

Connecting MHT410 to Indigo 520

Introduction



See also:

- *MHT410 Quick Guide* (M211736EN), delivered with the product
- *MHT410 User Guide* (M211737EN), available at www.vaisala.com/mht410
- *Indigo 520 User Guide* (M212287EN), available at www.vaisala.com/indigo500

Starting from MHT410 software version 1.3.0, the MHT410 transmitter can be connected to an Indigo 520 transmitter for powering and communication. The Indigo 520 transmitter can act as a local display for MHT410, and also provide its measurements as analog output signals or as Modbus protocol messages.

The Indigo 520 connection is available from the RS-485 line of the MHT410 screw terminals. The connection through the screw terminals can support only one protocol at a time (DNP3, Modbus, or Vaisala Industrial Protocol). An MHT410 connected to Indigo 520 cannot be connected to another host system via its own serial line. However, the analog signals in the MHT410 remain available.

Table 1 MHT410 communication settings

Setting	Factory default	Valid for Indigo 520 use
Communication protocol	Modbus	Modbus
Communication parameters	Baud rate: 19200 Parity: None Number of data bits: 8 Number of stop bits: 1	Baud rate: 19200 Parity: None Number of data bits: 8 Number of stop bits: 2

Connecting to MHT410 via service port



- Vaisala USB service cable (item code 219690)
- Computer with:
 - Windows operating system
 - Free USB port
 - Terminal application (for example, PuTTY, available from www.vaisala.com)
 - Driver for Vaisala USB service cable installed (available on the cable installation media and from www.vaisala.com/software)

You can connect to the MHT410 transmitter via Vaisala Industrial Protocol on a computer using the service port located under the transmitter cover.

If you have not used the Vaisala USB service cable before, install the driver before attempting to use the cable.

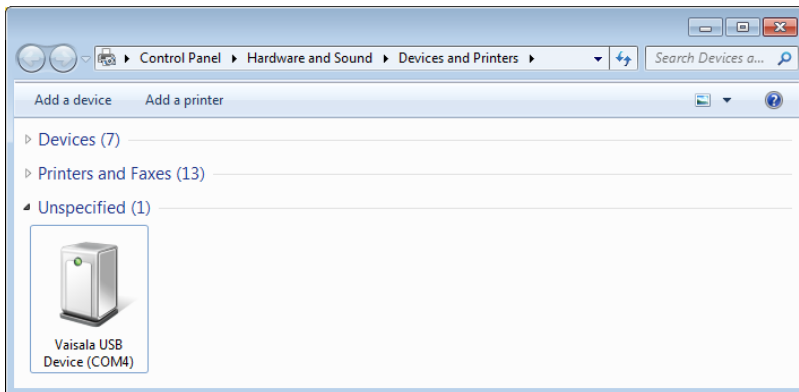


Installing driver for the USB service cable



Only Windows® operating systems are supported by the driver of the USB service cable.

- ▶ 1. Connect the USB service cable to a USB port on your computer. Windows® detects the new device and installs the appropriate driver.
2. Open **Devices and Printers** from the Windows® Start menu. Use search to find it if necessary (search for "devices").
3. Locate the cable in the list of devices:
 - If the device is listed as **Vaisala USB Device** with a COM port number in brackets, the cable is ready for use. **Note the COM port number, you will need it later.**
 - If the device is listed as **Vaisala USB Instrument Cable** without a COM port number listed, you must install the driver manually.



4. To install the driver manually:
 - a. Disconnect the USB service cable from the computer.
 - b. Download the Vaisala USB driver at www.vaisala.com/software (select the appropriate USB Instrument Driver Setup for your cable).
 - c. Run the USB driver installation program *Vaisala USB Device Driver Setup.exe*. Accept the installation defaults.
 - d. Go back to [step 1](#) and verify that the driver installation works as expected.

Connecting USB service cable

To connect the USB service cable to the service port:

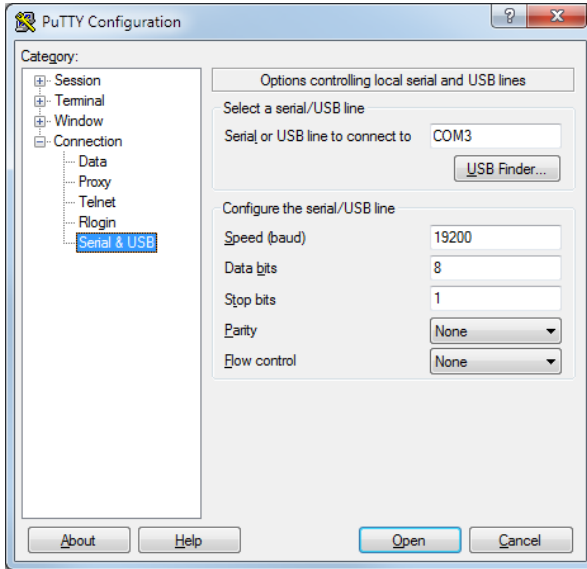
- ▶ 1. Make sure the USB service cable is connected to your computer.
2. Open the 4 hex screws on the cover of the transmitter using a 5-mm Allen key, and open the cover.
3. Connect the USB service cable to the service port connector on the transmitter circuit board.
4. Configure the terminal application settings.

Configuring terminal application settings

The steps below describe how to connect to the transmitter using the PuTTY terminal application for Windows (available for download at www.vaisala.com) and a USB service cable:

- ▶ 1. Make sure the USB service cable is connected to your PC and the service port of the transmitter.
2. Start the PuTTY application.

3. Select **Connection > Serial & USB** and check that the correct COM port is selected in the **Serial or USB line to connect to** field. If you are using the PuTTY terminal application supplied by Vaisala, you can select **USB Finder...** to open the Vaisala USB Instrument Finder program.




4. Check that the other serial settings are correct, and change if necessary.

Table 2 Service port serial interface settings

Property	Value
Baud rate	19200
Parity	None
Data bits	8
Stop bits	1
Flow control	None

5. Select **Terminal**. Use the following settings:
 - **Local Echo:** "Force on". This setting ensures that your typing is shown on the session window.
 - **Send line ends with line feeds (CR+LF):** Selected. This setting ensures that all text lines remain visible on the session window.
6. Select **Open** to open the connection window and start using the serial line.

 If PuTTY is unable to open the serial port you selected, it will show you an error message instead. If this happens, restart PuTTY and check the settings.

Taking Modbus protocol into use in MHT410

- ▶ 1. To activate the Modbus communication mode, type `smode modbus` in the terminal window and press Enter.
Example:

```
smode modbus
Serial mode : MODBUS
```

- 2. To change the baud rate or number of stop bits, type `seri 19200 N 8 2` and press Enter.
Example:

```
seri 19200 N 8 2
Baud P D S : 19200 N 8 2
```

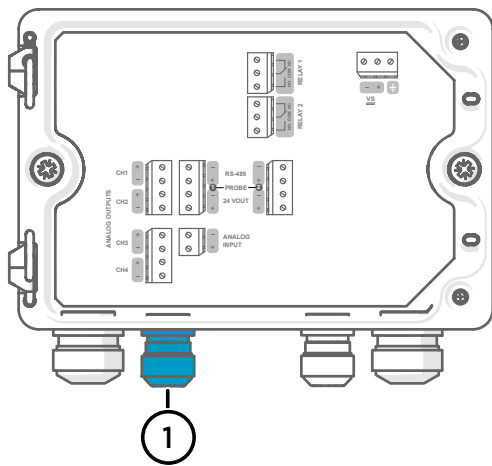
- 3. To save the settings, reset the transmitter by typing `reset` and pressing Enter.

```
reset
MHT410 / 1.x.x
```

- 4. Close the PyTTY terminal application.
- 5. Disconnect the USB cable from the service port, and close the transmitter cover.

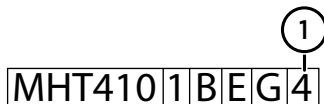
Cabling and cable gland

Vaisala offers a 10-meter (33-feet) cable for connecting MHT410 to Indigo 520 (Vaisala item code CBL210968-10MSP). In Indigo 520, the cable is designed to be inserted through the default M16×1.5 cable gland of probe 1. The recommended maximum length of the probe cable is 30 m (98 ft).



1 Indigo 520 probe 1 lead-through, M16×1.5

In MHT410, the correct M20×1.5 cable gland must be used for a secure connection. You can check the size of the factory-installed cable gland from the 5th character of the order code in the MHT410 product label.



1 MHT410 order code example. The 5th character indicates the size of the cable gland.

If the 5th character is **4**, this means that MHT410 has the M20×1.5 cable gland compatible with cable CBL210968-10MSP. If not, the right cable gland is available as a spare part (Vaisala item code ASM213670SP).

If you are using a custom cable between MHT410 and Indigo 520, make sure that:

- The cable is maximum 30 m (98 ft) in length
- The cable has enough free wires to fulfill the wiring diagram as per [Figure 1 \(page 5\)](#). Any excess wires should be properly isolated.
- The cable diameter is compatible with the cable glands installed in both MHT410 and Indigo 520
- The cable is shielded.

Whether you are using the Vaisala cable CBL210968-10MSP or a custom cable, see *MHT410 Quick Guide* (M211736EN) or *MHT410 User Guide* (M211737EN) on how to install the cable and connect shielding in MHT410.

Wiring diagram

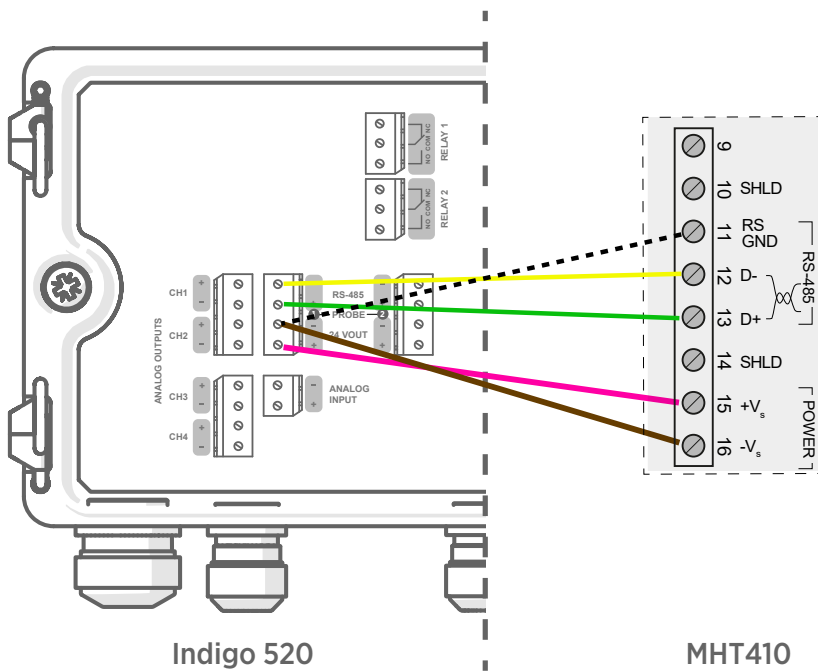


Figure 1 Wiring between Indigo 520 and MHT410 screw terminals

Indigo 520 screw terminal	MHT410 screw terminal	Wire color in Vaisala cable CBL210968-10MSP
Probe 1, 24 VOUT+	VS+	Pink
Probe 1, 24 VOUT-	VS-	Brown
Probe 1, RS-485+	D+	Green
Probe 1, RS-485-	D-	Yellow
Probe 1, 24 VOUT-	RS GND	White ¹⁾
Not connected	Not connected	Gray

1) Shown in the figure above with a dashed line.

Settings in Indigo 520

The available interfaces in the Indigo 520 transmitter depend on the configuration of the device. For changing the Indigo 520 settings, see *Indigo 520 User Guide* (M212287EN).