ANALYT MESSTECHNIK




QUICK START GUIDE

# 358 Series LC Liquid Flow Controllers

From the box to the first controlled set point: power, taring, units, connecting the 358 Series LC liquid flow controller to your process and bleeding the air out of it.

AMTC-QG-0008

Rev. 1 · October 2026

# Read this first

The full safety information is in the Safety chapter of the operating manual (AMTC-MN-0003); read that chapter and the safety messages below before you connect the controller to your process. Not following the safety messages can damage the controller 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 the first controlled flow with a 358 Series LC liquid flow controller: what is in the box, connecting the power, taring, choosing the units, connecting the controller to your process and bleeding the air out of it, and giving a set point. It applies to the models LC, LCR, LCS and LCRS.

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. The wiring of the signals, the display options and troubleshooting are described in the *358 Series LC Liquid Flow Controllers — Operating manual* (AMTC-MN-0003). 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 controller to your process. Each point is repeated, with its context, in the section where it applies.

### Intended use

The LC measures and controls the volumetric flow of the clean liquid it was calibrated for, typically water, and also measures its pressure and temperature, within the limits on its calibration certificate. It works with that one liquid only: for another liquid it needs a recalibration.

### Rules that protect the controller

**⚠ WARNING**

**Pressure.** Never exceed the pressure limits of the controller (see Pressure limits (p. 8)). Operating the controller above its specifications can damage it or cause injury.

**NOTICE**

**Power wiring.** Power on pins 1 to 6 of the 8-pin Mini-DIN connector causes permanent damage. Pin 2 carries a constant 5.12 V DC and is easily mistaken for the 0–5 V DC analogue output. Do not connect power to pins 1 to 6, and switch the supply on only after you have checked that all the necessary pins are connected correctly.

**NOTICE**

**Sealants.** Pipe dope and liquid sealants on the process connections can get into the flow stream. There they damage the controller 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 controller further and may void the warranty. If you suspect debris inside, contact Analyt-MTC for cleaning.

**⚠ WARNING**

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

**NOTICE**

**Bleed screws on an inverted instrument.** On a controller mounted upside down, liquid can leak from an open bleed screw and cause permanent damage. Do not use the bleed screws while the controller is mounted upside down.

## Document information

| | |
|---|---|
| Title | 358 Series LC Liquid Flow Controllers — Quick start guide |
| Document number | AMTC-QG-0008 |
| Revision | Rev. 1 — October 2026 |
| Applies to | 358 Series LC Liquid Flow Controllers, models LC, LCR, LCS and LCRS |
| Language | English |
| Related documents | 358 Series LC Liquid Flow Controllers — Operating manual (AMTC-MN-0003); 358 Series serial interface (RS-232/RS-485) — Communication guide (AMTC-CG-0002) |

## Revision history

| Rev. | Date | Change |
|---|---|---|
| 1 | October 2026 | First issue. |

Related documents: data sheet; calibration certificate

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CHAPTER 1

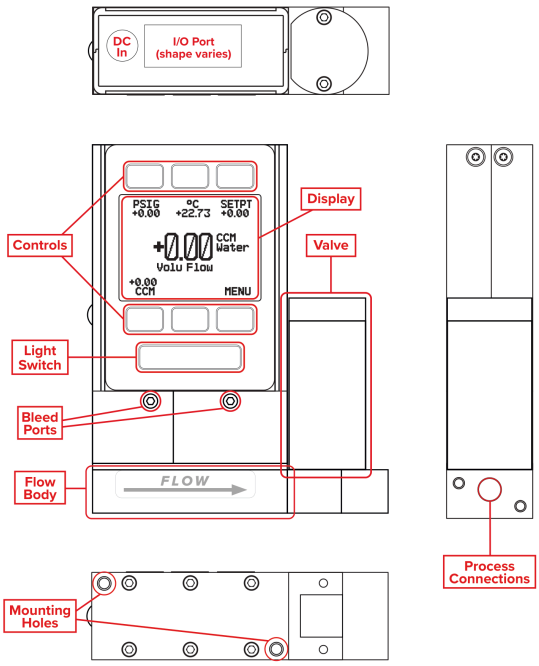
# Supplied items

## Check the contents

The box contains:

- the LC liquid flow controller;
- the calibration certificate;
- any accessories you ordered, such as cables, power adapters or filters.

## Know the controller




| Label on the drawing | Part |
|---|---|
| I/O Port (shape varies) | Multi-pin connector for power and signals, on top; its shape depends on the connector option |
| DC In | Power jack, on top |
| Controls | Control buttons, three above and three below the display |
| Display | Display |
| Light Switch | Backlight button, below the display |
| Valve | Control valve |
| Flow Body | Flow body, with the flow arrow |
| Bleed Ports | Bleed screws, upstream and downstream, for letting air out of the flow body |
| Process Connections | Process connections, inlet and outlet |
| Mounting Holes | Mounting holes, underneath the flow body |

**Figure 1.** The LC from the top, the front, the side and the bottom. The labels on the drawing are in English; the table next to it explains each one.

### The main display

The main display shows all live readings at once: the controller measures 1000 times per second and refreshes the display 10 times per second. Each button above and below the display belongs to the label next to it. Pressing the button of a reading moves that reading to the centre of the display. Some buttons have no function on your controller; pressing an unused button does nothing.

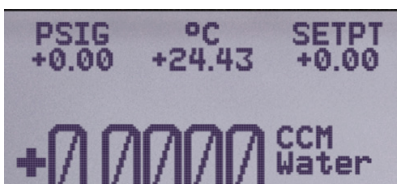



**Figure 2.** Main display: the button labels of the top row and the reading in the centre.

| Button | Function |
|---|---|
| Pressure (top left) | Shows the pressure in the centre |
| Temperature (top centre) | Shows the temperature in the centre |
| **SETPT** (top right) | Opens the set-point screen (Give a set point (p. 10)) |

| Button | Function |
| --- | --- |
| Volumetric flow (bottom left) | Shows the volumetric flow in the centre |
| **MENU** (bottom right) | Opens the main menu or moves to the next screen |
| Light button (below the display) | Switches the backlight on or off (see Connect the power (p. 7)) |

CHAPTER 2

# First use

## Connect the power

The power input is on top of the controller: either the power jack (**DC In** in Figure 1 (p. 5)) or the multi-pin connector (**I/O Port**). Most controllers need 12–24 V DC and 1 A. The exact power requirement depends on the analogue output option and the valve type; it is on the data sheet.

**NOTICE**

Power on pins 1 to 6 of the 8-pin Mini-DIN connector causes permanent damage. Pin 2 carries a constant 5.12 V DC and is easily mistaken for the 0–5 V DC analogue output. Do not connect power to pins 1 to 6, and switch the supply on only after you have checked that all the necessary pins are connected correctly.

1. Connect the cables to the power and signal connectors.
2. Switch on the power supply. The controller switches on by itself as soon as it receives power.

The monochrome display has a backlight. To switch it on or off, press the light button below the display (**Light Switch** in Figure 1 (p. 5)). On the optional colour display, the same button switches the display off to save power.

## Set-up and connection

Two settings come first: the zero point (tare) and the units. Make them before you connect the controller to your process. Then plumb the controller in, with the liquid flowing in the direction of the arrow, and bleed the air out of it. Last, give the controller a set point.

### Tare

A tare gives the controller a zero reference; every reading is measured from it. Tare the controller before you install it in your process, and again:

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

The controller tares itself (autotare) when it has a zero set point for a set time. Autotare is switched on under **MENU** › **CONTROL** › **Setpoint Setup** › **Zero Setpoint**; **Delay Before Tare** sets how long the controller waits before it tares. The delay must give the process enough time to stop the flow and settle.

1. Check that **Autotare** is on.
2. Give the controller a zero set point: press **SETPT**, then **CLEAR** and **SET**.
3. Keep the zero set point for at least 2 seconds until the autotare zeroes the flow reading.

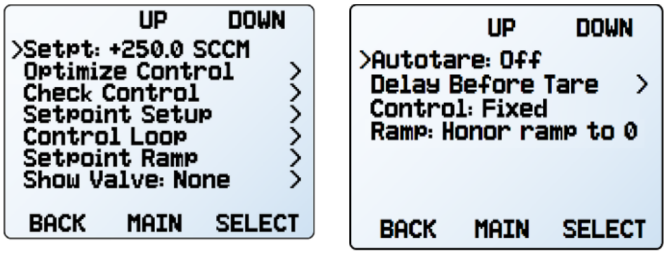



**Figure 3.** Left: the control menu (**MENU** › **CONTROL**), with **Setpoint Setup**. Right: the zero set-point menu, with **Autotare** and **Delay Before Tare**.

You can also tare the flow from the menu: with no flow through the controller and at the pressure you expect in the process, go to **MENU** › **TARE FLOW** (or **MENU** › **TARES** › **TARE FLOW** on a controller with a barometer), then confirm with **TARE**.

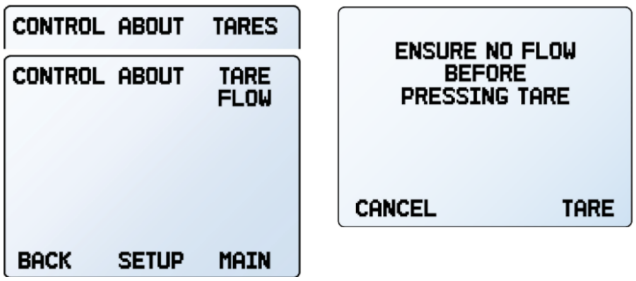



**Figure 4.** Taring from the menu. Left: the main menu, with the tare entry as **TARES** (top, on a controller with a barometer) or as **TARE FLOW**. Right: the flow tare confirmation.

If your controller has the optional barometer, **MENU** › **TARES** also offers a pressure tare, **TARE PRESS**. The controller must be open to the atmosphere when you tare the pressure; the screen asks you to press **TARE** when the controller 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 flow means a poor tare. Check that autotare is on and give the controller a zero set point for at least 2 seconds.

## Choose the units

1. Press **MENU** › **SETUP** › **Sensor** › **Engineering Units**.
2. Select the reading whose unit you want to change: volumetric flow, pressure or temperature.
3. Select the new unit.

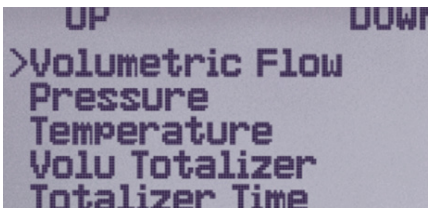



**Figure 5.** The engineering units menu.

## Pressure limits

The pressure limits of the controller are on the data sheet for your model. Make sure your process stays below them before you connect the controller.

**⚠ WARNING**

Operating the controller above its pressure limits can damage it or cause injury. Keep the pressure within the limits.

## Mounting and filters

The controller needs no straight pipe runs upstream or downstream, and it works in any orientation, including upside down. Controllers with Rolamite valves are the only exception: they must be mounted with the valve vertical, but they can be configured so that the flow body is connected in another direction. For applications that continuously bring air bubbles into the controller, you may mount it upside down, except the large-valve controllers (LCR). The size and position of the mounting holes underneath the controller are in the dimensions on the data sheet.

Where the extra pressure drop is acceptable, protect the controller with an in-line sintered filter upstream, so that large particles cannot enter the flow body. Choose the pore size from the full-scale range:

| Full-scale range | Largest particle size |
|---|---|
| up to 100 mL/min | 20 µm |
| above 100 mL/min | 40 µm |

## Connect the controller

**NOTICE**

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

**NOTICE**

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

1. Note the flow arrow on the flow body. The liquid must flow in the direction of the arrow — usually from left to right.
2. Remove any 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 controller bare. Face-seal fittings need no tape.
4. Connect the controller to your process.
5. Check once more that your pressures stay within the Pressure limits (p. 8).
6. Start the flow of liquid.
7. Bleed the air out of the controller (see Bleed the air out (p. 9)).

## Bleed the air out

Air bubbles in the flow body are removed through the two bleed screws on the front (**`Bleed Ports`** in Figure 1 (p. 5)). They are 8-32 screws with a nylon tip and a 5/64-inch hex socket (Figure 6 (p. 10)).

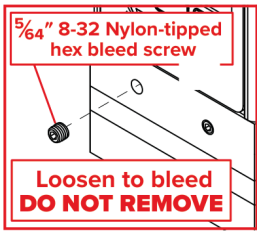



**Figure 6.** A bleed screw. The labels read: “5/64" 8-32 Nylon-tipped hex bleed screw” and “Loosen to bleed — DO NOT REMOVE”.

**NOTICE**

A small amount of liquid leaks from the controller while you bleed it, and it can damage anything nearby. Protect anything nearby before you start. Do not use the bleed screws while the controller is mounted upside down. Never remove a bleed screw: it has pressure behind it, is very small, easy to lose and delicate to re-thread.

1. With the controller installed, give it its maximum set point.
2. Gently loosen the upstream bleed screw by 1 to 2 turns, or until liquid begins to leak from the thread.
3. Gently tap the flow body to remove the air bubbles. A screwdriver handle works well; you may not see or hear the bubbles leave.
4. Gently tighten the screw until the leakage stops, without crushing the nylon tip.
5. Repeat steps 2 to 4 with the downstream bleed screw.

## Give a set point

The set point is the flow that the controller tries to reach. The set-point screen shows the set point in the flow unit of the controller, with the largest set point you can give.

1. Press **SETPT** on the main display, or go to **MENU** › **CONTROL** › **Setpt**.
2. Enter the set point you want with **SELECT DIGIT**, **UP** and **DOWN**.
3. Press **SET**. The controller immediately begins to control the flow.

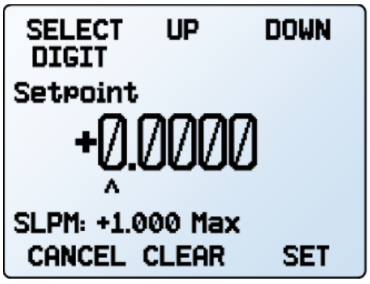



**Figure 7.** The set-point screen: an example screen from a mass flow controller.

To give a zero set point, press **CLEAR** and then **SET**.

If the screen shows a code such as **VOV**, **POV** or **TOV** next to the reading, see If something looks wrong (p. 11) in Care and service.

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. |
| **VOV**, **POV** or **TOV** next to the reading | Volumetric flow, pressure or temperature is above the range of the controller. 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. |
| **EXH**, **GTA** or **HLD** next to the reading | EXH: exhaust mode is active. GTA: control optimisation is in progress. HLD: valve hold is active. These modes are described in the operating manual. |
| The display is hard to read | Increase the contrast or the brightness, as described in the operating manual. On a monochrome display in low light, switch on the backlight with the button below the display. |
| The analogue output shows lower values than the display | The analogue voltage drops over long cables. Use wires with a larger cross-section, especially for the ground wire. |
| Negative flow with no flow | Poor tare. Check that autotare is on and give the controller a zero set point for at least 2 seconds (see Tare (p. 7)). |
| The flow reading never settles | The controller is fast enough to see small variations in flow that slower instruments miss; this can reveal problems with pumps or controllers. To improve the control, use the optimisation (Autotune) function described in the operating manual. |
| The flow reading does not change when the flow changes | The flow sensor may be damaged. Contact Analyt-MTC. |
| You want to use the controller with another liquid | The controller works with the one liquid it was calibrated for, typically water. For another liquid it needs a recalibration: contact Analyt-MTC. |
| The controller does not reach its set point | The supply pressure is often too low: raise the inlet pressure. If that does not help, thread tape may be clogging the flow channel. **Depressurise first:** Before you disconnect the controller from a system that has been pressurised, confirm independently that all pressure has been released safely and that any hazardous gases left in the system have been purged. Then remove any loose tape, and never tape the first two threads that enter the instrument. |
| The pressure reading is negative | If a negative reading is not expected, the pressure may need a tare (see Tare (p. 7)). On an instrument with the barometer option, open it to the ambient atmosphere first. |
| 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 controller 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. |
| No communication with the computer | Check that the software, the COM port and the controller use the same baud rate, that your commands use the unit ID of the controller, that the software uses the right COM number, and the flow control (handshaking) settings. The settings are in the 358 Series serial interface (RS-232/RS-485) — Communication guide (AMTC-CG-0002). |

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

## Device information

**MENU** › **ABOUT** shows what the controller 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 instrument (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 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 instrument.

## Cleaning

Keep filters in the line to remove particles and biological material that could grow in the controller.

**⚠ WARNING**

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

If you take the controller out of the line for a long time, drain all the liquid from it, so that no calcium or other soluble minerals can deposit inside. Wipe the outside with a soft, dry cloth.

**NOTICE**

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

## Calibration

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

## Service and support

Calibration, repair, cleaning and technical support for your LC are provided by Analyt-MTC. Only personnel authorised by Analyt-MTC may service the controller; dismantling or repairing it yourself may void the warranty and cause further failure. Get in touch before you send the controller 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. 13) and on the back cover.

CHAPTER 4

# Where to find more

This guide covers the first use of the controller. 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 LC Liquid Flow Controllers — Operating manual* | AMTC-MN-0003 | The full safety information, the wiring of the signals, the display options and troubleshooting. |
| *358 Series LC Liquid Flow Controllers — Technical data sheet* | AMTC-SS-0003 | The technical data, including the pressure limits, the power requirement and the dimensions. |
| *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 controller, or **`MENU › ABOUT › About Device`**);
- the firmware version (SW line on the same screen);
- the liquid, the flow and the line pressure, and any status message on the display.

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