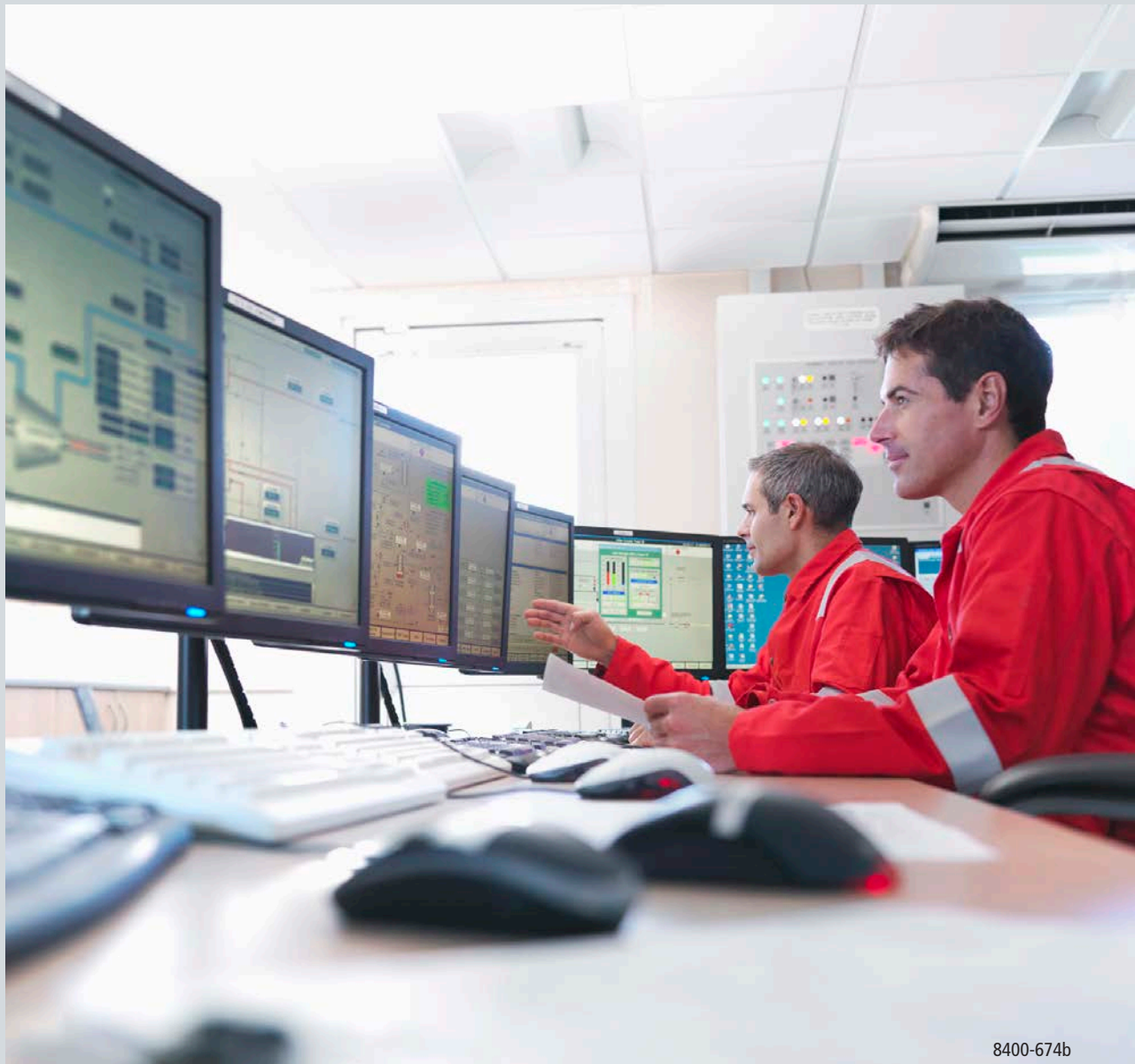# Acromag®
THE LEADER IN INDUSTRIAL I/O

RELIABILITY

FLEXIBILITY

FAST DELIVERY

ENGINEERING
SUPPORT

ONE STOP
I/O SHOP

8400-674b

DISTRIBUTED I/O AND SIGNAL CONDITIONERS

Ethernet, Modbus, Profibus I/O   Process Transmitters   4-20mA Isolators & Splitters   Limit Alarms / Computation

Depend on Acromag

Acromag: The I/O Leader

Acromag is a customer-driven manufacturer focused on developing embedded I/O products that provide the best long term value in the industry. Compare and you'll find that Acromag products offer an unmatched balance of price, performance, and features.

50+ Years of I/O Experience

Acromag has more than 50 years of measurement and control experience. Since 1957, we have delivered nearly a million units to thousands of customers around the globe for manufacturing, power, environmental, transportation, and military applications.

Top Quality and a 2-Year Warranty

We take every measure to guarantee you dependable operation and products that perform at or beyond their specifications. Our state-of-the-art manufacturing and military-grade components add an extra degree of ruggedness. Most products qualify for an extended 2-year warranty. And with ISO9000/AS9100 certified quality control, you get full confidence.

All trademarks are the property of their respective owners.

Online Ordering

For your convenience, Acromag provides full product documentation and pricing information on our website. You can obtain quotes or even place your order directly on our website.

Fast Delivery from Stock

Most products can be shipped within 24 hours of receiving your order.

Special Services

We are happy to accommodate your special requirements and offer the following services:
• custom product development
• custom calibration
• source inspections, quality audits
• special shipping, documentation
• protective humiseal coating
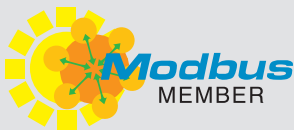• plastic and stainless steel tagging

Certification and Approvals

Many Acromag products carry globally recognized agency approvals and safety certifications.
• CE   • Ethernet conformance
• UL, cUL   • Modbus conformance
• ATEX   • Profibus certification
• CSA   • IECex

Acromag, Incorporated ■ 30765 South Wixom Road ■ Wixom, Michigan 48393 ■ USA
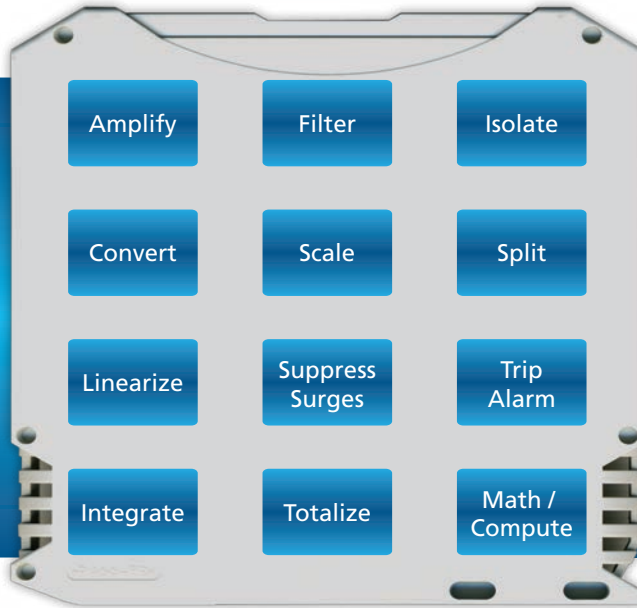
Industrial Input/Output Solutions

I/O MODULES

INPUT SIGNALS

Voltage AC/DC

Current AC/DC

Thermocouple

RTD / Resistance

Thermistor

Strain / Load Cell

Pot / Slidewire

Discrete Sensors

Amplify	Filter	Isolate
Convert	Scale	Split
Linearize	Suppress Surges	Trip Alarm
Integrate	Totalize	Math / Compute

OUTPUT SIGNALS

DC Voltage

DC Current

Relay

Solid-State Switch

Frequency

Pulse Width Modulation

Display / Readout

COMMUNICATION

Ethernet	HART
Modbus	Peer -to- Peer
Profibus	
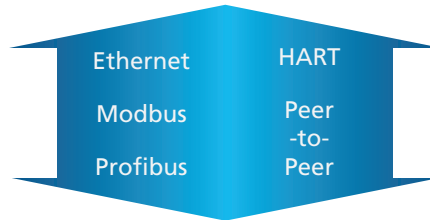
NETWORK I/O

Ethernet I/O
www.acromag.com/ethernet

Modbus I/O
www.acromag.com/modbus

Profibus I/O
www.acromag.com/profibus

I/O Accessories
www.acromag.com/accessories

SIGNAL CONDITIONERS

Transmitters
www.acromag.com/transmitters

Isolators / Splitters
www.acromag.com/isolators

Limit Alarms
www.acromag.com/alarms

Computation
www.acromag.com/computation

Signal Interfacing Solutions

Signal Isolation & Transmission

Network Interface

Signal Conversion

DCS / PLC · Loop Controllers · Recorders · PCs & HMIs · Embedded Controllers

Continuous / Discrete Sensors & Actuators · Field Instruments · Power Monitoring
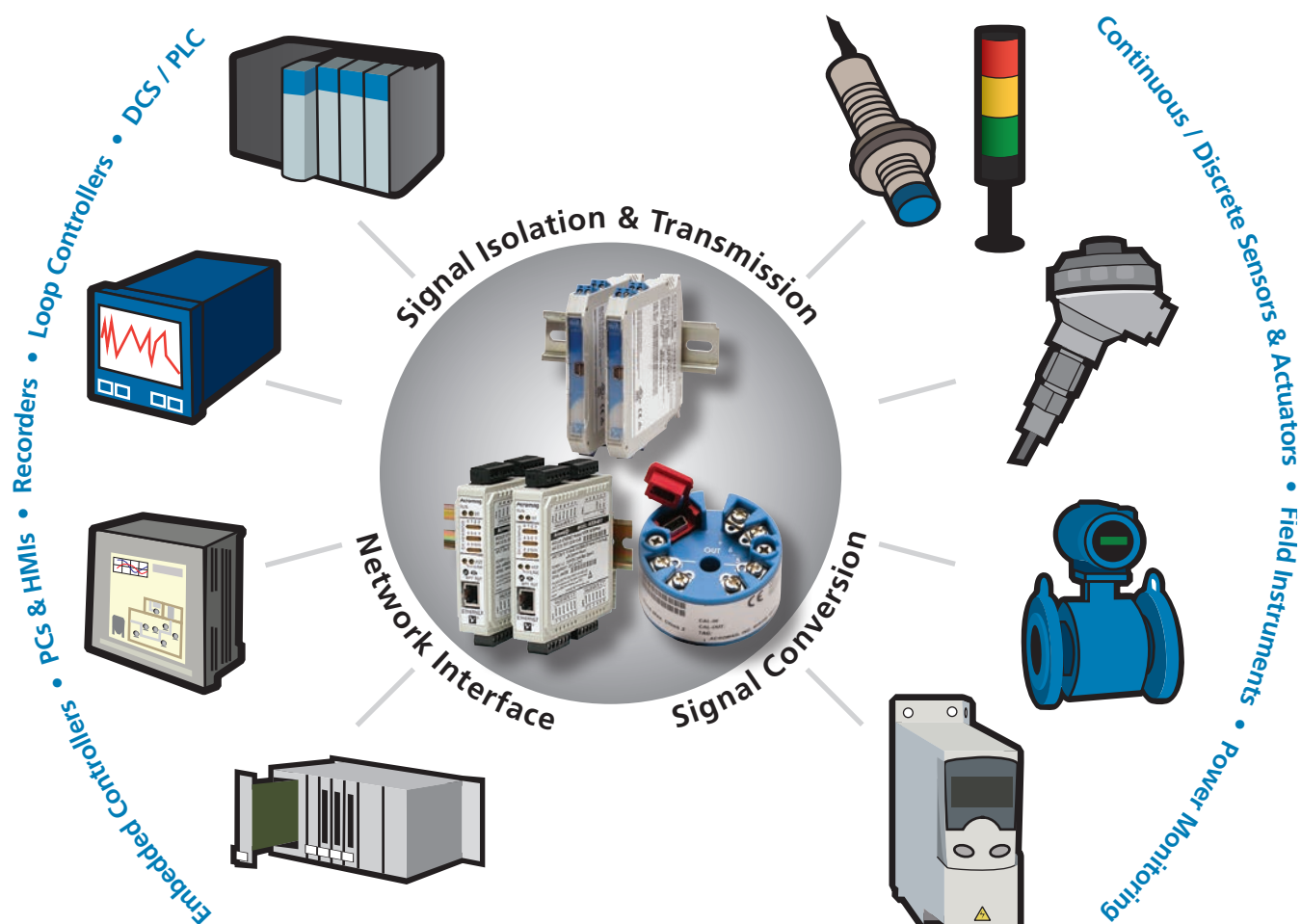
How Acromag I/O Is Used

Acromag I/O is ideal for for a broad range of monitoring and control operations where controllers communicate with instrumentation on the plant floor or in the field.

Acromag Advantages
- wide operating temperature ranges (up to -40 to 85°)
- high resistance to RFI, EMI, surges, electrical transients
- high-voltage isolation and built-in surge suppression
- easy to use and maintain
- high channel density to save space
- large inventory of stock items for same day shipping
- special designs and custom services available
- 2-year warranty available at no extra cost
- AS9100 and ISO 9001 certified quality management

Operation in All Locations
- safe zones and hazardous locations (Zone 2)
- explosion-proof locations (Zone 1)
- approvals from CE, UL/cUL, FM, CSA, ATEX, IECex

Controller Interface
- PLCs, PACs, controllers
- DCS distributed control systems
- PCs, embedded computers, SCADA systems
- operator interface terminals and remote terminal units

Continuous Sensors
- temperature
- flow
- speed
- position
- pressure
- level
- weight / load
- drives

Discrete Sensors and Switches
- dry contacts
- solid-state
- valves
- PNP, NPN
- proximity
- lights, horns

Actuators and Analytical Instruments
- drives, motors
- heaters, coolers
- displays, indicators
- power supplies
- valves, positioners
- recorders, analyzers

Industries Served

Raw Materials Processing

These industries rely on Acromag process instruments for accurate and repeatable measurements from sensor signals.

- chemical, petrochemical
- metal, glass, ceramic
- pulp, paper, textile

Factory Automation

Fast response times, high reliability, and proven compatibility with control networks make Acromag I/O popular for use on assembly lines.

- food, beverage, pharmaceutical
- automotive, electronic assembly
- building automation, HVAC

Oil, Gas, and Mining

Built for operation in extreme environments, Acromag I/O reliably interfaces sensors to actuators and controllers.

- exploration, extraction
- production
- distribution

OEM Machine Control

High channel density plus shock and vibration immunity help machine builders add more I/O to monitor and control their equipment.

- semiconductor, lithography
- boilers, furnaces, generators
- test stands, industrial machinery

Power Generation

Able to resist noise and surges from high-voltage electrical sources, Acromag I/O delivers dependable data to plant control systems.

- fossil fuels, hydroelectric, nuclear
- solar, wind, geothermal
- fuel cells, batteries

Defense, Security, and Aerospace

Acromag I/O finds a home in many military and security systems due to their ability to operate over wide temperature ranges.

- simulators and trainers
- ground / airborne / naval controls
- surveillance systems

Water / Wastewater

Offering outstanding value and easy installation, Acromag I/O is the first choice of many municipalities to help manage their water systems.

- municipal
- industrial
- desalinization
- irrigation

Research and Development

When high-resolution and high-accuracy measurements are required, Acromag I/O ensures precise data collection.

- test and measurement systems
- data acquisition systems
- scientific research
- quality control/assurance

Distributed I/O Solutions

BusWorks XT Series

High-performance, space-saving remote analog and discrete I/O modules - with Xtra Technology - for Ethernet networks.

- Ethernet/IP, Profinet, Modbus TCP/IP, and i2o peer-to-peer communication
- Easy PC/Windows configuration via USB
- Redundant and bussed DC power

www.acromag.com/ BusWorksXT

Peer-to-Peer Communication

Many Acromag I/O modules have i2o technology for "input-to-output" peer-to-peer over Ethernet.

- Automatically transmits analog or discrete I/O information between modules
- Wire-saver, mux/de-mux, splitter tasks

www.acromag.com/i2o

BusWorks 900 Series

A series of dependable, yet economical, remote analog and discrete I/O modules for Ethernet or RS485 networks.

- Ethernet/IP, Modbus TCP/IP, i2o peer-to-peer, Modbus-RTU and Profibus-DP communication
- Easy configuration using Internet browser or Windows software

www.acromag.com/ BusWorks900

8B I/O Modules

Ethernet-enable panel-mounted isolation amplifiers with BusWorks or Ethertstax I/O.

- Connect 8B backpanels to Acromag Ethernet I/O with DB25 cable (cables also available for 3B/5B/7B)
- Over 102 low-cost, high-isolation models
- Up to 1500V AC isolation per amplifier

www.acromag.com/8B

EtherStax ES2000 Series

High-density I/O blocks designed for high-reliability operation in Ethernet networks.

- Modbus TCP/IP, UDP/IP, and i2o peer-to-peer communication
- Up to 96 channels of discrete or analog I/O in a vertically-stackable unit with a small footprint
- Fast scan rates (below 1 millisecond)
- Redundant power and communication

www.acromag.com/ EtherStax

Software Tools

- OPC, .NET, ActiveX, Visual Basic/C++
- Function libraries with C source code
- Compatible with Windows, Linux, VxWorks, QNX, OS-9, and other OSs

www.acromag.com/ software-tools

Power Supplies

- 10W, 15W, 30W, 60W, 120W, or 240W
- Universal input (85-264V AC / 100-370V DC)

TT230/330 Series

NEW!

A high-performance line of thin transmitters and isolators offering great flexibility.

■ Easy PC/Windows configuration via USB

■ Inputs: voltage, current, temperature, ohmic, frequency, potentiometer

■ Outputs: DC voltage, current

www.acromag.com/TT

ST130 Series

NEW!

Low-cost, miniature head-mount (DIN Form B) transmitters that deliver outstanding accuracy, linearity and stability.

■ Easy PC/Windows configuration via USB

■ Inputs: temperature, voltage, ohmic

■ Output: 4-20mA DC (sink)

www.acromag.com/ST130

600T Series

Select from a broad line of isolators, splitters, and transmitters available in single, dual, quad-channel configurations.

■ Auto-configuration and self-ranging models for easy setup

■ Inputs (single and multi-channel): voltage, current, temperature, ohmic

■ Outputs: DC voltage, current, splitter

www.acromag.com/600T

1500 Series

Programmable, high-performance head-mount transmitters with optional LCD display and HART protocol output.

■ Easy configuration by PC, HART, or display

■ Inputs: temperature, voltage, current, ohmic

■ Output: 4-20mA DC (sink), optional LCD readout displays in °C/°F

www.acromag.com/1500

IntelliPack 800 Series

Intelligent, programmable series of transmitters, math modules, and alarms for advanced processing tasks.

■ PC configuration, push-button adjust

■ Inputs: voltage, current, temperature, ohmic, frequency, strain/load

■ Outputs: DC voltage, current, relay trip, frequency, pulse-width-modulation

www.acromag.com/ IntelliPacks

Flat Pack Series

A full line of analog signal conditioners (transmitters, isolators, and limit alarms)

■ Wide variety of input, output, and power configurations

www.acromag.com/fp

Accessories and Services

■ Panel meters, network repeaters

■ Mounting and wiring accessories

■ Coatings, tags, certificates, drawings

Telephone: 877-214-6267 or 248-295-0880   ■   Fax: 248-624-9234   ■   sales@acromag.com   ■   www.acromag.com

Monitoring and Control Solutions

Product Series Selection Guide

Remote I/O	Inputs	Outputs	Network Protocol
Ethernet I/O Modules			
BusWorks XT Series	Up to 16 channels/module; analog (current, voltage), discrete	Analog (current, voltage), discrete	Modbus TCP/IP, Ethernet/IP, Profinet, i2o peer-to-peer
BusWorks 900EN Series	Up to 16 channels/module; analog (TC, RTD, current, voltage), 3B/5B/7B/8B cable interface, discrete	Analog (current, voltage), discrete	Modbus TCP/IP, Ethernet/IP, i2o peer-to-peer
Etherstax ES2000 Series	Up to 96 channels/module; analog (current, voltage), discrete	Analog (current, voltage), discrete	Modbus TCP/IP, UDP/IP, i2o peer-to-peer
RS-485 I/O Modules			
BusWorks 900MB Series	Up to 12 channels/module; analog (TC, RTD, current, voltage), discrete	Analog (current, voltage), discrete	Modbus-RTU
BusWorks 900PB	Up to 12 channels/module; analog (TC, RTD, current, voltage), discrete	Analog (current, voltage), discrete	Profibus-DP

Signal Conditioners	Inputs	Outputs	Power
Signal Isolators			
TT230 Series (TT236)	Single-channel; 4-20mA	4-20mA universal sink/source	2/3-wire; 12-32V DC (output loop power)
TT330 Series (TT336)	Single-channel; 4-20mA	4-20mA source	4-wire; 12-32V DC
630T Series (631T, 632T)	Single/dual-channel; 4-20mA	4-20mA source	4-wire; 15-36V, 125V DC; 90-250V AC
650T Series (651T, 652T)	Single/dual-channel; 4-20mA	4-20mA sink	2-wire; 12-36V DC (output loop power)
670T Series	Single/dual/quad-channel; 4-20mA	4-20mA source	2-wire; input loop power
Signal Splitters			
630T Series (633T)	Single input; 4-20mA	Dual output; 4-20mA source	4-wire; 15-36V, 125V DC; 90-250V AC
650T Series (653T)	Single input; 4-20mA	Dual output; 4-20mA sink	2-wire; 12-36V DC (output loop power)
Signal Transmitters and Converters			
ST130 Series	Single-channel; thermocouple, RTD, resistance, millivolt	4-20mA sink	2-wire; 9-32V DC (output loop power)
TT230 Series	Single-channel; current, voltage, thermocouple, RTD, thermistor, resistance, potentiometer	4-20mA universal sink/source	2/3-wire; 12-32V DC (output loop power)
TT330 Series	Single-channel; current, voltage, thermocouple, RTD, thermistor, resistance, potentiometer, frequency	Scalable ±10V, 0-10V, ±20mA, 0-20mA source	4-wire; 12-32V DC
1500 Series (151T, 155H)	Single input; thermocouple, RTD, resistance, mV, current	4-20mA sink, HART; LCD display	2-wire; 12-42V DC (output loop power)
610T Series	Single/dual-channel; current, voltage	Scalable 0-10V, 0-20mA source	4-wire; 10-36V DC
650T Series (654T)	Dual-channel; current, voltage	4-20mA sink	2-wire; 12-50V DC (output loop power)
650T Series (655T, 656T)	Single/dual-channel; thermocouple, millivolt	4-20mA sink	2-wire; 12-50V DC (output loop power)
650T Series (657T, 658T)	Single/dual-channel; RTD, resistance	4-20mA sink	2-wire; 12-50V DC (output loop power)
800T IntelliPack Series	Single/dual-channel; current, voltage, thermocouple, RTD, resistance, frequency/pulse, strain gage (bridge), load cell	Scalable 0-10V, 0-20mA source, alarm relay	4-wire; 10-36V DC
Limit Alarms			
800A IntelliPack Series	Single/dual-channel; current, voltage, thermocouple, RTD, resistance	Single DPDT or dual SPDT 5A relays	4-wire; 10-36V DC
260A / 361A / 461A Flat Pack Series	Single-channel; current, voltage	Single/dual SPDT 2A or 5A alarm relays	2/3/4-wire; input loop-powered (4-20mA); 10-36V DC; 115/230V AC
Computation			
IntelliPack (892M, 894M)	Dual/quad input; current, voltage	Single output; 0-20mA source, 0-10V	4-wire; 10-36V DC
IntelliPack (895M, 896M)	Single/dual-channel; current, voltage	Frequency, pulse, pwm, alarm relay	4-wire; 10-36V DC

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