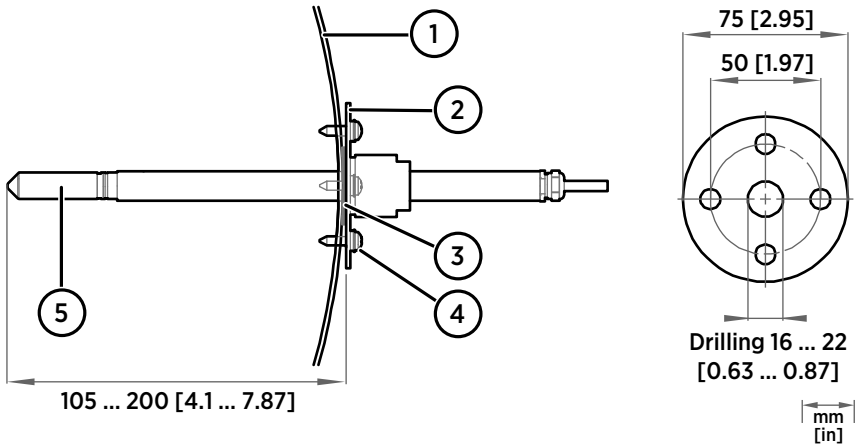
Vaisala DRYCAP® Dew Point and Temperature Probe DMP5 is designed for humidity measurement in applications with high temperatures. The long and robust steel probe and an optional installation flange allow easy installation with adjustable depth through insulation, for example, in ovens.

DMP5 is built for direct measurement in hot and dry processes, up to +180 °C (+356 °F). As the probe can be directly placed in the process, there is no need for a sampling system or trace heating. As a result, high measurement accuracy and constancy are maintained. DMP5 provides unmatched dry-end measurement accuracy at temperatures up to 140 °C; however, it can operate safely at temperatures up to 180 °C.

- Operating temperature of probe body -40 ... +80 °C (-40 ... +176 °F)
- Operating temperature of probe head -40 ... +180 °C (-40 ... +356 °F)

Installing with Mounting Flange 210696

Mounting Flange 210696 is designed for attaching $\varnothing 13.5$ mm probe heads through the wall of a process chamber or duct. The flange kit includes a flange, a sealing ring, and screws.



- 1 Wall of chamber or duct
- 2 Flange
- 3 Sealing ring
- 4 Self-tapping screws (B 4.2×16 DIN 7981)
- 5 Probe



When the temperature difference between the process or duct and the surroundings is large, insert the probe head as deep in the process or duct as possible. This prevents errors caused by heat conduction along the probe cable.

DMP6 probe

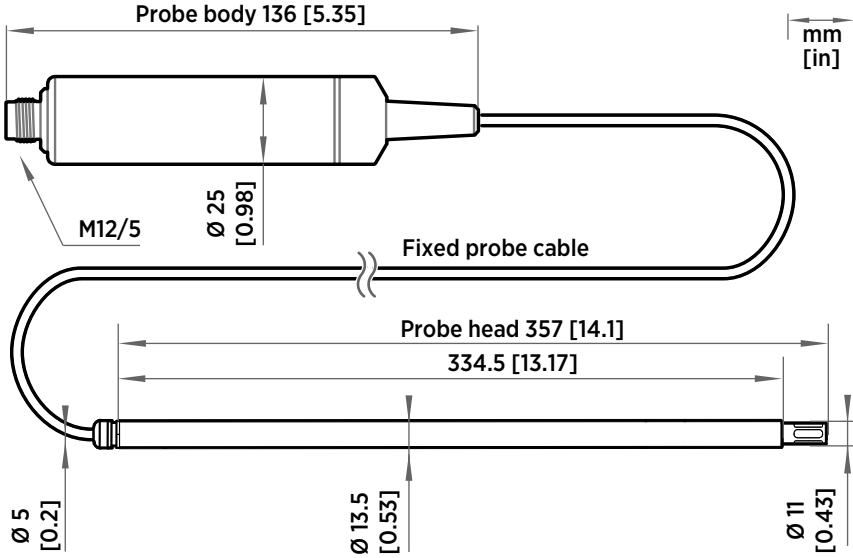


Figure 4 DMP6 probe dimensions

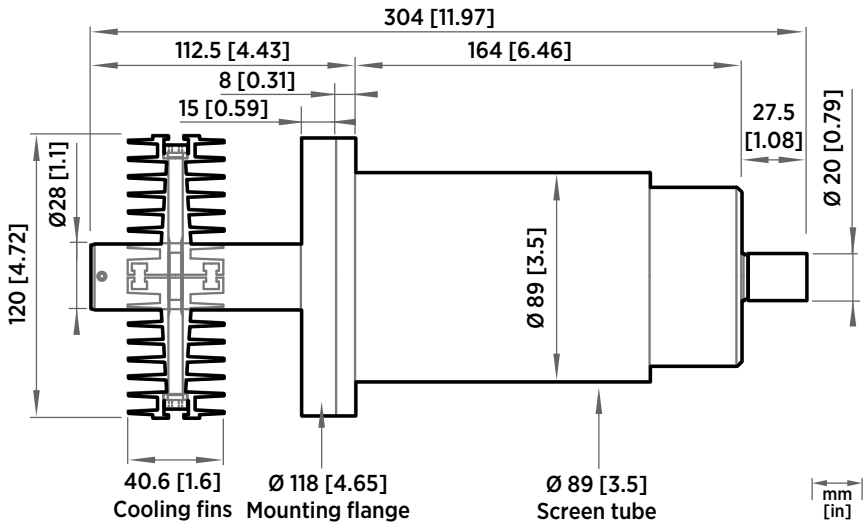


Figure 5 Cooling Set DMP246CS dimensions

Vaisala DRYCAP® Dew Point Probe DMP6 is designed for humidity measurement in industrial applications with very high temperatures. High temperature tolerance is achieved using a passive cooling set that conducts heat away from the probe and reduces temperature to optimal range for the sensor.

- Operating temperature of probe head 0 ... +350 °C (+32 ... +662 °F)
- Operating temperature of probe body -40 ... +80 °C (-40 ... +176 °F)

DMP6 is built for direct measurement in temperature range +100 ... +350 °C (+212 ... +662 °F). There is no need for a sampling system or trace heating. To tolerate these high temperatures, the probe head is inserted inside a cooling set that provides passive cooling. The cooling set has removable cooling fins that allow the operating temperature profile of the probe to be adjusted so that adequate cooling is provided for each application. The cooling system has no moving parts and requires no additional power or cooling utilities, so there is no risk of sensor damage due to mechanical cooling failure.

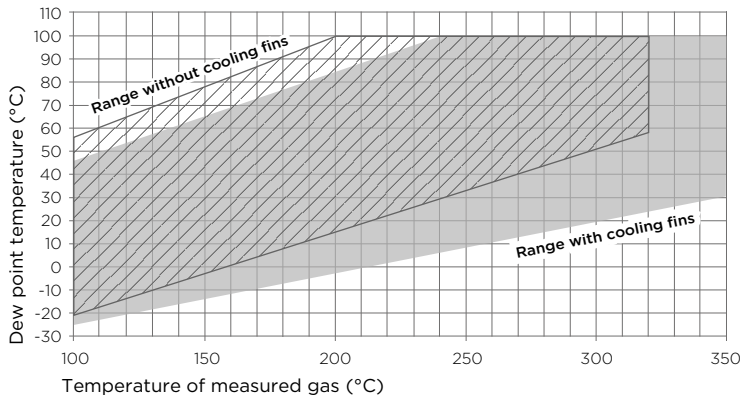


Figure 6 Operating range of DMP6 probe head



CAUTION! The operating range specifications apply in stand-still air. High flow rates in the process may reduce the probe performance and cause damage to the equipment.



Make sure that the upper limit of the dew point measurement range is not exceeded in low temperatures as this will lead to condensation.



You can read diagnostic measurement data from the probe using Insight software (**Diagnostics** page) or Modbus protocol (diagnostic data registers) and use it to verify your installation:

- **Sensor temperature** must never exceed +180 °C (+356 °F) even in exceptional process conditions.
- Allow the probe to stabilize after installation in the cooling set, and check the **Sensor saturation ratio**. If the value is below 20 %, install the cooling fins on the cooling set (unless already installed).

Installing probe head with Cooling Set DMP246CS



- Welding equipment
- Equipment for making a hole to the process wall
- 5-mm Allen key
- 2-mm Allen key

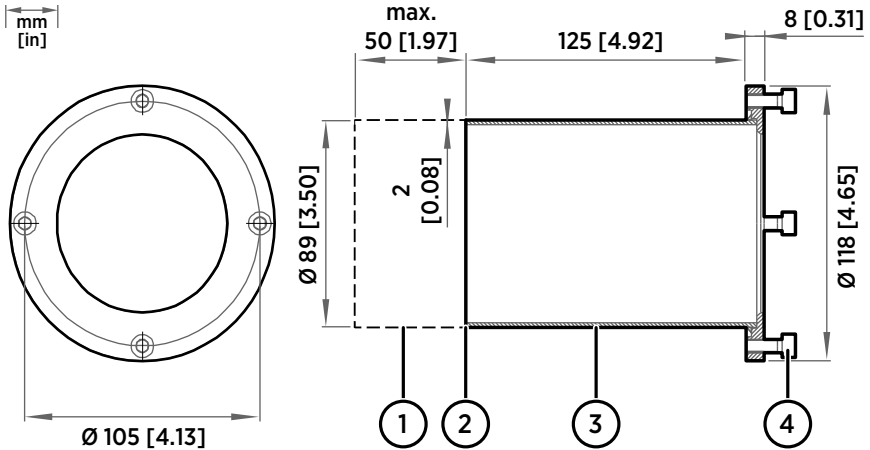


Figure 7 DMP246CS Cooling Set mounting flange

- 1 Lengthening piece for thick walls (not included)
- 2 Welding point
- 3 Mounting tube
- 4 Mounting screws (4 pcs, M6×16 DIN 912)

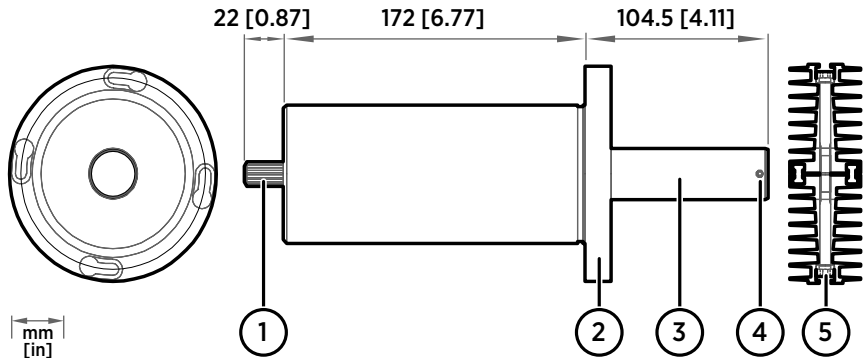


Figure 8 DMP246CS Cooling Set without mounting flange

- 1 Cooling bush
- 2 Flange
- 3 Cooling bar
- 4 Locking screws (4 pcs, M4×6 DIN 916)
- 5 Mounting screws of the cooling fins (M6×60 DIN 912)

- ▶ 1. Make a round $89.5 + 0.5$ mm ($3.52 + 0.02$ in) hole in the process wall. Install the cooling set horizontally whenever possible to ensure the best possible cooling performance.
2. If the process wall is more than 125 mm (4.92 in) thick, weld a lengthening piece (max. 50 mm (1.97 in)) to the mounting tube.
3. Weld the tube of the mounting flange tightly to the inner metal plate of the process wall.
4. Attach the cooling set to the mounting flange and use a 5-mm Allen key to tighten the mounting screws. Proper tightening of the mounting screws is important for good thermal contact.
5. If the process chamber is in use or otherwise warmer than ambient temperature, let the cooling set warm up before inserting the probe to avoid condensation:
 - a. Plug the hole of the cooling bar tightly with the plug that is attached to the cooling set.
 - b. If installation of the cooling fins is required, attach them at this point to let them warm up as well. See [step 9](#).
 - c. Wait for a few hours.
 - d. Unplug the cooling bar and continue the installation.
6. Use a 2-mm Allen key to loosen the locking screws on the cooling bar.
7. Push the probe head into the cooling bar until it meets the other end and cannot be pushed farther. Approximately 7.5 cm (2.95 in) of the probe head will remain outside the cooling bar.



CAUTION! Do not push or pull from the probe cable.

8. Tighten the locking screws to lock the probe head in place.
9. If installation of cooling fins is required, attach them around the cooling bar using a 5-mm Allen key. Place the cooling fins so that the locking screws are not obstructed. Tighten the two mounting screws so that the fins have good thermal contact with the cooling bar.

Cooling Set installation example

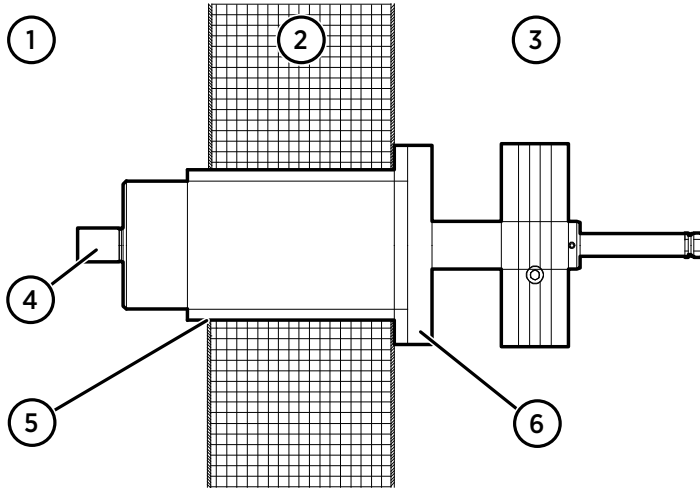


Figure 9 Example installation with Cooling Set DMP246CS

- 1 Process chamber, maximum temperature +350 °C (+662 °F)
- 2 Mineral wool or other insulation, total wall thickness is < 125 mm (4.92 in) so no lengthening piece is welded to mounting tube
- 3 Space outside process chamber, in ambient temperature
- 4 Location of dew point sensor when probe head is installed in the cooling set (under sintered filter)
- 5 Tube of the mounting flange welded to inner plate of process wall
- 6 Cooling set attached to mounting flange using mounting screws (4 pcs)

DMP7 probe

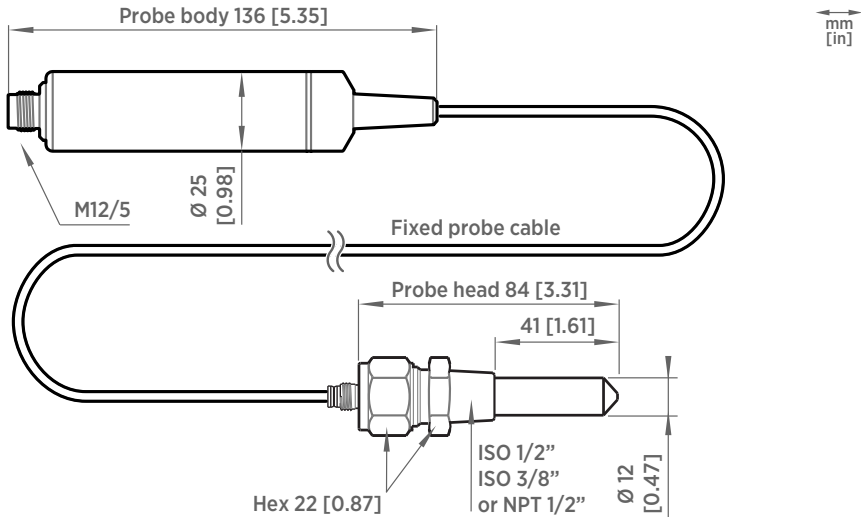


Figure 10 DMP7 dimensions

Vaisala DRYCAP® Dew Point and Temperature Probe DMP7 is designed for low-humidity applications. Thanks to its short probe length, it fits in installations with limited space, such as semiconductor manufacturing equipment. Other applications include industrial drying, compressed air systems, dry rooms, and blanket gases in metal heat treatment.

- Operating temperature of probe head -40 ... +80 °C (-40 ... +176 °F)
- Operating temperature of probe body -40 ... +80 °C (-40 ... +176 °F)
- Operating pressure of probe head 0 ... 10 bar (0 ... 145 psia)



When installed in a process with a pressure differing from normal atmospheric pressure, input the correct pressure into the pressure compensation setpoint parameter or register of the probe. This allows the probe to apply the appropriate pressure compensation into its measurement results.

More information

- [Configuration registers \(page 30\)](#)

DMP8 probe

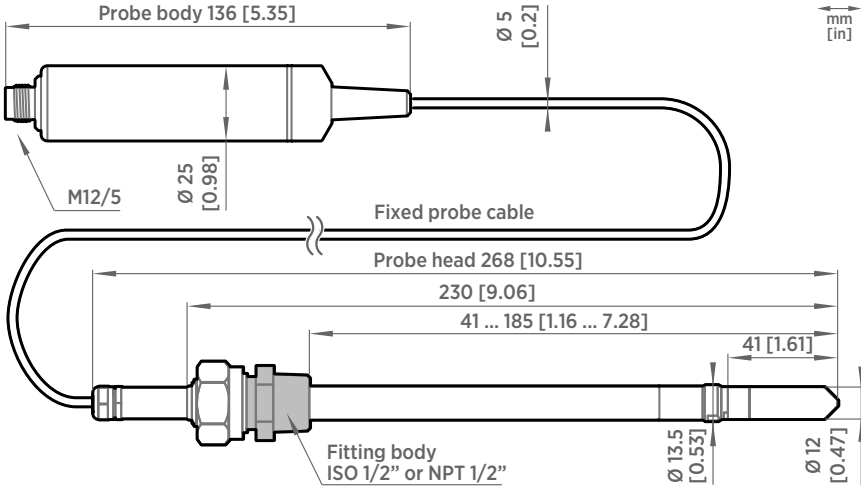


Figure 11 DMP8 dimensions

Vaisala DRYCAP® Dew Point and Temperature Probe DMP8 is designed for industrial low-humidity applications such as industrial drying, compressed air systems, and semiconductor industry. It can be installed in a 1/2" NPT or ISO thread with adjustable insertion depth.

- Operating temperature of probe head $-40 \dots +80 \text{ }^{\circ}\text{C}$ ($-40 \dots +176 \text{ }^{\circ}\text{F}$)
- Operating temperature of probe body $-40 \dots +80 \text{ }^{\circ}\text{C}$ ($-40 \dots +176 \text{ }^{\circ}\text{F}$)
- Operating pressure of probe head $0 \dots 4 \text{ MPa}$ ($0 \dots 40 \text{ bar}$)

An optional ball valve kit allows for inserting or detaching the probe from a pressurized line.

For more information on using the probe with the ball valve, see [Ball Valve Kit \(BALLVALVE-1\) Installation Guide \(M212837EN\)](#).

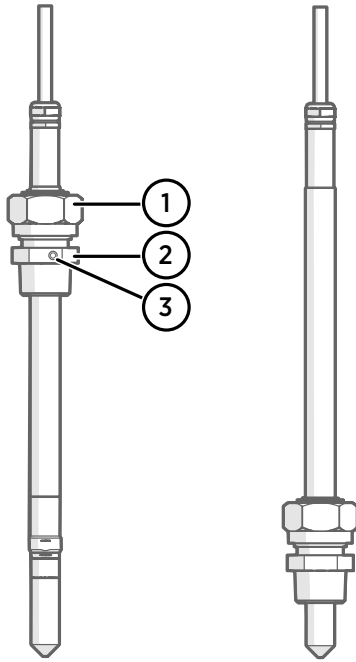


Figure 12 DMP8 probe head

- 1 Clasp nut, 24 mm hex nut
- 2 Fitting body, 27 mm hex head
- 3 Leak screw (on ISO 1/2" fitting body HM47432 only)



Fitting body with a leak screw can be useful when the probe head cannot be installed directly in the pressurized process or process pipe. The leak screw allows a small sample flow to escape from the process out to atmospheric pressure, enabling a fast response time although the probe is not installed in the process.

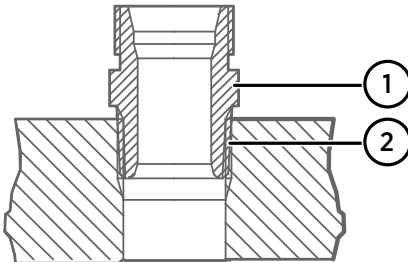


Figure 13 Sealing of fitting body into process

- 1 Fitting body with 24 mm hex nut and tapered thread
- 2 Seal with a suitable thread sealant. For example, LOCTITE® No. 542 with activator No. 7649, MEGA-PIPE EXTRA No. 7188, or PTFE tape.



Follow the instructions of the sealant manufacturer. PTFE tape does not lock the parts together. Use two fork wrenches (24 mm and 27 mm) when tightening and opening the clasp nut of the probe.

Tightening the clasp nut

- ▶ 1. Adjust the probe to a suitable depth according to the type of installation.
- 2. Tighten the clasp nut to finger tightness.
- 3. Draw a line on the fitting screw and the clasp nut to mark their position.
- 4. Tighten the nut a further 50 ... 60° (1/6 turn) with a wrench. If you have a suitable torque wrench, tighten the nut to max 45 ±5 Nm (33 ±4 ft-lbs).

Do not overtighten the clasp nut.



CAUTION! Take care not to damage the probe body. A damaged body makes the probe less tight and may prevent it from going through the clasp nut.



CAUTION! In pressurized processes it is essential to tighten the supporting nuts and screws very carefully to prevent loosening of the probe by the action of pressure.



When installed in a process with a pressure differing from normal atmospheric pressure, input the correct pressure into the pressure compensation setpoint parameter or register of the probe. This allows the probe to apply the appropriate pressure compensation into its measurement results.

More information

- ▶ [Configuration registers \(page 30\)](#)

Wiring

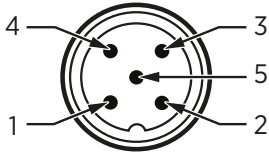


Figure 14 M12 5-pin A-coded male connector pinout

Pin #	Function	Notes	Wire colors in Vaisala cables
1	Power supply	Operating voltage: 15 ... 30 V DC Current consumption: 10 mA typical, 500 mA max.	Brown
2	RS-485 -		White
3	Power GND and RS-485 common		Blue
4	RS-485 +		Black
5	Not connected		Gray

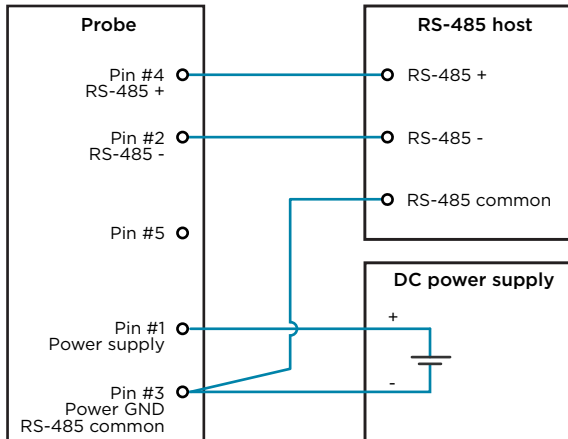


Figure 15 RS-485 wiring



Recommended maximum length of the RS-485 line is 30 m (98 ft).

Configuring environmental compensations

After installation, configure the pressure compensation setting, if relevant to your probe and its measurement environment.

For example, when you have installed the probe in a process with a pressure differing from normal atmospheric pressure, update the correct pressure into the pressure compensation setpoint parameter or register of the probe. This allows the probe to apply the appropriate pressure compensation into its measurement results.

You can configure the setting with the Insight software or the Indigo80 handheld indicator, or using the Modbus protocol.

Using probe with Indigo transmitters

Indigo transmitters are host devices that extend the feature set of connected probes with a range of additional options for outputs, configuration access, measurement viewing, and status monitoring.

Available features vary depending on the transmitter model. Models without display use a LED indicator for notifications.

Connecting probe to Indigo200 series transmitters

Indigo200 series transmitters have a probe connector where compatible probes can be attached directly. A cable may also be used to connect the probe. Cables are available to order at store.vaisala.com.



CAUTION! The IP classification of probes is valid only when the probes are connected to the probe connection cable, or to the cable connector inside the locking wheel of the transmitter.

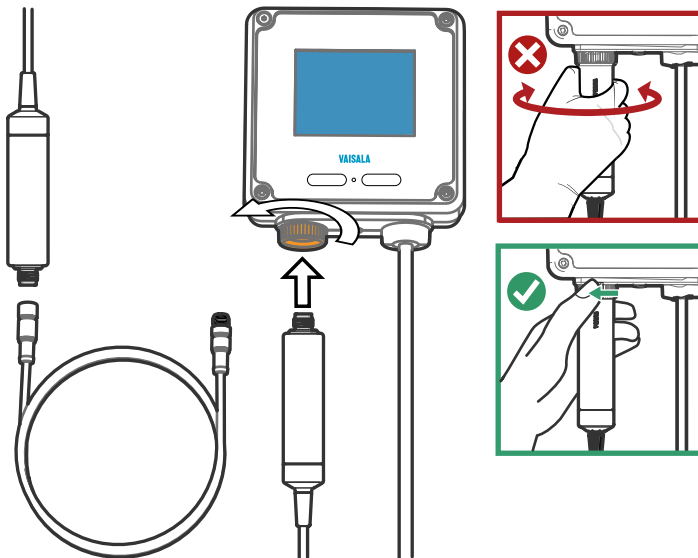


Figure 16 Connecting probe to Indigo200 series transmitter

- ▶ 1. Insert the probe or the cable into the transmitter's connector. Using a cable is recommended for strain relief.
2. Turn the locking wheel of the transmitter to lock the probe or cable in place. **Do not turn the probe or the cable itself**, as that will damage the connectors.

3. If you are using a cable, connect the probe to the cable.
4. When the transmitter recognizes the connected probe, it shows a notification message on the display.

Connecting probe to Indigo300 transmitter

Indigo300 transmitters have a probe connector where compatible probes can be attached directly. A cable may also be used to connect the probe. Cables are available to order at store.vaisala.com.



CAUTION! The IP classification of probes is valid only when the probes are connected to the probe connection cable, or to the cable connector inside the locking wheel of the transmitter.

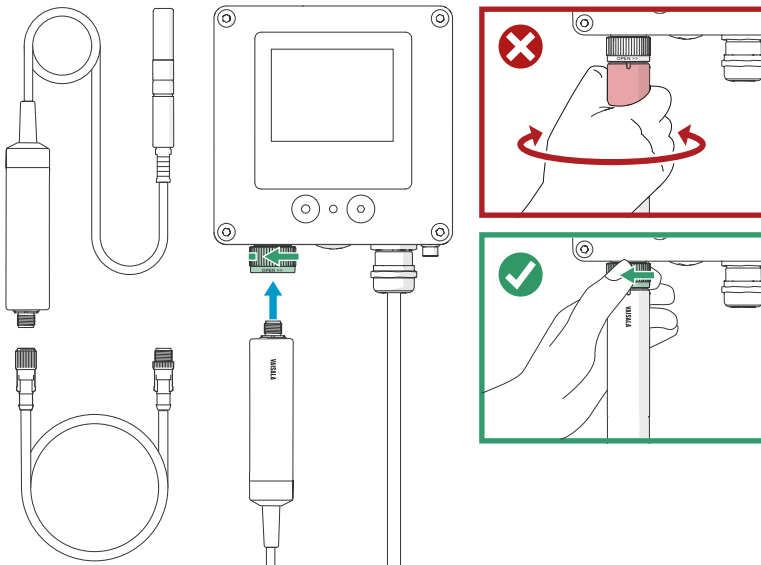


Figure 17 Connecting probe to Indigo300 transmitter

- ▶ 1. Insert the probe or the cable into the transmitter's connector.
2. Turn the locking wheel of the transmitter to lock the probe or cable in place. **Do not turn the probe or the cable itself**, as that will damage the connectors.
3. If you are using a cable, connect the probe to the cable.
4. When the transmitter recognizes the connected probe, it shows a notification message on the display.

Connecting probes to Indigo500 series transmitters



CAUTION! The IP classification of probes is valid only when the probes are connected to the probe connection cable.



If your transmitter was delivered with preconfigured analog outputs, make sure that you connect the measurement devices accordingly. See the label inside the transmitter enclosure for the correct order of the measurement devices.

Probes are connected to Indigo500 series transmitters using a cable. Connections are made to the screw terminals inside the housing. The Indigo520 model allows 2 probes to be connected. After connecting a probe, use the touchscreen interface or the web user interface to configure the transmitter.

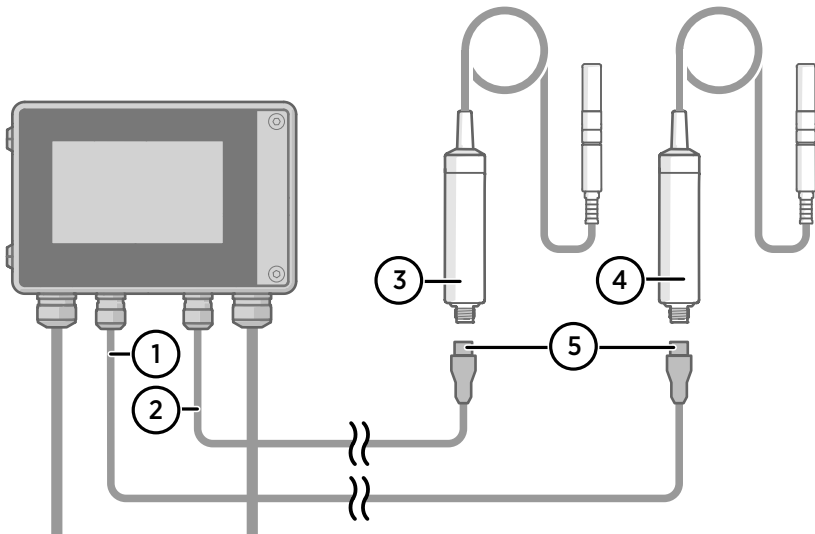


Figure 18 Connecting probes to Indigo500 transmitter

- 1 Probe connection cable for probe 1
- 2 Probe connection cable for probe 2
- 3 Probe to be connected as probe 2
- 4 Probe to be connected as probe 1
- 5 Probe cable connector (5-pin M12)

Using probe with Indigo80 handheld indicator

Indigo80 handheld indicator

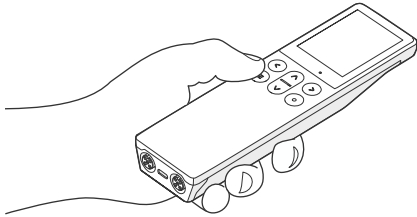


Figure 19 Indigo80 handheld indicator


Vaisala Indigo80 Handheld Indicator is a portable diagnostics tool that accommodates up to two Vaisala Indigo-compatible probes or transmitters for measuring a wide range of parameters.

With the indicator, you can:

- See real-time measurements and device and status information
- Log measurement data
- Update probe calibration information
- Configure probe features and settings such as condensation prevention, compensation setpoints, sensor purge, filtering factor, and serial communication. The available features and settings depend on the probe model and firmware version.



Accessing certain configuration options for your probe requires using the free Insight PC software, downloadable at www.vaisala.com/insight.

The help tours in the indicator's user interface guide you through the key features of the indicator. You can access the tours in the **Help** menu by pressing the  button.

Probe compatibility

The Indigo80 handheld indicator is tested for compatibility with probes that have firmware version 1.2.5 or newer.

Probes with older firmware versions may have limited compatibility with the indicator.

For the most up-to-date version compatibility information, see [Indigo80-compatible Firmware Technical Note \(M212901EN\)](#).

Connecting probes to Indigo80



- Probe connection cable

Up to two Vaisala Indigo-compatible probes or transmitters can be connected to the ports located on the bottom of Indigo80. You can connect and disconnect devices both when the indicator is powered on and when it is off.

Vaisala recommends using cables provided by Vaisala when connecting devices to the indicator. Cables and other accessories are available to order at store.vaisala.com.

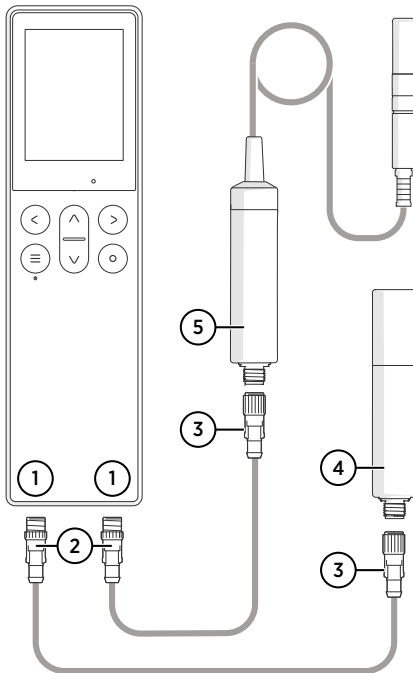


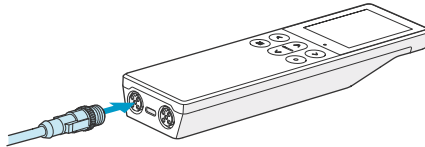
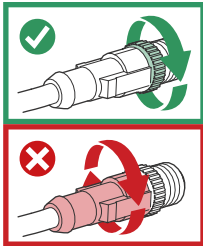
Figure 20 Connecting probes to Indigo80

- 1 M12-5F ports on the bottom of Indigo80 for connecting compatible Vaisala devices. Ports are labeled ① and ②.
- 2 M12-5M A-coded cable connector
- 3 M12-5F A-coded cable connector
- 4 Probe displayed as ① by Indigo80 (GMP252 shown)
- 5 Probe displayed as ② by Indigo80 (HMP7 shown)

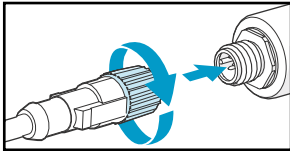
- ▶ 1. If the indicator is powered and no devices are connected to it, the text **Please connect a probe** will be shown on the display.

2. Insert the probe connection cable in one of the ports on the bottom of the indicator.

- **Note the orientation of the cable connector when inserting it**
- **Hold the connector in place while turning its locking ring clockwise – never twist the connector body!**



3. Connect the probe to the M12-5F end of the probe connection cable.



When the indicator recognizes the connected probe, it shows a notification on the display (for example, **GMP252 connected**). A probe connected to the leftmost port in the indicator is labeled ❶ on the indicator's display, while the probe in the rightmost port is labeled ❷.

4. To change probes, simply detach the cable from the probe and connect a new probe.

Vaisala Insight software

Vaisala Insight software is a configuration software for Indigo-compatible devices. With the Insight software, you can:

- See probe information and status
- See real-time measurement
- Record data up to 48 hours and export in CSV format
- Configure probe features such as measurement filtering, sensor purge, and serial communication
- Update probe calibration information:
 - Calibration date and text
 - Calibration interval and expiry date
 - Enable or disable calibration reminder function



Adjustment of measurement is not available in Insight software for DMP Series probes. If adjustment is necessary, contact Vaisala. See [Maintenance and calibration services \(page 32\)](#).

Microsoft Windows® operating system and Indigo USB adapter (item code USB2) or Vaisala USB cable (item code 242659) required.

Download Vaisala Insight software at www.vaisala.com/insight.

Connecting to Insight software



- Computer with a Microsoft Windows® operating system (64-bit version) and Vaisala Insight PC software installed
- Indigo USB adapter (item code USB2) or USB connection cable (item code 242659)



CAUTION! When connecting several devices at the same time, note that your computer may not be able to supply enough power through its USB ports. Use an externally powered USB hub that can supply >2 W for each port.

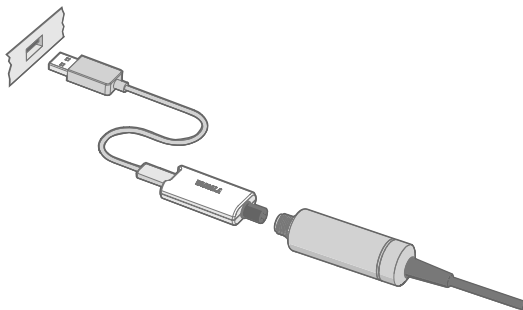


Figure 21 Connecting probe to Insight using Indigo USB adapter

- ▶ 1. Open the Insight software on your PC.
2. Verify the current operating mode of Insight from the **Settings** menu and change it if appropriate:
 - **Basic mode** is suitable for most use cases.
 - **Advanced mode** provides access to additional configuration options. Use **Advanced mode** only when instructed to do so by product documentation or Vaisala technical support.
3. Connect the USB adapter to a free USB port on the PC or USB hub.
4. Connect the probe to the USB adapter.
5. Wait for the Insight software to detect the probe.

Default communication settings

Table 2 Default Modbus serial communication settings

Property	Description/Value
Serial bit rate	19200
Parity	None
Number of data bits	8
Number of stop bits	2
Flow control	None
Modbus device address	240

You can use up to ten probes on the same RS-485 line. You must configure each probe on the line to have a different Modbus address.

Measurement data registers

Measurement data is also available as integer registers. See [DMP Series User Guide \(M212357EN\)](#).

Table 3 Floating point measurement data registers (read-only)

Register number	Address	Description	Data format	Unit
1	0000 _{hex}	Relative humidity	32-bit float	%RH
3	0002 _{hex}	Temperature	32-bit float	°C
7	0006 _{hex}	Dew point temperature	32-bit float	°C
9	0008 _{hex}	Dew/frost point temperature	32-bit float	°C
11	000A _{hex}	Dew/frost point temperature at 1 atm	32-bit float	°C
13	000C _{hex}	Dew point temperature at 1 atm	32-bit float	°C
15	000E _{hex}	Absolute humidity	32-bit float	g/m ³
17	0010 _{hex}	Mixing ratio	32-bit float	g/kg
21	0014 _{hex}	Water concentration	32-bit float	ppm _v
23	0016 _{hex}	Water vapor pressure	32-bit float	hPa

Register number	Address	Description	Data format	Unit
25	0018 _{hex}	Water vapor saturation pressure	32-bit float	hPa
27	001A _{hex}	Enthalpy	32-bit float	kJ/kg
31	001E _{hex}	Dew point temperature difference	32-bit float	°C
33	0020 _{hex}	Absolute humidity at NTP	32-bit float	g/m ³
65	0040 _{hex}	Water mass fraction	32-bit float	ppm _w

Diagnostic data registers

Table 4 Floating point diagnostic data registers (read-only)

Register number	Address	Description	Data format	Unit
37	0024 _{hex}	Sensor saturation ratio	32-bit float	%
39	0026 _{hex}	Sensor temperature	32-bit float	°C

Configuration registers

The configuration registers listed here are the most important for typical users. For more information on available configuration registers, see [DMP Series User Guide \(M212357EN\)](#).

Table 5 Modbus configuration data registers (writable)

Register number	Address	Description	Data format	Unit / Valid range
Compensation setpoints				
769	0300 _{hex}	Pressure compensation setpoint	32-bit float	Unit: hPa Default: 1013.25 hPa
821	0334 _{hex}	Temperature compensation setpoint. If a value is written to this register, probe uses it instead of its own temperature measurement.	32-bit float	Unit: °C
Communication				
1537	0600 _{hex}	Modbus address	16-bit integer	1 ... 247 Default: 240

Maintenance and calibration services



Vaisala offers comprehensive customer care throughout the life cycle of our measurement instruments and systems. Our factory services are provided worldwide with fast deliveries. For more information, see www.vaisala.com/calibration.

- Vaisala Online Store at store.vaisala.com is available for most countries. You can browse the offering by product model and order the right accessories, spare parts, or maintenance and calibration services.
- To contact your local maintenance and calibration expert, see www.vaisala.com/contactus.

Warranty

For standard warranty terms and conditions, see www.vaisala.com/warranty.

Please observe that any such warranty may not be valid in case of damage due to normal wear and tear, exceptional operating conditions, negligent handling or installation, or unauthorized modifications. Please see the applicable supply contract or Conditions of Sale for details of the warranty for each product.

Technical support



Contact Vaisala technical support at helpdesk@vaisala.com. Provide at least the following supporting information as applicable:

- Product name, model, and serial number
- Software/Firmware version
- Name and location of the installation site
- Name and contact information of a technical person who can provide further information on the problem

For more information, see www.vaisala.com/support.

Recycling



Recycle all applicable material according to local regulations.

VAISALA

Visit docs.vaisala.com for updates and translations of this document.

