



Residential MACH 10[®] Ultrasonic Meter

Why did Neptune[®] design the MACH 10[®] ultrasonic meter with a bronze maincase?

The corrosion-resistant, lead free, high-copper alloy maincase is built to withstand demanding service conditions: internal water pressure, rough handling, and in-line piping stress. With the MACH 10 there is no concern of plastic meter spuds breaking or cross-threading plastic threads. Neptune believes that, if a meter is capable of providing sustained accuracy over its life, the maincase must be designed to last the meter's life as well.

Does the MACH 10 utilize a battery?

Yes. The MACH 10's metrology and LCD odometer is powered by a 3.6 volt lithium thionyl-chloride battery with an expected 20-year batter life.

How will I know if a MACH 10 battery is low on power?

The MACH 10 features low battery detection and notification. When the battery gets within a year of its useful life, a low battery icon will flash on the LCD panel. If the meter is AMI enabled, the low battery condition will also be reported in Neptune[®] 360[™].

Can the MACH 10 battery be replaced?

No. The battery in the MACH 10 is permanently potted and sealed as part of the meter assembly for protection against moisture intrusion.

Does MACH 10's LCD remain on when the lid is closed?

No. A photocell senses when the lid is closed and turns off the LCD for battery conservation.

What if the lid is broken off the MACH 10, will the LCD remain on?

No. After three minutes, the LCD will power down for battery conservation. The LCD can be reactivated by temporarily covering the photocell.

Can the MACH 10 be installed in flooded meter pit applications?

Yes. The MACH 10's electronics and battery are fully potted. The meter is IP-68 rated and suitable for submersion in a pit environment.

What happens if an empty pipe condition occurs?

If the meter's measuring maincase is dry, the meter cannot measure flow and the MACH 10 will display an empty pipe icon on the display. In addition, if the meter is AMI enabled with an R900[®] System cellular endpoint, an empty pipe flag will be sent to Neptune 360.

Can the MACH 10 register reverse flow?

Yes. The MACH 10 can measure reverse flow accurately. The LCD will measure in reverse when reverse flow occurs. A flag is set to communicate this occurrence to Neptune 360 for notification when the meter is read.

What meter protocol does the MACH 10 output?

The MACH 10 supports multiple protocols including Neptune's E-CoderPLUS and the Sensus UI-1203/1204 protocol. In addition, the meter is compatible with Neptune R900 System endpoints, Pocket ProReader, and Advantage Reading System as well as competitive AMR/AMI endpoints. Contact your Territory Manager to confirm protocol compatibility for the meter application.



Does the MACH 10 support pressure and temperature reads?

The 2024 release of the MACH 10 comes standard with temperature. Pressure is optional and is required to be specified at the time of purchase.

Can the MACH 10's pressure and temperature readings be read remotely?

Yes, the temperature and pressure readings from the MACH 10 can be read remotely with a Neptune cellular endpoint and displayed in Neptune 360.

Is the MACH 10 AMR/AMI capable?

Yes. The MACH 10 is compatible with Neptune and several third-party AMR/AMI meter reading systems. Contact your local distributor or Territory Manager for a list of supported third party AMR/AMI meter reading systems.

Does the MACH 10 have any internal moving parts?

No. The MACH 10 utilizes "transit time" ultrasonic technology featuring no moving parts.

Does the MACH 10 measure the speed of particles moving with the flow of water?

No. The MACH 10 measures fluid velocity by measuring transit times of upstream and downstream ultrasonic waves; the difference in these times is proportional to flow rate. Volume is determined by the multiplication of the velocity of water, area of the pipe, and elapsed time.

What is the pressure rating of the MACH 10?

Maximum operating water pressure is 175 psi.

Does the MACH 10 have excessive pressure loss due to the flow conditioner and mirrors inside the maincase?

No. The pressure loss meets or exceeds AWWA C715.

What sizes is the MACH 10 offered in?

The MACH 10 is offered in $\frac{5}{8}$ " – 1" sizes

Can the register be replaced on the MACH 10?

No. The electronic register of the MACH 10 is permanently potted and sealed as part of the meter assembly for protection against moisture intrusion.

Does accuracy diminish over time with the MACH 10?

No. A benefit of solid state meter technologies is the lack of moving parts, so there is no wear over time that can diminish meter accuracy.

Is a ground strap required for the MACH 10?

No. The maincase is continuous bronze for continuity. Check your local ordinances to make sure whether ground straps are required on inside set meters.

What is the significance of the serial number on the dial face?

This number is used to identify the meter.

Is the MACH 10 bronze maincase "lead free"?

Yes. Just like all Neptune meters, the MACH 10 meter is lead free and NSF/ANSI 61-G approved.



How much lower will the 5/8" MACH 10 measure flow than a 5/8" T-10 with accuracy of 100%+/- 3.0%?

The 5/8" MACH 10 is capable of measuring down to 1/20 gpm for the life of the meter compared to 1/8 gpm for the T-10.

Does the MACH 10 provide data logging?

Yes, data logging is provided when connected to, or integrated with, an R900 or LoRaWAN® endpoint.



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