

## About Our Company and Product

Our company headquarters is situated in beautiful Scotts Valley California just an hour south of Silicon Valley. We formed on the simple premise of providing low cost remotely accessible meters to a dynamic market. To that end we have strived to make the MS1001s meter as effective and easy to install as possible and with the help of the SigFox network we look forward to providing the cost effective MS1001s meter to markets ranging from Asia to South America. This products follows our successful MS1001i WiFi meter detailed below. The MS001s meter uses the same proven metrology system from the WiFi meter but incorporates SigFox's long range radio communications module so that utilities need not install new infrastructure to be able to use our meter.

## Other Products

Our most popular product to date is the MS1001i WiFi enabled meter. This meter uses a local WiFi access point to be remotely accessible by the user through the internet and provides data such as Voltage, Current, Active Power, Reactive Power, Active Energy, Reactive Energy, the Powerfactor, Frequency, Temperature, and Active Demand.

This meter is specifically optimized for microgrids and sub-metering where long range communication to a base station is not an absolute necessity. Like the MS1001s SigFox meter the WiFi meter features less than 1% error as well as a tamper resistant design and protection from the elements. Please see our website or email us at [info@metersystems.net](mailto:info@metersystems.net) for more information.

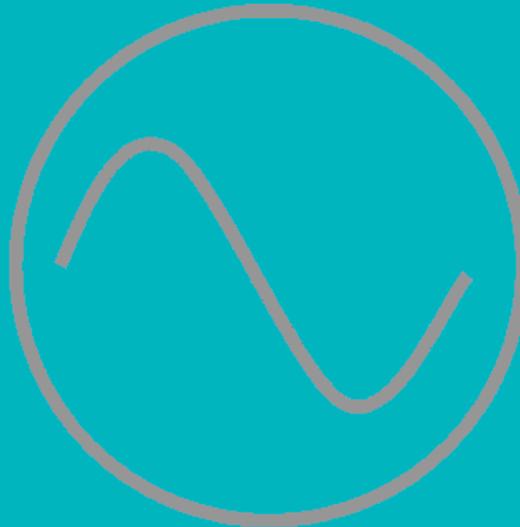
## Contact Info

[www.metersystems.net](http://www.metersystems.net)

[info@metersystems.net](mailto:info@metersystems.net)

(831) 900-5880

5274 Scotts Valley Dr., Suite 107  
Scotts Valley, CA 95066



**The Meter Systems MS1001s radio connected electricity meter is a cost effective solution for metering power consumption.**

### Features

- Data can be transferred at ten different preset rates.
- Relay Status can be changed up to four times a day.
- No additional infrastructure needed.
- Data values for voltage, current, active energy, and power factor.

## The Meter



Figure 1: Image of the MS1001s module with backplate and extended cover.

The MS1001s meter was created for utilities to be able to install a low cost accurate remote metering system without having to create additional communication infrastructure. This is accomplished by using the SigFox radio communications system. SigFox is a global network of radio communications providers optimized for sending and receiving short packets of information in the form of 12 or 8 bytes. This format is perfect for power metering and the infrastructure is already provided. Metering data is obtained by accessing SigFox's servers directly instead of the meter.

- Meter tracks Voltage, Current, Active Power, Reactive Power, Active Energy, Reactive Energy, PowerFactor, Frequency, Temperature, and ActiveDemand.
- Meter exceeds IEC Class 1.0s certification.
- Meter can remotely disconnect power from a customer.
- Meter is contained in a ruggedized tamper resistant case.
- Meters are designed to be low cost, easy to install, and take up a small footprint.

## Meter Certification



Figure 2: Image of the MS1001s nameplate.

Table 1: General Specifications

Absolute Maximum Voltage	300v
Minimum Voltage	100v
Rated Voltage (Un)	200v/240v
Extended Operating Voltage Range	40% ~ 120%
Maximum Current	100 Amperes
Meter Class	IEC 1.0 S
Frequency Rated Frequency (fn)	50-60 Hz.
Pulse Constant kh	1000 impulses/kWh
Shunt Resistance	250 $\mu\Omega$

Table 2: IEC Data

Meet or exceeds IEC	Class 1.0s
Actual active energy within	+/- 0.5%
Starting Current	0.05 Amperes
Creeping Current	No current and less than one pulse
Power Consumption	Active Power is 0.7 W Apparent power is 1.5 VA Current circuit 0.15 VA
Insulation Strength	4 kV for 1 minute
Pulse Voltage	8 kV
Protection Class	Class 2, Double Insulated

## SigFox Network

The SigFox network is composed of three main components, the devices, the base station, and the SigFox backend server. It is an extremely robust system with multiple redundancies and it can handle millions of meters.

Uplink packages where the module provides data to the user takes the form of 12 bytes. These can occur at a minimum of every 1 minute and can be sent up to 140 times a day. Downlink packages where the module requests commands from the user can also occur at a minimum of every five minutes but can only be requested 4 times in a day.

For an uplink message, data flows from the MS1001s meter to the base station and the SigFox backend server where the data is then sent to the Utility's server. The order of this process in the image below is 1 → 2 → 3.

For the downlink message the meter first sends data to SigFox backend server along with a request for a downlink. The SigFox backend server then requests a command from the utility server, if there is a command, it is sent to the SigFox server after which it is sent to the meter. The order for this process is 1 → 2 → 3 → 4 → 2 → 1.

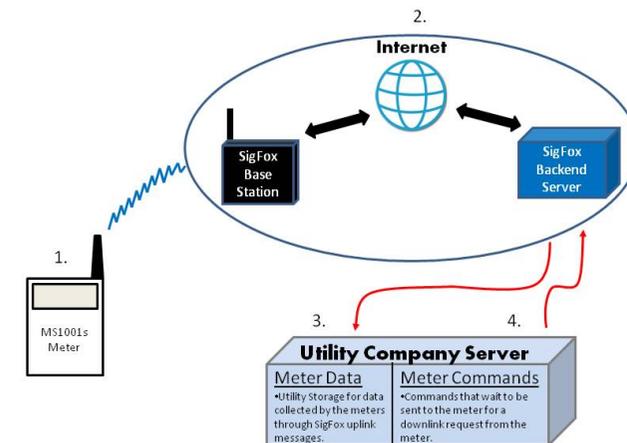


Figure 3: Image detailing how the MS1001s connects to the SigFox network and the utility company.