M212722EN-F

User Guide

Vaisala Handheld Indicator

Indigo80

VAISALA

PUBLISHED BY

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Table of contents

List of figures

List of tables

1. About this document

1.1 Version information

This document provides instructions for using and maintaining Vaisala Indigo80 Handheld Indicator.

For detailed instructions on using Indigo80 with your Vaisala device, see the user guidance of your device at docs.vaisala.com.

Table 1 Document versions (English)

Document code	Date	Description
M212722EN-F	March 2025	HMT370EX series transmitter and PR53 series refractometer compatibility information added. Added sections: • Connecting refractometers to Indigo80 (page 47) Updated sections: • Connecting transmitters to Indigo80 (page 43) • Indigo80 specifications (page 69), table Table 11 (page 71)
M212722EN-E	June 2024	Added sections: • Configuration options of Indigo80-compatible probes (page 11) • Time and time zone settings (page 37) • Example of enabling temperature and relative humidity compensation with Indigo80 (GMP252 and HMP80) (page 50) • Example of enabling temperature compensation with Indigo80 (HMP7 and TMP1) (page 52) • Connecting transmitters to Indigo80 (page 43) Updated sections: • Measurement view (page 21) • Graph view (page 27) • Devices menu (page 27) • Data logging menu (page 30) • Indigo80 menu (page 36) • Help menu (page 38) • Connecting probes to Indigo80 (page 40) • Configuring environment settings with Indigo80 handheld indicator (page 49) • Removing battery (page 60) • Table 13 (page 72) in Indigo80 specifications (page 69) • Spare parts and accessories (page 72)

Document code	Date	Description

M212722EN-D	December 2023	Added sections:
		• Indigo80 accessories (page 13)
		• Exporting data files from Indigo80 (page 33)
		Updated sections:
		• Basic features and options (page 10)
		• Setting measurement limit alarm (page 24)
		• Notifications menu (page 34)
		• Help menu (page 38)
		• Cleaning Indigo80 (page 65)
		• Indigo80 specifications (page 69):
		  • Added Table 11 (page 71) listing battery operation times of Indigo80 with different probe combinations
		  • Updated table listing Vaisala devices compatible with Indigo80.

1.2 Related manuals

For the latest versions of these documents, see docs.vaisala.com.

Table 2 Related manuals

Document code	Name
M212901EN	Firmware version compatibility of Indigo80-compatible devices Technical Note
M212723EN	Vaisala Indigo80 Handheld Indicator Quick Guide
M212872EN	Vaisala Indigo80 Handheld Indicator Safety Guide
M212903EN	Vaisala HMP80 Series Handheld Probes User Guide
M212904EN	Vaisala DMP80 Series Handheld Probes User Guide
M212022EN	Vaisala HMP Series with MMP8 and TMP1 User Guide
M212357EN	Vaisala DMP Series User Guide
M211888EN	Vaisala HPP271 Hydrogen Peroxide Probe User Guide
M211972EN	Vaisala HPP272 Hydrogen Peroxide, Humidity and Temperature Probe User Guide
M211435EN	Vaisala DMT143 Dew Point Transmitter User Guide
M211799EN	Vaisala GMP251 and GMP80P Carbon Dioxide Probe User Guide
M211897EN	Vaisala GMP252 Carbon Dioxide Probe User Guide

Document code	Name
M212849EN	Vaisala Indigo300 Transmitter User Guide
M212287EN	Vaisala Indigo500 Series Transmitters User Guide
M212305EN	Vaisala HMT370EX Series Intrinsically Safe Humidity and Temperature Transmitters User Guide
M212898EN	Vaisala Polaris Process Refractometer PR53 Series User Guide

1.3 Documentation conventions

WARNING! Warning alerts you to a serious hazard. If you do not read and follow instructions carefully at this point, there is a risk of injury or even death.

CAUTION! Caution warns you of a potential hazard. If you do not read and follow instructions carefully at this point, the product could be damaged or important data could be lost.

Highlights important information on using the product.

1.4 Trademarks

Vaisala® is a registered trademark of Vaisala Oyj.

Microsoft® and Windows® are either registered trademarks or trademarks of Microsoft Corporation in the United States and other countries.

All other product or company names that may be mentioned in this publication are trade names, trademarks, or registered trademarks of their respective owners.

2. Product overview

2.1 Introduction to Indigo80

Vaisala Indigo80 Handheld Indicator is an industrial-grade portable diagnostics tool for spot-checking and process monitoring, as well as for configuring, troubleshooting, calibrating and adjusting Indigo family measurement probes and other supported Vaisala devices.

The Indigo80 indicator has two cable ports by which a combination of two compatible devices can be simultaneously connected to the indicator. Indigo80 can communicate with most current and future Vaisala probes, transmitters, and refractometers for measuring a wide range of parameters.

Indigo80 has a multilingual, menu-based user interface that shows live measurement data both numerically and graphically. The Indigo80 user interface is available in 10 languages.

Indigo80 user guidance is available for download at docs.vaisala.com.

For more information on the Indigo product family, see vaisala.com/indigo.

2.2 Basic features and options

- Flexible operation with one or two compatible Vaisala devices
- Numerical and graphical views of live measurement data
- Intuitive user interface available in 10 languages
- Rechargeable battery
- Measurement data can be logged and transferred to PC via Vaisala Insight PC software (available for download at vaisala.com/insight)

Figure 1 Indigo80 handheld indicator

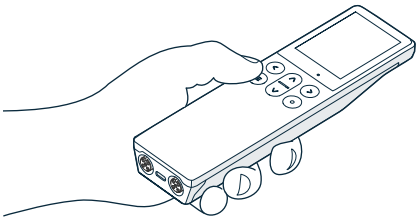


Table 3 Vaisala devices compatible with Indigo80

Device model	Measurement type
Vaisala Indigo-compatible devices	
HMP1, HMP3, HMP4, HMP5, HMP7, HMP8, HMP9, HMP80L, HMP80N probes	Humidity and temp.
TMP1 probe	Temperature

Device model	Measurement type
DMP5, DMP6, DMP7, DMP8, DMP80A, DMP80B probes	Dew point
GMP251, GMP252 probes	Carbon dioxide
HPP271, HPP272 probes	Hydrogen peroxide
MMP8 probe	Moisture in oil
Indigo300, Indigo510, Indigo520 transmitters	(Host devices)
Other Vaisala devices	
HMP60, HMP63, HMP110, HMP113, HMP115, HMM170 probes	Humidity and temp.
HMP110T, HMP115T, TMP115 probes	Temperature
MGP241 probe	Carbon dioxide and water vapor
DMT143, DMT143L transmitters	Dew point
HMT370EX series transmitters	Humidity and temp.
PR53 series refractometers	Liquid measurements

See Firmware version compatibility of Indigo80-compatible devices Technical Note (M212901EN) for firmware version compatibility.

More information

- Indigo80 indicator parts (page 15)
- Indigo80 menus and views (page 20)
- Connecting probes to Indigo80 (page 40)
- Indigo80 battery (page 59)
- Indigo80 specifications (page 69)

2.2.1 Configuration options of Indigo80-compatible probes

Availability of some of the configuration options listed in Table 4 (page 12) depend on the probe model and probe configuration selected when ordering the probe.

Configuration options available for all Indigo80-compatible probes, not listed in the table:

- Monitoring real-time measurement and device status
- Logging measurement data
- Changing communication settings of the probe
- Setting filtering factor.

Table 4 Indigo80-compatible probes and their configuration options with Indigo80

Probe model	Meas. type	Guided calibr.	Manual adjust.	Restore factory adjust.	Set environm. compen-sation	Start purge	Restore factory settings	Configure analog outputs
HMP1, 3, 4, 5, 7, 8, 9 **HMP80**	RH and T	●	●	●	● 1)	●	●	–
TMP1	T	●	●	●	–	–	●	–
MMP8	Moist. in oil	●	●	●	● 2)	–	●	–
DMP5, 6, 7, 8 **DMP80**	T_d	–	–	–	● 2)	●	●	–
DMT143 **DMT143L**	T_d	–	●	–	●	–	●	●
GMP251 **GMP252**	CO_2	●	●	●	● 1)	–	–	●
HPP271 **HPP272**	H_2O_2	● 3)	●	●	● 1)	●		●
HMP60, 63 **HMP110, 113** **HMP115**	RH and T	●	●	●	–	–	–	● 4)
HMP110T **HMP115T** **TMP115**	T	●	●	●	–	–	–	● 5)

1) *Environmental compensation values (for example, temperature) can be read from another probe connected to Indigo80 or entered manually.*
2) *Environmental compensation value for temperature can only be read from another probe connected to Indigo80.*
3) *For temperature only.*
4) *Excluding HMP115, which is a digital-only model.*
5) *Excluding HMP115T and TMP115, which are digital-only models.*

More information

- Configuring probe features with Indigo80 handheld indicator (page 49)

2.2.2 Indigo80 accessories

Information on spare parts, accessories, and calibration products is available online at vaisala.com and store.vaisala.com.

Magnetic hanger

A magnetic hanger is available as an optional accessory for attaching Indigo80 to metallic surfaces while taking measurements. The magnetic hanger can also be used with probe handle accessory ASM214342SP for the GMP252 probe.

Vaisala item code of the magnetic hanger is ASM214318SP.

Figure 2 Using magnetic hangers to attach Indigo80 and GMP252 to metallic surface

Weatherproof carrying case

An IP67-rated[1)] hard plastic carrying case is available as an optional accessory for storing and transporting Indigo80 and compatible measurement devices. The case has individual compartments for Indigo80, HMP80 and DMP80 series probes, the indicator's AC adapter, and cables. The inside cover of the case has a pocket for storing product Quick Guides and other documents.

Vaisala item code of the case is ASM214759 (includes only the case, no probes or other accessories).

Case measurements:

- Dimensions: 540 × 350 × 153 mm (21.3 × 13.8 × 6.02 in)
- Weight: 3.4 kg (7.5 lb)

1) *IP rating as stated in third-party case manufacturer's specifications.*

Figure 3 Weatherproof carrying case accessory ASM214759

A similar weatherproof carrying case (Vaisala item code ASM215318) is available for Indigo80 and a series 8 probe (for example, MMP8, HMP8, or DMP8 with a max. 2-m (6 ft 7 in) probe connection cable).

More information

- Fastening magnetic hanger accessory (page 65)
- Spare parts and accessories (page 72)

2.3 Indigo80 indicator parts

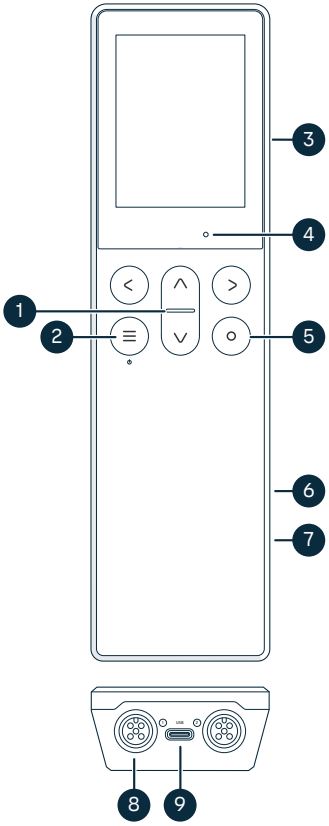


Figure 4 Indigo80 indicator parts, front and bottom views

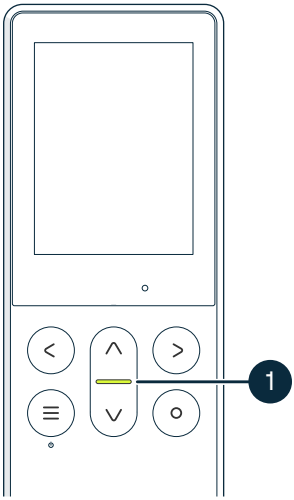
1 Status indicator LED
2 Power on/off and main menu button
3 Magnetic hanger at the back of the device (optional accessory). **Handle with care.**
4 Ambient light sensor (controls display brightness)
5 Select button for selecting items in the user interface and opening the shortcut menu with options to edit views
6 Battery compartment at the back of the device
7 Type label located under the battery. Also shown in the **Indigo80 > About** view of the user interface.
8 M12-5F ports (2 pcs, labeled ❶ and ❷) for connecting compatible Vaisala devices
9 USB-C port for charging the battery and connecting Indigo80 to a computer to transfer data and configure Indigo80 settings with Insight PC software

Take the **Getting started** tour in the **Help** menu of Indigo80 to familiarize yourself with the keypad buttons and menus.

More information

- Indigo80 menus and views (page 20)
- Indigo80 battery (page 59)
- Indigo80 specifications (page 69)

2.4 Status LED



1 Status LED on Indigo80 keypad

Table 5 Indigo80 LED modes

Action/State	LED color and behavior
Indigo80 is switched on	Green, flashes briefly
USB-C cable connected while Indigo80 is powered on	Green, flashes briefly
Indigo80 is connected to a power source and the battery is charging while the display is off	Green, slow flashing
Indigo80 battery charge level is below 5 % or the battery is empty	Red, slow flashing
Data logging is ongoing while Indigo80 display is off	Green, slow flashing
Error(s) from a measurement device connected to Indigo80	Red, constant

2.5 Safety

CAUTION! Do not modify the unit or use it in ways not described in the documentation. Modification, improper use, and/or careless handling may lead to safety hazards, equipment damage, failure to perform according to specification, decreased equipment lifetime, and/or the warranty becoming void.

CAUTION! The optional magnetic hanger of Indigo80 contains a strong magnet. Handle it with care and keep it away from devices that are sensitive to magnetic fields (for example, pacemakers, magnetic cards, and mechanical watches).

2.5.1 Lithium-ion battery related precautions

WARNING! Take the following precautions when handling lithium-ion batteries:

- Do not place the lithium-ion battery in fire or apply heat to the battery.
- Do not damage the battery with a sharp or blunt object, step on the battery, or otherwise damage the outer casing.
- Do not subject the battery to strong impacts or shocks.
- Do not expose the battery to water or salt water, or allow the battery to get wet.
- Do not disassemble or modify the battery. The battery contains safety and protection devices which, if damaged, may cause the battery to generate heat, rupture, or ignite.
- Do not leave the battery in direct sunlight, or use or store the battery inside cars in hot weather. Doing so may cause the battery to generate heat, rupture, or ignite. Using the battery in this manner may also result in shortened lifespan and loss of performance.
- Never short circuit, reverse polarity, disassemble, damage, or heat the battery over 100 °C (212 °F).
- DO NOT SPILL WATER ON A BURNING BATTERY. A fire extinguisher must be used. If an exposed lithium-ion battery catches fire, it will burn even more violently if it comes into contact with water or even moisture in the air.

CAUTION! The preinstalled Indigo80 battery is not user-replaceable. Using batteries other than those provided by Vaisala will void the warranty of Indigo80. Contact your nearest Vaisala Service Center for any battery-related maintenance needs. See vaisala.com/support.

CAUTION! Remove the battery before shipping Indigo80 to Vaisala for repairs.
- For battery removal instructions, see Removing battery (page 60).
- For shipping instructions, contact your nearest Vaisala Service Center. See vaisala.com/support.

CAUTION! Follow local laws and regulations to dispose of used or damaged lithium-ion batteries in a safe manner.

2.5.2 AC adapter related precautions

CAUTION! Make sure that the AC adapter you are using to charge Indigo80 is an isolated power source that fulfills the requirements of one of the following:
- Limited-Energy Circuit (LEC) in accordance with IEC/EN/UL/CSA 61010-1
- Limited Power Source (LPS) in accordance with IEC/EN/UL/CSA 60950-1 or IEC/EN/UL/CSA 62368-1, Annex Q
- Class 2 supply source that complies with the National Electrical Code (NEC), NFPA 70, Clause 725.121 and Canadian Electrical Code (CEC), Part I, C22.1.

For technical requirements of a compatible AC adapter, see Indigo80 specifications (page 69).

CAUTION! Use the AC adapter only in its specified environmental conditions.

2.5.3 ESD protection

Electrostatic discharge (ESD) can damage electronic circuits. Vaisala products are adequately protected against ESD for their intended use. However, it is possible to damage the product by delivering electrostatic discharges when touching, removing, or inserting any objects in the equipment housing.

To avoid delivering high static voltages to the product:
- Handle ESD-sensitive components on a properly grounded and protected ESD workbench or by grounding yourself to the equipment chassis with a wrist strap and a resistive connection cord.
- If you are unable to take either precaution, touch a conductive part of the equipment chassis with your other hand before touching ESD-sensitive components.
- Hold component boards by the edges and avoid touching component contacts.

2.5.4 FCC Part 15 compliance statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION! Changes or modifications to this equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

3. Indigo80 menus and views

Indigo80 has a versatile and intuitive user interface available in 10 languages.

3.1 Start-up wizard

When you take Indigo80 into use for the first time, a start-up wizard prompts you to set the date, time, and preferred units. You can connect Indigo80 to the Insight PC software for automatic setup, or you can configure the device manually. The start-up wizard is initiated also after each firmware update.

After completing the setup, you can take the **Getting started** tour showing the basics of the Indigo80 user interface.

More information

- Indigo80 menu (page 36)
- Help menu (page 38)

3.2 Main menu

Pressing the ☰ button while navigating the Indigo80 menus and views opens the main menu.

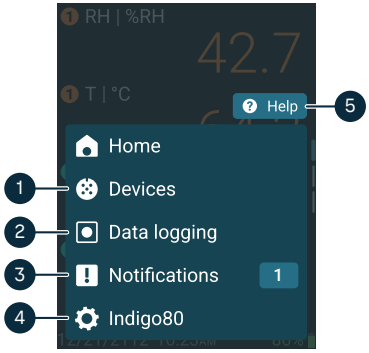


Figure 5 Indigo80 main menu

1 **Devices** menu contains, for example, options related to sensor purge, calibration, and environment settings (depending on the connected device).
2 **Data logging** menu for setting logging interval and duration, and browsing data files.
3 **Notifications** menu displays notifications related to Indigo80 and the connected devices.
4 **Indigo80** menu for changing the settings of Indigo80 (for example, date, time, and language) and viewing device information.
5 **Help** menu contains tours showing the key features of Indigo80, as well as instructions for sending devices to Vaisala for calibration and maintenance.

3.3 Measurement view

The versatile measurement view of Indigo80 can be edited to show multiple types of views and comparisons of measurement data from connected devices.

To access the measurement view, press ☰ and select **Home** in the Indigo80 main menu.

For more information on editing options, see Editing measurement view (page 23). The graph view associated with the measurement view is introduced in Graph view (page 27).

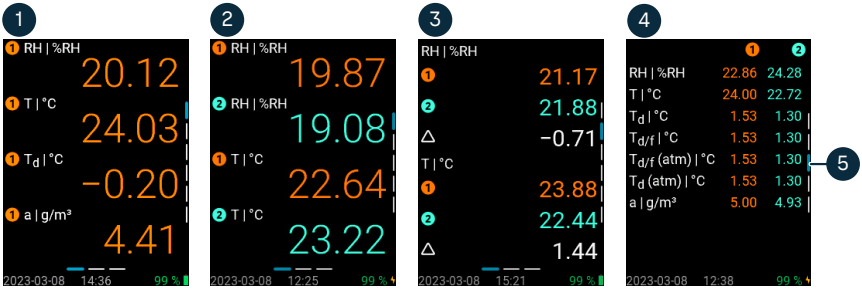


Figure 6 Types of measurement views in Indigo80

1 Measurement view showing four measurement parameters from one connected device.
2 Measurement view showing two measurement parameters from two connected devices.
3 Comparison view showing two measurement parameters from two connected devices. The difference of the measured values is indicated by the delta symbol (△).
4 Parameter list view showing side by side all the output parameters available from the connected devices.
5 The bars on the right indicate the number of views stacked vertically. Use the ⌃ and ⌄ buttons on the keypad to move between views.

Min. - Max. view in measurement view

The **Min.** - **Max.** view shows the minimum and maximum values measured by one connected device during its current measurement cycle.

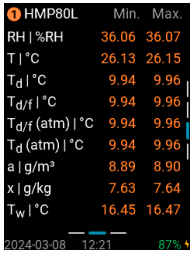


Figure 7 Measurement view showing minimum and maximum measured values

Resetting the **Min.** - **Max.** view may be necessary if you have disconnected a device from Indigo80 and then reconnected another device in the same port. To reset the values, press ◎ in the view, then select **Reset min./max. values** in the shortcut menu.

Device connected to Indigo80 via transmitter shown in measurement view

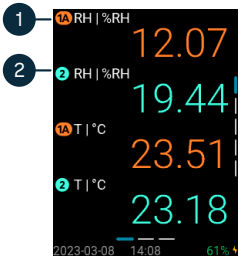


Figure 8 Measurement view showing one device connected to Indigo80 via a transmitter and the other directly to Indigo80

1 Label **1A** denotes a measurement device connected to a transmitter (for example, Vaisala Indigo300), which in turn is connected to the left port of Indigo80
2 Devices connected directly to the ports on the bottom of Indigo80 are labeled either **1** or **2**.

Unavailable readings in measurement view

A pause in normal measurement activity (for example, because of sensor purge or unavailable readings) is indicated by the caution symbol, a textual notification, and yellow font. The font turns back to white once the measurement is stable again.

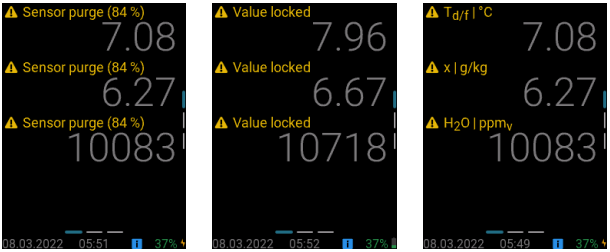


Figure 9 Measurement view with sensor purge ongoing

3.3.1 Editing measurement view

You can add, edit, and delete the measurement views in Indigo80. Press ◎ while in the measurement view to open the shortcut menu for editing the views.

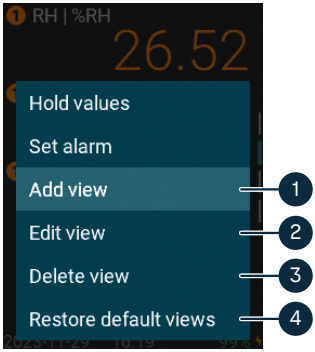


Figure 10 Shortcut menu for editing measurement views

1 **Add view**: two types of templates are available for new views (for examples of different types of measurement views, see Figure 6 (page 21)):
   - **Default**: allows you to add a maximum of 11 new vertically-stacked views. The total number of views in the stack is 12. Each view fits a maximum of four measurement parameters.
   - **Comparison**: allows you to add a maximum of 10 new vertically-stacked views. The comparison template is available only when two measurement devices with at least one common measurement parameter are connected to Indigo80.
2 **Edit view**: you can add new parameters into an existing view (space allowing), or delete parameters from a view.
3 **Delete view** deletes the active measurement view or comparison view, as well as the related graph views.
4 **Restore default views** deletes all created custom views and restores the default views, which vary depending on the type and number of measurement devices connected to Indigo80.

The number of new views that can be added is higher for devices with just one output parameter, for example, GMP252. For multiparameter devices, such as HMP7, the parameter list views at the bottom of the stack reserve up to three views of the total, allowing for fewer new views to be added.

More information

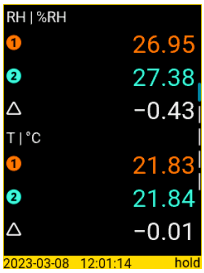
- Graph view (page 27)

3.3.2 Holding values in measurement view

With the **Hold values** function you can freeze the measurement view, for example, for taking a photo of the readings. Date and time are shown on the bottom of the display.

1. While in the measurement view, press ◎ to open the shortcut menu.
2. Select **Hold values**.

   The measurement view freezes and the altered state is indicated by a yellow frame and the text **hold** in the bottom right corner of the display.



3. Exit the view by pressing ◎ or ⟨.

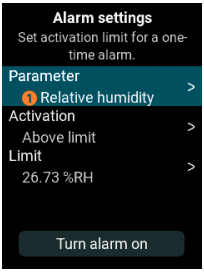
3.3.3 Setting measurement limit alarm

In Indigo80, you can set a one-time measurement limit alarm for any one parameter output by your measurement device. When the measured value exceeds or falls below the set limit, this triggers a visual and audible alarm. [1)] Note that you can set the alarm for one parameter from one measurement device at a time.

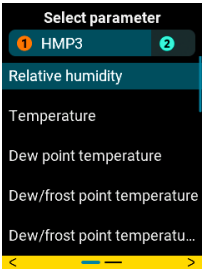
1. While in the measurement view, press ◎ to open the shortcut menu.
2. Select **Set alarm**.

1) Turn sounds on in Indigo80 settings to enable the audible alarm.

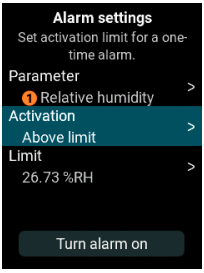
3. Select **Parameter**.



4. All output parameters from the connected device are shown in the list. If two devices are connected, use the arrow buttons to switch between the lists showing the parameters from each device. Press ◎ to select a parameter and to exit the list view.



5. Set values for **Activation** and **Limit** of the alarm.



6. Select **Turn alarm on** to activate the alarm.

7. A notification is shown and sounded when the alarm is activated.

8. Select **OK** to turn off the alarm.

To turn off an alarm that has not yet activated, press ⊙ to open the shortcut menu, then select **Turn alarm off > Turn alarm off**. Exit the menu by pressing <.

If you have set an alarm that has not yet activated and you switch the Indigo80 display off, the device enters low-power mode and the green LED in the keypad will continue flashing slowly as an indication of the alarm.

More information

- Status LED (page 16)

3.4 Graph view

Each measurement view (excluding the parameter list view) has a graph view associated to it. The graph view shows you the measurements as a curve, from which you can examine the data trend and history. With two measurement devices connected, also the difference between their measured values is shown (indicated by the delta symbol Δ in the screen shots below). To open the graph view, press ▷ while in the measurement view.

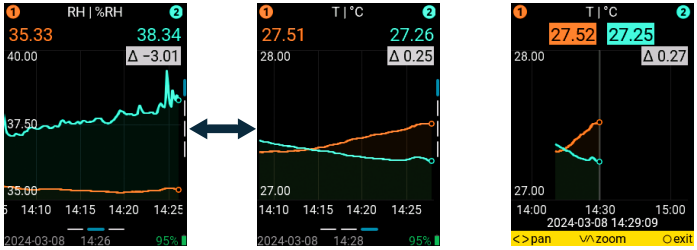


Figure 11 Graph views in Indigo80

You can zoom in and out in the graph and move back and forward on the timeline:

- To enable moving on the graph, press the ◎ button.
- To zoom in and out, press the △ and ▽ buttons.
- To move back and forward on the timeline, use the ◁ and ▷ buttons.
- To exit the zoom functionality, press the ◎ button.

3.5 Devices menu

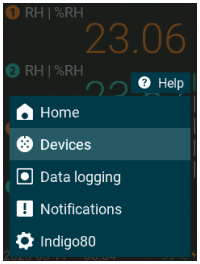


Figure 12 Devices menu in Indigo80 main menu

In the **Devices** menu of Indigo80 you can see all the devices connected to Indigo80. The menu contains calibration and adjustment options for connected devices, as well as device-specific settings.

Note that all settings related to the indicator itself are located in the **Indigo80** menu (see Indigo80 menu (page 36)).

For device-specific information on using Indigo80 for calibration and adjustment, see the user guidance of your Indigo80-compatible measurement device at docs.vaisala.com.

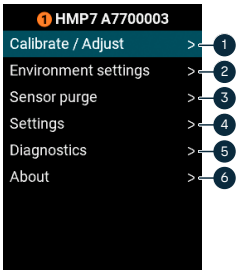


Figure 13 Options in Devices menu, example with HMP7 probe

1 **Calibrate / Adjust**
In this menu you can select the **Guided calibration** wizard or, alternatively, enter manually the values needed to calibrate and adjust your Vaisala measurement device. The available options depend on the device model and the parameter selected for calibration and adjustment. For more information, see also Overview of calibration and adjustment of probes with Indigo80 (page 53).
The **Calibrate / Adjust** menu also contains calibration information about the connected device (for example, calibration date and expiry).

2 **Environment settings**
In this menu you can give additional information about the connected device's measurement environment (such as pressure or temperature) to improve measurement accuracy.
The settings in **Environment settings** are interconnected to the settings applied in **Settings > Compensation setpoints**: the configuration set in either menu is applied to both.
The available environment settings depend on the connected measurement device model and its firmware version. For detailed information on the device-specific requirements for the settings, see the user guidance for your device at docs.vaisala.com.

3 **Sensor purge**
In this menu you can manually start the purge function for the probe or transmitter models that support it. Sensor purge heats up the sensor briefly to evaporate possible contaminants that otherwise could affect measurement accuracy.
Before starting purge, you can set purge interval and activate/deactivate interval purge and startup purge in the **Settings > Sensor purge** menu.

4 **Settings**
This menu allows you to configure settings such as filtering factor (affects the speed at which the latest measurement is integrated into the output of the probe) and compensation setpoints (information about measurement environment to improve measurement accuracy).
The available settings depend on the connected measurement device model and its firmware version. For detailed information on the device-specific requirements for the settings, see the user guidance for your device at docs.vaisala.com.
The **Settings** menu also contains **Factory default settings** (option to restore the connected device back to its default settings, if needed).

5 **Diagnostics**
This view lists any device-specific Modbus error codes. See the User Guide of the connected device for Modbus register information.
The security hash shown in the **Diagnostics** view changes when any change is made to the settings of the device connected to Indigo80.

6 **About**
This view contains information about the connected device, such as firmware revision, configuration code, serial number, and calibration date.

More information

- Configuring probe features with Indigo80 handheld indicator (page 49)
- Configuring environment settings with Indigo80 handheld indicator (page 49)
- Overview of calibration and adjustment of probes with Indigo80 (page 53)

3.6 Data logging menu

In the **Data logging** menu you can select the measurement parameters for logging, logging duration, and sampling interval. The device memory available for logging is also shown in this menu. You can view logged data in graph format and rename and delete data files.

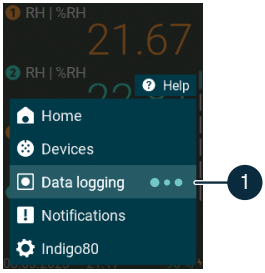


Figure 14 Data logging menu in Indigo80 main menu

1 Ongoing data logging indicated by the animated dots next to the menu name

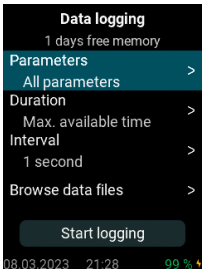


Figure 15 Data logging menu, top level

Data logging options selectable in Indigo80:

Parameters
All output parameters from the connected device are listed. If you have two devices connected, use the arrow buttons to switch between the parameter lists. Press ⊙ to make selections in the list.

Duration
1 minute – Max. available time (depends on the amount of memory available for logging data)

Interval
1 second – 12 hours

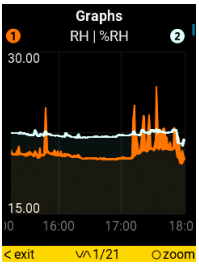
Yellow font in the **Data logging** menu highlights accidentally selected impossible combinations, for example, logging duration of 5 minutes and interval of 15 minutes.

3.6.1 Viewing and managing data files in Data logging menu

You can view the logged measurement data in numerical and graphical format, and rename and delete data files.

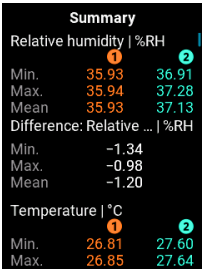
1. In the **Data logging** menu, select **Browse data files > [data folder name] > [data file name]**.

   a. Select **Graphs** to view a graph of the measurements for each parameter. Use the ⊙ button and the arrow buttons to zoom in the graph and move left and right on the timeline. Press ⟲ to exit the graph view.



   b. Select **Summary** to view the minimum, maximum, and mean values for each logged parameter in the data file.

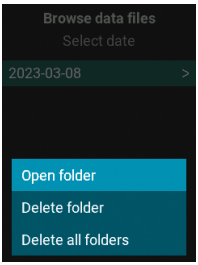
      A comparison of the values measured by two connected devices is shown under the **Difference** row after each parameter.



      Press ⟲ to exit the view.

   c. Select **Data file info** to view other details about the data logging session: for example, its duration, data logging interval, the connected devices and their serial number and firmware version.

2. To rename or delete data folders, press ◎ while in the **Browse data files > Select date** view. This opens a shortcut menu with options to open or delete the folder or to delete all data folders.



More information

- Indigo80 data files in Insight PC software (page 58)

3.6.2 Exporting data files from Indigo80

You can export data files with the help of Insight PC software or by copying the data files directly from Indigo80 to your computer.

For more information about Insight, see Using Indigo80 with Insight PC software (page 55).

3.6.2.1 Exporting data files using Insight PC software

The free Insight PC software is available for download at vaisala.com/insight.

1. Open Insight on your computer.
2. Connect Indigo80 to your computer with a USB cable and switch Indigo80 on.
3. Wait for Insight to detect Indigo80.
4. In Insight, select **Devices > Indigo80**.
5. Select a data file and click **Export** to save the file in CSV format to your computer for viewing in a spreadsheet application (for example, Microsoft Excel).

3.6.2.2 Exporting data files using file manager

Copying the data files from Indigo80 requires a file manager application that supports Media Transfer Protocol (MTP).

1. Connect Indigo80 to your computer with a USB cable and switch Indigo80 on.
2. In the file manager application, navigate to **Indigo80 > Device > Logs > [data file date]**.
3. Copy the data files you need to your computer. Each file is available in JSON, TXT, and CSV format (for spreadsheet applications such as Microsoft Excel).

More information

- Using Indigo80 with Insight PC software (page 55)
- Indigo80 data files in Insight PC software (page 58)

3.7 Notifications menu

All active and past notifications related to Indigo80 or devices connected to Indigo80 are listed in the **Notifications** menu.

You can access the **Notifications** menu from the main menu of Indigo80.

The number of active notifications is displayed next to the name of the menu.

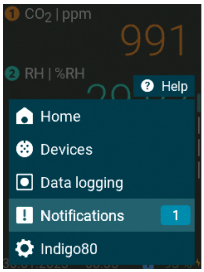


Figure 16 Notifications menu in Indigo80 main menu

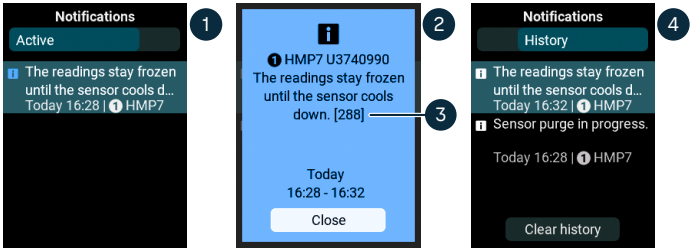


Figure 17 Notifications menu with Active and History tabs, full-screen notification in the middle

1 The **Active** tab lists notifications related to ongoing activities of Indigo80 or a connected device. The most recent notifications are listed at the top of the list.
Items stay on the **Active** tab until the status or activity that has triggered the notification expires or stops.
The notifications have three severity levels: Error/Warning – Caution – Info.
2 Press ◎ on the **Active** tab to read the full details of the notification.
3 A code related to the notification or error message is shown in brackets. Depending on your connected device, the *Troubleshooting* section of the device's User Guide at docs.vaisala.com may contain more information about the status or error.
4 Up to 50 past notifications are listed on the **History** tab, with the most recent notifications shown at the top of the list.

Updating Indigo80 firmware version clears the notification history.

More information

- Troubleshooting (page 66)

3.8 Indigo80 menu

The **Indigo80** menu in the main menu contains user interface settings, information about the device, as well as the option to restore factory default settings of Indigo80.

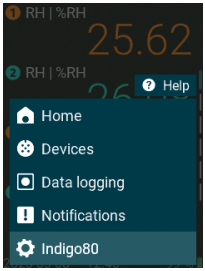


Figure 18 Indigo80 menu in the main menu

User interface settings selectable in Indigo80:

Display brightness
Automatic - 25 % - 50 % - 75 % - 100 %

Sound volume
Off - Low - Medium - High
This selection affects all the notification sounds of Indigo80.

Keypad sounds
Off - Low - Medium - High

Automatic power off
Never - After 15 minutes - After 60 minutes
Indigo80 does not power off automatically during data logging or calibration.

Language
English - Deutsch - Español - Français - Italiano - Português - Suomi - Svenska - 日本語 - 中文

Date format
DD.MM.YYYY - MM/DD/YYYY - YYYY-MM-DD

Date
View for setting the date manually.

Time zone
View for setting the time zone (UTC offset) manually.
See also Time and time zone settings (page 37).

Time format
12-hour clock - 24-hour clock

Time
View for setting the time manually.
See also Time and time zone settings (page 37).

Units

Preferred units: Metric - Non-metric

Units per parameter: preferred output units selectable per parameter, for example, Celsius or Fahrenheit for temperature and g/m^3 or gr/ft^3 for absolute humidity

The **About** view contains Indigo80 type label and information about the device, such as serial number and firmware version.

In the **Factory default settings** view you can restore Indigo80 to its default settings, with option to delete all data files stored in the device. For instructions, see Restoring factory default settings (page 64).

3.8.1 Time and time zone settings

Vaisala recommends that you synchronize the time settings of Indigo80 automatically from a computer running Insight PC software, instead of changing the settings manually in the **Indigo80** menu. Automatic synchronization of Indigo80 is useful, for example, after your time zone changes to summer time or standard time.

If you have made any manual changes in the **Time** or **Time zone** views of Indigo80, or if the **Time zone** value is **Unset**, Insight will prompt you to synchronize the settings the next time you connect Indigo80 to Insight.

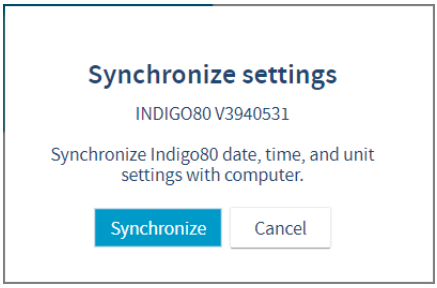


Figure 19 Synchronize settings prompt in Insight

If Insight is not available for synchronizing the settings, you can change the time or time zone of your device in the following views in Indigo80:

- Main menu **> Indigo80 > Time**
- Main menu **> Indigo80 > Time zone**
  - Note that changing the UTC offset in this view will automatically also change the time shown in the **Time** view.

More information

- Connecting Indigo80 to Insight PC software (page 55)

3.9 Help menu

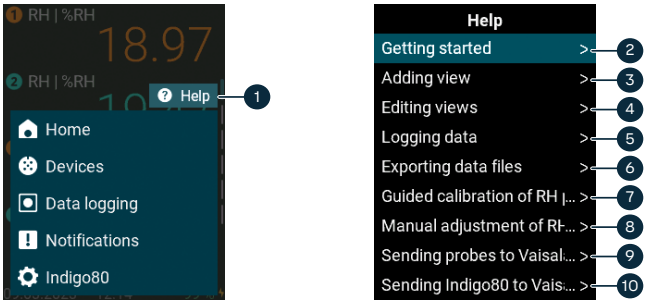


Figure 20 Help menu in Indigo80 main menu (left) and Help menu contents (right)

1 Location of **Help** menu in **Indigo80** main menu.

2 **Getting started**
Tour showing the basics of the Indigo80 user interface, such as keypad button functions, different types of menus, and navigation in the views.

3 **Adding view**
Tour showing the steps needed to add new measurement views in Indigo80. See also Measurement view (page 21) and Editing measurement view (page 23).

4 **Editing views**
Tour showing the steps needed to edit existing measurement views: changing parameter, adding new parameter, deleting a parameter, and saving changes. See also Editing measurement view (page 23).

5 **Logging data**
Tour showing the steps needed for setting up and starting a data logging session in Indigo80.

6 **Exporting data files**
Instructions for copying the data files created by Indigo80 to your computer. For more information, see Exporting data files from Indigo80 (page 33).

7 **Guided calibration of RH probes**
Tour showing the steps involved in the guided calibration procedure, with relative humidity as the chosen parameter. For more information, see Overview of calibration and adjustment of probes with Indigo80 (page 53).

8 **Manual adjustment of RH probes**
Tour showing the steps involved in the manual adjustment procedure, with relative humidity as the chosen parameter. For more information, see Overview of calibration and adjustment of probes with Indigo80 (page 53).

9 **Sending measurement devices to Vaisala for calibration**
Instructions for sending devices to Vaisala and a QR code for accessing store.vaisala.com.

10 **Sending Indigo80 to Vaisala**
Instructions for sending Indigo80 to Vaisala and a QR code for accessing store.vaisala.com.

Note that the lithium-ion battery of Indigo80 needs to be removed before shipping the device to Vaisala for repairs.

More information

- Removing battery (page 60)
- Maintenance and calibration services (page 73)

4. Using measurement devices with Indigo80

For device-specific information on using Indigo80, for example, for calibration and adjustment, see the user guidance of your Indigo80-compatible device at docs.vaisala.com.
See also Overview of calibration and adjustment of probes with Indigo80 (page 53).

4.1 Connecting probes to Indigo80

CAUTION! You can connect only Indigo-compatible Vaisala devices to the indicator.

To check the compatibility of your Vaisala device with Indigo80, see Firmware version compatibility of Indigo80-compatible devices Technical Note (M212901EN), available at docs.vaisala.com.

Up to two Vaisala Indigo-compatible probes 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.

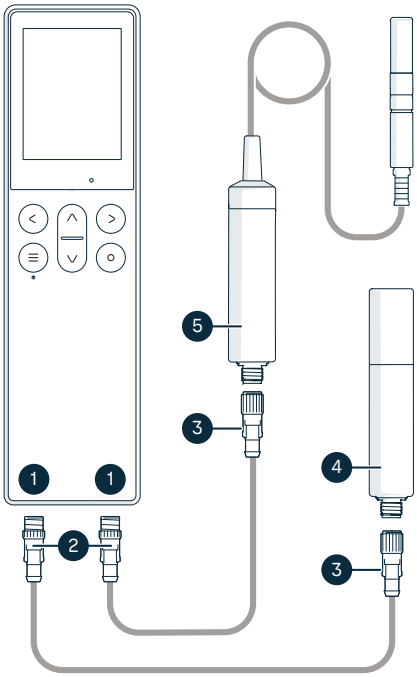
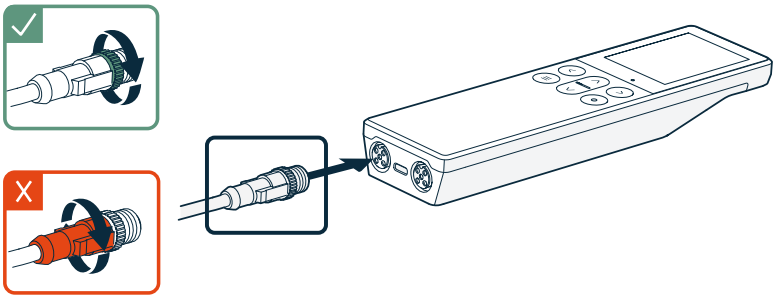


Figure 21 Connecting probes to Indigo80

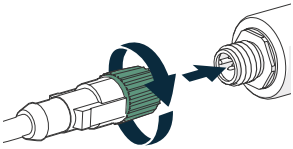
1 M12-5F ports on the bottom of Indigo80 for connecting compatible Vaisala devices. Ports are labeled ❶ (left) and ❷ (right) on Indigo80.
2 M12-5M cable connector
3 M12-5F cable connector
4 Probe displayed as ❶ by Indigo80 (GMP252 shown)
5 Probe displayed as ❷ by Indigo80 (HMP7 shown)

1. If the indicator is powered and no devices are connected to it, the text **Please connect a measurement device** 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. 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.

For optimal measurement accuracy, the indicator guides you to check the connected probe's environment settings next.

Accessories for wall mounting are available for some probe models. For more information, see your probe's user guidance at docs.vaisala.com or Vaisala Online Store at store.vaisala.com.

More information

- Configuring probe features with Indigo80 handheld indicator (page 49)
- Configuring environment settings with Indigo80 handheld indicator (page 49)

4.2 Connecting transmitters to Indigo80

Indigo80 can be connected to Vaisala Indigo300, Indigo510, Indigo520, and HMT370EX transmitters using the transmitters' service port. HMT370EX probes can also be detached from the transmitter and connected to Indigo80 separately.

CAUTION! HMT370EX transmitters and probes are intended for use in Ex environments. Note that the Indigo80 indicator is not classified for use in hazardous areas. Do not use the indicator in a hazardous area, or alternatively ensure that an IEC 60079-14 compliant safe work procedure has been implemented in the hazardous area. For more information, see HMT370EX User Guide (M212305EN).

To check the compatibility of your Vaisala device with Indigo80, see Firmware version compatibility of Indigo80-compatible devices Technical Note (M212901EN), available at docs.vaisala.com.

With Indigo80 connected to a transmitter, you can:

- See real-time measurements and device and status information
- Log measurement data from the probes connected to the transmitter
- Calibrate and adjust the connected probes
- Test and adjust the analog output channels of the transmitter [1)]
- Configure the analog outputs [1)]
- Configure the transmitter settings (for example, display settings and metric/non-metric units of measurement parameters)
- Configure the connected probes' features and settings. The available features and settings depend on the probe model and firmware version. For more information, see your probe's user documentation at docs.vaisala.com.

1) *Starting from transmitter software version 1.14.4 onwards for Indigo510 and Indigo520.*

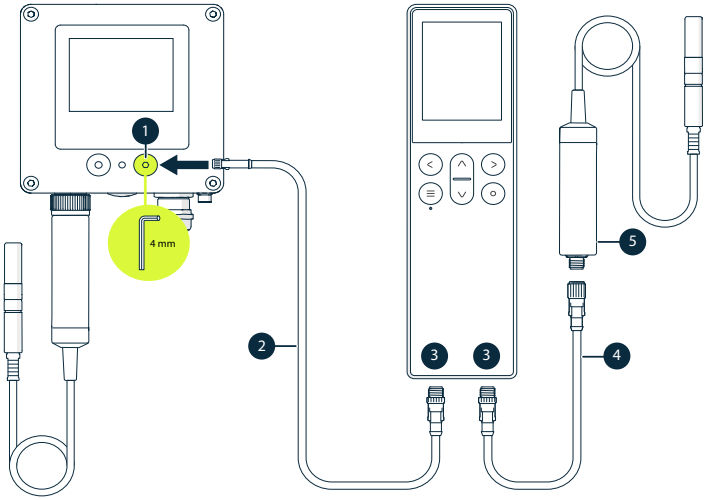


Figure 22 Example of connecting Indigo300 transmitter to Indigo80 indicator

1 Service port
2 M8-M12 service cable
3 M12-5F ports on the bottom of Indigo80 for connecting compatible Vaisala devices. Ports are labeled ❶ (left) and ❷ (right) on Indigo80.
4 Probe connection cable
5 Probe (HMP7) connected to Indigo80, for use as a calibration reference

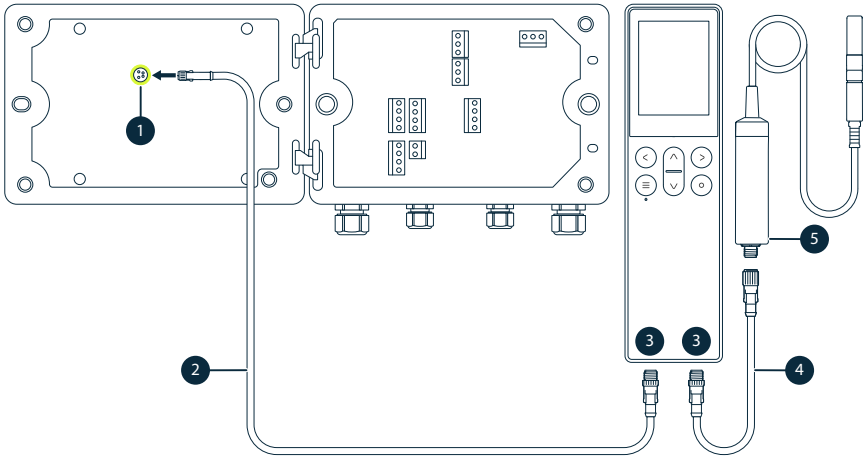


Figure 23 Example of connecting Indigo500 transmitter to Indigo80 indicator

1 Service port inside the cover of Indigo500
2 M8-M12 service cable
3 M12-5F ports on the bottom of Indigo80 for connecting compatible Vaisala devices. Ports are labeled ❶ (left) and ❷ (right) on Indigo80.
4 Probe connection cable
5 Probe (HMP7) connected to Indigo80, for use as a calibration reference

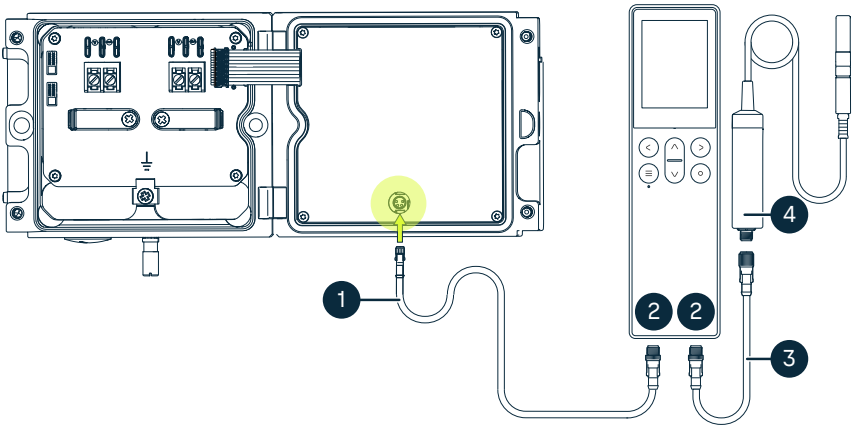


Figure 24 Example of connecting HMT370EX transmitter to Indigo80 indicator

1 M12-M8 Indigo80 transmitter connection cable accessory 262195SP
2 M12-5F ports on the bottom of Indigo80 for connecting compatible Vaisala devices. Ports are labeled ❶ (left) and ❷ (right) on Indigo80.
3 Probe connection cable
4 Probe connected to Indigo80

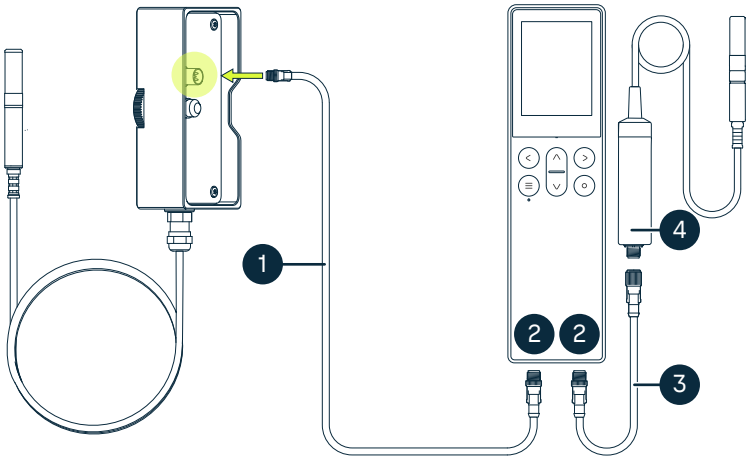


Figure 25 Example of connecting detached HMT370EX probe to Indigo80 indicator

1 M12-M12 Indigo80 probe connection cable accessory 272075SP
2 M12-5F ports on the bottom of Indigo80 for connecting compatible Vaisala devices. Ports are labeled ❶ (left) and ❷ (right) on Indigo80.
3 Probe connection cable
4 Probe connected to Indigo80

For detailed instructions on connecting to the transmitters and using them with Indigo80, see the following documents at docs.vaisala.com:
- Indigo300 User Guide (M212849EN)
- Indigo500 User Guide (M212287EN)
- HMT370EX User Guide (M212305EN)

More information

- Connecting probes to Indigo80 (page 40)
- Connecting refractometers to Indigo80 (page 47)

4.3 Connecting refractometers to Indigo80

Indigo80 can be connected to Vaisala Polaris™ PR53 Series Process Refractometers using the refractometers' M12 service port. PR53 series refractometers with software version 1.2.0 or newer are compatible with Indigo80.

With Indigo80 connected to a refractometer, you can:

- See real-time measurements and device and status information

- Configure refractometer features and settings such as concentration curves, signal damping, and analog output
- Log measurement data, including integer type diagnostics parameters (for example, ambient light)
- Adjust the temperature and analog output of the refractometer.

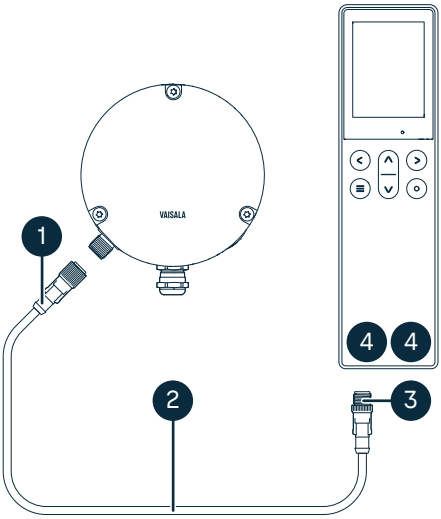


Figure 26 Example of connecting PR53 series refractometer to Indigo80 indicator

1 M12-5F cable connector
2 M12-M12 connection cable (Vaisala item code 272075SP)
3 M12-5M cable connector
4 M12-5F ports on the bottom of Indigo80 for connecting compatible Vaisala devices. Ports are labeled ❶ and ❷.

For detailed instructions on connecting to refractometers and using them with Indigo80, see PR53 Series User Guide (M212898EN), available for download at docs.vaisala.com.

More information

- Connecting probes to Indigo80 (page 40)
- Connecting transmitters to Indigo80 (page 43)

4.4 Configuring probe features with Indigo80 handheld indicator

- Probe connection cable

You can use the Indigo80 handheld indicator to configure probe features such as compensation setpoints, filtering factor, and serial communication. The available features depend on the probe model and firmware version.

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

1. Connect the probe(s) to the indicator.
2. Open the indicator main menu by pressing ☰.
3. Select **Devices**. If you have more than one device connected to the indicator, make a further selection between the devices.
4. Select **Settings** to access and change the features available for your probe.
5. Exit the menu by pressing < or return to the main menu by pressing ☰.

More information

- Configuration options of Indigo80-compatible probes (page 11)
- Devices menu (page 27)
- Connecting probes to Indigo80 (page 40)

4.5 Configuring environment settings with Indigo80 handheld indicator

- Probe connection cable

For optimal measurement accuracy, you can use the Indigo80 handheld indicator to give additional information about the connected probe's measurement environment.

For example, you can:

- Configure the pressure compensation setting for your probe

- Enable temperature compensation from another Indigo-compatible probe that has a temperature output. For example, you can enable an HMP80 series probe to function as the temperature source for GMP252.

The environment settings available through Indigo80 correspond to the environmental compensation settings of the probe. Therefore, **Environment settings** and **Settings > Compensation setpoints** are interconnected: the configuration set in either menu is applied to both.

1. Connect the probe(s) to the indicator.
2. Open the indicator main menu by pressing ☰.
3. Select **Devices**. If you have more than one device connected to the indicator, make a further selection between the devices.
4. Select **Environment settings** to access the settings for your probe.

   The available environment settings depend on the probe and probe firmware version. For detailed information on the probe-specific requirements for the settings, such as **Pressure** and **Temperature**, see your probe's user documentation.

5. Exit the menu by pressing ⟨ or return to the main menu by pressing ☰.

More information

- Devices menu (page 27)
- Connecting probes to Indigo80 (page 40)
- Example of enabling temperature compensation with Indigo80 (HMP7 and TMP1) (page 52)

4.5.1 Example of enabling temperature and relative humidity compensation with Indigo80 (GMP252 and HMP80)

- Probe connection cable (2 pcs)

The GMP252 CO_2 probe has an integrated temperature sensor that can be used to compensate for temperature to improve measurement accuracy. You can also read the compensation value from another Indigo-compatible probe connected to Indigo80, provided that the probe can output the required compensation parameter.

In this example, temperature and relative humidity compensation values are read from an HMP80 series probe (HMP80N).

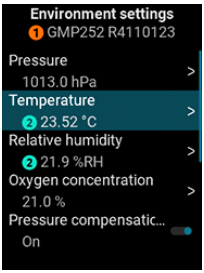
For more information on the environmental compensation function in GMP252 probes, see GMP252 User Guide (M211897EN).

Make sure that both probes are in the same environment to get the most accurate measurement values.

1. Connect the probe(s) to Indigo80 in any order.

   In this example, GMP252 is connected to port 1 of the indicator, and HMP80N to port 2.
2. Open the indicator main menu by pressing ☰.
3. To enable temperature compensation, select **Devices > GMP252**.
4. Select **Environment settings > Temperature**.
5. Select **Read from device > HMP80N**.
6. To enable relative humidity compensation, select **Relative humidity > Read from device > HMP80N**.

   The temperature and relative humidity values read from HMP80N are now shown in the **Environment settings** (indicated by the number 2 shown before the measured values).



   To stop reading the values from HMP80N, select:
   - **GMP252 > Environment settings > Temperature > Stop reading**, and
   - **GMP252 > Environment settings > Relative humidity > Stop reading**.
7. Exit the menu by pressing ⟨ or return to the main menu by pressing ☰.

When you disconnect and then reconnect the same probes to the same ports in Indigo80, Indigo80 will continue reading the temperature value from the previously selected probe. The same applies also when you restart Indigo80 with the same probes connected.

4.5.2 Example of enabling temperature compensation with Indigo80 (HMP7 and TMP1)

- Probe connection cable (2 pcs)

The temperature-dependent output parameters of the HMP7 humidity and temperature probe are unavailable when the probe heating function of HMP7 is active. Therefore the temperature measurement data needs to be provided from an external source, which can be, for example, any Indigo-compatible probe with a temperature output. With HMP7 and TMP1 connected to the Indigo80 handheld indicator, you can enable TMP1 to function as the temperature source for HMP7.

For more information on the condensation prevention and temperature compensation functions, see HMP Series with MMP8 and TMP1 User Guide (M212022EN).

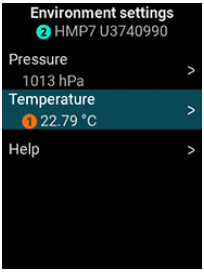
Make sure that both probes are in the same environment to get the most accurate measurement values.

1. Connect the probe(s) to Indigo80 in any order.

   In this example, TMP1 is connected to port 1 of the indicator, and HMP7 to port 2.
2. Open the indicator main menu by pressing ☰.
3. Select **Devices > HMP7**.
4. Select **Environment settings > Temperature**.

5. Select **Read from device > TMP1**.

   The temperature value read from TMP1 is now shown in the **Environment settings** of HMP7.



   To stop reading the temperature value from TMP1, select **HMP7 > Environment settings > Temperature > Stop reading**.

6. Exit the menu by pressing ⟨ or return to the main menu by pressing ☰.

When you disconnect and then reconnect the same probes to the same ports in Indigo80, Indigo80 will continue reading the temperature value from the previously selected probe. The same applies also when you restart Indigo80 with the same probes connected.

4.6 Overview of calibration and adjustment of probes with Indigo80

For device-specific information on using Indigo80 for calibration and adjustment, see the user guidance of your Indigo80-compatible device at docs.vaisala.com.

The Indigo80 handheld indicator provides two ways to calibrate and adjust measurements for probes: **Guided calibration** and **Manual adjustment**.

Guided calibration is available for relative humidity, temperature, and carbon dioxide measurements, while **Manual adjustment** is available for all measurement parameters, provided that the probe model supports field calibration.

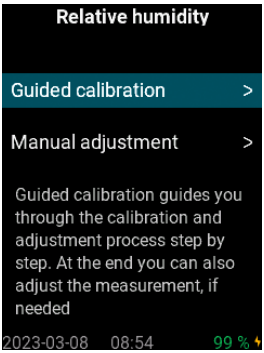


Figure 27 Indigo80 calibration methods for probes

- Choose **Guided calibration** when you have a reference environment or a calibrated reference instrument and want the indicator to guide you through the calibration process step by step. At the end you can also adjust the measurement, if needed.
- Choose **Manual adjustment** if you already have previously collected calibration readings (for example, from a calibration certificate) for 1 or 2 calibration points and want to adjust the probe to correct the observed errors. No separate reference instrument or reference environment is needed during the manual adjustment procedure. For all other use cases, **Guided calibration** is recommended.

If you have a transmitter connected to Indigo80, you can use the indicator to test and adjust the input and output channels of the transmitter. For more information, see your transmitter's user documentation at docs.vaisala.com.

5. Using Indigo80 with Insight PC software

5.1 Vaisala Insight PC software

Vaisala Insight PC software is a service and utility software for Indigo-compatible and other Vaisala devices. Insight is available for Microsoft Windows® operating systems (64-bit only).

For a full list of supported operating system versions, see vaisala.com/insight.

Insight PC software is available for download at vaisala.com/insight.

With the Insight PC software, you can:
- See device information and status
- See real-time measurement data
- Configure transmitter settings
- Calibrate and adjust the connected devices
- Configure features and settings of the measurement device. These include condensation prevention, compensation setpoints, calculation coefficients, sensor purge, filtering factor, and serial communication. The available features and settings depend on the measurement device model and firmware version. For more information, see the user documentation of your device at docs.vaisala.com.

Insight PC software version 1.2.0 and later support the Indigo80 indicator.

With Indigo80 connected to Insight, you can:
- Configure Indigo80 settings (for example, date, time, and user interface preferences)
- View, rename, delete, and export files containing logged data
- Update Indigo80 firmware version.

5.2 Connecting Indigo80 to Insight PC software

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.

- Computer with Microsoft Windows® operating system (64-bit version) and Insight PC software (version 1.2.0 or later) installed
- USB cable with a USB-C connector (type C to A or type C to C)

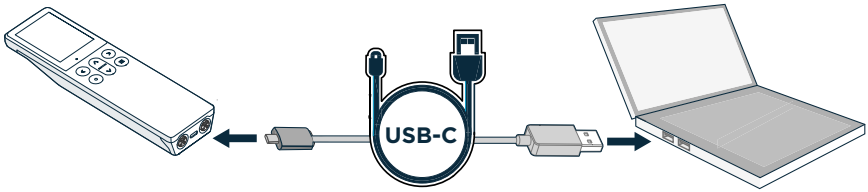


Figure 28 Connecting Indigo80 to Insight PC software with USB-C cable

1. Open the Insight PC software on your computer.
2. Connect a USB cable to a free USB port on your computer.
3. Connect the other end of the cable to the USB-C connector located on the bottom of Indigo80.
4. Switch Indigo80 on by pressing ☰ (if not powered on already).
5. Wait for the Insight PC software to detect Indigo80.

5.3 Insight PC software overview

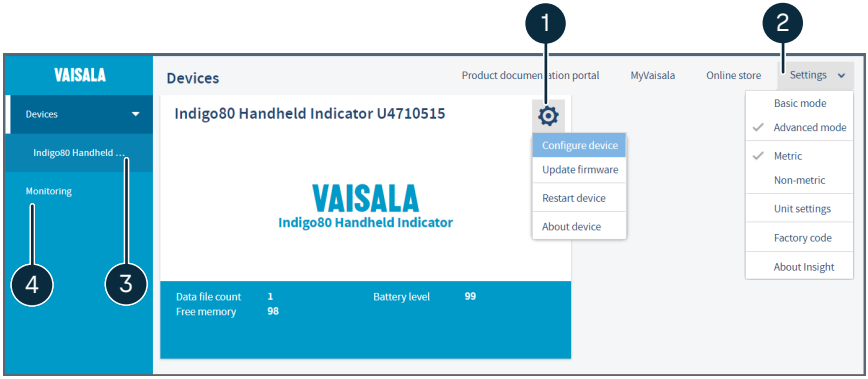


Figure 29 Insight PC software main menu with Indigo80 connected

1 Select ⚙ to access Indigo80-specific settings:
   - **Configure device**: options for selecting language, power off delay, preferred units (metric/non-metric), keypad and notification sounds, date and time settings, and display brightness control
   - **Update firmware**: opens a dialog for updating Indigo80 firmware
   - **Restart device**: for restarting Indigo80
   - **About device**: information about Indigo80, for example, device serial number and firmware version
2 In the **Settings** menu you can:
   - Switch between the **Basic mode** and **Advanced mode** user modes of Insight
   - Enter a factory code to access restricted functionality
   - View information about Insight software
3 In the **Indigo80 Handheld Indicator** menu you can view, rename, delete, and export the data files generated by the data logging functionality of Indigo80
4 In the **Monitoring** menu you can:
   - Monitor and log selected parameters from measurement devices connected directly to a PC running Insight
   - Export the logged data as a CSV file to, for example, Microsoft Excel

> The **Monitoring** menu shows only devices connected directly to a PC running Insight software. Devices connected to Indigo80 which is connected to Insight are not shown in the menu.

More information

- Indigo80 data files in Insight PC software (page 58)
- Updating firmware version with Insight PC software (page 62)

5.3.1 Indigo80 data files in Insight PC software

The files generated by the data logging functionality of Indigo80 can be viewed, renamed, deleted, and exported as CSV files on the **Data files** tab of Insight PC software.

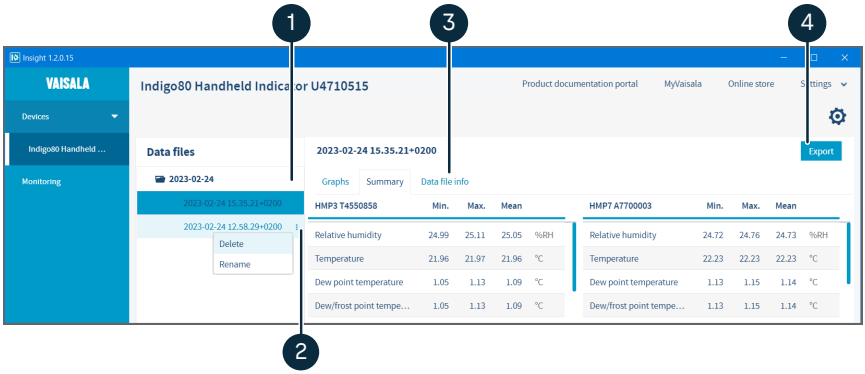


Figure 30 Data files tab in Insight PC software

1 Select the data file folder to open the list of data files.
2 You can delete and rename data files. Select the three dots next to the data file name to open the edit menu.
3
- Logged data is displayed in graphical and numerical format on the **Graphs** and **Summary** tabs.
- **Data file info** contains information about the devices used for logging, as well as logging duration and interval, and the number of parameters, samples, and data values.

4 Select **Export** to save the logged data in CSV format, for example, for viewing in Microsoft Excel.

You can rename and delete data folders and files also in the **Data logging** menu of Indigo80.

More information

- Viewing and managing data files in Data logging menu (page 31)

6. Indigo80 battery

WARNING! When handling batteries, see also Lithium-ion battery related precautions (page 17).

CAUTION! The preinstalled Indigo80 battery is not user-replaceable. Using batteries other than those provided by Vaisala will void the warranty of Indigo80. Contact your nearest Vaisala Service Center for any battery-related maintenance needs. See vaisala.com/support.

CAUTION! If you are using a different AC adapter than the one provided with the Indigo80 indicator, make sure the specifications of the adapter match those given in Table 8 (page 69).

Indigo80 has a rechargeable battery that is already in place as shipped from the factory. The battery is delivered partially charged.

For Indigo80 battery and AC adapter specifications, see Table 8 (page 69).

For Indigo80 battery operation times with different device combinations, see Table 11 (page 71).

6.1 Battery charge level indicator

The battery charge level indicator displays an estimate of the charge remaining in the Indigo80 battery. Battery charge level percentage and a corresponding symbol are shown in the lower right corner of the Indigo80 display.

Table 6 Battery charge level indicator

Symbol on display	Description
	Charge level percentage and green battery symbol shown when the battery level is 100 %–15 %.
	Charge level percentage and yellow battery symbol shown when the battery level is 14 %– 5 %. The notification **Battery level below 15 %** is displayed briefly.

Symbol on display	Description
	Charge level percentage and red battery symbol shown when the battery level is below 5 %. A full-screen notification **Battery level below 5 %** is displayed. The Indigo80 status LED will blink red to indicate that the battery needs recharging.
	Charge level percentage and yellow lightning symbol shown when the indicator is connected to a power supply and the battery is charging.

6.2 Recharging Indigo80 battery

Note the charging temperature of the battery, 0 ... +45 °C (+32 ...+113 °F).

1. Connect the USB-C connector of an AC adapter to Indigo80.

   The USB-C port is located on the bottom of Indigo80.
2. Plug in the AC adapter to a wall socket.

   A yellow lightning symbol in the lower right corner of the display indicates that the battery is charging. When the display is off, charging status is indicated by a green LED in the keypad. Typical recharge duration from empty to full battery with a 45 W adapter is approximately 2 h.

6.3 Removing battery

CAUTION! Removing the lithium-ion battery of Indigo80 is allowed in the following cases only:
- Before recycling Indigo80.
- Before shipping Indigo80 to Vaisala for repairs.

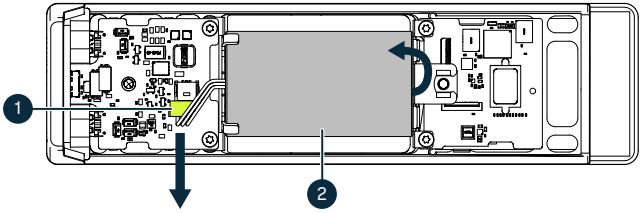
Take special care when opening the back cover and removing the battery. Careless handling may damage the components inside Indigo80 or compromise its ingress protection.

CAUTION! If you need to replace the M4×14 hex screws on the back cover of Indigo80 with new ones, make sure the replacing screws are identical to the original ones: exactly 14 mm (0.55 in) in length. Screws that are shorter or longer than 14 mm (0.55 in) may damage the device or compromise its ingress protection.

- 2-mm Allen key for the M4×14 hex screws on the back cover of Indigo80

1. Detach any USB or connection cables from Indigo80.
2. Turn off Indigo80 by pressing the power button for 2 seconds.
3. Place the indicator on a clean, flat surface, with the display facing down.
4. Open the screws (2 pcs) on the back cover and lift the cover to remove it.
5. Detach the battery connector from the component board by pulling it out gently.

   Do not touch the connector with conducting material, for example with a metallic screwdriver.



1 Battery connector, connected to battery with 3 wires
2 Lithium-ion battery

6. Lift the top end of the battery and remove the battery from the cradle.
7. Reattach the back cover and fasten it with the screws.

More information

- Technical support (page 74)
- Recycling instructions (page 75)

7. Maintenance and troubleshooting

7.1 Updating Indigo80 firmware version

7.1.1 Updating firmware version with Insight PC software

- Firmware update package (ZIP file) for Indigo80
- Computer with Microsoft Windows® operating system (64-bit version) and Insight PC software (version 1.2.0 or later) installed
- USB-C cable for connecting Indigo80 to computer

Link to the latest Indigo80 firmware update package is available on the Indigo80 product page at vaisala.com/indigo80.

Updating Indigo80 firmware takes approximately 5 minutes. Do not disconnect the USB cable during firmware transfer.

1. Make sure you have the latest Indigo80 firmware update package ('Indigo80 firmware download.zip') available on your computer.

   Do not unzip the package, as Insight will only accept the file in ZIP format.
2. Open Insight software on your PC.
3. Connect a USB cable to a free USB port on your computer.
4. Connect the other end of the cable to the USB-C connector located on the bottom of Indigo80.
5. Switch Indigo80 on by pressing ☰ (if not powered on already).
6. Wait for Insight to detect Indigo80.

7. In the **Devices** menu of Insight, select the Indigo80 settings icon to open the **Update firmware** dialog.

8. Select **Browse...** to locate the .zip file. Select the file and select **Open**.

   If Indigo80 has powered off before firmware transfer starts, restart the device and wait for Insight software to detect it. Continue from step 7.

9. Select **Update**.
10. Firmware transfer starts. The following notifications are shown on the Indigo80 display: **Transferring firmware... > Updating firmware... > Firmware updated > Processing update [percentage] > Firmware updated**.

7.1.2 Updating firmware version with file manager

- Firmware update package (ZIP file) for Indigo80
- USB-C cable for connecting Indigo80 to computer
- Computer with Microsoft Windows® operating system (64-bit version) (recommended).

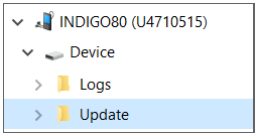
Updating the firmware version using macOS or Linux operating system is possible, but may require installing Media Transfer Protocol (MTP) add-on files first. The specific software needed for accessing MTP devices varies depending on your operating system variant. Successful firmware update cannot be guaranteed with other than the Windows operating system.

Link to the latest Indigo80 firmware update package is available on the Indigo80 product page at vaisala.com/indigo80.

Updating Indigo80 firmware takes approximately 5 minutes. Do not disconnect the USB cable during firmware transfer.

1. Unzip the firmware update package ('Indigo80 firmware download.zip') into any folder on your computer.

   The package contains the firmware file and other relevant resource files.
2. Connect a USB cable to a free USB port on your computer.
3. Connect the other end of the cable to the USB-C connector located on the bottom of Indigo80.
4. Switch Indigo80 on by pressing ☰ (if not powered on already).
5. In your computer's file manager application, copy all files from the unzipped firmware package into folder **INDIGO80 (serial number) > Device > Update**.



6. Firmware transfer starts. The following notifications are shown on the Indigo80 display: **Transferring firmware... > Updating firmware... > Firmware updated > Processing update [percentage] > Firmware updated**.

More information

- Troubleshooting (page 66)

7.2 Restoring factory default settings

You can restore all Indigo80 settings back to factory defaults. Restoring the settings will not affect the settings of devices connected to Indigo80.

CAUTION! A factory reset deletes all current settings of the device. After the factory reset, you need to reconfigure the settings.

1. In the Indigo80 main menu, select **Indigo80 > Factory default settings**.

2. If you wish to remove all data files stored in Indigo80 in addition to resetting the device, highlight the **Also delete data files** check box and press the ◎ button to select the option. To deselect the option, press ◎ again.
3. Select **Restore > OK**. The device restarts.
4. At device restart, you are prompted to complete the **Indigo80 setup** sequence:
    a. Select language
    b. Set date, time, and preferred units either with Insight PC software (requires connecting Indigo80 to a computer with USB cable) or manually.

7.3 Cleaning Indigo80

CAUTION! Do not use abrasive sponges or any type of sharp items when cleaning the device, as they will damage the anti-fingerprint and anti-reflection coatings on the display.

You can clean Indigo80 by wiping it with a soft, lint-free cloth moistened with mild detergent. The following cleaning agents can be used:

- Deionized water
- Mild soap solution
- Alcohol-based cleaning agents such as ethanol and IPA (70 % isopropyl alcohol, 30 % water).

When cleaning, follow these precautions:

- Do not spray anything directly on the device.
- Wipe cleaning agents off the surface immediately after cleaning.
- Avoid exposing the device to chemicals for unnecessarily long periods of time.
- Do not immerse the device in any type of liquid.

Keep the connectors on the bottom of Indigo80 clean of any type of dirt or dust.

Refer to the device-specific cleaning instructions when cleaning the measurement device connected to Indigo80.

7.4 Fastening magnetic hanger accessory

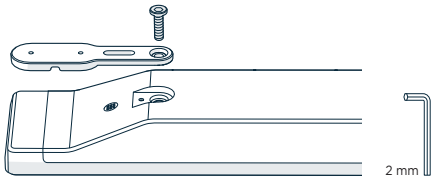
CAUTION! The optional magnetic hanger of Indigo80 contains a strong magnet. Handle it with care and keep it away from devices that are sensitive to magnetic fields (for example, pacemakers, magnetic cards, and mechanical watches).

CAUTION! If you need to replace the M4×14 hex screws on the back cover of Indigo80 with new ones, make sure the replacing screws are identical to the original ones: exactly 14 mm (0.55 in) in length. Screws that are shorter or longer than 14 mm (0.55 in) may damage the device or compromise its ingress protection.

A magnetic hanger is available as an optional accessory for attaching Indigo80 to metallic surfaces while taking measurements. Vaisala item code of the hanger is ASM214318SP.

- 2-mm Allen key for the M4×14 hex screws on the back cover of Indigo80

1. Detach any USB or connection cables from Indigo80.
2. Turn off Indigo80 by pressing the power button for 2 seconds.
3. Place the indicator on a clean, flat surface, with the display facing down.
4. Remove the topmost screw from the back cover and place it aside.
5. Position the screw hole of the magnetic hanger on Indigo80, with the text VAISALA on the hanger facing out.



6. Keep the hanger positioned in line with Indigo80 and tighten the screw to fasten the hanger into place.

More information

- Indigo80 accessories (page 13)
- Spare parts and accessories (page 72)

7.5 Troubleshooting

If you have a problem with using Indigo80, check the following tables before contacting Vaisala. If the problem you have is not listed in the tables, or if the proposed solution does not fix the problem, contact Vaisala. See Technical support for more information.

If you suspect that the problem is with the devices attached to Indigo80, you can also check the device diagnostics and status with Insight PC software (**Diagnostics** tab) and Modbus status registers. For device-specific register information, see the connected device's user documentation at docs.vaisala.com.

Problem: There is no measurement data from a connected probe.	
Possible cause: The probe may be disconnected from Indigo80.	**Solution:** 1. If the connected probe has an LED status indicator, check its color. 2. If the status indicator is off, make sure that the probe connection cable is properly connected at both ends. 3. If the probe's status indicator is red, check the probe sensor. If the sensor is faulty, replace it.
The probe sensor may be faulty.	

Problem: Notification "Firmware update incomplete. Please try again." shown during firmware update	
Possible cause: Error updating one or more update files, or not all update files copied to **Update** folder.	**Solution:** Retry updating the firmware. For instructions, see Updating Indigo80 firmware version (page 62).

Problem: Notification "Firmware update failed" shown after Indigo80 has attempted to update firmware	
Possible cause: The firmware update file is corrupted or otherwise incompatible.	**Solution:** Download the latest Indigo80 firmware update file and retry the procedure. For instructions, see Updating Indigo80 firmware version (page 62).

Problem: Notification "Device failure. Please contact Vaisala for support." shown	
Possible cause: Damaged hardware	**Solution:** Contact Vaisala for support.

Problem: Indigo80 buttons become unresponsive	
Possible cause: Temporary software issue	**Solution:** Press the ☰ button for 20 seconds until the device reboots. If pressing the ☰ button does not resolve the issue, press the ☰ and ⊙ buttons simultaneously for 20 seconds to reboot the device and restore factory settings. See also Restoring factory default settings (page 64). 

Problem: Indigo80 user interface has wrong language selected	
Possible cause: Wrong language setting in the user interface	**Solution:** If the Indigo80 user interface language has been set to a wrong language, you can access the language selection menu with the following button presses: 1. Press the ☰ button. This opens the Indigo80 main menu. 2. Press the ∨ button four times so that the **Indigo80** menu is highlighted. 3. Press the ⊙ button once. 4. Press the ∨ button four times. 5. Press the ⊙ button once. You can now select another language from the list.

7.5.1 Writing a problem report

When troubleshooting the product, write a problem report including:

- What failed (what worked / did not work)?
- Where did it fail (location and environment)?
- When did it fail (date, immediately / after a while / periodically / randomly)?
- How many failed (only one defect / other same or similar defects / several failures in one unit)?
- What was done when the failure was noticed?
- What was connected to the product and to which connectors?
- Input power source type, voltage, and list of other items (such as lighting, heaters, and motors) that were connected to the same power output.
- Are all parts connected and grounded properly? Take a photo to help the troubleshooting.

This information is helpful if you need to contact Vaisala support.

8. Technical data

8.1 Indigo80 specifications

Table 7 Indigo80 operating environment

Property	Description/Value
Operating temperature	−20 ... +50 °C (−4 ... +122 °F)
Storage temperature	−20 ... +60 °C (−4 ... +140 °F), recommended +20 °C (+68 °F)
Operating and storage humidity	20–85 %RH, when Ta ≤ +40 °C (+104 °F)
Charging temperature	0 ... +45 °C (+32 ...+113 °F) [1)]
IP rating	IP40
Use in wet location	No
Operating environment	Indoor use
Pollution degree	3
Maximum operating altitude	2000 m (approx. 6500 ft)

1) The battery will not charge at temperatures below 0 °C (+32 °F).

Table 8 Indigo80 inputs and outputs

Property	Description/Value
Max. number of connected devices	2
Connector type	M12 5-pin female (2 pcs)
Battery [1)]	
Type	Rechargeable lithium-ion battery
Nominal voltage	7.2 V
Rated capacity	2900 mAh / 20.88 Wh
Charge limit voltage	8.4 V
AC adapter [2)]	
Type	45 W USB-C AC adapter [3)]
Connector type	USB-C
AC input	100-240 V AC, 1.2 A, 50-60 Hz

Property	Description/Value
DC output	5.0 V/9.0 V/12.0 V/15.0 V DC, 3.0 A 20.0 V DC, 2.25 A 45 W
Insulation	Double or reinforced, indicated with the following symbol: ⧈
PC interface	Vaisala Insight PC software with USB-C cable (Windows OS). [4)] Data can be logged and transferred also without Insight.

1) *The battery is not user-replaceable. Contact Vaisala Service Center for any battery-related maintenance needs. See also the lithium-ion battery related precautions in this document.*
2) *The AC adapter is an optional accessory. If using an AC adapter not provided by Vaisala, make sure it fulfills the specifications given in this table. See also the AC adapter related precautions in this document.*
3) *45 W AC adapter recommended for optimal performance of Indigo80. An AC adapter with a lower power rating can also be used.*
4) *Insight software is available for download at vaisala.com/insight.*

Table 9 Indigo80 mechanical specifications

Property	Description/Value
Weight	385 g (14 oz)
Dimensions (H × W × D)	213 × 58 × 27 mm (8.4 × 2.3 × 1.1 in)
Materials	
Main body and rear piece	Aluminum EN AW-6082 T6
Back cover	Rubber (TPE) and polycarbonate (PC), reinforced with fiberglass Flammability rating UL94 V-1
Display	Strengthened glass with anti-fingerprint (AF) and anti-reflection (AR) coatings

Table 10 Indigo80 battery operation time

Property	Description/Value
Operation time (continuous use)	10 h at +20 °C (+68 °F) [1)]
Charging time	2 hours [1)]

1) *Typical value. Actual performance depends on, for example, the number and type of devices connected to Indigo80 and the data logging interval.*

Table 11 Indigo80 battery operation times during data logging with different device combinations

Vaisala device connected to Indigo80 and powered by Indigo80	Indigo80 battery operation time [1) 2)]
HMP80 probe	58 h
DMP80 probe	57 h
HMP80 and DMP80 probes	41 h
HMP80 probe and DMT143 transmitter	37 h
DMP80 probe and DMT143 transmitter	37 h
HMP7 and TMP1 probes, without probe warming	41 h
HMP7 and TMP1 probes, with probe warming	39 h
HMP110 and GMP252 probes	28 h
PR53 series refractometer	31 h [3)] / 72 h [4)]

1) *Indicative operation time with potential variations due to, for example, age of battery, display brightness level, and conditions of operating environment.*
2) *With Indigo80 data logging interval set to 1 second.*
3) *With the refractometer powered by Indigo80.*
4) *With the refractometer externally powered.*

Table 12 Indigo80 data logging and user interface specifications

Property	Description/Value
Data logging capacity	Up to 5.5 million real-time data values
Logging interval	1 s – 12 h
Logging duration	1 min – memory full [1)]
Alarm	Audible alarm function
Supported languages	English, Chinese, Finnish, French, German, Italian, Japanese, Portuguese, Spanish, Swedish
Display	2.7″ sunlight readable transflective TFT LCD color display with backlight and automatic brightness control

1) *For example, data logging duration for one measurement parameter with a logging interval of one second is over eight weeks. Use an AC adapter to power Indigo80 during long-term logging.*

Table 13 Indigo80 compliance

Property	Description/Value
EU directives and regulations	EMC Directive (2014/30/EU) RoHS Directive (2011/65/EU) as amended by 2015/863
Electromagnetic compatibility (EMC)	IEC/EN 61326-1, industrial environment CISPR 32 / EN 55032, Class B FCC part 15 B, Class B ICES-3 / NMB-3 (Class B)
Electrical safety	IEC/EN 61010-1
Compliance marks	CE, China RoHS, FCC, RCM, UKCA

8.2 Dimensions

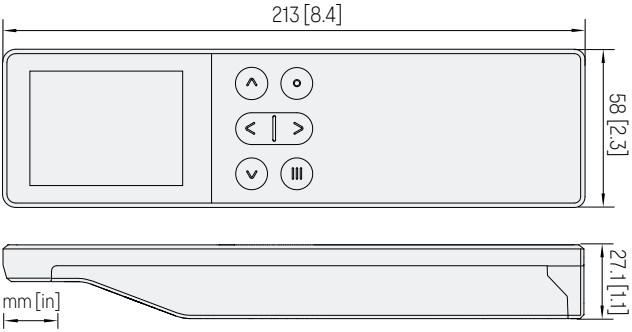


Figure 31 Indigo80 indicator dimensions

8.3 Spare parts and accessories

Table 14 Indigo80 spare parts and accessories

Description	Item code
Cables	
Cable for transmitters (M12-M8), 1.5 m (4 ft 11 in)	262195SP
Cable for probes (M12-M12), 1.5 m (4 ft 11 in)	272075SP
Flat cable for probes (M12-M12), 1 m (3 ft 3 in)	CBL210493SP

Description	Item code
Probe connection cable (M12-M12), 10 m (32 ft 10 in)	INDIGOCABLE10M
Other	
Magnetic hanger for indicator	ASM214318SP
Weatherproof carrying case for Indigo80 and HMP80 and DMP80 series probes	ASM214759
Weatherproof carrying case for Indigo80 and a series 8 probe [1)]	ASM215318
Light carrying case for HM40S or Indigo80 indicator and a compatible probe [2)]	230245SP

1) *For example, MMP8, HMP8, or DMP8 with a max. 2-m (6 ft 7 in) probe connection cable.*
2) *For example, DMP80, HMP80N, or GMP252 probe with handle accessory and a max. 1.5-m (4 ft 11 in) probe connection cable.*

For more information on ordering spare parts and accessories, visit Vaisala Online Store at store.vaisala.com.

8.4 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 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 vaisala.com/contactus.

8.5 Warranty

For standard warranty terms and conditions, see 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.

8.6 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 vaisala.com/support.

Appendix A. Recycling instructions

These recycling instructions guide you on the end-of-life treatment of this Vaisala product. As waste regulations and infrastructure vary in each country, these instructions only indicate the different components to be separated and common ways to handle them. Always follow local requirements when disposing of the product. Vaisala encourages to use the best available recycling practices to minimize related environmental impacts.

Vaisala is committed to meeting the requirements of the EU Waste Electrical and Electronic Equipment (WEEE) Directive. This directive aims to minimize the impact of electrical and electronic goods on the environment, by increasing reuse and recycling, and reducing the amount of WEEE going to landfill. This symbol indicates that the product should be collected separately from other waste streams and treated appropriately.

If applicable, Vaisala recommends removing the battery unit before recycling the rest of the device. The battery unit can be recycled separately in accordance with local waste management practices and regulations.

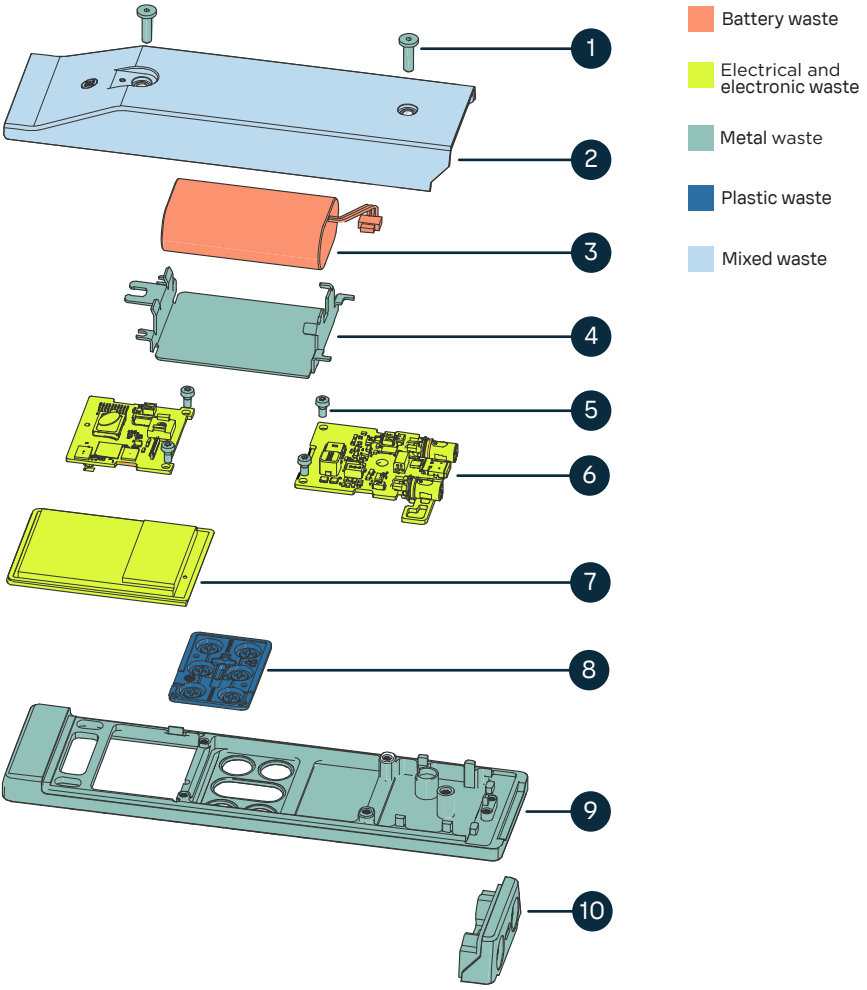


Figure 32 Materials for recycling

Table 15 Materials for recycling

Recycling	Part		Material
Metal waste	1	Screws for back cover	Stainless steel
Mixed waste	2	Back cover	Various materials

Recycling	Part		Material
Battery waste [1)]	3	Battery	Various materials
Metal waste	4	Battery cradle	Stainless steel
Metal waste	5	Screws for component board	Stainless steel
Electrical and electronic waste	6	Component boards	Various materials
Electrical and electronic waste	7	Display	Various materials
Plastic waste	8	Keypad	Rubber (TPE) and polyamide (PA)
Metal waste	9	Front piece	Aluminum alloy
Metal waste	10	Rear piece	Aluminum alloy

1) *Dispose of or recycle as battery waste, hazardous waste, or electrical and electronic waste in accordance with local waste management practices and regulations.*

Index

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