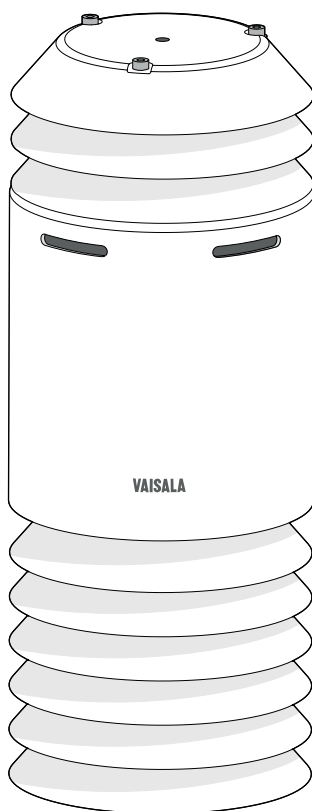# Setup Guide

Vaisala Air Quality Transmitter
AQT530

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Vaisala Air Quality Transmitter AQT530

AQT530 measures gaseous pollutants and particles in the ambient air.

AQT530 is specifically designed for air quality monitoring networks in urban areas, road networks, or around industrial sites and transportation hubs.

This product is intended for outdoor use and can be used in wet locations (IP65). 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.

Follow local and state legislation and regulations on occupational safety.
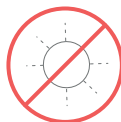

2 ... 4 m (6 ft 7 in ... 13 ft)

Recommended installation height from ground level.

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

Do not mount the device to direct sunlight or near other heat sources.

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.

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).
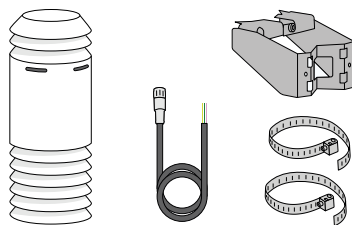
Needed for setup

In product package:
• Air quality transmitter AQT530
• Open-ended M12 cable
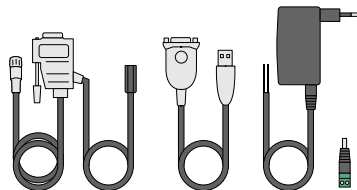• Mounting bracket with two steel bands

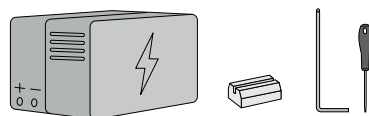ℹ️ Save the container and the packaging materials for future transportation or shipping.

Ordered separately:
• Service cable kit

Other needed tools and equipment:
• Power supply unit
  Output voltage: 10 ... 25 V DC
  Minimum 8 W
• Terminal block
• Weatherproof enclosure
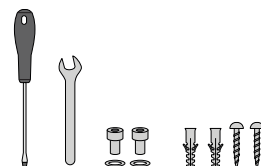• Electrician screwdriver
• 5 mm Allen key

In pole mast installation:
• 7 mm socket wrench or
  slotted screwdriver
• 10 mm wrench

In sensor support arm installation:
• Two M6x19 mm screws and washers

In wall installation:
• Two screws and wall plugs suitable for
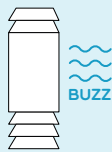 the wall material
• Drilling tools

1 Setting up communication

Serial port configuration may be needed if sensor is used in other than Vaisala system.

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

ℹ AQT530 makes buzzing noise during particle measurement.

BUZZ

Example:

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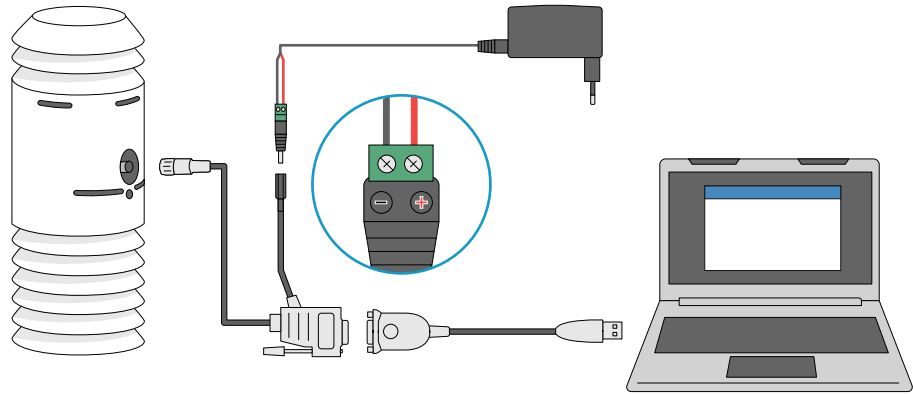```

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

ℹ For more information about available commands, see **AQT530 Configuration Guide.**

Example:

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

```
$ 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
$
```

1.1 Connect AQT530 to a computer with the service cable kit.

1.2 Open a terminal program (for example, PuTTY or TeraTerm).

1.3 Open serial port configuration.

1.4 Select the COM port where you have connected **ATEN USB to Serial Bridge**.

1.5 Use the following COM port settings to connect the AQT sensor:

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

1.6 Accept the changes and open command window.

1.7 Use command **set** to set configuration parameters that match your system. To see the current values, use command **show**.

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

```
show <parameter>
```

Parameter	Description	Default value
rs485_addr	Modbus address, 1 ... 253	1
rs485_baud	Baud rate, 4800 ... 115200 bps	19200
rs485_mode	Interface in use 0 = ASCII CSV 1 = Modbus ASCII 4 = Modbus RTU	4 = Modbus RTU
rs485_databits	Databits, 7 or 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

1.8 Use command **write --really** to the save configuration.

1.9 To check if measurements are fetched from the sensor use command **meas**.

1.10 Disconnect cables. AQT530 is now ready to be installed.

---

2 Installing sensor

AQT530 can be mounted on Ø 30 ... 120 mm (1.18 ... 4.72 in) pole mast, sensor support arm, or wall with mounting bracket.

Recommended installation height is 2 ... 4 m (6 ft 7 in ... 13 ft).

🔧 Needed tools:
- 7 mm socket wrench or slotted screwdriver to tighten steel bands in mast installation
- Two M6 screws and Allen key in sensor support arm installation
- Drilling tools in wall installation
- 5 mm Allen key and 10 mm wrench to tighten screw and nut in bracket

2.2 Connect sensor cable to AQT530.

2.1 Attach brackets to the pole mast, sensor support arm, or wall.
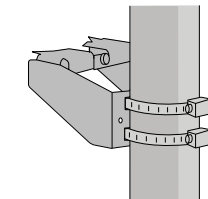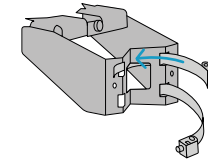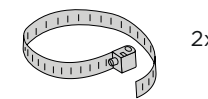
Pole mast	Sensor support arm	Wall

2x

2x
M6x10 mm
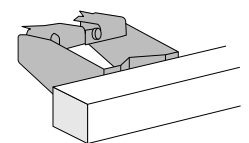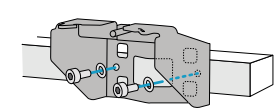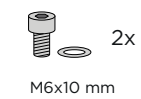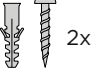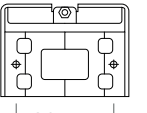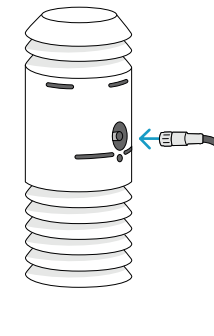
2x
Use wall plugs and screws that are suitable for the wall material.

90 mm [3.54 in]

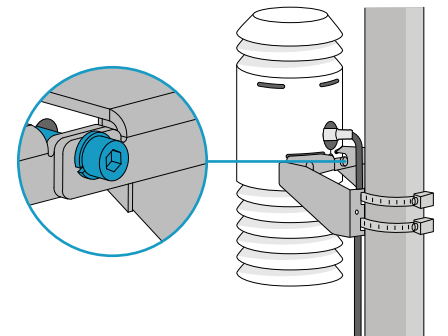**2.3** Attach AQT530 to mounting bracket. Tighten screw and nut to keep AQT530 firmly in place.

# 3 Connecting power and data over RS-485 interface

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

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

⚠ 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.

3.1 Connect the open end of the connection cable to your system according to the table.

Operating voltage: 10...25 V dc Max 0.8 A at 10 V dc

Your system →
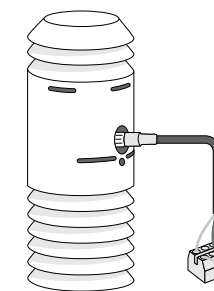
3.2 Place the terminal block inside the weatherproof enclosure to protect it from moisture.

3.3 Validate that data is coming to your system.

Wire	RS-232	RS-485
White	Data GND	Data GND
Brown	RX (input)	-
Green	TX (output)	-
Yellow	No connection (floating)	No connection (floating)
Gray	-	B (-)
Pink	-	A (+)
Blue	Power GND	Power GND
Red	Power 10 ... 25 VDC	Power 10 ... 25 VDC
Black	Cable ground	Cable ground

Safety Note

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!
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.

NOTE
Highlights important information on using the product.

WARNING! Do not substitute parts or modify the system, or install unsuitable parts in the system.

WARNING! Assess the risks from the installation work. Take into account also the effects of local weather conditions. Do not perform installation procedures when there is a risk of thunderstorm or lightning activity in the area.

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

WARNING! Do not disassemble the instrument unless instructed to do so in AQT530 maintenance instructions to avoid exposure to laser radiation.

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

Vaisala Air Quality Transmitter AQT530P incorporates a laser particle counter. AQT530 is classified as a Class 1 laser device in accordance with International Standard IEC/EN 60825-1. The laser is contained in an enclosure, preventing direct physical access to laser radiation. A Class 1 laser is safe under all conditions of normal use.

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

Wear personal protective equipment (PPE).

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, touch a conductive part of the equipment chassis with your other hand before touching ESD-sensitive components.

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