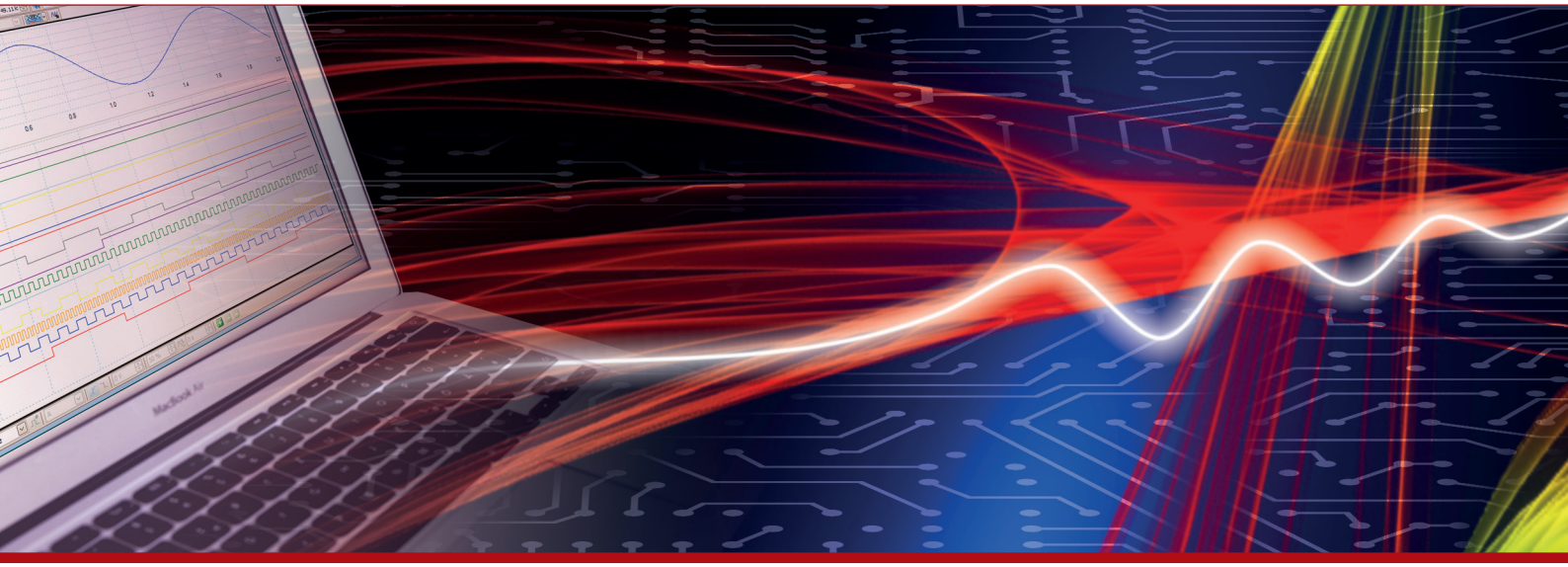
Product Datasheet - Technical Specifications



More information in our Web-Shop at ▸ **www.meilhaus.com** and in our download section.

Your contact

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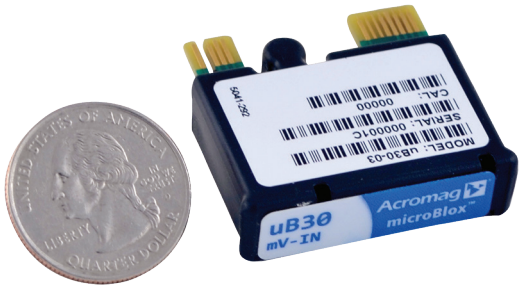
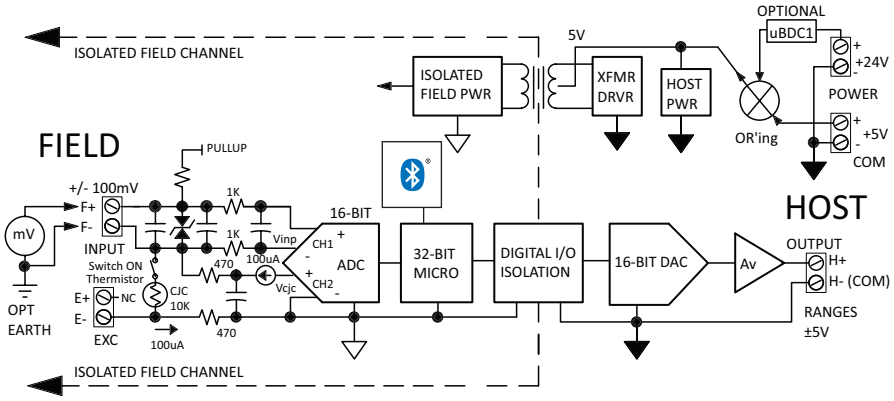
Signal Conditioners: microBlox™ Series

uB30/40 milliVolt Field Input

Bluetooth®





Bluetooth® wireless configuration option ◆ Narrow or wide band mV field input ◆ Voltage host output

Description

Field Input: ±10mV to ±100mV ranges
Host Output: 0-5V or ±5V ranges

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.

The uB30 and uB40 models condition and convert a low-level DC voltage field input signal to a scaled 0-5V or ±5V output. The uB30 has more filtering for low-band applications, while the uB40 relaxes filtering for higher speed applications. uB30 modules are recommended for noisier environments where conversion speed is less of a concern. uB40 modules drive a faster response, but with less filtering for noise.

Bluetooth wireless technology versions enable configuration using a smart phone or tablet. Acromag's Agility™ app, available for Android™ and iOS® mobile devices, helps you vary input/output ranges and scaling to your specific application. The Agility app can also set an alarm output function with a setpoint limit and deadband. Other app functions include polling inputs, trending values in a sharable chart, updating calibration, and diagnostic troubleshooting.

For cost-sensitive projects, a commercial-grade version is available (-CG models). These units offer similar performance, but over a limited temperature range and lack hazloc approvals.

Backpanels provide power, I/O wiring terminals, and host access to an industry-standard analog signal bus. Modules are hot-swappable without screws. Data acquisition boards can access all host I/O signals on the DB25 bus connector.

Key Features & Benefits

- Wide variety of input and output ranges
- Mixes with different I/O types on compact 4, 8, or 16 channel backpanels
- Select fixed I/O range models or Bluetooth wireless technology user-configurable models
- Cost-saving commercial-grade versions available for less demanding applications
- Android® and iOS® apps simplify wireless configuration with a smartphone or tablet
- Mobile app configures I/O ranges, sets scaling, calibrates and performs diagnostics
- Optional alarm function with setpoint and deadband control driving 0/5V host output
- Poll and trend I/O values to sharable charts
- High accuracy, noise immunity, and stability
- Isolated field-to-host and channel-to-channel (1500Vac peak, 250Vac/354Vdc continuous)
- Over-molded I/O circuits offer superior shock, vibration, moisture, and dust protection.
- Wide operating temperature range
- UL/cUL Class I, Div 2, ABCD and ATEX Zone 2 hazardous location approvals

ISO9001
AS9100
MADE IN USA

Acromag®
THE LEADER IN INDUSTRIAL I/O

Signal Conditioners: microBlox™ Series

uB30/40 milliVolt Field Input

Performance Specifications

See Backpanels for additional system specifications.

Field Input

Field Range
Fixed ranges: ±10mV, ±50mV or ±100mV
User-configurable -B models: ranges inside ±100mV

Resolution
16-bit ADC, ±10mV: 1/28894
±50mV/±100mV: 1/36118

Resistance
100MΩ

Input Sample Rate
uB30: 40sps.
uB40: 2Ksps.

Normal Mode (Bandwidth)
uB30: -3dB at 5Hz, typical.
uB40: -3dB at 1KHz, typical

Protection
TVS & diode clamps built-in plus additional protection on back-panel.

Common Mode Rejection
103dB typical, 50-60Hz

Host Output

Host Range
0-5V or ±5V per range model.
User-configurable -B models: ±5V.

Resolution
16-bit DAC. 0-5V: 1/26305. ±5V: 1/52610

Current Drive
5V into 1KΩ minimum or 5mA maximum

Response Time
uB30: Output step 0-98% in 300ms, typical
uB40: Output step 0-98% in 2ms, typical

General

Power Consumption
0.25W, 50mA from +5V maximum

I/O Resolution
Effective resolution is the least of input (A/D) and output (D/A) resolution: uBx0-01: 1/28894. uBx0-02/-03: 1/36118. uBx0-04/-05/-06: 1/26305.

Accuracy
Better than ±0.1%. 0.05% typical.
-CG models: Better than ±0.125%. 0.075% typical.

Non-Linearity
Better than ±0.05%, typical

Noise
Less than 0.03% of span p-p, rms

Ambient Effect
Less than ±80ppm/°C

Dimensions
Height: 1.380" with connectors, 0.970" without
Width: 0.425". Length: 1.425"

Environmental

Operating Temperature
-40 to 80°C (-40° to 176°F)
-CG models: 0 to 55°C (32 to 131°F)

Storage Temperature
-40 to 85°C (-40° to 185°F)

Relative Humidity
0 to 95% non-condensing

Power Requirement
5V powered,10-32V power optional
(requires uBDC-1 power module & backpanel.)

Safety Isolation
Field channels are individually isolated field channel-to-field channel and from the field to the host I/O bus (host group includes 5V power) for common-mode voltages up to 250V AC, or 354V DC off DC power ground, on a continuous basis (will withstand 1500VAC HIPOT/dielectric strength test for one minute without breakdown). This complies with test requirements of ANSI/ISA-82.01-1988 for voltage rating specified.

Shock and Vibration Immunity
Conforms to:
IEC 60068-2-6: 10-500 Hz, 4G, 2 hours/axis, for sinusoidal vibration.
IEC 60068-2-64: 10-500 Hz, 4G-rms, 2 hours/axis , for random vibration.
EC 60068-2-27: 25G, 11ms half-sine, 18 shocks at 6 orientations, for mechanical shock.

Electromagnetic Compatibility (EMC) Compliance
Minimum immunity per BS EN 61000-6-1 (2007):
CE marked, per EMC Directive 2004/108/EC.
Electrostatic Discharge Immunity (ESD), per IEC 61000-4-2.
Radiated Field Immunity (RFI), per IEC 61000-4-4.
Electrical Fast Transient Immunity (EFT), per IEC 61000-4-4.
Surge Immunity, per IEC 61000-4-5. Conducted RF Immunity (CRFI), per IEC 61000-4-6.

Emissions
Class B product with emissions per BS EN 61000-6-3 (2007+A1:2011): enclosure port, per CISPR 16.
Low voltage AC mains port, per CISPR 16.

Approvals
CE compliant. RoHS Compliant.
UL/cUL Class 1, Division 2, Groups ABCD.
ATEX Zone 2. No UL or ATEX on -CG models.

Ordering Information

To order commercial grade modules & backpanels append with -CG (except -B & UBDC-1 models), e.g. uB30-01-CG. Note: -CG modules should be paired with only -CG panels.

Model (5Hz)	Model (1KHz)	Field Input	Host Output
uB30-01	uB40-01	±10mV DC	±5V DC
uB30-02	uB40-02	±50mV DC	±5V DC
uB30-03	uB40-03	±100mV DC	±5V DC
uB30-04	uB40-04	±10mV DC	0-5V DC
uB30-05	uB40-05	±50mV DC	0-5V DC
uB30-06	uB40-06	±100mV DC	0-5V DC
uB30-B	uB40-B	Configurable ±100mV DC	0-5V DC or ±5V DC

Configuration using Agility™ Config. Tool via Bluetooth technology

The Acromag Agility™ configuration tool is a mobile application that allows easy setup, calibration, and reconfiguration of microBlox™ I/O modules.

Bluetooth wireless technolgy microBlox™ modules (-B models) allow their input and output ranges to be wirelessly reconfigured and calibrated using a smart phone or tablet. 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 or the Apple® App Store®.

Accessories

Model	Description
uBDC1	Non-isolated, 10-32V: 5V/1A power supply
uB04	4 channel panel, surface mount
uB04D	4 channel panel, DIN rail mount
uB08	8 channel panel, surface mount
uB08D	8 channel panel, DIN rail mount
uB16	16 channel panel, surface mount
uB16D	16 channel panel, DIN rail mount

Acromag® THE LEADER IN INDUSTRIAL I/O

Signal Conditioners: microBlox® Series

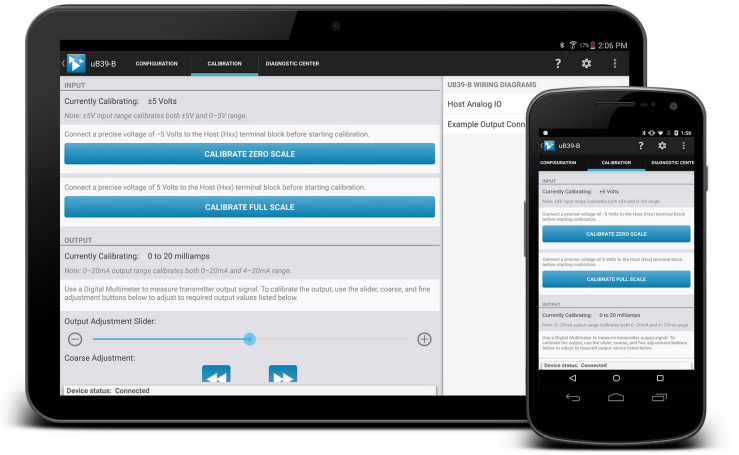
Acromag Agility™ Config Tool Mobile Application

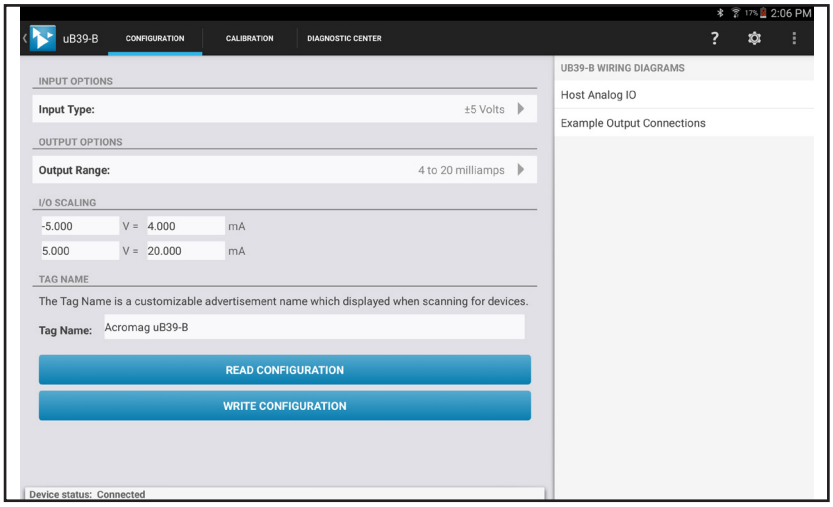
The Agility™ Config Tool is a mobile application that allows easy setup and configuration of Acromag microBlox® Series signal conditioners and alarms.

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).

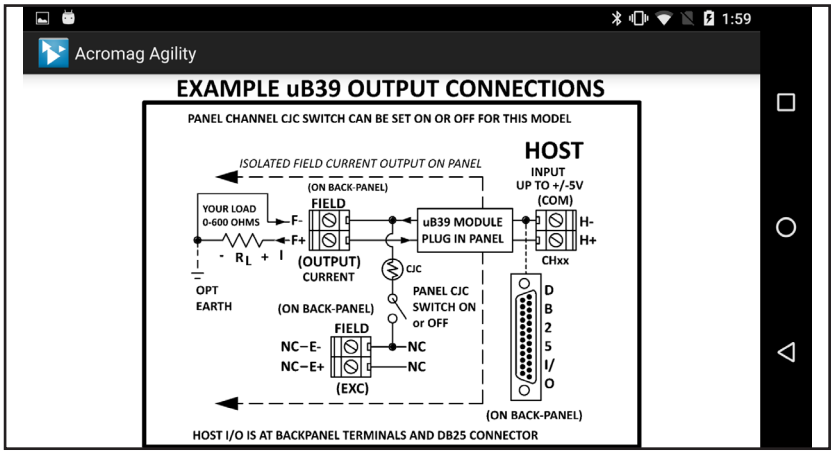
Demo the software, no need for a module. To enter demo mode simply tap the Acromag icon in the upper left corner 8 times.

Bluetooth®





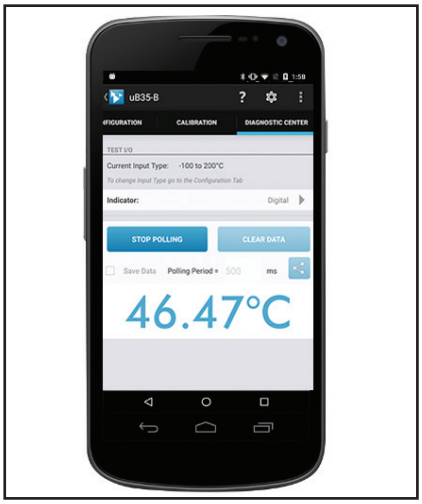
With a couple of taps, quickly configure input, output, unit and scaling options.



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

Key Features & Benefits

- Connects to microBlox signal conditioners via Bluetooth wireless technology
- Requires the use of a smart device
- Configures and calibrates microBlox UB Series products via phone or tablet running Android 4.3 or later or iOS 8.1 or later.
- 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



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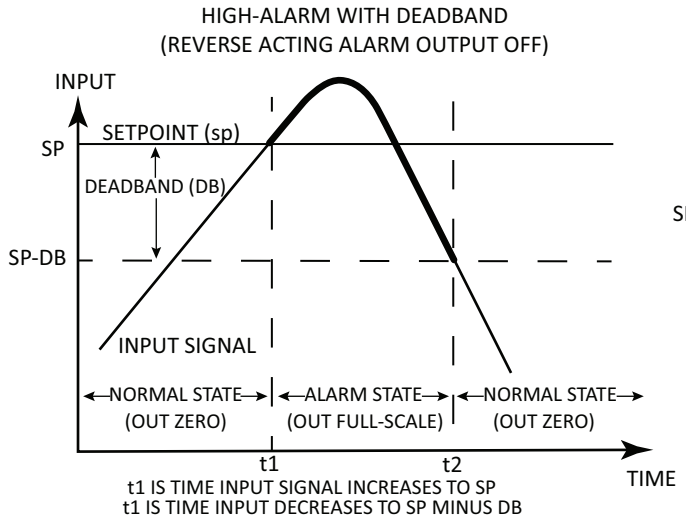
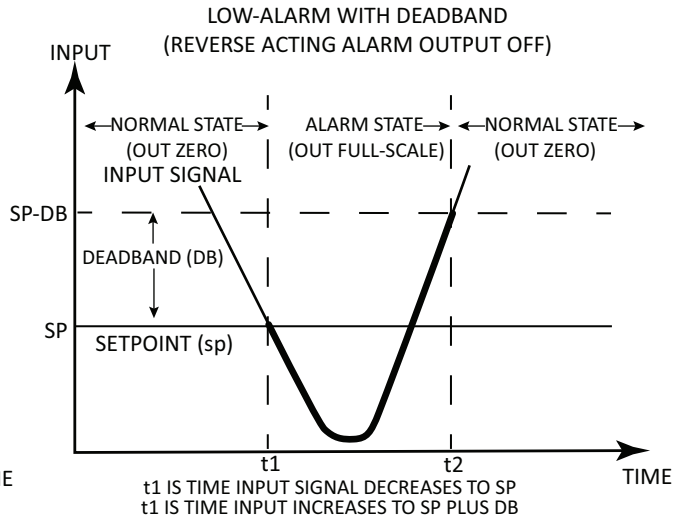
Signal Conditioners: microBlox™ Series

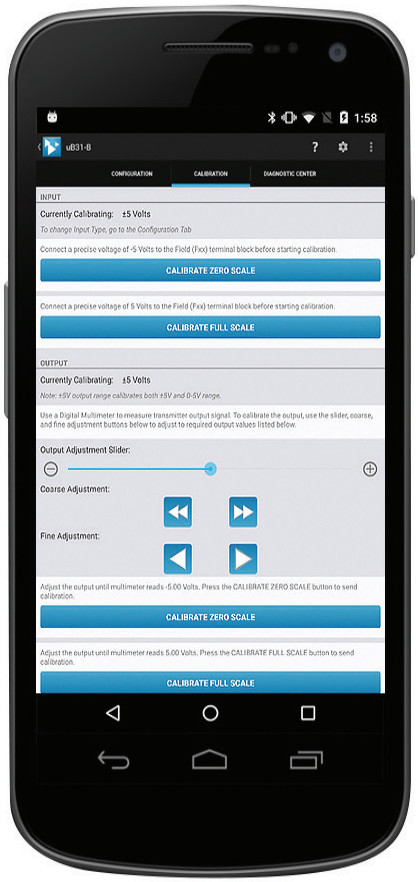
Acromag Agility™ Config Tool Mobile Application

Alarm Function





Calibration



Data Logging

Diagnostics