About this document

Version information

This document provides instructions for setting up Vaisala Air Quality Transmitter AQT560.

Table 1. Document versions (English)

Document code	Date	Description
M212982EN-A	March 2024	First version.

Related manuals

Some of these documents can be found in our product documentation portal at docs.vaisala.com.

Table 1. AQT560 manuals

Document code	Name
M213027EN	Vaisala Air Quality Transmitter AQT560 Product Description
M212982EN	Vaisala Air Quality Transmitter AQT560 Setup Guide
M213026EN	Vaisala Air Quality Transmitter AQT560 Configuration Guide
M212983EN	*Vaisala Air Quality Transmitter AQT560 Maintenance Guide*

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.

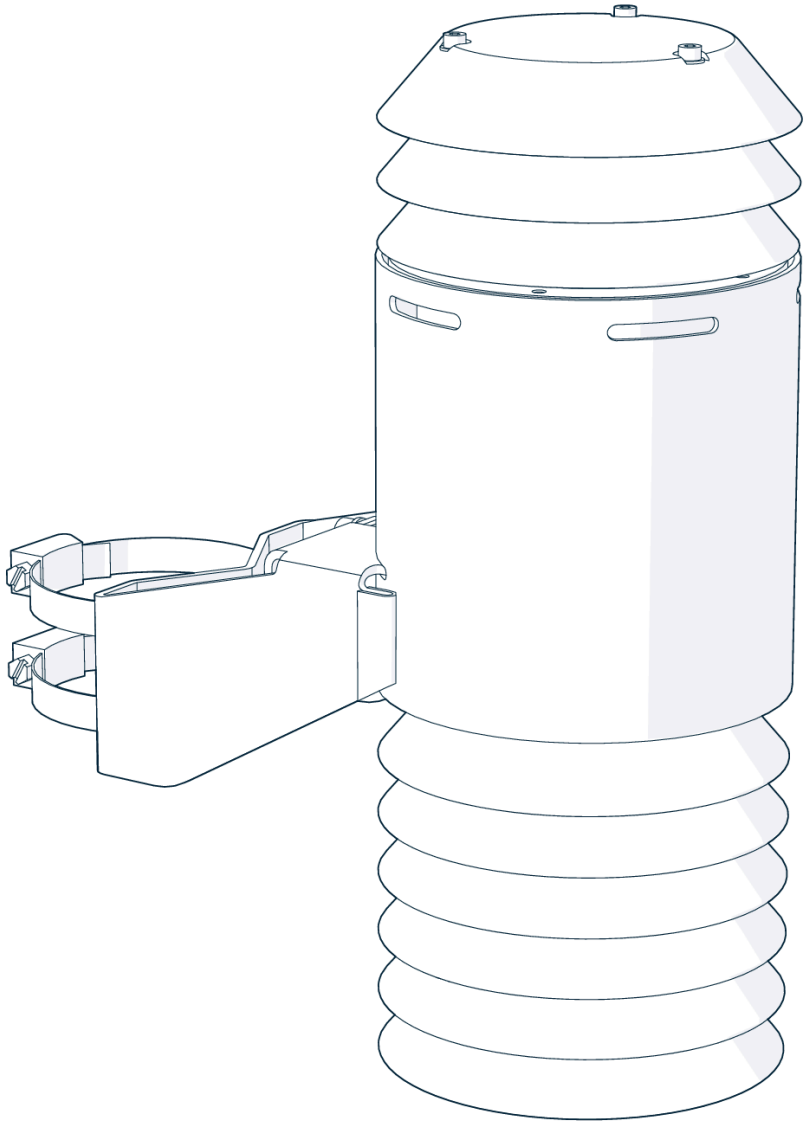
Gives information for using the product more efficiently.

Lists tools needed to perform the task.

Indicates that you need to take some notes during the task.

Trademarks

Vaisala Air Quality Transmitter AQT560



AQT560 measures gaseous pollutants and particles in the ambient air. AQT560 is available in different models for measuring gases, particles, or both.

Thanks to its small weight, compact size, and good precision, AQT560 is ideal for supplementing existing air quality networks, for traffic management and road dust monitoring and mitigation, and for monitoring dust-emitting industrial facilities. Wildfire smoke monitoring is another area where AQT560 can be used effectively.

Table 1. AQT560 product models

Model	Measurements
Gases only	NO_2, NO, O_3, CO
Particles only	PM_{10}, $PM_{2.5}$, PM_1
Gas and particles	NO_2, PM_{10}, $PM_{2.5}$, PM_1
Gases and particles	NO_2, NO, O_3, CO, PM_{10}, $PM_{2.5}$, PM_1

Configuration

For details about AQT560 interfaces, communication, and message output, see AQT560 Configuration Guide (M213026EN).

Maintenance

AQT560 needs regular maintenance and the typical maintenance interval is 2 years. For more information about maintenance, see *AQT560 Maintenance Guide (M212983EN)*.

Site requirements

This product is intended for outdoor use and can be used in wet locations (IP65, specified for gas measurement devices only). For the most reliable measurements choose a site that represents the conditions that you wish to measure.

Make sure that power supply and communication lines are available.

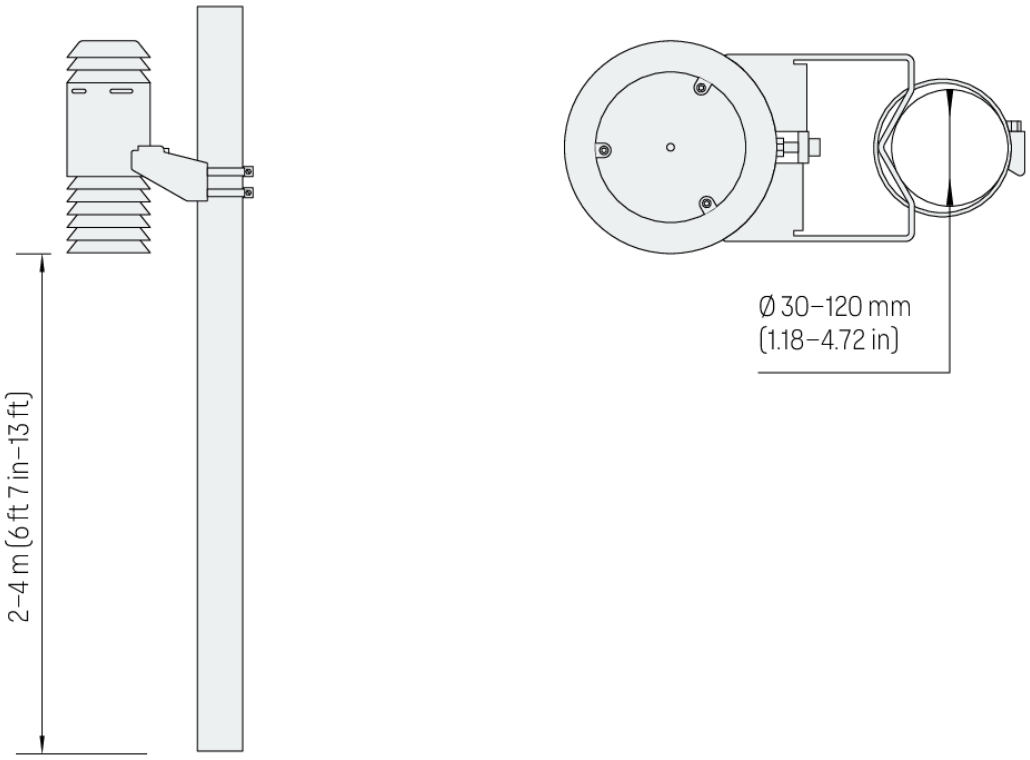
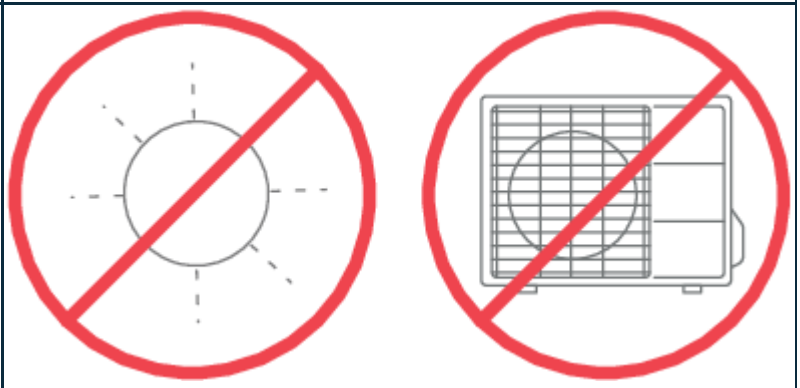
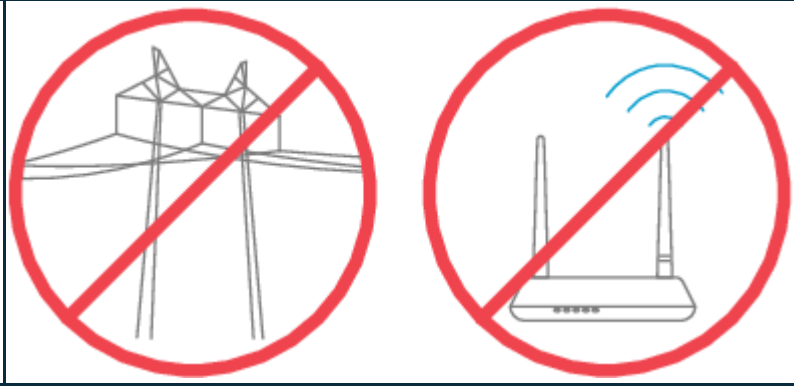
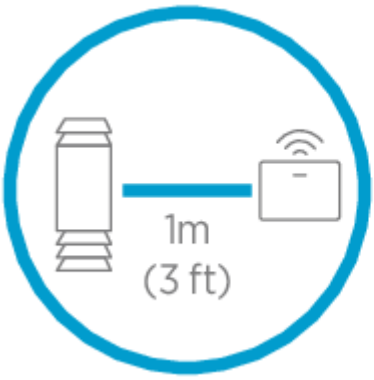


Figure 1. Recommended installation height from ground level

Table 1. Site requirements

Requirement	Description	
Free space	Avoid installing the device next to trees or other vegetation. Large amounts of insects may also obstruct airflow to the device.	

Requirement	Description	
Away from heat	Avoid mounting the device to direct sunlight or near other heat sources.	
Away from radio and electronic disturbance	Do not mount the device close to high-powered radio transmitters or weather station antennas. Make sure that power lines or generators cannot affect the performance.	
Minimum distance to radio communication device	If you use a radio communication device, install it to a different height and away from the air quality transmitter. Recommended minimum distance to radio communication is 1 m (3 ft).	

Product package contents

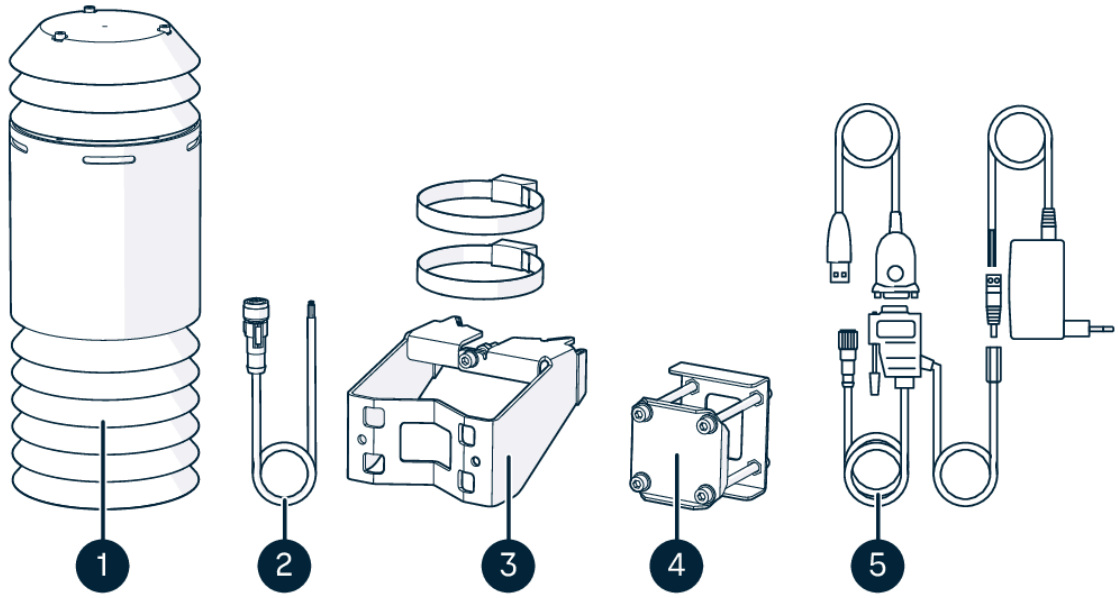


Figure 1. AQT560 product package contents

1 Vaisala Air Quality Transmitter AQT560
2 Open-ended M12 cable
3 Mounting bracket
4 Support arm attachment set or steel bands
5 Service cable kit (accessory, order code 253163SET)

Save the container and the packaging materials for future transportation or shipping.

Required tools and equipment

- Power supply unit (output voltage: 10–25 V DC / minimum 10 W)
- Terminal block
- 5-mm Allen key
- Electrician screwdriver
- Weatherproof enclosure
- Personal protective equipment (PPE)

In pole mast installation

- 7-mm socket wrench or slotted screwdriver
- 10-mm wrench

In wall installation

- Screws and wall plugs suitable for the wall material (2 pcs each)
- Drilling tools

Storage

Table 1. Storage

Property	Description

Property	Description
Storage time	Max. 3 months If stored for longer periods of time, connect the device to power.
Storage conditions	Indoors • In typical office conditions +20 … +25 °C (+68 … +77 °F) 20–75 %RH • In shipping package • Away from dust, dirt, and chemicals

Safety

This product has been tested for safety. Note the following precautions:

WARNING! Do not replace components when the system is powered up. Disconnect all power sources before performing maintenance procedures.

WARNING! Do not substitute parts or modify the system, or install unsuitable parts in the system. Improper modification can damage the product or lead to malfunction.

WARNING! Assess the risks from the installation work. Consider also the effects of local weather conditions.

WARNING! Failure to comply with these precautions or with specific warnings elsewhere in these instructions violates safety standards of design, manufacture, and intended use of the product. Vaisala assumes no liability for the customer's failure to comply with these requirements.

WARNING! If the equipment is used in a manner not specified by Vaisala, the protection provided by the equipment may be impaired.

WARNING! Follow local and state legislation and regulations on occupational safety.

WARNING! Check that the instrument has not been damaged during transportation. Do not install or operate a damaged instrument.

WARNING! Do not attempt to open the laser particle counter (LPC) for service. Removing the cover may cause exposure to harmful class 3B laser radiation and electrical shock.

CAUTION! Improper modification can damage the product or lead to malfunction. Any modification voids your warranty.

CAUTION! To prevent electrostatic discharge, avoid touching component contacts or connectors.

Wear personal protective equipment (PPE).

Eye safety

Vaisala Air Quality Transmitter AQT560 is classified as a Class 1 laser device in accordance with International Standard IEC 60825-1:2014 and EN 60825-1:2014+A11:2021. It complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 ED. 3., as described in the Laser Notice No. 56, dated May 8,2019. A Class 1 laser device is safe under all conditions of normal use.

AQT560 incorporates a Class 3B laser. The laser is contained in an enclosure, preventing direct physical access to laser radiation.

Table 1. Incorporated laser module

Property	Description/Value
Laser module	Class 3B
Laser wavelength	658 nm
Maximum power	22 mW

The device is equipped with the following laser product labels.

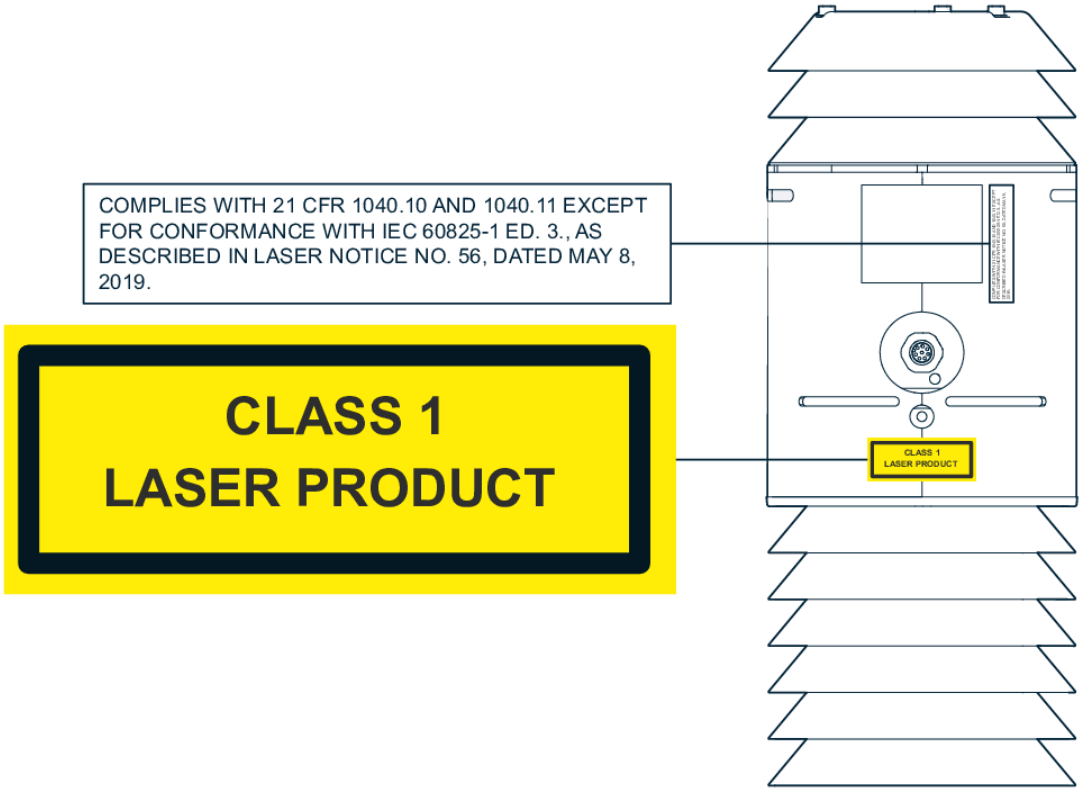


Figure 1. Location of Class 1 laser product labels on AQT560

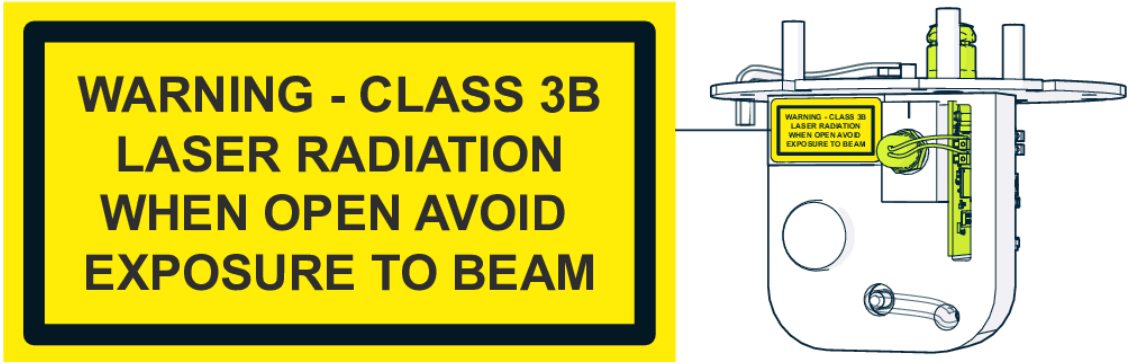


Figure 2. Location of Class 3B laser radiation label on AQT560 inside laser particle counter (LPC)

Follow the safety information to avoid exposure to laser radiation.

Regulatory statements

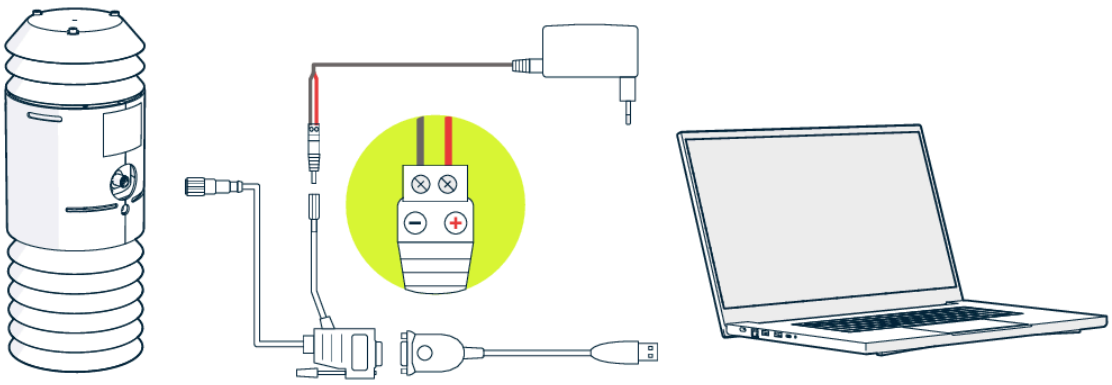
For AQT560 regulatory statements, see AQT560 Regulatory Information (M213071EN).

1. Setting up communication

- Maintenance cable kit (accessory, order code 253163SET)

Serial port configuration may be needed if the sensor is used in a non-Vaisala system. Check the default values listed in Table 1 and configure the settings to match your system as needed.

1. Connect AQT560 to a computer with the maintenance cable kit.



2. Open a terminal program (for example, PuTTY or TeraTerm).
3. Open serial port configuration.
   In PuTTY, this is under Serial or Serial & USB.
4. Select the COM port where you have connected ATEN USB to Serial Bridge.

   You can check the right COM port from the Device Manager on your Windows computer.

   If ATEN USB to Serial Bridge is not visible as a COM port, download and install new ATEN USB to Serial Bridge drivers from the ATEN web page.

5. Use the following COM port settings to connect the transmitter.

Parameter	Value
Baud rate	115200
Data bits	8
Stop bits	1
Parity	None
Flow control	None

6. Accept the changes and open the command window.
7. To set communication parameters that match your system, use command set.

```
set <parameter>=<value>
```

For example:

```
$ set rs485_baud=19200
set: rs485_baud=19200
$
```

To see the current values, use command show.

```
show <parameter>
```

For example:

```
$ show rs485_baud
show: rs485_baud=19200
```

```
$
```

Table 1. Communication parameters

Parameter	Description	Default
rs485_addr	Modbus address 1–253	1
rs485_baud	Baud rate • 4800 • 9600 • 19200 • 38400 • 57600 • 115200	19200
rs485_mode	Interface in use • *0* = ASCII CSV • *1* = Modbus ASCII • *4* = Modbus RTU	*4* = Modbus RTU
rs485_databits	Data bits • *7* • *8*	8
rs485_parity	Parity • *N* = None • *E* = Even • *O* = Odd	*E* = Even
rs485_stopbits	Stop bits • *1* = One stop bit • *2* = Two stop bits	*1* = One stop bit

For more information about the available commands, see AQT560 Configuration Guide (M213026EN).

8. To the save configuration, use the command write --really.

```
$ write --really
$
```

9. To check if measurements are fetched from the sensor, use the command meas.

```
$ meas
NO2(ppm): 0.001
CO (ppm): 1.458
O3 (ppm): 0.368
TEMP (C): 22.0
HUM (%RH): 42.1
PRES (mbar): 1002.3
Uptime (s): 802
$
```

10. Disconnect cables. AQT560 is now ready to be installed.

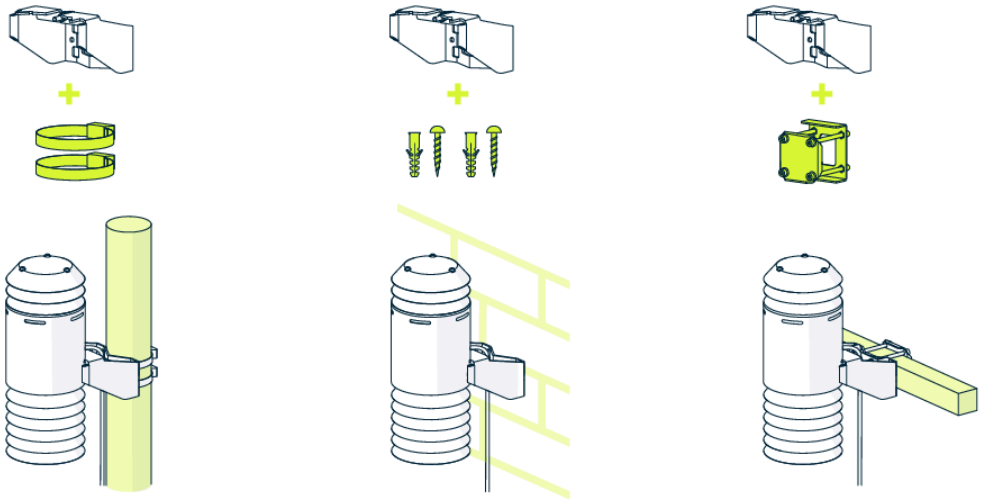
The needed configuration depends on your system. Follow the instructions in this document or see AQT560 Configuration Guide (M213026EN) for more information about the available commands.

2. Installing AQT560

AQT560 can be installed on Ø 30–120 mm (1.18–4.72 in) pole mast, wall, or support arm with mounting bracket.

The recommended installation height is 2–4 m (6 ft 7 in–13 ft).

Pole mast installation **Wall installation** **Support arm installation**

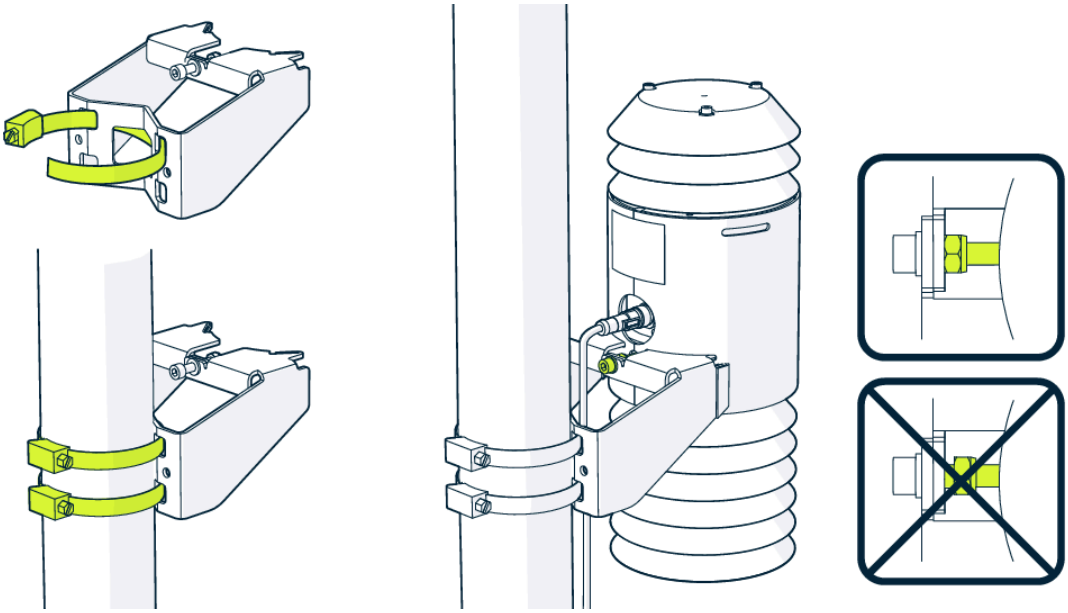


Related tasks

Installing AQT560 on pole mast
Installing AQT560 on wall
Installing AQT560 on support arm

Installing AQT560 on pole mast

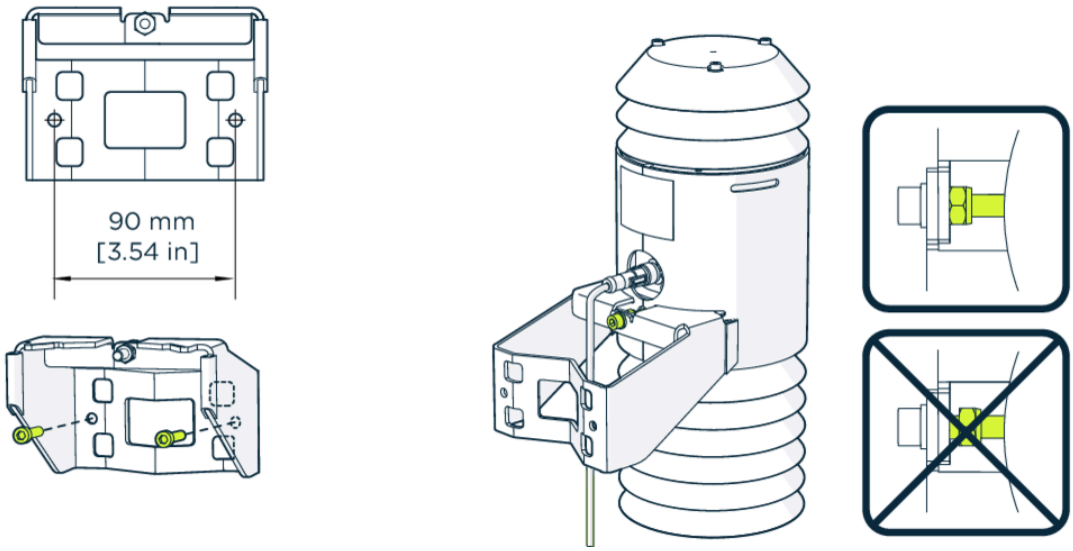
- 5-mm Allen key
- 7-mm socket wrench or slotted screwdriver
- 10-mm wrench
- Steel bands (2 pcs)



1. Attach the mounting bracket on a pole mast with steel bands.
2. Mount the transmitter on the mounting bracket.
3. Attach the screw and nut and tighten to keep the transmitter firmly in place.

Installing AQT560 on wall

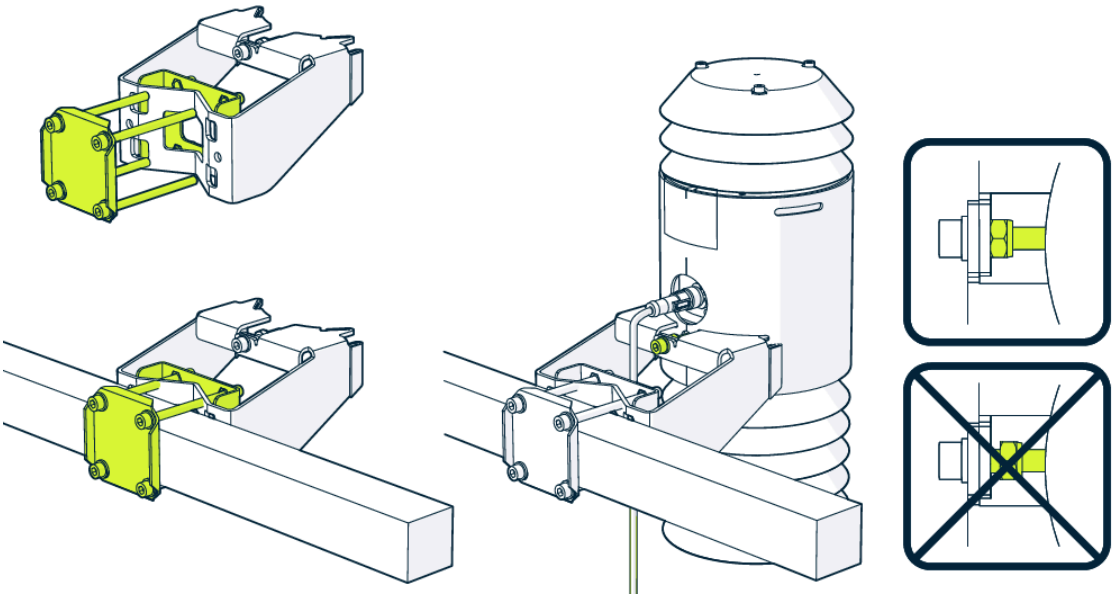
- Drilling tools
- 5-mm Allen key
- 10-mm wrench
- Screws and wall plugs suitable for the wall material (2 pcs each)



1. Attach the mounting bracket on the wall using plugs and screws that are suitable for the wall material.
2. Mount the transmitter on the mounting bracket.
3. Attach the screw and nut and tighten to keep the transmitter firmly in place.

Installing AQT560 on support arm

- 5-mm Allen key
- 10-mm wrench
- Support arm attachment set



1. Attach the mounting bracket on a support arm using the optional attachment set.
2. Mount the transmitter on the mounting bracket.
3. Attach the screw and nut and tighten to keep the transmitter firmly in place.

3. Connecting data and power

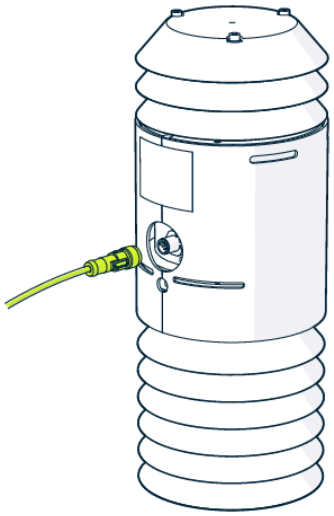
- Electrician screwdriver
- Terminal block
- Weatherproof enclosure (for the terminal block)

Connect the transmitter cable to enable data and power flow over the RS-485 interface.

RS-485 supports Modbus ASCII, Modbus RTU, and plain ASCII output with comma separated values (CSV).

The RS-232 interface is used mainly for the maintenance connection.

1. Connect the cable to the transmitter.



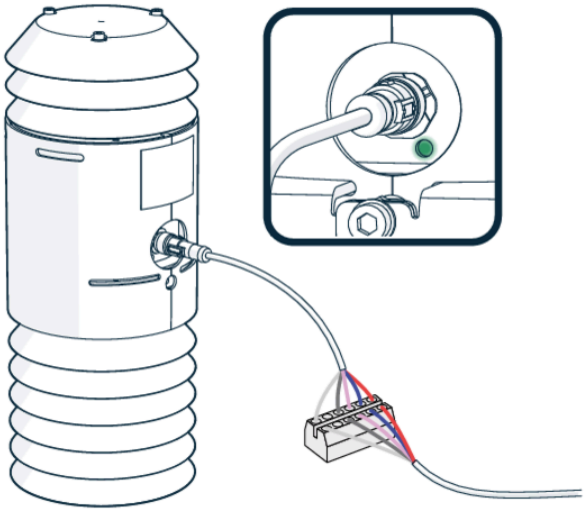
2. Connect the open end of the connection cable to your system.

Operating voltage:
10–25 V DC
Max. 1 A at 10 V DC

Table 1. AQT560 wiring

Wire	RS-232	RS-485
White	Data GND	Data GND
Brown	RX (input)	-
Green	TX (output)	-
Yellow	No connection (floating)	No connection (floating)
Gray	-	A (D−)
Pink	-	B (D+)
Blue	Power GND	Power GND
Red	Power 10–25 V DC	Power 10–25 V DC
Black	Cable shield	Cable shield

The LED blinks to indicate that the transmitter is operating.



3. Place the terminal block inside the weatherproof enclosure to protect it from moisture.
4. Check that data is coming to your system.

Let the unit stabilize for at least 24 hours before using the gas measurement results. During the stabilization period, the gas measurements are marked as invalid.

Warranty

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

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

Technical support

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

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

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

Recycling

Recycle all applicable material according to local regulations.