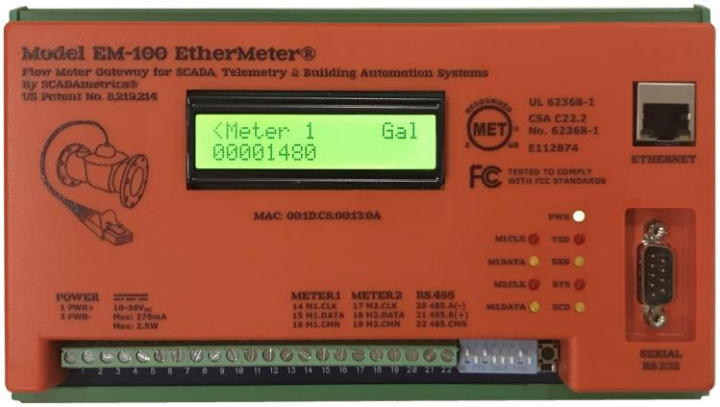
SCADAMETRICS®

EtherMeter®

FLOW METER GATEWAY FOR SCADA, TELEMETRY & BUILDING AUTOMATION SYSTEMS

COVERED BY US PATENT NO. 8,219,214



MADE IN USA

2 YEAR WARRANTY

Revenue-Grade Flow Metering Accuracy… Now Available for Automation Systems…

SCADA, telemetry, and building automation system integrators have struggled for years to eliminate the totalization errors that resulted from using pulse-output flow meters.

With pulse technology, the most common problem is the inevitable discrepancies between the meter readings displayed within the automation system and the readings displayed on the physical meters themselves.

Today, SCADAmetrics has eliminated these errors with the introduction of the **EtherMeter®** – the metering appliance that can ensure absolute agreement between an automation system and its connected meters.

How It Works…

The effectiveness of the EtherMeter is based upon an embrace of the latest AMI (Automatic Meter Infrastructure) technology. Driven by the powerful SCADAmeter® protocol conversion engine, it works by translating totalization and flow rate signals from modern, encoder-based flow meters into industrial protocols such as MODBUS®, Allen Bradley EtherNet/IP™, and DF1.

Additionally, because its internal flow calculation is based upon a delta-Volume/delta-Time algorithm, the EtherMeter can also detect and report both forward and reverse flows.

The SCADA signal connection can be via 10BaseT Ethernet, RS232C serial cable, or RS485 twisted pair; and the Gateway is compatible with most Ethernet switches & routers along with most radio, fiber-optic, satellite, & telephone modems.

Plug & Play Meter Interface…

The EtherMeter features two 1.5kv-isolated meter-input ports, each of which is capable of reading most AMI-encoder and pulse-output flow meters. For AMI-encoders, the EtherMeter automatically recognizes the connected meter's communication protocol, so it's truly "plug and play".

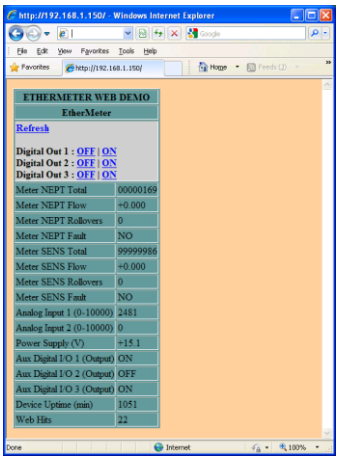
Compatible AMI-based flow meters include those produced by Sensus, Neptune, Mueller, Hersey, Siemens, Elster-AMCO, ABB, Badger, Kent, Invensys, Master-Meter, Kamstrup, RG3, Zenner, Metron-Farnier, Rockwell, Schlumberger, and others.

Standards-Based SCADA/Meter Gateway…

Due to its incorporation of both MODBUS and Allen-Bradley communication protocol support, the EtherMeter integrates easily into the vast majority of today's modern automation systems.

On the 2.5kV-isolated serial port, MODBUS or DF1 can be user-selected as the active industrial protocol. On the 1.5kV-isolated Ethernet port, both MODBUS and EtherNet/IP are always available. For added functionality, the EtherMeter features an always-on internal web server that can be used to display meter data on remote web browsers within an intranet or even across the internet.

MODBUS, one of the flagship industrial protocols for the EtherMeter, has become a de facto standard of industrial communication protocols. Gathering momentum and support since 1979 when it was first introduced by Modicon (now a division of Schneider Electric), it is the most common means of connecting industrial electronic devices. It is openly published, royalty-free, and forms a relatively easy-to-deploy industrial network.

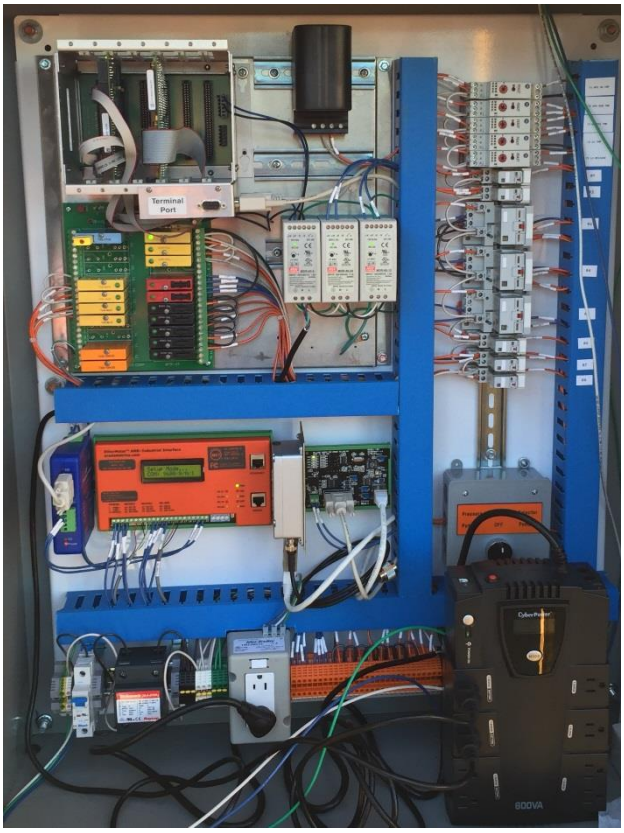


The EtherMeter features built-in web and telnet servers.

User-Friendly Initial Setup… A user-friendly, centrally-manageable setup menu is available for the System Integrator via either Telnet or the serial port. Configuration requires only a notebook computer and terminal emulation software.

Setup commands are intuitive and type-written at a command prompt. Although a wide range of settings are available to the System Integrator, only a handful will typically need modification by any one particular Integrator.

As an added benefit, the EtherMeter is equipped with 5 auxiliary inputs and outputs, making it suitable for deployment as a standalone RTU at low-complexity locations, such as custody-transfer vaults or even simple pumping stations.



EtherMeter Installed in a Telemetry/SCADA Control Panel at a Water District Pumping Station.

Engineering Specifications

Meter Communications

Meter Protocols:	Sensus Variable-Length: 4 to 9 Digit Sensus Fixed-Length: 4 to 6 Digit Neptune E-Coder Plus: 8 to 9 Digit Neptune ProRead Basic: 3 to 6 Digit K-Frame (Honeywell/Elster): 6 Digit Pulse (Mech. Contact, Solid-State Contact, Open-Collector), 2400 Hz Max.
Encoder Protocol Recognition:	Auto-Detect
Flow Rate Calculation:	dV/dT (Fixed dT or Fixed dV)
Co-Metering Compatibility:	Yes, Requires external SDA or SDAW

Serial Communications

Ports:	RS-232C (DB9-Male DTE Jack) RS-485 (Screwdown Terminal)
RS-485 Termination:	Dip-Switch Selectable
Port Isolation:	2.5 kV
Baud:	300 to 115200 bps
Port Parameters:	8N1, 7E1, 7O1, 7N2
Handshaking:	Fixed RTS, Null Modem, RTS/CTS, CD-Collision Avoidance, None
Industrial Protocols:	MODBUS/RTU, MODBUS/ASCII, DF1-RadioModem, DF1-FullDuplex
Setup Terminal:	ANSI, 25x80 char, 9600, 8N1

Ethernet Communications

Speed:	10 Mbps (10BaseT), Half or Full Duplex
Port Isolation:	1.5 kVrms
Addressing:	DHCP or Static IP
Web Server:	Yes
Telnet Server:	Yes (1 Session)
Ping Server:	Yes
Industrial Protocols:	MODBUS/TCP (4 Sockets), EtherNet/IP (4 Sockets), MODBUS/UDP, EtherNet/IP/UDP, DF1.RM/UDP, Iridium Satellite SBD

Mechanical/Electrical

Dimensions:	8.125” x 4.625” x 1.9375”
Weight:	13.5 Ounces
Temperature:	-20C to +70C (-4F to +158F)
Relative Humidity:	5% to 95%, Non-Condensing
Panel Mounts:	Two (2) Universal Din-Rail Clips
LCD Display:	2x16 Character, Backlit
Supply Voltage/Power:	$10V_{DC}$ to $36V_{DC}$, 2.50W max.
Supply Current:	85mA @ $24V_{DC}$ typ. 62mA @ $24V_{DC}$ typ. w/ Backlight OFF
Term. Blk. Conductors:	16AWG Max, 26AWG Min.
Internal Power Efficiency:	76%, Typical
Circuit Protection:	Fused (1000mA) + 10 TVSS Diodes

Auxiliary Inputs/Outputs

Analog Inputs:	Two (2): 4-20mA Inputs (9.6 bit A/D), Loop Resistance: 240 Ohm, Configurable as 0-$5V_{DC}$ (10bit A/D) Non-Isolated.
Aux. Digital I/O:	Three (3) TTL (0-$5V_{DC}$), Non-Isolated I/O. Each channel equipped w/ an internal pull-up Resistor and configurable as input or output.
Integral Loop Power Supply:	24 V_{DC} , 42mA
Meter/Aux/Analog Isolation:	2.5 kV to Serial Port 1.5 kV to Supply Voltage Input
MODBUS Fn. Codes:	01 - Read Coil Status, 02 - Read Input Status, 03 - Read Holding Registers, 04 - Read Input Registers, 05 - Force Single Coil, 15 - Force Multiple Coils
DF1 Fn. Codes:	Protected Typed Logical Read, 3 Addresses Protected Typed Logical Write, 3 Addresses

Standards and Regulatory Compliances

Safety (US/Canada/Mex)	UL 62368-1 / CSA C22.2 No. 62368-1
Emissions (US/Canada):	FCC Part 15, Class A / ICES-003
Meter Interface:	AWWA C707-05
Environmental:	ROHS-Compliant, Lead-free
Manufacturing Location:	USA

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DIMENSIONAL DRAWINGS