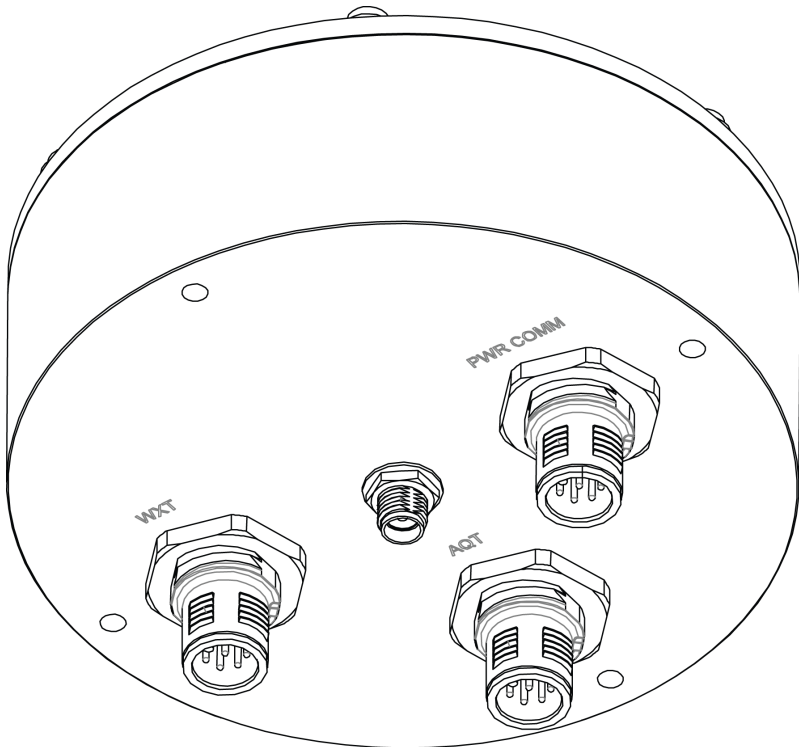


Configuration Guide

Vaisala Multi-Observation Gateway

MOG100



PUBLISHED BY

Vaisala Oyj
Vanha Nurmiyarventie 21, FI-01670 Vantaa, Finland
P.O. Box 26, FI-00421 Helsinki, Finland
+358 9 8949 1

Visit our Internet pages at www.vaisala.com.

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1. About This Document

1.1 Version Information

This document provides information about the configuration and wiring of Vaisala Multi-Observation Gateway MOG100.

Table 1 Document Versions

Document Code	Date	Description
M212056EN-C	March 2019	Regulatory compliance information updated
M212056EN-B	June 2018	Beacon View changed to Beacon Cloud
M212056EN-A	February 2018	First version.

1.2 Related Manuals

Table 2 Related Manuals

Document Code	Name
M211942EN	<i>Vaisala Air Quality Transmitter AQT400 Series User Guide</i>
M211951EN	<i>Vaisala Multi-Observation Gateway MOG100 User Guide</i>
M212019EN	<i>Vaisala Observation Network Manager NM10 Configuration and Maintenance Manual</i>
M211840EN	<i>Vaisala Weather Transmitter WXT530 Series User Guide</i>

The documentation is available online at www.vaisala.com.

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.



Note highlights important information on using the product.



Tip 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.

1.4 Trademarks

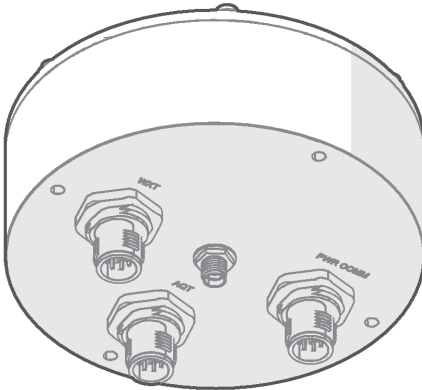
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2. Product Overview

2.1 Vaisala Multi-Observation Gateway MOG100



Vaisala Multi-Observation Gateway MOG100 is a gateway and logger device for Vaisala Air Quality Transmitter AQT400 Series and Vaisala Weather Transmitter WXT530 Series. MOG100 includes the following components:

- GSM module for wireless communication
- Battery regulator for solar panel and battery input
- Memory for data logging and local buffering

MOG100 sends the measuring data from the air quality or weather transmitters to Vaisala Beacon Cloud, Vaisala Observation Network Manager NM10, and third-party servers, using the integrated 3.5G (4-band GSM) cellular modem. MOG100 communicates using the secure HTTP over TCP/IP protocol (HTTPS).

MOG100 is enclosed in an IP66-rated weatherproof aluminum casing and can be installed outdoors. The unit has dedicated connectors for AQT400, WXT530, and for power and maintenance.

2.2 Safety

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



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! Do not perform installation or maintenance procedures when there is a risk of thunderstorm or lightning activity in the area.



WARNING! Follow the risk assessments you have carried out for the installation work. To ensure safety, make sure that all work is organized and planned, and carried out by competent persons.



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



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.

2.3 Regulatory Compliances



2.3.1 Applicable European Directives

The device is in conformity with the following EC directives:

- RoHS Directive 2011/65/EU
- EMC Directive 2014/30/EU
- RE Directive 2014/53/EU(*)

* When applicable, the product conforms to the corresponding RED articles:

RF spectrum efficiently, Article 3 (2); EMC, Article 3 (1b); Safety, Article 3 (1a)

This product complies with the following test standards:

- EN 301489-1
- EN 55032 Class B / CISPR 32

- EN 61010-1

Compliance with the following test standards is derived from Telit HE910 cellular module's declaration of conformity:

- EN 62311:2008
- EN 301 489-1 V2.1.1, Draft EN 301 489-52 V1.1.0
- Final draft EN 301 489-3 V2.1.1
- EN 300 440 V2.1.1 / EN 301 511 V12.5.1
- EN 301 908-1 V11.1.1 / EN 301 908-2 V11.1.1

To comply with RE directive one must use only the antenna provided with the product package.

2.3.2 FCC Compliance

This product contains a transmitter module FCC ID R17HE910.

MOG100 complies with FCC Chapter 47 Part 15, 22H, and 24E. Operating is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.



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 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.

2.3.3 Official Modem Identification

This product contains part identified as follows by national authorities:

- FCC ID: R17HE910
- IC ID: 5131A-HE910
- GITEKI (MIC) ID: 005-100269
- JATE ID: AD12-0318001

3. Configuring Connections

To configure the settings of MOG100 for use with Beacon Cloud, Vaisala Observation Network Manager NM10, or a third-party server, use AQ Tool.

3.1 Configuring MOG100 for NM10

You can configure measurement data transfer from the air quality and weather transmitters to NM10 using MOG100.

When using MOG100 with NM10, you must configure the address where MOG100 sends the data.

- ▶ 1. On your computer, select **Start > AQ Tool**.
2. To connect to the device, select **Connect** in AQ Tool.
3. MOG100 sends data to the addresses that are defined in **Configuration**. Set the following:
 - AQ-View address #1 <NM10 IP address>
 - AQ-View address #2 <NM10 IP address>
 - AQ-View address #3 <NM10 IP address>
4. In NM10, set the ports for listening and saving data that comes from MOG100. Go to the following address and check the MOG100 endpoint in the NM10 application: `https://<localhost>:8181/jdcp-webapp/endpoints/mog/100`. Replace `localhost` with the actual server name or IP address. To verify the URL of the service, see *Vaisala Observation Network Manager NM10 User Guide*.



The URL of the service can change in different NM10 versions.

5. Check that MOG100 is registered in NM10:
 - In NM10 at `https://<server name or IP address>/nm10/desktop`, go to **Network Status > Communication Devices** or **Network Status > Observation Sites** and check that MOG100 is on the list.
 - In the NM10 events list, there is a new event informing that a site configuration was created for the MOG100 device.
 - If you want to view or change the site configuration, see *Vaisala Observation Network Manager NM10 User Guide*.



Use the serial number of MOG100 as the site name in NM10.

4. Configuring Data Management

To retrieve data from MOG100, the following options are available:

- If you have installed a SIM card in MOG100, it stores data continuously to the cloud service. Use Beacon Cloud to view the data.
- If you are using NM10 or a third-party server, configure MOG100 to send data to your service and view the data there.
- If you have a maintenance connection to MOG100 with your computer, data is stored on the computer.
- If you have enabled logging in MOG100, the data is stored in the local memory in MOG100. Create a maintenance connection to transfer the data to your computer.

4.1 Configuring Local Data Logging

Measurement data is transferred to Beacon Cloud. If you want to log measurement data locally in the gateway, configure the logging in AQ Tool.

- ▶ 1. Open AQ Tool and establish a maintenance connection to the gateway.
2. In **Configuration**, set the **Logging interval** in minutes.
Logging interval defines how often the gateway stores the measurement data in the local memory. The default setting 0 means that logging is not in use.
To define the logging interval to be 10 minutes, use the parameter **Logint** and type **10**.
3. To save the changes, select **Write to eeprom**.
The device starts to log data.
With 10-minute logging, the memory is full after approximately 2 months when approximately 10 000 measurements have been logged. When the memory is full, logging is disabled. To enable logging again, read and clear the memory.

To change the communication or measurement interval, use Beacon Cloud.

Measurement interval defines how often measurements are taken.

Communication interval defines how often data is transferred from the device to the cloud.

4.2 Clearing Logging Data from Memory

MOG100 logs data based on the logging interval defined in AQ Tool. When the memory is full logging is disabled. To enable logging again, you must read and clear the memory.

- ▶ 1. Establish a maintenance connection to MOG100. See *Vaisala Multi-Observation Gateway MOG100 User Guide*.
AQ Tool recognizes the device and if the memory contains logging data.
2. Select **Read**.

3. When prompted, select the location where you want to store the data in the CSV file format.
Data transfer from MOG100 to the computer starts. This can take several minutes depending on the amount of data to transfer.
4. When MOG100 finishes reading the memory, select **Clear** to clear the memory. MOG100 continues to log data according to the defined logging interval.

5. AQ Tool Configuration Parameters

The following parameters are available in AQ Tool for configuring communication and data logging.

Table 3 AQ Tool Configuration Parameters

Parameter	Alias	Description
GSM APN address	gsm_apn	Access point name (APN) supplied by the SIM card provider. Used in wireless communication with MOG100.
GSM username	gsm_username	Username supplied by the SIM card provider. Used in wireless communication with MOG100.
GSM password	gsm_password	Password supplied by the SIM card provider. Used in wireless communication with MOG100.
AQ-View address #1	gw_host1	Defines the address to which MOG100 sends the data. Used to configure use with Beacon Cloud, NM10, or a third-party server.
AQ-View address #2	gw_host2	Backup address for AQ-View address #1.
AQ-View address #3	gw_host3	Backup address for AQ-View address #2.
AQ-View enabled	gw_enable	0 = wireless communication disabled 1 = wireless communication enabled
Automatic configuration	autoconf	Defines whether to use automatic unit configuration. Enabled by default. 0 = disabled 1 = enabled
Unit configuration	unitconf	Shows the devices that are connected to MOG100. The value is generated automatically. 0 = no devices 1 = AQT 2 = WXT 3 = AQT and WXT
Communication interval	commint	Defines how often measurement data is transferred from MOG100 to Beacon Cloud or another service. The default is 10 minutes.

Parameter	Alias	Description
Measurement interval	measint	Defines the interval between individual measurements that are registered in MOG100. The default is 5 minutes. To set the measurement interval of AQT400, use Beacon Cloud.
Logging interval	logint	Defines the interval in minutes for storing the measurement values in MOG100. 0 = logging disabled



To save the edited parameters in AQ Tool, select **Write to eeprom**.

6. MOG100 Wiring

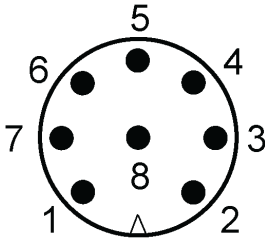


Figure 1 Pinout of M12 Male Connector on MOG100

Table 4 Pinout of M12 Connector

M12 Pin	Wire Color	AQT	WXT	PWR COMM
1	White	GND analog	RS-485 B2 -	RS-232 GND
2	Brown	Not used	PWR OUT	RS-232 RX
3	Green	Analog input 3	RS-485 A2 +	RS-232 TX
4	Yellow	Analog input 4	Heating PWR	Batt +
5	Grey	RS-485 B1 -	Analog input 1	Batt -
6	Pink	RS-485 A1 +	GND analog	Not used
7	Blue	GND OUT	Analog input 2	GND IN
8	Red	PWR OUT	GND OUT	PWR IN



- If you use a solar panel and a mains power supply (and no battery), connect the red wire to the positive pole (Vin) and the blue wire to the negative pole (Gin).
- If you use a 12 V lead-acid battery PWR IN > 15 (and no solar panel), connect the yellow wire to the positive pole (Batt +) and the grey wire to the negative pole (Batt -).

For powering, you can use a solar panel and a mains power supply (such as QMP201C or QMP213), or a battery.

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:

- Product name, model, and serial number
- 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.



Follow the statutory regulations for disposing of the product and packaging.

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