

MUELLER

SOLID STATE METER (SSM)

Sizes $\frac{5}{8}$ " x $\frac{3}{4}$ " and $\frac{3}{4}$ " Short; $\frac{3}{4}$ " Long; and 1"

Applications: The Mueller solid state meter (SSM) is available in $\frac{5}{8}$ " x $\frac{3}{4}$ " through 2" sizes. The SSM meter provides 8 digits of granular data for visual reads and 8 digits in encoded electronic format for use in Mueller Mi.Net AMR / AMI applications. The meter can be used in any residential or commercial application where a high degree of accuracy at low flow rates is important.

Construction: The SSM meter utilizes a low lead copper alloy body with a polymer measuring tube and patented stainless steel reflectors. A heat treated glass lens and polymer lid surround provide protection for the liquid crystal display. 3.6 volt lithium batteries provide power for the processor for 20 years of life. All internal electronics are potted to prevent water intrusion in the toughest environments.

Operation: The SSM meter utilizes ultrasonic measurement technology to provide outstanding accuracy across a broad flow range with extremely low pressure loss. The static meter design means there are no moving parts inside the meter so it will not degrade in accuracy over the life of the meter due to mechanical wear, providing exceptional revenue for years to come.

With starting flow rates as low as 0.017 GPM and ultra-low flow accuracy of 95% at 0.05 GPM on the $\frac{5}{8}$ " x $\frac{3}{4}$ " and $\frac{3}{4}$ " short sizes, the SSM is capable of wringing every drop of revenue from your system and detecting the smallest leaks and backflow conditions. The stainless steel reflectors and measuring tube design channel water over the reflectors to keep them free of debris and increase the velocity of the water as it passes through the tube, contributing to the high degree of meter accuracy.

The display provides large numerals and icons that permit verification of the 8-digit meter volume as well as direction of flow, error alarm status, and battery life. A unique, never duplicated 8-digit serial number on the SSM meter faceplate and lid identifies it as the basis for all systems communication. The register face plate and housing provide visual information specific to the registration units, model, size, date of manufacture, and billing units, to provide verifiable and retrievable data in the event it is required.

Conformance to standards: Mueller SSM meter complies with AWWA C-715 requirements for accuracy and odometer wheel height as well as the American Standard Code for

Information Interchange or ASCII.

Operation: When interrogated by a Mueller AMR / AMI device, the SSM meter communicates the unique 8-digit serial number and 8-digit electronic reading in ASCII format where it can be recorded and maintained within the reporting structure of the AMR / AMI system. In the event that field testing is required, an optical button located on the display faceplate can be utilized to place the meter in test mode which provides excellent resolution for testing purposes.

Maintenance: The Mueller SSM meter is designed and manufactured to provide a 20 year service life with virtually no maintenance required. Meter lids are available as replacement components in the event of vandalism or the need for meter retrofits.

SOLID STATE METER

$\frac{5}{8}$ " x $\frac{3}{4}$ " - 1"



MATERIALS AND SPECIFICATIONS

Model	Solid State Meter (SSM)
Register Type	Solid State Encoder Register
Sizes	$\frac{5}{8}$ " through 2" Ultrasonic Meters
Standards	Manufactured and tested to meet or exceed all applicable accuracy and pressure loss requirements of the AWWA C-715 standard and the American Standard Code for Information Interchange (ASCII)
Temperature Operating Range	34°F to 158°F
Storage Temperature Range	-4°F to 158°F
Water Temperature Range	34°F to 140°F
Connection Options	18" Nicor Connector, 5' flying lead wire, with factory potted connections
Materials	Processor / register housing and lid - thermoplastic; Register lens - heat treated, tempered glass; LCD, polymer measuring tube, SST reflectors
AMR / AMI Compatibility	Mi.Net AMR / AMI system, and other AMR / AMI systems that can utilize the standard 8-digit encoder protocol output.



a **MUELLER** brand

MI.NET® & RADIO FREQUENCY SAFETY

Mueller Infrastructure Network for Utilities and Radio Frequency (RF) Safety

BACKGROUND

Smart water meters were developed to improve conservation of a vital natural resource, increase the operational efficiencies of utilities and give consumers more control over their water usage. This is increasingly important given recent droughts and growing demands being placed on a water distribution system that is inefficient, outdated and in need of upgrade.

While smart metering has many benefits, certain consumer groups have questioned the long-term health effects associated with radio frequency (RF) transmissions generated by smart meters. The issue has been studied by a wide variety of government, industry and scientific organizations, including the Federal Communications Commission (FCC), the Environmental Defense Fund and the Utilities Telecom Council. Their findings indicate that the RF transmissions generated by smart meters are as safe as those generated by other household appliances and devices, including microwave ovens, cellular phones and laptop computers.

According to the Environmental Defense Fund, “By making smart investments in a “smart” green grid, we can greatly reduce our use of dirty energy, improve air quality and the health of millions of Americans affected by dangerous air pollution, and advance our energy independence and economic growth.”

THE MI.NET® SYSTEM

The Mi.Net® Mueller Infrastructure Network for Utilities, Mueller Systems’ advanced metering infrastructure system, is fully compliant with FCC guidelines governing RF transmissions. These guidelines were adopted in 1985 and are based on recommended guidelines published by the National Council on Radiation Protection and Measurements.

The Mi.Net System operates in the 900 MHz band. The 900 MHz system is a band used by multiple consumer and household electronics and the output power is closely regulated by the FCC. RF transmissions in this unlicensed band are typically far fewer than for many other devices. Additionally, the effective radiated output power of the Mi.Net System is one watt or less.

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KEY POINTS

1. **RF transmissions decrease as the distance from the device increases.** A cell phone placed directly against a person's ear generates 5,000 uW/cm (micro-watt per centimeter) compared to 40 uW/cm generated from three feet away from a smart meter that is always on, (California Council of Science and Technology). In other words, a cell phone's RF transmissions are 125 times more powerful than a smart meter under these parameters.
2. **Radio devices transmit RFs when they are in use, and a smart meter is in use only a fraction of the time compared to other household devices.** For example, the Mi.Net System transmits once a day for a fraction of a second (See NOTE below) while a typical cell phone or laptop may be used almost continuously throughout the day.

ADDITIONAL INFORMATION CONCLUSION

RF transmissions have been and will continue to be part of our daily lives, and it is important to separate fact from rumor. We appreciate the enormous amount of third-party research that has been conducted by government, industry and scientific organizations, which indicate that the RF transmissions generated by smart meters are as safe as those generated by other household appliances and devices.

According to the World Health Organization, "From all evidence accumulated so far, no adverse short- or long-term health effects have been shown to occur from the RF signals produced by base stations. Since wireless networks produce generally lower RF signals than base stations, no adverse health effects are expected from exposure to them."

California Council on Science and Technology Health Impacts of Radio Frequency Exposure From Smart Meters

<http://www.ccst.us/publications/2011/2011smart-final.pdf>

Environmental Defense Fund What consumers need to know about the smart grid and smart meters

Federal Communications Commission Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields August

http://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet65/oet65.pdf World Health

Organization Electromagnetic fields and public health <http://www.who.int/mediacentre/factsheets/fs304/en/index.html>

NOTE

The MI.NET System that Adams Township is currently utilizing is a remote/mobile (vehicle) system that transmits the RF signal for a fraction of a second, ONLY when the meter is read ONCE a MONTH.

There are no radio towers to transmit an RF signal.