SCADAMETRICS®
APPLICATION NOTE

Migration to the SCADAmetrics 'Analog / Pulse Kit"
from the Sensus ACT-PAK.

Sensus Flow Meters Include the Omni-Family, Cordonel, HydroVerse, Mainline Propeller, iPerl, SR-II, AccuStream, W-Series Turbo (legacy), and others.

Jim 'Slim' Mimlitz, SCADAmetrics

Sensus, a Xylem Brand (Morrisville, NC) manufactures a broad line of flow meters and AMI/AMR systems, serving the municipal water utility industry. Here at **SCADAmetrics (Wildwood, MO)**, we manufacture flow metering instrumentation in support of this industry, with the stated mission of helping users extend such meters for enhanced SCADA interoperability and functionality.

With the recently announced discontinuance of the **Sensus ACT-PAK family of instrumentation**, there has never been a better time for resellers and users of Sensus C&I flow meters to switch to the **SCADAmetrics Analog/Pulse Kits (model APK and model APK.PLUS)**!

Our Analog/Pulse Kit offers features that enable easy SCADA signal conversion from Sensus' entire lineup of C&I flow meters. Additionally, our newly-designed instruments offer technical superiority in the important areas of **lightning protection** and **field-configurability**. (Make sure to check out our specifications regarding galvanic isolation.)

Analog SCADA Interfaces by SCADAmetrics — for Sensus® Flow Meters. Models APK.PLUS (L) and APK (R)

Similarities… Differences…

Mounting: Sensus offered a varied assortment of ACT-PAK's: 100 Series, 104 Series, 325 Series, 703 Series, 713AC, 1100 Series, 1200DN and 7113 Series. Certain models were intended to be mounted on a wall, and others were designed to be set upon a tabletop.

At SCADAmetrics, we designed a wall-mount version housed in a NEMA-4X enclosure (model APK.PLUS). And we opted to *not* offer a tabletop version, but instead we designed a **DIN-rail-mount version** (model APK) for easy integration inside control panels.

Electrical Surge Protection: Unlike the ACT-PAK, the SCADAmetrics both models, the APK and APK.PLUS, offer 5 points of galvanic isolation — and thereby the strongest method of lightning/surge protection:
- Input DC Power Supply
- Flow Meter Pulse Interface Circuit
- 4-20mA Rate-of-Flow Output Signal
- Pulse #1 Output Signal
- Flow Switch / Pulse #2 Output Signal

4-20mA Output Scaling: Each ACT-PAK was custom-scaled at the *factory*, per user specifications, to a desired 20mA rate-of-flow. In this regard, Sensus offered infinite possibilities. The SCADAmetrics models APK and APK.PLUS both offer the user the ability to digitally set the 4-20mA output scale from among 16 logarithmically-spaced choices. We recognize that this represents a trade-off between fast turnaround and flexibility, and we emphasized fast turnaround. The following scalings are offered:

- GPM (USA): 20, 30, 50, 80, 125, 200, 300, 500, 750, 1200, 2000, 3000, 4600, 7300, 11400, 18000
- LPM (CA): 75, 120, 200, 300, 475, 750, 1200, 2000, 3000, 4500, 7000, 11000, 17500, 27500, 43000, 68000

Input Pulse Weight: Each ACT-PAK was custom-scaled at the factory to match the expected engineering units (Gallons, Cubic Feet, Cubic Meters, Acre-Feet) and pulse weight for a specific flow meter. The SCADAmetrics models APK and APK.PLUS both offer the user the ability to digitally set the registration units and the pulse weight, and therefore any given Analog/Pulse Kit may be used with any Sensus meter model, size, and units.

Electrical Safety: The Analog/Pulse Kits are powered by an external, NRTL-Listed 120Vac-24Vdc adapter. In contrast, the Sensus ACT-PAK's plugged directly into the station 120Vac power source, and those units were not NRTL-Listed.
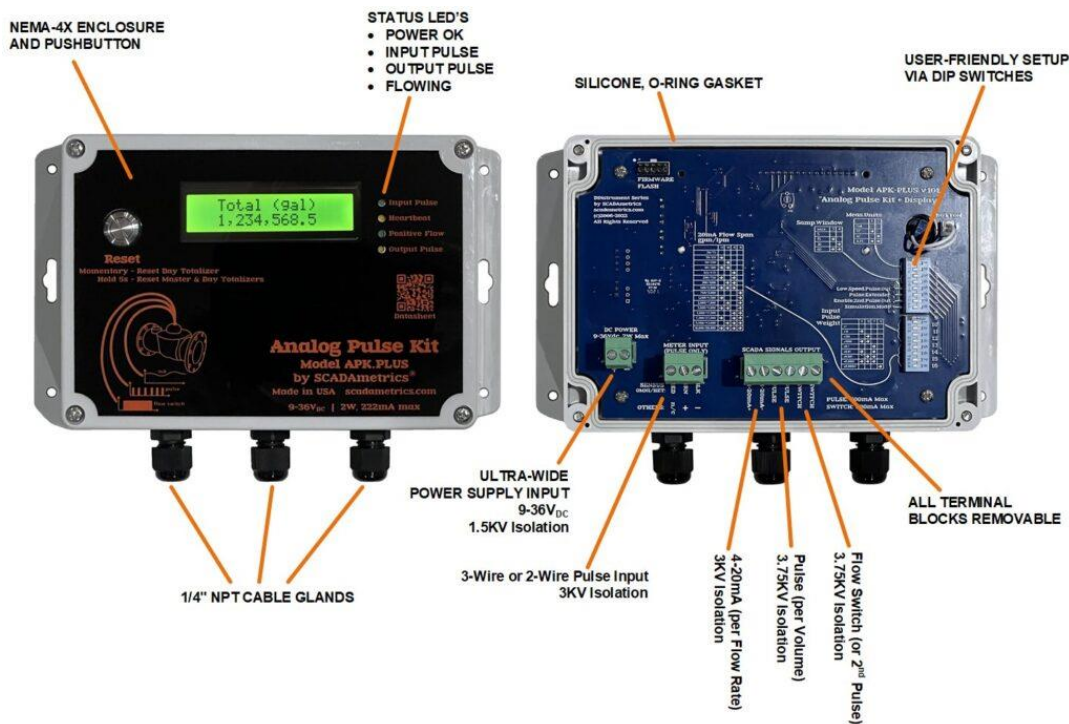
Fast Turnaround: Because the Analog/Pulse Kits offer the reseller and user the ability to configure the device to match any given meter, fast turnaround is the result.

Sensus Meter Compatibility

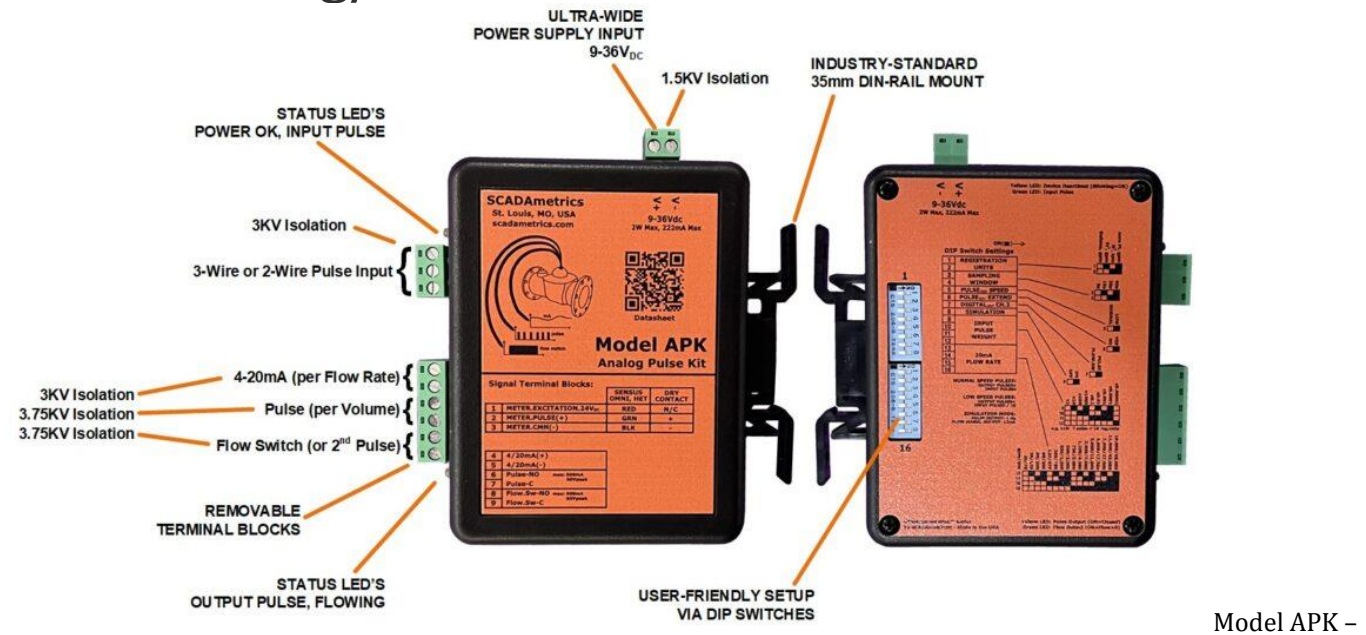The Analog/Pulse Kit is compatible with the following Sensus Flow Meters:

- Omni-Series T2, C2, F2
- Cordonel-Series with Pulse Output Option
- HydroVerse
- AccuMag
- Legacy W-Series Turbo with High-Speed-Pickup Register
- Legacy Propeller-Series with HET (Hall Effect Transmitter)

APK.PLUS – Analog/Pulse Kit with Visual Display and Totalizer

Model APK.PLUS – Feature Illustration

APK – Analog/Pulse Kit, DINstrumentation™ Series
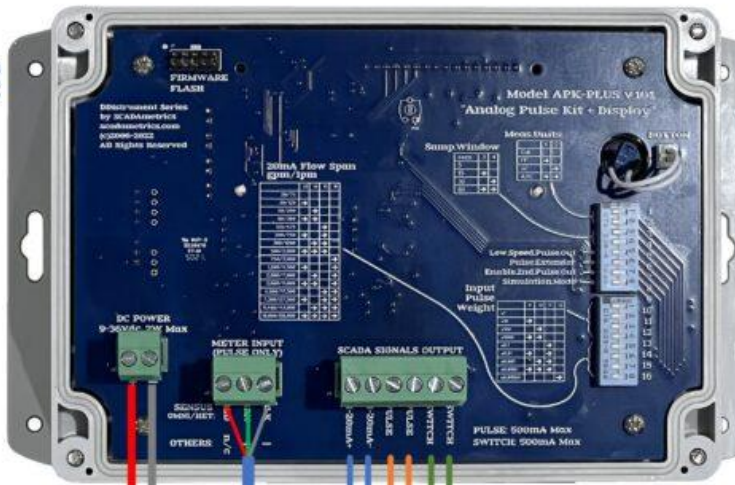

Feature Illustration
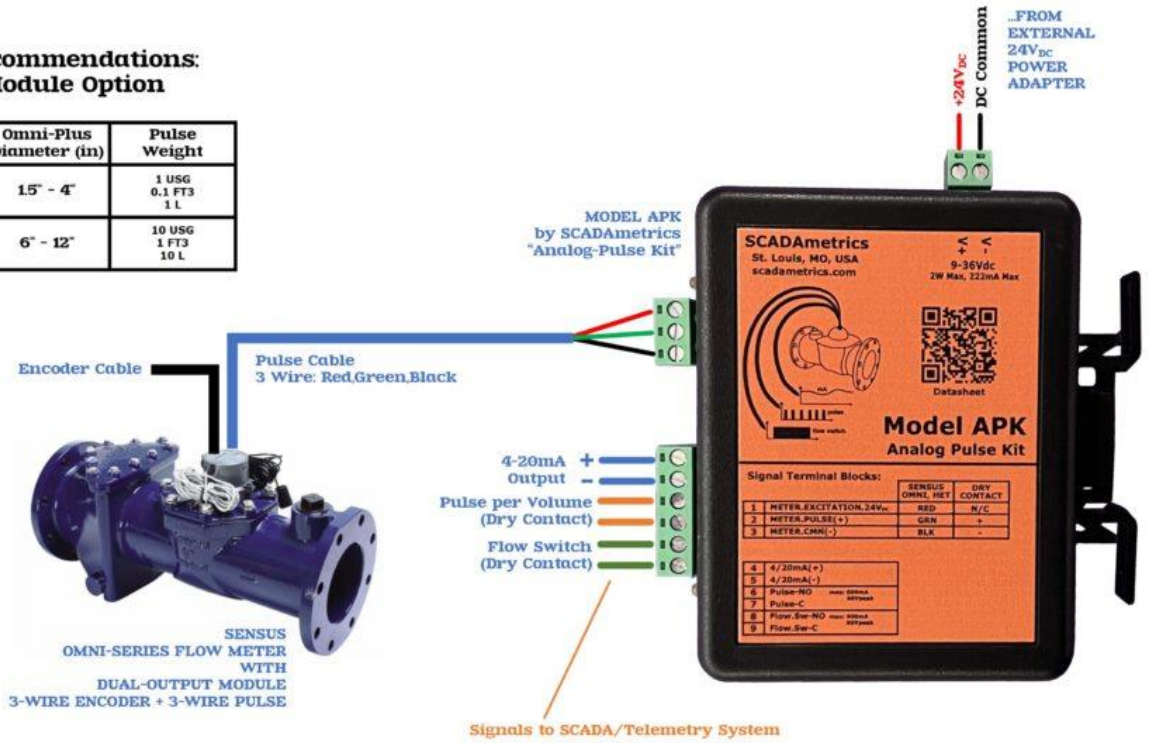
Model APK –

APK.PLUS Sample Application

Example APK.PLUS Application: SCADA Analog Interface for Sensus Omni-Series Water Meter.

APK Sample Application

SCADAmetrics Recommendations: Sensus Pulse Module Option

Omni Diameter (in)	Pulse Weight	Omni-Plus Diameter (in)	Pulse Weight
1.5" – 3"	1 USG 0.1 FT3 1 L	1.5" – 4"	1 USG 0.1 FT3 1 L
4" – 12"	10 USG 1 FT3 10 L	6" – 12"	10 USG 1 FT3 10 L

Example APK Application: SCADA Interface for Sensus Omni-Series Water Meter

Key Features –

• 4-20mA Flow-Proportional Output (3KV Isolation).

• Dry-Contact, Volume-Proportional Output (3.75KV Isolation).

• Dry-Contact Flow-Switch Output (3.75KV Isolation).

• Compatible with Most Late-Model, Pulse-Type Flow Meters.

• Works with All Popular Registration Units (Gallons, Cubic Feet, Cubic Meters, Acre Feet).

• No Computer Required! – Setup via DIP Switches Only!

• Removable Terminal Blocks, Simplified Wiring Procedures.

• NEMA-4X Wall Mount, or Standard 35mm industrial DIN-rail-mount.

• 24VDC-Powered (1.5KV Isolation). Low 1.2W Power Consumption.

• Enclosure and Circuit Board: UL 94-VO recognized materials.

• Power Source is NRTL-Listed.

• Simulation-Mode Feature: Emits 12mA and 1 Hz Pulse.

Want to Learn More?...

[Download PDF Datasheet / User Manual Here: Model APK.PLUS 'Analog Pulse Kit'](#)

[Download PDF Datasheet / User Manual Here: Model APK 'Analog Pulse Kit'](#)

Are you interested in learning how **The Model APK or APK.PLUS Analog Pulse Kit** can help to more closely monitor the flow through your Sensus water meters? Give us a call! We'll be glad to discuss the details!