

MC-II Flow Analyzer—Commonly Asked Questions and Answers

SPECIFICATIONS:

- 1. Does the total and rate display separately?**
Yes, each window contains a 6-digit LCD display for total and rate.
- 2. Is the MC-II weatherproof and H₂S proof?**
The enclosure is designed to be weatherproof and resistant to harsh H₂S environments. No other protection is required.
- 3. How is the MC-II powered?**
The unit is powered by a 3.6-volt lithium battery
- 4. Why isn't the unit solar powered?**
The addition of the solar panel would greatly increase the cost of the system.
- 5. What information does the MC-II supply?**
The MC-II displays an accumulated digital total with an optional reset and a digital flow rate on two separate LCD displays. An optional pulse output can also be added.
- 6. Is the enclosure intrinsically safe?**
Yes, the basic unit is UL-listed, and is CSA-certified intrinsically safe in hazardous locations, Class I, Groups A, B, C, & D.
- 7. Is the MC-II with a pulse output intrinsically safe?**
An MC-II purchased with the 6-volt pulse output card is rated intrinsically safe by UL and CSA for hazardous locations, Class I, Groups A, B, C, and D. However, all other forms of pulse output, such as 12-V or 24-V, are not rated as intrinsically safe. Also, any unit—to include those with the 6-V card—that is modified in the field is not rated as intrinsically safe.
- 8. What is the size of the MC-II?**
The MC-II is 7.3 in. wide, 8.3 in. high, and 3.4 in. deep.
- 9. Does an MC-II have a 4-20 mA output option?**
No, an MC-II *Plus* analyzer is recommended for this application.
- 10. Will the MC-II work on other brand turbine meters?**
Yes, it will work on most other turbine meters as long as the meter factor is known and there is a 1-in. threaded connection for the pickup adapter. If this connection is not available, the MC-II must be mounted remotely.

BATTERY:

1. What is the life expectancy of the batteries and what happens if they go dead?

Normal life of the batteries is about 4 years. When they go dead, if they are not replaced in a few hours, totals and calibration are normally lost. If it is critical that the totals and calibration are not lost, we suggest that the batteries be replaced when they are between 3 and 3.5 years old. The shelf life of the lithium battery used in the MC-II is approximately 10 years with a loss of 1 to 2 percent in battery voltage per year. *The NuFlo Measurement Systems part number for the lithium battery is 100005111.*

2. Why is the battery hazardous?

Lithium is a flammable solid and also reacts violently when it is exposed to water.

3. How do I dispose of a dead battery?

See the MC-II manual for this information.

CALIBRATION:

1. Can the MC-II read in gallons?

Yes, the MC-II can be calibrated for different engineering units. The factor of the NuFlo Measurement Systems Turbine Flow Meter is in pulses per gallon. This factor must be converted to match the customer's desired unit volume.

2. How do I calibrate my MC-II?

See the MC-II manual for a complete calibration procedure.

3. What do the letters CAL, RST, and ONC Mean?

CAL = calibrate

RST = reset

ONC = one number calibration

4. How do the jumpers for one number calibration (ONC), reset (RST), and calibrate (CAL) work?

ONC - When a jumper block is placed in line with letters ONC, only the divisor needs to be entered in the top display. The microprocessor will calculate the rate multiplier needed for the rate to be displayed in units per day (*ONC is only good if the rate is in units per day*).

RST - When a jumper is placed in line with the letters RST, this will enable the reset button on the front switch plate.

CAL - When a jumper block is placed in line with these letters, the unit can be placed into calibration mode from the front panel switch plate.

5. What is the maximum whole number divisor that the MC-II will accept?

32,767

6. **Can this instrument read in tenths?**
Yes, it can read whole units, tenths of units, and hundredths of units, depending on the flowmeter size.
7. **Why does the decimal appear in the top display during the view divisor mode if the MC-II is reading in tenths or hundredths of a unit of volume, such as barrels?**
The decimal has nothing to do with the divisor. Once a decimal is selected in the top display, it remains on the screen in a fixed position at all times.
8. **Can the MC-II be programmed in the field?**
Yes, this is covered in the MC-II manual.
9. **Are MC-II's interchangeable among different meter sizes?**
Yes, but when the MC-II is used with a new meter, the operator must recalibrate the MC-II to match the new flowmeter size or calibration factor.

INSTALLATION:

1. **Can you use an MC-II with a gas meter or a competitor's turbine meter?**
Yes, but the line pressure and temperature must be held constant. The MC-II cannot compensate for changes in line pressure or temperature. The factor of the gas meter must be compensated for the pressure and temperature before the MC-II can be calibrated.
2. **Is there a way to send a pulse output from the MC-II?**
The MC-II has an optional pulse output card that supplies a dry contact closure, an opto-isolated pulse, or an open collector pulse with each totalized count of the MC-II. If needed, the pulse output card functions as a scaler, allowing you to divide the pulse input by 10 or 100 to scale down the output. The customer must supply the power to operate this card. The MC-II does not supply the power to operate this option. (*Be sure to check the intrinsically safe area warnings.*)
3. **How does the MC-II mount?**
The MC-II mounts directly on top of the meter or remotely, with a remote mount kit. Cable lengths exceeding 10 feet must be specified.
4. **How far away can you remotely mount the MC-II?**
The MC-II can be mounted up to 2000 ft from the meter, depending on electrical noise, meter size and flow rate.
5. **Does vibration hurt the MC-II?**
Yes. In an application where high levels of vibration are common, the MC-II should be remotely mounted.

TROUBLESHOOTING:

- 1. My MC-II is not working. What should I do?**
Determine what area of the MC-II is not working. Is the MC-II in calibration mode, are the displays blank, is the MC-II displaying totals, but not displaying rate, etc? (*Note: Miscalibration, stopped-up meters, broken cables, and bad magnetic pickups are the most common problems.*)
- 2. Who do I call for help?**
Call your local NuFlo Measurement Systems office at 1-800-654-3760.
- 3. What do you do when the unit appears to be locked up?**
Record the total from the top display, if there is one. Unplug the battery and wait 10 seconds. Reconnect the battery and recalibrate the MC-II.
- 4. What if you have a flow rate indication and you know no fluid is going through meter?**
The problem is likely to be a bad circuit, broken signal cable, open magnetic pickup, or leaking valve.
- 5. My MC-II is not showing rate.**
Check to see if the turbine is turning. Pull a wire brush or metal file across the tip of the magnetic pickup while it is connected to the MC-II. If you get a rate, the turbine isn't turning, or the pickup isn't screwed down in the meter. If the brush produces no rate, either the magnetic pickup is bad, the cable is bad, or the circuit card is bad.
- 6. The MC-II won't accept my calibration.**
Are you are trying to enter a number larger than 32,767? If so, divide the number by ten and use the decimal in the display. If this isn't the problem, the keypad or circuit is likely bad.
- 7. Both displays are blank, or there are strange characters in the display.**
The unit has received a nearby lightning strike, and is "locked up." Unplug the battery, wait 10 seconds, and plug in the battery. The top display should now show one zero. If so, calibrate the unit. If one zero is not displayed in the top display, the circuit is bad.
- 8. The unit will not take input from the keypad.**
The unit is "locked up." Try unplugging the battery. After 10 seconds, plug the battery back in and recalibrate the unit. If this doesn't work, the keypad or the circuit is bad.
- 9. How do you correct the MC-II if the display is scrambled?**
Static charge of electricity may cause the MC-II microprocessor to scramble the display. To clear the display, disconnect the lithium battery for a few seconds and then reconnect the battery. The MC-II will have to be recalibrated, and accumulated totals will be lost.
- 10. My MC-II displays the divisor and rate multiplier all of the time.**
The switchplate is shorted and the faceplate assembly must be changed.