EtherMeter™

SCADA / METER GATEWAY
PATENT PENDING

Ti SALES
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EtherMeter™ AMR–Industrial Interface
scadametrics.com

PATENT PENDING
MAC ID:
00-1D-C8-00-00-02

Meter 1 (Gal)
139453510

UL 60950-1
CSA C22.2
No. 60950-1
E112874

TESTED TO COMPLY
WITH FCC STANDARDS

ETHERNET

Model EM-100
By SCADAmetrics
9-36VDC ⎓ 275mA Max.
2.50W Max.

POWER		METER1		METER2		RS-485	
1	PWR+	14	M1.TX	17	M2.TX	30	485.A
2	PWR–	15	M1.RX	18	M2.RX	21	485.B
(9-36VDC)		16	M1.CMN	19	M2.CMN	22	485-CMN

PWR
M1.TX   TXD
M1.RX   RXD
M2.TX   XMT
M2.RX   DCD

SERIAL

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

MET®
FC ICES
MADE IN USA
RoHS Compliant
AWWA C707-05 COMPLIANT

2 YEAR WARRANTY

Revenue-Grade Flow Metering Accuracy… Now Available For SCADA Systems…

For many years, SCADA system integrators have struggled 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 SCADA system and the readings displayed on the physical meters themselves.

Today, SCADAmetrics has eliminated these errors with the introduction of the **EtherMeter™** – the telemetry appliance that can ensure absolute agreement between the SCADA system and its connected meters.

How It Works…

The effectiveness of the EtherMeter is based upon an embrace of the latest AMR (Automatic Meter Reading) 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 that SCADA systems can understand, such as MODBUS®, Allen Bradley DF1, and EtherNet/IP™.

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 and most radio, fiber-optic, satellite, & telephone modems.

Plug & Play Meter Interface…

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

Compatible encoder-based flow meters include those produced by ABB, Actaris, Badger, Elster-AMCO, Kent, Hersey, Invensys, Itron, Master-Meter, Metron-Farnier, Neptune, Rockwell, Schlumberger, Sensus, Siemens, and Sitrans.

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 SCADA systems.

On the serial port, MODBUS or DF1 can be user-selected as the active industrial protocol. On the Ethernet port, MODBUS and EtherNet/IP are both 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 was selected as one of the flagship industrial protocols for the EtherMeter, as it 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.
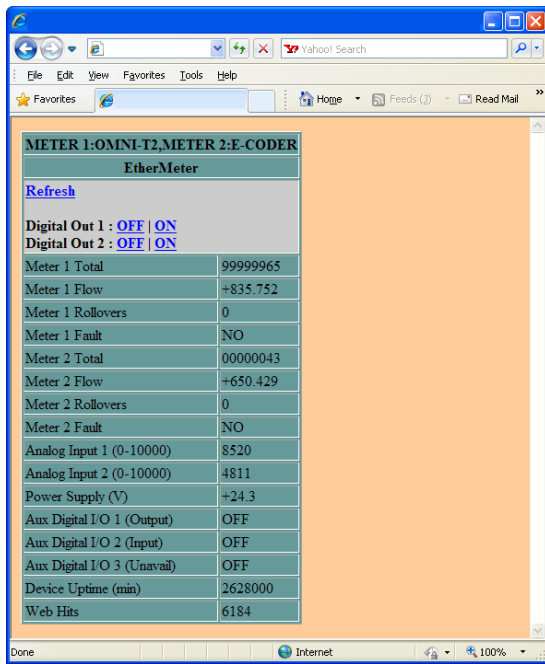
The EtherMeter features a built-in web server.

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 4 auxiliary inputs and outputs, making it suitable for deployment as a standalone RTU at low-complexity locations, such as master meter vaults or even simple pumping stations.

EtherMeter installation is simple and compact.

Meter Communications

Meter Protocols:	Sensus Variable-Length: 4 to 8 Digit
	Sensus Fixed-Length: 4 to 6 Digit
	Neptune E-Coder Plus: 8 Digit
	Neptune ProRead Basic: 3 to 6 Digit
	K-Frame (Elster-AMCO/ABB/Kent): 6 Digit
	Pulse (Mech. Contact, Solid-State Contact, Open-Collector), 1200 Hz Max.
Protocol Recognition:	Auto-Detect
Flow Rate Calculation:	dV/dT (Fixed dT or Fixed dV)
Radio-Read Compatibility:	Yes, Requires external RRF-50 line filter
Touch-Read Compatibility:	Yes, Requires external RRF-50 line filter, or external TRF-100 line filter

Serial Communications

Ports:	RS-232C (EIA-561 Jack)
	RS-485 (Phoenix Terminal)
RS-485 Termination:	Dip-Switch Selectable
Speed:	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)
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

Mechanical/Electrical

Dimensions:	8.25″ x 4.75″ x 1.75″
Weight:	13.5 Ounces
Temperature:	-20C to +70C
Relative Humidity:	5% to 95%, Non-Condensing
Panel Mounts:	Two (2) Universal Din-Rail Clips
LCD Display:	2x16 Character, Backlit
Supply Voltage/Power:	9VDC to 36VDC, 2.50W max.
Supply Current:	85mA @ 24VDC typ.
	62mA @ 24VDC typ. w/ Backlight OFF
Term. Blk. Conductors:	16AWG Max, 26AWG Min.
Internal Power Efficiency:	76%, Typical
Circuit Protection:	Fused (1000mA) + 9 TVSS Diodes

Auxiliary Inputs/Outputs

Analog Inputs:	Two (2): 4-20mA Inputs (9.6 bit A/D), Loop Resistance: 240 Ohm, Configurable as 0-5VDC (10bit A/D) Non-Isolated.
Aux. Digital I/O:	Two(2) TTL (0-5VDC), Non-Isolated I/O: Ch. 1: Output, Ch. 2: Input or Output (Equipped w/ internal pull-up resistor)
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)	UL 60950-1 / CSA C22.2 No. 60950-1
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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