SCADA Signaling from the Honeywell evoQ4 Magnetic Flow Meter

The model **evoQ4** is a popular magnetic flow meter manufactured by **Honeywell** (formerly Elster-AMCO); and it is available in pipe diameters 1.5-12 inch.

Jim 'Slim' Mimlitz, SCADAmetrics

Honeywell evoQ4 Magnetic Flow Meter.

Like many AWWA-style flow meters, the evoQ4 is available with several remote signaling options, including:

- **Encoded: Sensus-Protocol 8-Digit**
- **Encoded: Sensus-Protocol 6-Digit**
- **Encoded: Elster-Protocol 6-Digit**
- **Pulse-per-Volume**
- **Encoded: Sensus-Protocol 8-Digit + Pulse-per-Volume**

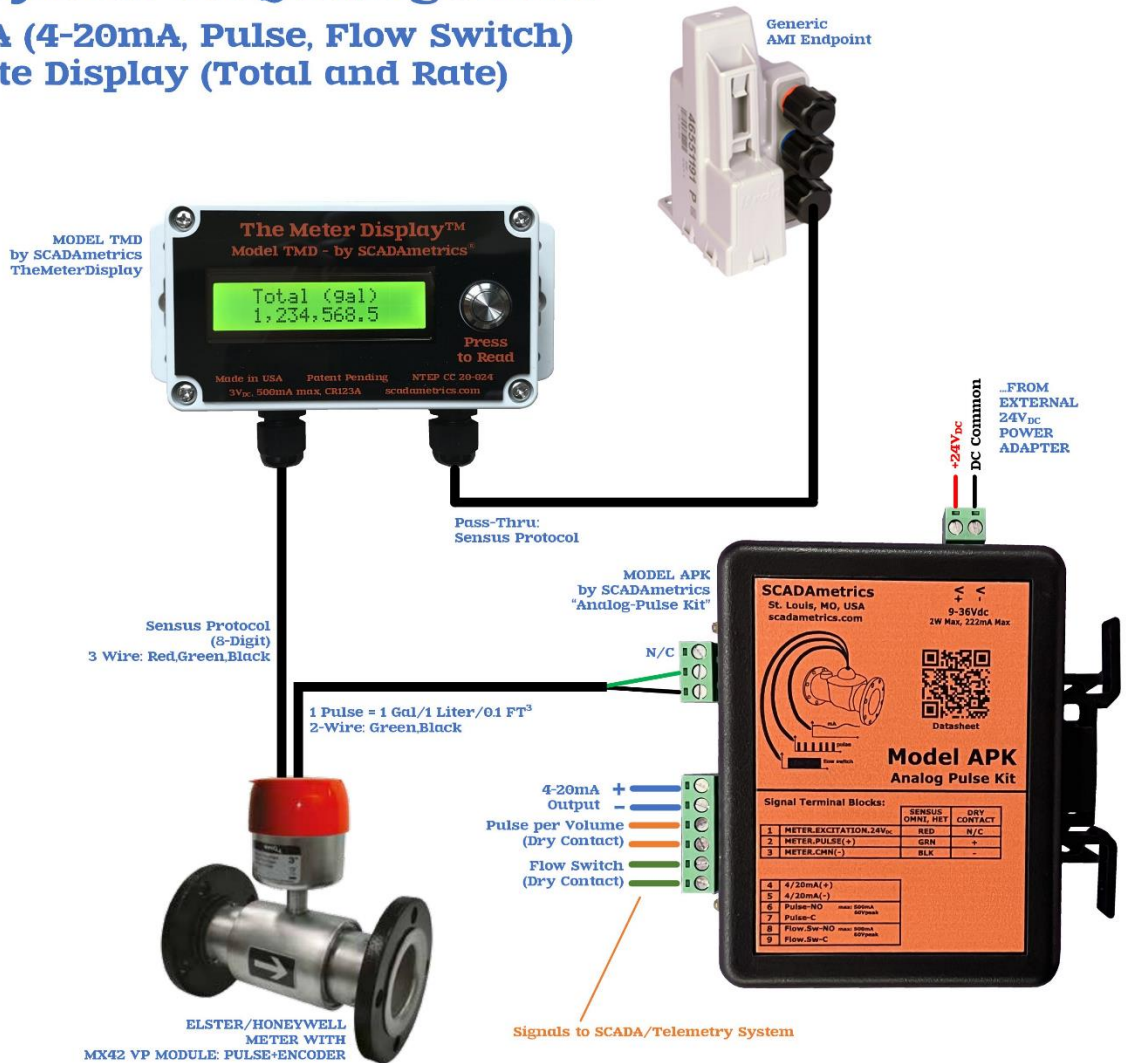Encoded and pulse signaling modules for the evoQ4 are detailed in the following Honeywell document: **HERE**

SCADAmetrics is pleased to report that our broad line of flow metering instrumentation has well-established compatibility with the Honeywell signaling modules; and it is well-poised to add value to challenging evoQ4 metering applications — especially with respect to SCADA connectivity and Visual Remote Displays.

Concurrent SCADA, AMI, and Remote Display

The following illustrates how an evoQ4 can provide basic SCADA signaling (4-20 milliamp, pulse-per-volume, flow switch), AMI signaling (Sensus protocol), and a Remote Wall Display. Excellent for custody-transfer stations and commercial buildings. Design Basis: **Model APK Analog-Pulse Kit** and **Model TMD TheMeterDisplay**:
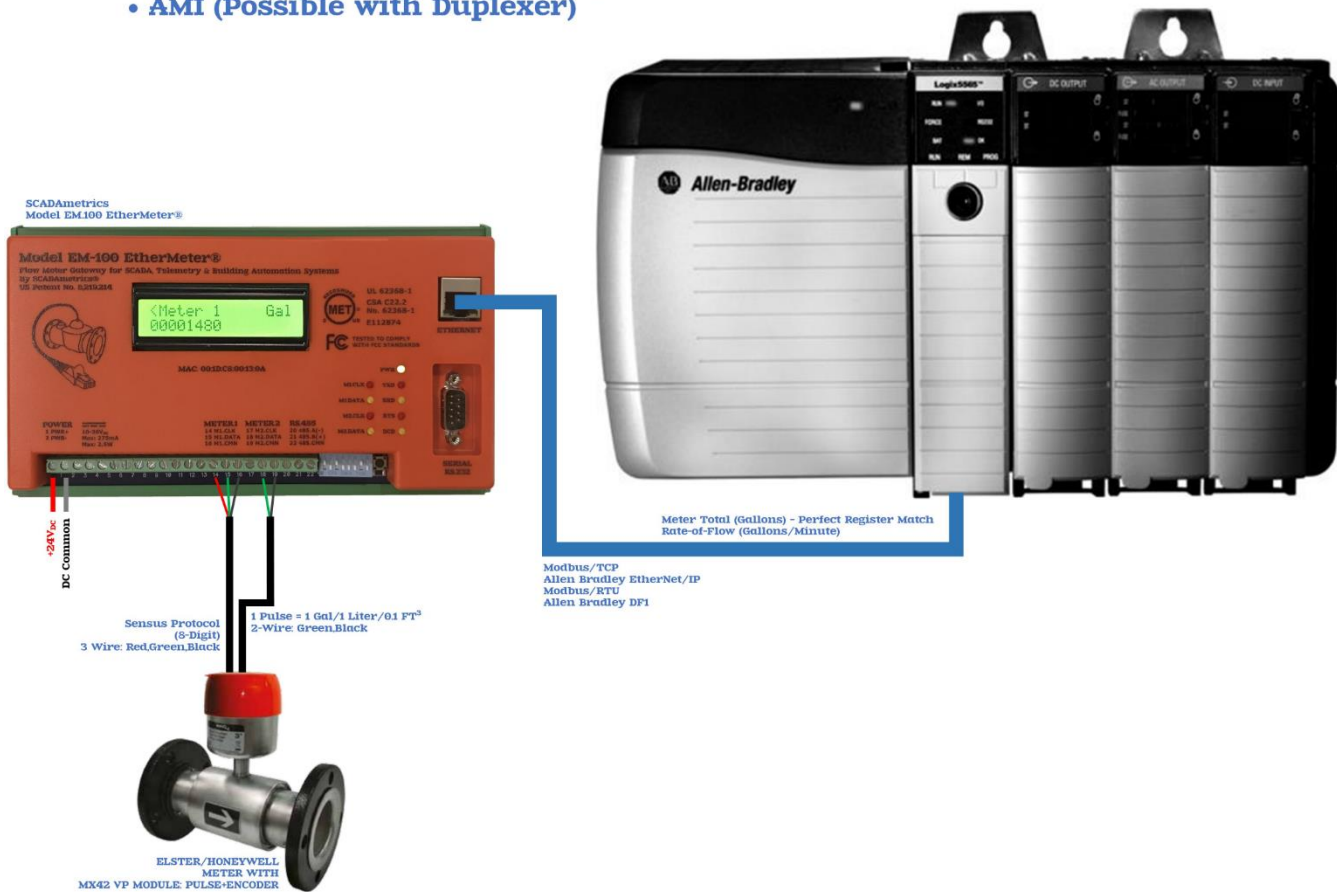
Advanced SCADA

The following illustrates how an evoQ4 can provide advanced SCADA signaling (Modbus, Allen-Bradley EtherNet/IP). Excellent for custody-transfer pumping and valve stations where revenue-grade accuracy is of paramount importance. Also excellent for military bases and educational facilities. The addition of a model SDA or SDAW Duplexer (not shown) may be added if concurrent AMI connectivity is desired. Design Basis: **Model EM.100 EtherMeter**:
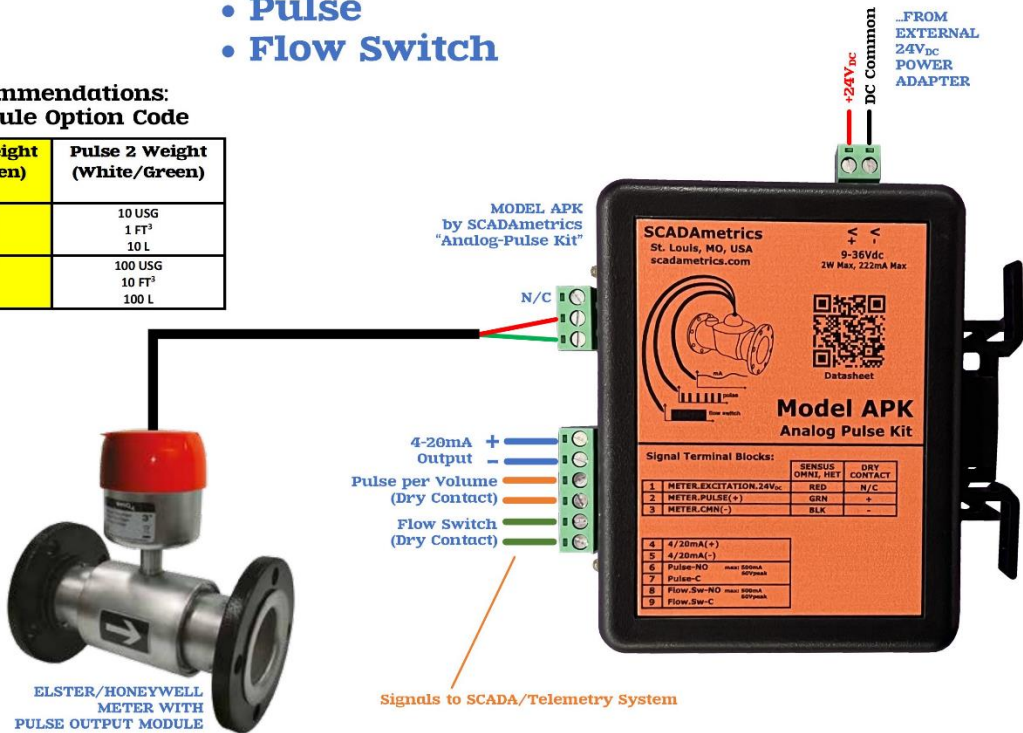
Basic SCADA

The following illustrates how an evoQ4 can provide basic SCADA signaling (4-20 milliamp, pulse-per-volume, flow switch). Excellent for well and pumping stations, as well as commercial buildings. Design Basis: **Model APK Analog-Pulse Kit**:

Discrete SCADA Connectivity to Honeywell evoQ4 MagMeter:

- **4-20mA**
- **Pulse**
- **Flow Switch**

SCADAmetrics Recommendations: Honeywell Pulse Module Option Code

evoQ4 Diameter (in)	Pulse Option Code	Pulse 1 Weight (Red/Green)	Pulse 2 Weight (White/Green)
1.5" – 4"	G	1 USG / 0.1 FT^3 / 1 L	10 USG / 1 FT^3 / 10 L
6" – 12"	D	10 USG / 1 FT^3 / 10 L	100 USG / 10 FT^3 / 100 L

...FROM EXTERNAL 24V$_{DC}$ POWER ADAPTER

+24V$_{DC}$ DC Common

MODEL APK by SCADAmetrics "Analog-Pulse Kit"

N/C

SCADAmetrics
St. Louis, MO, USA
scadametrics.com

9-36Vdc
2W Max, 222mA Max

Datasheet

Model APK
Analog Pulse Kit

4-20mA Output   + −
Pulse per Volume (Dry Contact)
Flow Switch (Dry Contact)

Signal Terminal Blocks:

		SENSUS OMNI, HET	DRY CONTACT
1	METER.EXCITATION.24V$_{DC}$	RED	N/C
2	METER.PULSE(+)	GRN	+
3	METER.CMN(−)	BLK	−
4	4/20mA(+)		
5	4/20mA(−)		
6	Pulse-NO max: 500mA 60Vpeak		
7	Pulse-C		
8	Flow.Sw-NO max: 500mA 60Vpeak		
9	Flow.Sw-C		

Signals to SCADA/Telemetry System

ELSTER/HONEYWELL METER WITH PULSE OUTPUT MODULE

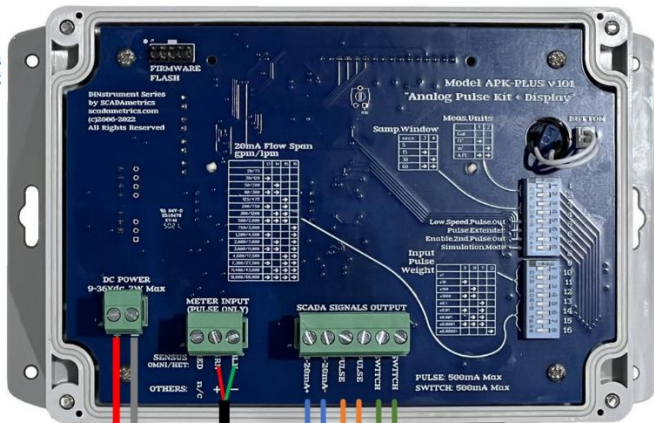## Visual Batching, Visual Rate-of-Flow, plus SCADA Outputs

The following illustrates how an evoQ4 can provide basic SCADA signaling (4-20 milliamp, pulse-per-volume, flow switch), along with an always-ON operator flow and batch display. Excellent for well and pumping stations. Design Basis: SCADAmetrics **Model APK.PLUS Analog-Pulse Kit, Plus**:

SCADAmetrics Recommendations:
Honeywell Pulse Module Option Code

evoQ4 Diameter (in)	Pulse Option Code	Pulse 1 Weight (Red/Green)	Pulse 2 Weight (White/Green)
1.5" – 4"	G	1 USG 0.1 FT³ 1 L	10 USG 1 FT³ 10 L
6" – 12"	D	10 USG 1 FT³ 10 L	100 USG 10 FT³ 100 L

Dual-AMI Connectivity

The following illustrates how an evoQ4 can provide AMI signaling to two separate systems. Excellent for custody-transfer stations, where both the water buyer and seller desire meter connectivity to their separate respective AMI systems. Design Basis: SCADAmetrics **Model UDA Universal Duplexer for AMI**:

Dual-AMI Sharing of a evoQ4 MagMeter:
Custody-Transfer Metering Station

AMI #1

Model UDA
Universal Duplexer

AMI #2

SCADAmetrics
St. Louis, MO, USA
scadametrics.com

Model UDA
Universal Duplexer for AMI
Made in the USA
Ser.No. 000001

Sensus or Elster Protocol
Encoded Cable

ELSTER/HONEYWELL METER WITH
ENCODER MODULE (SENSUS OR ELSTER PROTOCOL)
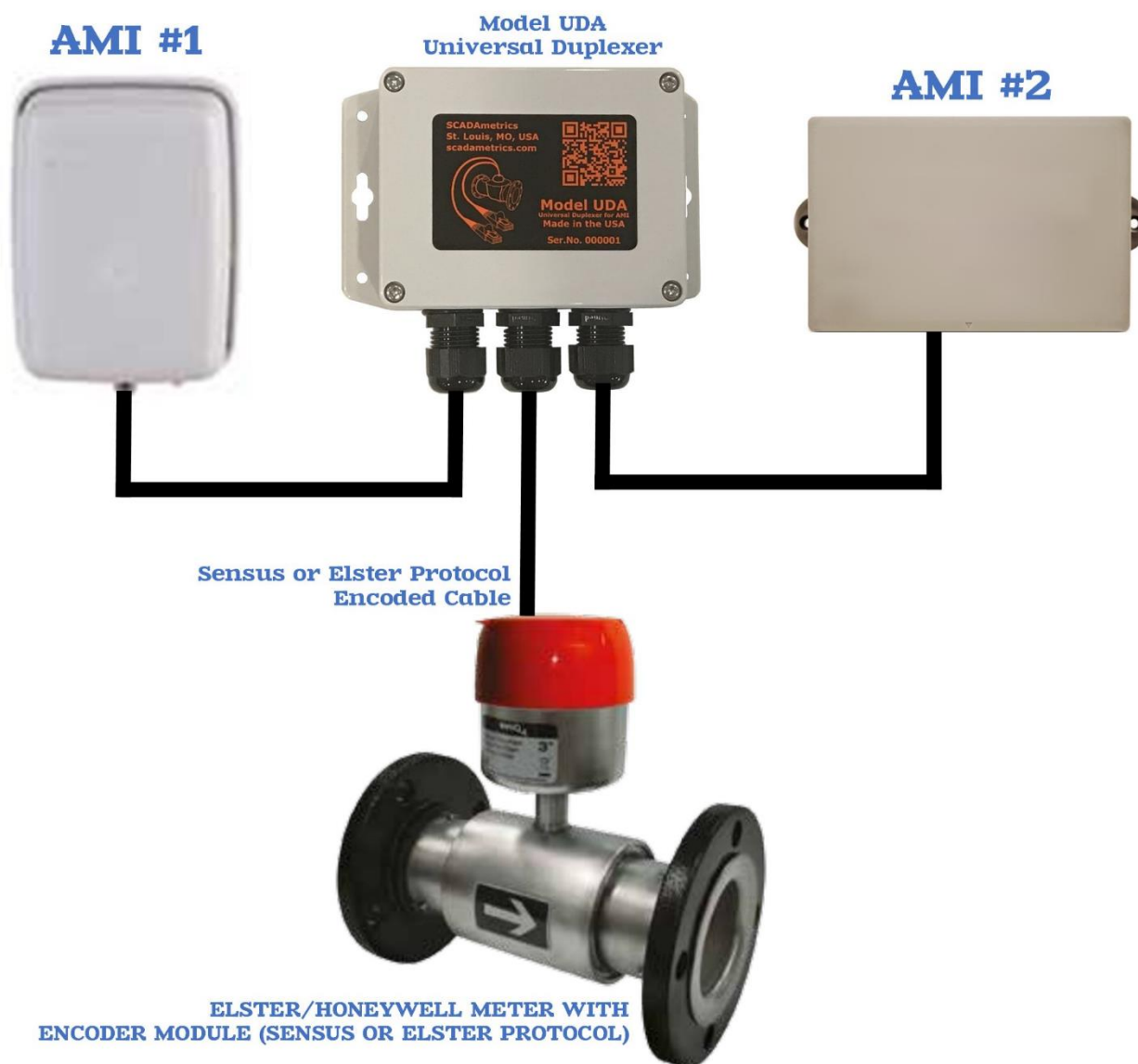
Concurrent AMI Connectivity and Remote Visual Display

The following illustrates how a model TMD display can work with an evoQ4 to provide AMI signaling to the water utility, while concurrently providing a visual remote display whose reading is a perfect match to the evoQ4 register total. Furthermore, if an 8-digit Sensus-protocol encoded module is used, then display of rate-of-flow (gpm,lpm) is also available. Excellent for utility-owned water meters at commercial and industrial buildings, where the building owner desires a meter reading without requiring entry to a vault or confined-space. Design Basis: SCADAmetrics **Model TMD TheMeterDisplay**:

Concurrent Connectivity
to evoQ4 MagMeter:
- # Remote Display (Pushbutton for Total and Rate)
- # AMI

Model TMD
TheMeterDisplay

The Meter Display™
Model TMD – by SCADAmetrics®

Total (gal)
1,234,568.5

Press
to Read

Made in USA   Patent Pending   NTEP CC 20-024
5Vpc, 500mA max, CR123A   scadametrics.com

AMI

Sensus or Elster Protocol
Encoded Cable

Rate Available
if 8-Digit Sensus Protocol
Encoder Module

ELSTER/HONEYWELL METER WITH
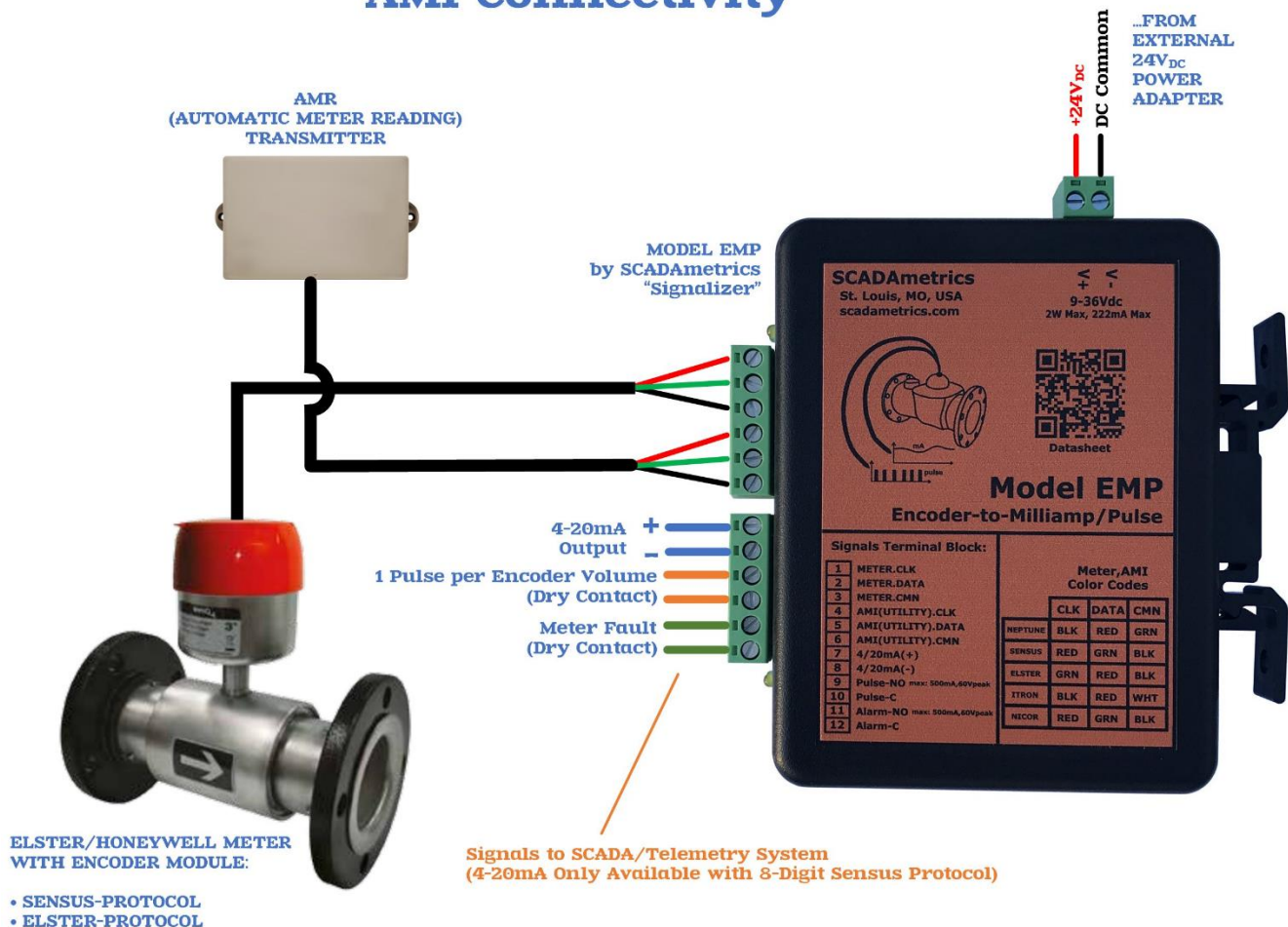**ENCODER MODULE (SENSUS OR ELSTER PROTOCOL)**

Retrofit SCADA Connectivity to AMI-Connected Meter

The following illustrates how a model EMP Signalizer display can be applied to an evoQ4 that is outfitted with an encoded output module to provide basic SCADA signaling, while preserving the existing AMI signaling to the water utility. The SCADA signaling is in the form of a pulse-per-volume output. Furthermore, if an 8-digit Sensus-protocol encoded module is used, then a 4-20 milliamp SCADA signal is also provided. Excellent for utility-owned water meters at commercial and industrial buildings, where the building owner desires a meter reading into its BMS system, without requiring the installation of a new water meter, or without interfering with the utility's AMI system. Design Basis: SCADAmetrics **Model EMP Signalizer**:

Want to Learn More?...

Are you interested in learning more about how SCADAmetrics flow instrumentation, when paired with the Honeywell evoQ4 magnetic flow meter, can provide a wealth of value-added SCADA and visual display options? Give us a call!... We'll be glad to discuss the details!