

QUICK START GUIDE

358 Series MB Portable Mass Flow Meters

From the box to the first reading: charging, taring, gas and units, and connecting the battery-powered 358 Series MB mass flow meter to your process.

AMTC-QG-0001

Read this first

The full safety information is in the Safety chapter of the operating manual (AMTC-MN-0004); read that chapter and the safety messages below before you connect the meter to a gas line. Not following the safety messages can damage the meter or cause injury. You can download the operating manual from its product page at analyt-mtc.com.

This guide takes you from the box to your first reading with a 358 Series MB portable mass flow meter: what is in the box, charging the battery, taring, choosing the gas and the units, and connecting the meter to your process within its pressure limits. It applies to the standard MB and to its corrosion-resistant version (model code MBS).

Read Safety (p. 2) below first, then work through Supplied items (p. 5) and First use (p. 7) in that order.

This guide does not replace the operating manual. Gas mixes, the totaliser, averaging, the display options and troubleshooting are described in the *358 Series M, MB, MLW and MLWB Mass Flow Meters — Operating manual* (AMTC-MN-0004). The serial command set is in the *358 Series serial interface (RS-232/RS-485) — Communication guide* (AMTC-CG-0002).

Keep this guide for the lifetime of the product. The current revision is on the product page at analyt-mtc.com.

Safety notices in this guide

WARNING

A hazardous situation which, if not avoided, could result in death or serious injury.

NOTICE

Practices not related to personal injury — damage to the product, the process or the sample.

Note
Information that helps understanding; never a hazard.

Safety

Read this section before you connect the meter to a gas line. Each point is repeated, with its context, in the section where it applies.

Intended use

The MB measures the mass flow, volumetric flow, pressure and temperature of clean, dry gases within the limits on its calibration certificate and in Pressure limits (p. 10). It runs on its internal battery, which makes it suited to checking and verifying flows in the field. Selecting a gas only changes how the meter calculates its readings; it does not change the gas.

Rules that protect the meter

WARNING

Pressure. Never exceed the maximum line pressure or differential pressure of the meter (see Pressure limits (p. 10)). Operating the meter above its specifications can damage it or cause injury.

NOTICE

Sealants. Pipe dope and liquid sealants on the process connections can get into the flow stream. There they damage the meter permanently. Do not use pipe dope or liquid sealants on the process connections.

NOTICE

Flow body. Do not take the flow body apart to clean it. Taking the flow body apart can damage the meter further and may void the warranty. If you suspect debris inside, contact Analyt-MTC for cleaning.

WARNING

Depressurise first. Gas that escapes from a line that is still under pressure can injure you, and a hazardous gas left in the system can harm your health. Before you disconnect the meter from a system that has been pressurised, confirm independently that all pressure has been released safely and that any hazardous gas left in the system has been purged.

Note

Charging temperature. Charge the battery only between 0 and 45 °C. Outside this range the meter does not charge.

Document information

Title	358 Series MB Portable Mass Flow Meters — Quick start guide
Document number	AMTC-QG-0001
Revision	Rev. 2 — October 2026
Applies to	358 Series MB portable mass flow meters, standard and corrosion-resistant (MBS) versions
Language	English
Related documents	358 Series M, MB, MLW and MLWB Mass Flow Meters — Operating manual (AMTC-MN-0004); 358 Series serial interface (RS-232/RS-485) — Communication guide (AMTC-CG-0002)

Revision history

Rev.	Date	Change
2	October 2026	Quality programme: new document type, number and identity pages.
1	October 2026	First issue.

Related documents: data sheet for your flow range; calibration certificate

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Contents

1 Supplied items 5

Check the contents 5

Know the meter 5

2 First use 7

Charge the battery 7

Switch on, and use the backlight 7

Set-up and connection 7

Tare 7

Select the gas 8

Choose the units 9

Standard conditions 10

Pressure limits 10

Ports and fittings 10

Connect the meter 11

Connect a computer 11

3 Care and service 12

If something looks wrong 12

Device information 12

Cleaning 13

Calibration 13

Service and support 13

4 Where to find more 14

Related documents 14

CHAPTER 1

Supplied items

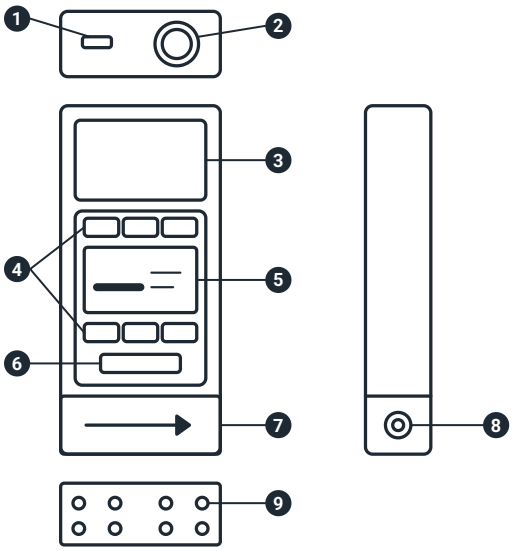
Check the contents

The box contains:

- the MB mass flow meter, with plastic plugs in its process ports;
- the power and communication cable (Micro-USB type B to USB type A);
- the calibration certificate;
- any accessories you ordered, such as filters or fittings.

Keep the plugs in the ports until you connect the meter to your process.

Know the meter



1	Micro-USB type B socket, for charging and for serial communication
2	Power switch
3	Internal battery, behind the upper front panel
4	Control buttons, three above and three below the display
5	Display
6	Light button (the logo panel below the display)
7	Flow body, with the flow arrow
8	Process connections, inlet and outlet, one at each end of the flow body
9	Mounting holes, underneath the flow body

Figure 1. The MB from the top, the front, the side and the bottom of the flow body.

The main display

The main display shows all live readings at once: the meter measures 1000 times per second and refreshes the display 10 times per second. One reading is shown large in the centre, with its unit and the selected gas to its right; in Figure 2 it is the mass flow. Each button above and below the display belongs to the label next to it.

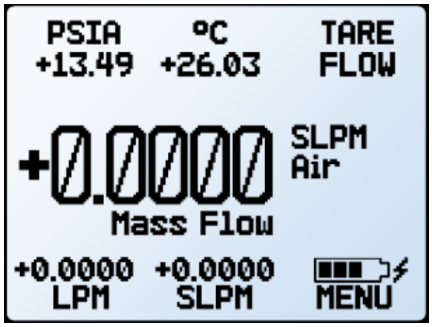


Figure 2. Main display. The battery indicator sits at the lower right; a lightning bolt beside it shows that the meter is charging.

Button	Function
Pressure (top left)	Shows the pressure in the centre
Temperature (top centre)	Shows the gas temperature in the centre
TARE FLOW	Tares the flow reading (Tare (p. 7))
Volumetric flow (bottom left)	Shows the actual volumetric flow in the centre
Mass flow (bottom centre)	Shows the mass flow in the centre
MENU	Opens the main menu

CHAPTER 2

First use

Charge the battery

The meter is shipped with the battery partly charged. A full charge lasts up to 18 hours with the standard monochrome display, or about 8 hours with the optional colour display; dimming the backlight makes it last longer.

> **Note**
> Charge the meter only between 0 and 45 °C. If its sensors detect a temperature outside this range, the battery does not charge.

1. Plug the Micro-USB end of the supplied cable into the socket on top of the meter (1 in Figure 1 (p. 5)).
2. Plug the USB type A end into a USB mains adapter. Charging is fastest, about 3.5 hours, with a 2.0 A adapter. Any USB port of a computer or a power bank also charges the meter, only more slowly.
3. Check the red LED on top of the meter: it lights while the battery is charging and goes out when the battery is full. A lightning bolt next to the battery indicator on the display also shows that the meter is charging.

You can use the meter while it charges. When the battery indicator shows empty, about 15 minutes of operation remain. A battery that has run completely flat needs about one minute on the charger before the meter will switch on.

Switch on, and use the backlight

1. Switch the meter on with the power switch on top (2 in Figure 1 (p. 5)). The main display appears.

The monochrome display has a backlight. To switch it on or off, press the light button below the display (6). On the optional colour display, the same button turns the display off to save power. The contrast and brightness are adjusted in the display settings; they are described in the operating manual.

Set-up and connection

Three settings decide whether the first reading is right: the zero point (tare), the gas and the units. Make them before you connect the meter. Then check the pressures and plumb the meter in, with the gas flowing in the direction of the arrow.

Tare

A tare gives the meter a zero reference; every flow reading is measured from it. Tare the meter:

- after installation;
- when you change its orientation;
- after it has been hit by any significant impact;
- after any significant change of temperature or pressure.

1. Make sure that no gas flows through the meter.

2. Tare at the pressure you expect in the process; if you tare the meter already installed, keep the line at its normal operating pressure.
3. Press **TARE FLOW** on the main display, or go to **MENU** › **TARES** › **TARE FLOW**. The screen asks you to make sure that there is no flow before you press **TARE**.
4. Press **TARE** to confirm. The flow reading returns to zero.

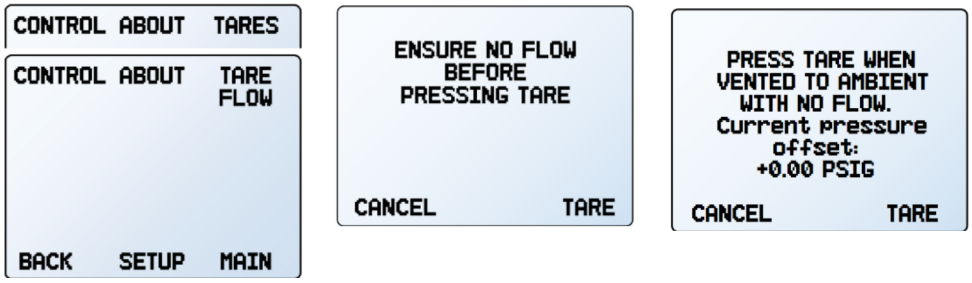


Figure 3. Taring on the meter. Left: the main menu, with the tare entry as **TARES** (top) or as **TARE FLOW**. Centre: the flow tare confirmation. Right: the pressure tare confirmation.

If your meter has the optional barometer, **MENU** › **TARES** also offers a pressure tare, **TARE PRESS**. The meter must be open to the atmosphere when you tare the pressure; the screen asks you to press **TARE** when the meter is vented to ambient with no flow. An absolute pressure tare needs the barometer, which is installed at production.

> **Note**
> A negative flow reading with no gas flowing means a poor tare. Make sure that no gas flows, then tare again.

Select the gas

Most meters are calibrated on air at the factory. The gas selection lets you configure the meter for a different gas without sending it back for a physical recalibration. It offers a library of more than 98 gases. Not all gases are available on all meters: corrosive gases and refrigerants are available only on the corrosion-resistant MBS. The change takes effect as soon as you press **SET**; there is no need to restart the meter.

1. Press **MENU** › **SETUP**.
2. With the cursor on **Active Gas**, press **SELECT**.
3. In the category list, use **PAGE** to go to the next page of categories, and **SELECT** to open a category.
4. In the gas list, highlight your gas and press **SET**. The meter loads the gas properties and returns to the set-up menu. The selected gas now appears under the unit on the main display.

The category list holds your recent selections and your own gas mixes (up to twenty can be saved at a time), besides the categories of gases and pre-configured mixtures.

First page of the category list	What it holds
Recent	The gases you selected last
Standard	The standard gases, for example air, argon, methane, carbon monoxide, carbon dioxide and ethane
Gas mixes	Your own gas mixes
Bioreactor, **Breathing**, **Chromatography**	The gases and pre-configured mixtures of each category
More	The next page of categories

Figure 4. The gas categories. The two screens below show the set-up menu with **Active Gas** and the first page of the standard gases.

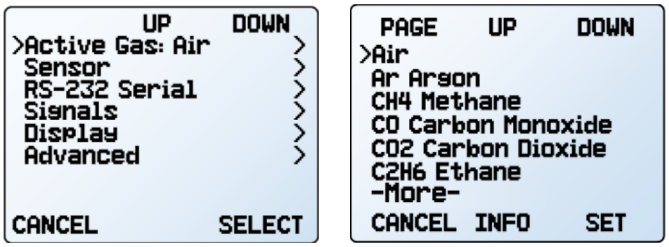


Figure 5. Left: the set-up menu. Right: the first page of the standard gases, with **PAGE**, **INFO** and **SET**.

The full gas list and how to define your own gas mixes are in the operating manual.

Choose the units

1. Press **MENU** › **SETUP** › **Sensor** › **Engineering Units**.
2. Choose the reading whose unit you want to change — mass flow, volumetric flow, pressure or temperature — then the new unit.
3. Confirm the change on the last screen.

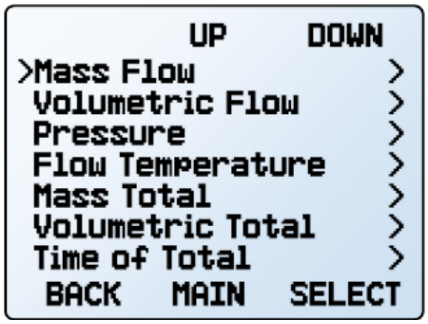


Figure 6. The engineering units menu: first choose the reading.

Standard conditions

Mass flow is shown as a volume flow at fixed reference conditions. Units that begin with **S** (**SLPM**, **SCCM**…) refer to standard conditions (STP); units that begin with **N** (**NLPM**…) refer to normal conditions (NTP). Unless you ordered otherwise, the meter ships with:

STP (units starting with S)	21.11 °C, 1013.25 mbar
NTP (units starting with N)	0 °C, 1013.25 mbar

To change them, go to **MENU** › **SETUP** › **Sensor** › **STP Flow Ref** or **NTP Flow Ref**; which one is offered depends on the selected flow unit.

> **Note**
> Changing the STP or NTP reference changes your mass flow readings. When you check a flow against another meter, set both instruments to the same gas and the same reference conditions first.

Pressure limits

Two limits protect the meter: the *line* pressure in the flow body and the *differential* pressure across the meter. Make sure your process stays below both before you connect the meter.

Table 2-1 Pressure limits

Version	Max. operating line pressure	Max. differential pressure
MB, MBS	10 bar g (145 psig)	5.17 bar (75 psid)

> **WARNING**
> Operating the meter above either limit can damage it or cause injury. Keep the pressure within both limits.

Ports and fittings

The standard meter has female inlet and outlet ports; for compression, face-seal, push-to-connect, BSPP (British Standard Pipe Parallel), SAE (Society of Automotive Engineers) and Swagelok-type fittings, ask Analyt-MTC. The thread size depends on the flow range and is listed on the data sheet for your range, together with the dimensions of the mounting holes (9 in Figure 1 (p. 5)). The meter needs no straight pipe runs upstream or downstream, and it works in any orientation, including upside down.

Where the extra pressure drop is acceptable, protect the flow element with an in-line sintered filter upstream of the meter. Choose the pore size from the full-scale range:

Full-scale range	Largest particle size
up to 1 smL/min (21.11 °C, 1013.25 mbar)	5 µm
above 1 smL/min and below 1 sL/min	20 µm
1 sL/min and above	50 µm

Connect the meter

NOTICE

Pipe dope and liquid sealants on the process connections can get into the flow stream. There they damage the meter permanently. Do not use pipe dope or liquid sealants on the process connections.

NOTICE

Do not wrap the first two threads that enter the meter. This keeps thread tape out of the flow stream, where it can clog or damage the meter.

1. Note the flow arrow on the flow body. The gas must flow in the direction of the arrow — usually from left to right.
2. Remove the plastic plugs from the ports.
3. On threaded fittings without a face seal, wrap PTFE (polytetrafluoroethylene) thread tape around the thread, leaving the first two threads that enter the meter bare. Face-seal fittings need no tape.
4. Connect the meter to your process.
5. Tighten the fittings.
6. Check once more that your line and differential pressures stay within Pressure limits (p. 10).
7. Let the gas flow and read the flow on the main display.

Connect a computer

The Micro-USB socket is the only electrical connection of the MB. It carries power and serial data, so you can read and log the measurements on a computer with the supplied cable. Most computers recognise the meter as a virtual COM port; you find its number under *Ports (COM & LPT)* in the Windows Device Manager. If no port appears, ask Analyt-MTC for the USB driver.

Open the port in any terminal program, or from your own software, with 19 200 baud (the default; you can use another rate if the computer, the software and the meter are all set to it), 8 data bits, no parity, 1 stop bit and no flow control. If the meter does not answer, check the unit ID under **`MENU`** › **`SETUP`** › **`RS-232 Serial`** › **`Unit ID`** so that your commands address the meter correctly. The commands are described in the *358 Series serial interface (RS-232/RS-485) — Communication guide* (AMTC-CG-0002). Instruments with a Bluetooth option have **`-BT`** in the part number; this guide covers the wired connection only.

CHAPTER 3

Care and service

If something looks wrong

What you see	What to do
The buttons do not respond and the display shows **LCK**	The front panel was locked by a serial command. Press and hold the four outer buttons together to unlock it.
MOV, **VOV**, **POV** or **TOV** next to the reading	Mass flow, volumetric flow, pressure or temperature is above the range of the meter. Bring it back within the range.
ADC, **COM**, **OVR** or **TMF** next to the reading	ADC: analogue-to-digital converter error. COM: the digital connection has been idle too long. OVR: the totaliser rolled over to zero. TMF: the totaliser missed out-of-range flow. The totaliser is described in the operating manual.
Negative flow with no gas flowing	Poor tare. Make sure that no gas flows, then tare (p. 7) again.
The flow reading never settles	The meter is fast enough to see small variations in flow that slower instruments miss. To smooth the reading, raise the time constant under **MENU** › **SETUP** › **Sensor** › **Flow Averaging** (up to 255 ms).
The flow reading does not change when the flow changes	The flow sensor may be damaged. Contact Analyt-MTC.
The pressure reading is negative	If a negative reading is not expected, the pressure may need a tare. On a meter with the barometer option, open it to the ambient atmosphere first (see Tare (p. 7)).
Low pressure readings jump to zero	The zero band, preset at the factory, shows small readings as zero. Reduce it under **MENU** › **SETUP** › **Sensor** › **Zero Band**.
The MB disagrees with another flow meter in the same line	Check that both use the same gas and the same reference conditions (p. 10).
The meter was dropped	If it switches on and responds normally, it is probably fine. It may or may not need a recalibration. Tare it and compare it with a known-good flow standard. If it agrees, keep using it, and tell Analyt-MTC about the drop at the next calibration.
The meter will not charge	Check that it is between 0 and 45 °C (see Charge the battery (p. 7)).

Further status messages and fault-finding steps are in the operating manual.

Device information

MENU › **ABOUT** shows what the meter is and when it was last calibrated. Have this screen open when you call Analyt-MTC.

Screen › field	Content
ABOUT DEVICE	
MODEL	Model of the meter (the part number may be truncated)
SERIAL NO	Serial number
DATE MFG	Date of manufacture
DATE CAL	Date of the most recent calibration
CAL BY	Initials of the technician who calibrated it
SW	Firmware version
FULL SCALE RANGES	
The maximum calibrated range of the mass flow, volumetric flow and pressure readings	
ABOUT MANUFACTURER	
Analyt-MTC name and contact details (web, phone, e-mail)	

Table 3-1. The **ABOUT** screens of the meter.

Cleaning

A meter that measures clean, dry gas needs no internal cleaning. Wipe the outside with a soft, dry cloth.

NOTICE

If you suspect that dirt or debris has entered the meter, do not take the flow body apart to clean it. Taking the flow body apart can damage the meter further and may void the warranty. Contact Analyt-MTC for cleaning.

Calibration

Have the meter calibrated once a year. The date of the last calibration is on the label on the back of the meter and under **MENU** › **ABOUT** › **About Device**.

⚠ WARNING

Depressurise first. Gas that escapes from a line that is still under pressure can injure you, and a hazardous gas left in the system can harm your health. Before you disconnect the meter from a system that has been pressurised, confirm independently that all pressure has been released safely and that any hazardous gas left in the system has been purged.

Service and support

Calibration, repair, cleaning and technical support for your MB are provided by Analyt-MTC. Only personnel authorised by Analyt-MTC may service the meter; dismantling or repairing it yourself may void the warranty and cause further failure. Get in touch before you send the meter in, with its model and serial number at hand; many questions are settled on the phone. The contact details of Analyt-MTC are in Where to find more (p. 14) and on the back cover.

CHAPTER 4

Where to find more

This guide covers the first use of the meter. The documents below go further; you can download them from the product page at analyt-mtc.com, or ask Analyt-MTC.

Related documents

Document	Number	What it covers
358 Series M, MB, MLW and MLWB Mass Flow Meters — Operating manual	AMTC-MN-0004	The full safety information, gas mixes, the totaliser, averaging, the display options and troubleshooting.
358 Series MB Mass Flow Meters — Technical data sheets, one per flow range (low, mid, high)	AMTC-SS-0049, AMTC-SS-0050, AMTC-SS-0051	The technical data of the MB, including the thread size for each flow range.
358 Series serial interface (RS-232/RS-485) — Communication guide	AMTC-CG-0002	The serial command set.

Contact and support

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Before you call

Have the following at hand so that Analyt-MTC can help you quickly:

- the model and serial number (label on the meter, or **`MENU`** › **`ABOUT`** › **`About Device`**);
- the firmware version (SW line on the same screen);
- the gas, the flow and the line pressure, and any status message on the display.

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