

RELIABILITY

FLEXIBILITY

FAST DELIVERY

ENGINEERING
SUPPORT

ONE STOP
I/O SHOP



8400-674d

DISTRIBUTED I/O AND SIGNAL CONDITIONERS



Ethernet, Modbus, Profibus I/O



Transmitters, Isolators, Splitters



Limit Alarms / Computation

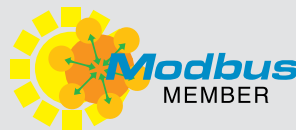


I/O Modules

Depend on Acromag



Experience counts:
especially when
you are selecting
an I/O partner.
And with 60+ years
of I/O experience,
Acromag can help
you to improve
reliability, increase
productivity and
reduce your costs.



Acromag: The I/O Leader

Acromag is a customer-driven manufacturer focused on developing process automation 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.

60+ Years of I/O Experience

Acromag has more than 60 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



I/O MODULES

INPUT SIGNALS

Voltage AC/DC
 Current AC/DC
 Thermocouple
 RTD / Resistance
 Thermistor
 Strain / Load Cell
 Pot / Slidewire
 Discrete Sensors



OUTPUT SIGNALS

DC Voltage
 DC Current
 Relay
 Solid-State Switch
 Frequency
 Pulse Width Modulation
 Display / Readout

COMMUNICATION

Ethernet
 Modbus
 Profibus
 Peer-to-Peer

NETWORK I/O & DATA ACQUISITION

Ethernet I/O



www.Acromag.com/EthernetIO

Modbus I/O



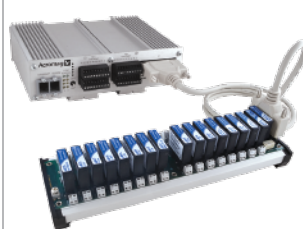
www.Acromag.com/Modbus

Profibus I/O



www.Acromag.com/Profibus

I/O Modules



www.Acromag.com/microBlox

SIGNAL CONDITIONERS

Transmitters



www.Acromag.com/Transmitters

Isolators / Splitters



www.Acromag.com/Isolators

Limit Alarms

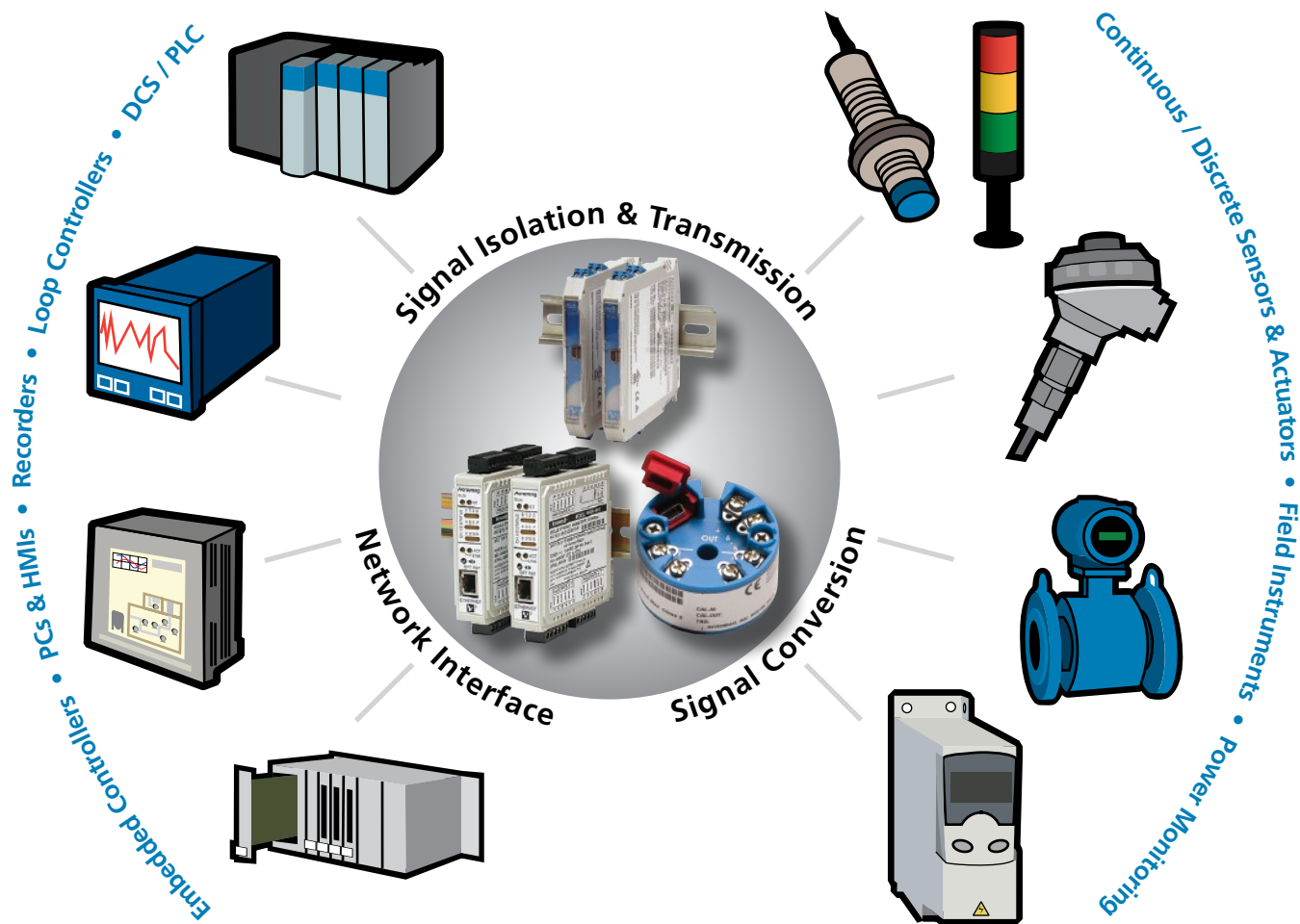


www.Acromag.com/Alarms

Computation



www.Acromag.com/Computation



How Acromag I/O Is Used

Acromag I/O is ideal 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



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

Network I/O & Data Acquisition



[www.acromag.com/
BusWorksXT](http://www.acromag.com/BusWorksXT)

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/
BusWorks900](http://www.acromag.com/BusWorks900)

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/
EtherStax](http://www.acromag.com/EtherStax)

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/i2o

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/microBlox

Channel-to-Channel Isolated I/O Modules

Ethernet-enable panel mounted signal conditioners with BusWorks or EtherStax I/O.

- Connect uB 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 channel



[www.acromag.com/
software-tools](http://www.acromag.com/software-tools)

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



Ethernet Switches

- Managed and unmanaged
- Gigabit fiber
- 10/100/1000 RJ45
- up to 8 ports



www.acromag.com/TT

TT230/330 Series

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/ST130

ST130 Series

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/600T

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/microBlox

microBlox® Series

High-performance solution for interfacing sensors and field devices with data acquisition systems.

- Bluetooth® wireless technology enabled
- User-configurable I/O ranges
- Alarm and input polling/trending capabilities



www.acromag.com/IntelliPacks

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/fp

Flat Pack Series

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

- Wide variety of input, output, and power configurations



Accessories and Services

- Panel meters, power supplies
- Mounting and wiring accessories
- Coatings, tags, certificates, drawings



MicroBlox® Series featuring Bluetooth® Wireless Technology

New Product Announcement

Acromag's microBlox® uB Series I/O modules offer a compact, high-performance solution for interfacing sensors and field devices with data acquisition systems. uB signal conditioning modules are ideal to isolate, filter, convert and amplify a wide variety of signal types for test, measurement and control systems. Just plug uB modules into 4, 8, or 16-channel backpanels in any mix for a high-density analog I/O interface. Channel-to-channel isolation provides optimal noise and surge protection from ground loops, spikes, and high common mode voltages.

microBlox I/O Modules Advantages

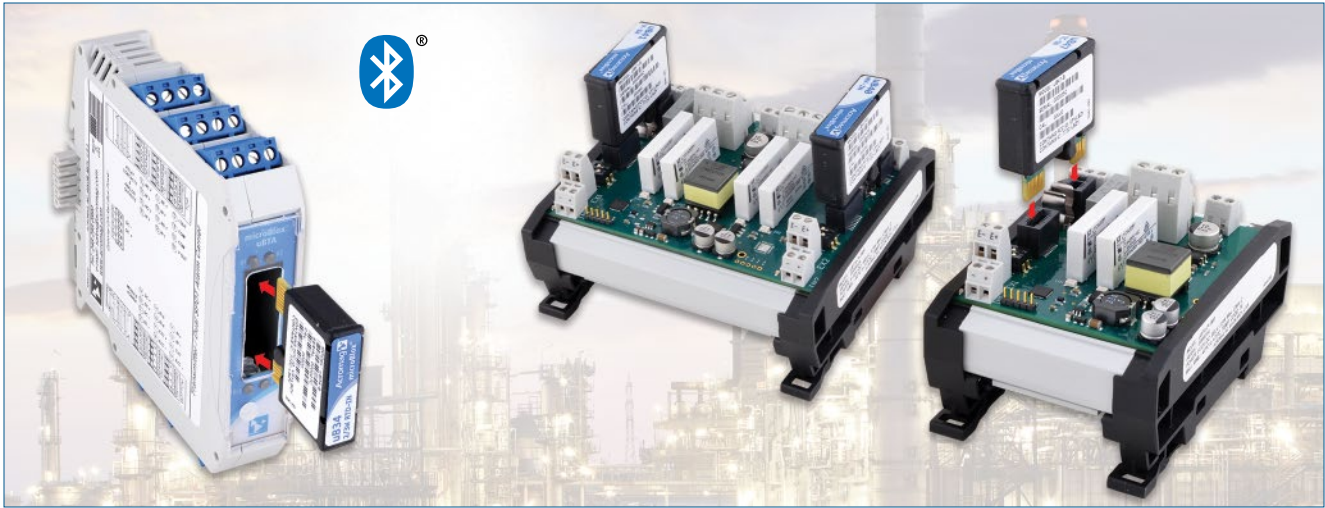
- Selection of 175 I/O modules with Bluetooth wireless technology capability, fixed-range, and cost-saving commercial grade versions.
- User-configurable I/O ranges with smartphone or tablet.
- Input polling with trend charts in Android® or iOS® app.
- Alarm output function with setpoint and deadband.
- 1500V AC isolation field-to-host and channel-to-channel.
- Up to 0.05% accuracy and 130db CMR.
- Shock and vibration-resistant without screws.

User-configurable & fixed I/O range models available

Input Modules	
uB30/uB40	±10mV to ±100mV input, 0-5V or ±5V output
uB31/uB41	±1V to ±60V input, 0-5V or ±5V output
uB32	0-20mA or 4-20mA DC input, 0-5V or ±5V output
uB34/uB35	RTD input, 0-5V or ±5V output
uB37/47	Thermocouple input, 0-5V or ±5V output
uB42	2-wire transmitter (0-20mA) input, 0-5V or ±5V output
uB45	0-50KHz input, 0-5V or ±5V output
Output Modules	
uB39	0-20mA or 4-20mA DC field output, ±5V host input
uB49	0-10V or ±10V field output, ±10V host input
Backpanels	
uB04/uB04D	4 channel uB backpanel, surface or DIN-rail mount
uB08/uB08D	8 channel uB backpanel, panel or DIN-rail mount
uB16/uB16D	16 channel uB backpanel, panel or DIN-rail mount
Power Options	
uBDC1	5V DC power module, 10-32V DC supply input



Innovative Signal Conditioning



MicroBlox® Series Combination Transmitter and Alarms

New microBlox® Transmitting Alarms

The uBTA carriers are used with Acromag's microBlox® signal conditioning modules to create powerful alarms that also provide a voltage/current transmitter output. The plug-in modules offer the convenience of wireless field programming on a smartphone or tablet.

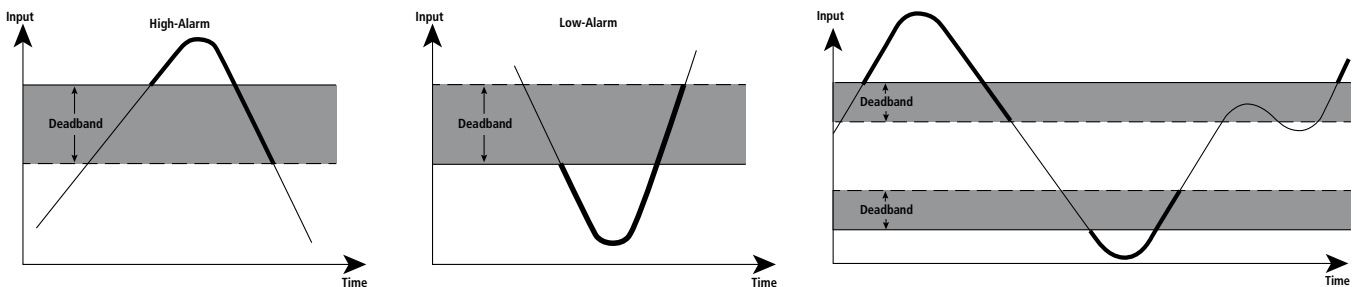
The microBlox uB modules offer a space saving solution for isolating, monitoring, and converting sensor signals to interface with your data acquisition or control system. By inserting a uB input module into a single or dual channel carrier, you get a device with both alarm and transmitter capabilities. With a broad selection of uB input modules, you can monitor many different signal types by simply interchanging modules on the carrier.

microBlox Transmitting Alarms Advantages

- Single/dual alarms with two independent mechanical or solid-state relays up to 5A switching.
- Transmitter output with 4-20mA and 0-5V signal ranges.
- Interchangeable input modules for measuring a wide variety of signal types.
- Easy configuration using Bluetooth wireless technology.
- Rugged design for use in harsh environments.

microBlox Transmitting Alarms Selection Guide

Carriers	
uBTA-H-1MR uBTA-H-1SR	Single transmitter/alarm in housing; mechanical or solid-state relays.
uBTX-H-1	Single transmitter in housing.
uBTA-P-1MR uBTA-P-1-SR	Single transmitter/alarm, panel mount; mechanical or solid-state relays.
uBTA-P-2MR uBTA-P-2-SR	Dual transmitter/alarm, panel mount; mechanical or solid-state relays.
Modules: Plug-In Analog Field Input Modules	
uB30-B uB40-B	DC millivolt input, 5Hz bandwidth (uB30-B) or 1kHz bandwidth (uB40-B); Configurable $\pm 100\text{mV}$.
uB31-B uB41-B	DC voltage input, 4Hz bandwidth (uB31-B) or 1kHz bandwidth (uB41-B); Configurable ± 1 to $\pm 60\text{V}$.
uB32-B uB42-B	DC current input (uB32-B); optional 2-wire loop excitation (uB42-B); Configurable 0-20mA.
uB34-B uB35-B	Pt RTD input; 2 or 3-wire (uB34-B) or 4-wire (uB35-B); Configurable 0-600°C.
uB37-B uB47-B	Thermocouple input, non-linearized (uB37-B) or linearized (uB47B); Configurable Type J,K,T,R,S.



Signal Conditioning: microBlox® Series

Key Features & Benefits



Alarm Function

Wireless (-B) models support alarm setpoint/deadband control to drive 0 or 5V output.

Wireless Configuration

Easily set I/O scaling and alarms or poll inputs using Bluetooth wireless technology with a smartphone or tablet using Android or iOS app.



Flexible Power

5V power modules enables use of 10-32V supplies.

Mix-and-Match Modules

175 modules support a wide variety of input and output signal types.

Easy, Secure Mounting

Clip holds module tightly without screws for fast insertion/removal.

Analog Bus Port

DB25 cable simplifies connection to DAQ systems.

Rugged, Over-molded Circuit

Superior shock, vibration, moisture, and dust protection.

High-Density Analog I/O

Up to 16 channels in a compact footprint.

High-performance

High-accuracy / high noise immunity



User-Programmable I/O Ranges

Models with Bluetooth wireless technology allow custom input and output ranges.



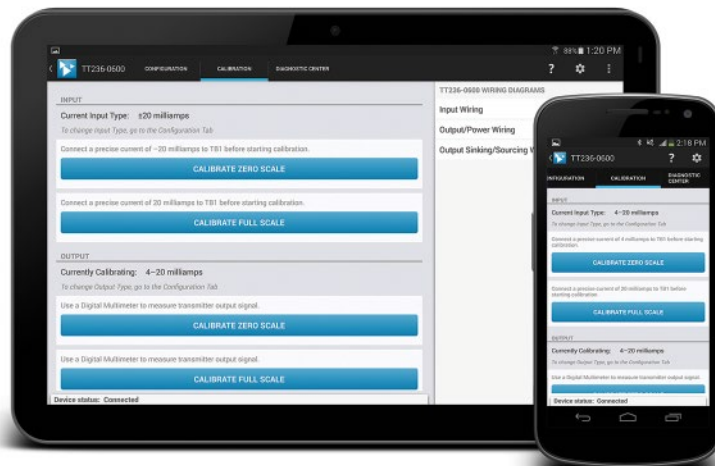
Signal Conditioners: Agility™ APP



Acromag Agility™ Config Tool Mobile Application

The Agility Config tool is a mobile application that allows easy setup and configuration of Acromag TT Series transmitters and microBlox I/O modules using a mobile phone or tablet. Connect with a USB cable (TT Series) or via Bluetooth wireless technology (microBlox Series) for fast field configuration on a smart device running Android or iOS (microBlox only).

This mobile app supports smart devices with Android 4.3+ or iOS 5.0+. You can download the Agility application free of charge from the Google Play™ store at play.google.com (Android), or the Apple® App Store® at itunes.apple.com (Apple iOS).



TT Series



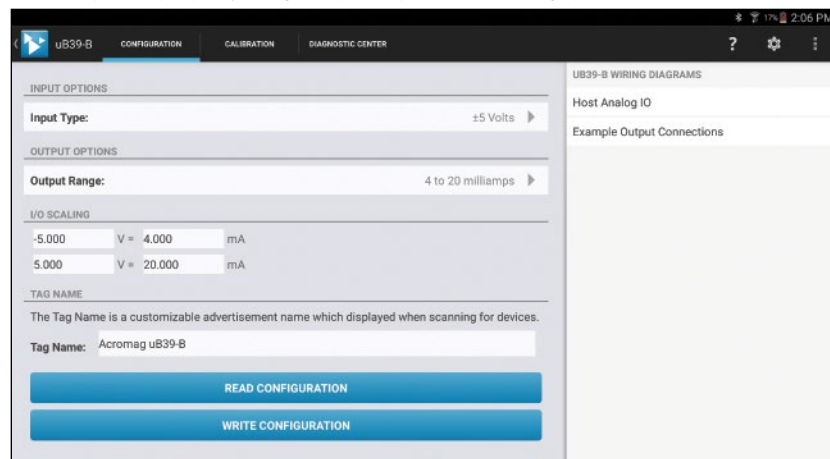
microBlox® Series



Key Features & Benefits

- Connects to microBlox signal conditioners via Bluetooth® wireless technology.
- Connects to TT Series transmitters (except TT231, TT233 models) via USB on-the-go cable.
- Configures and calibrates microBlox uB Series I/O modules via phone or tablet running Android or iOS.
- View wiring diagrams, even without an internet connection.
- Perform quick and easy field diagnostics and troubleshooting.
- Ideal for field technicians.
- Trend and share field data.

With a couple of taps, quickly configure input, output, unit and scaling options.



Quick and easy access to the wiring diagram, even offline without internet access.



Monitoring and Control Solutions

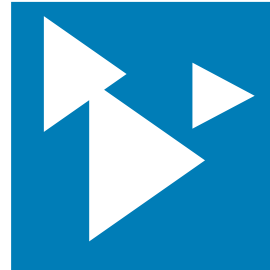
Product Series Selection Guide

I/O Modules	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), microBlox® uB 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
Data Acquisition Modules			
NEW! microBlox® uB Series	Voltage, current, RTD, thermocouple, frequency & high-speed/wideband	Voltage, 0-20mA or 4-20 mA DC	Bluetooth wireless technology enabled
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
NEW! uBTX microBlox Series	Single-channel; current, voltage, thermocouple, RTD, frequency	0/4-20mA, 0/1-5V	6-32V DC SELV
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			
NEW! uBTA microBlox Series	Single/dual-channel; current; voltage, thermocouple, RTD	Single/dual SPDT/SPST relays, 0/4-20mA, 0/1-5V	6-32V DC SELV
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

60 YEARS OF DESIGN MANUFACTURING EXPERIENCE



Visit us on the web!
Acromag.com



- Product data sheets, manuals, and price information
- Order online with your credit card or purchase order
- Technical support, tutorials, and application notes
- Subscribe to our monthly e-newsletter

Other quality Acromag services and products

Embedded Processors

- FPGAs
- Embedded computers
- COM Express
- AcroExpress SBCs

Embedded I/O

- AcroPack® I/O mezzanine modules
- IndustryPack I/O modules
- Carrier cards

Electronics Mfg. Services

- PCB assembly
- Surface mount technology
- Conformal coating & more

ISO9001
AS9100 
MADE IN USA

Acromag 
THE LEADER IN INDUSTRIAL I/O

Tel: 877-214-6267 or 248-295-0880 ■ sales@acromag.com ■ www.acromag.com ■ 30765 S Wixom Rd, Wixom, MI 48393 USA

8400-674d © Acromag, Inc. 2017. Data subject to change without notice. Printed in USA 5/2017

The Bluetooth® word mark and logos are registered trademarks owned by the Bluetooth SIG, Inc. and any use of such marks by Acromag is under license. Other trademarks and trade names are those of their respective owners.