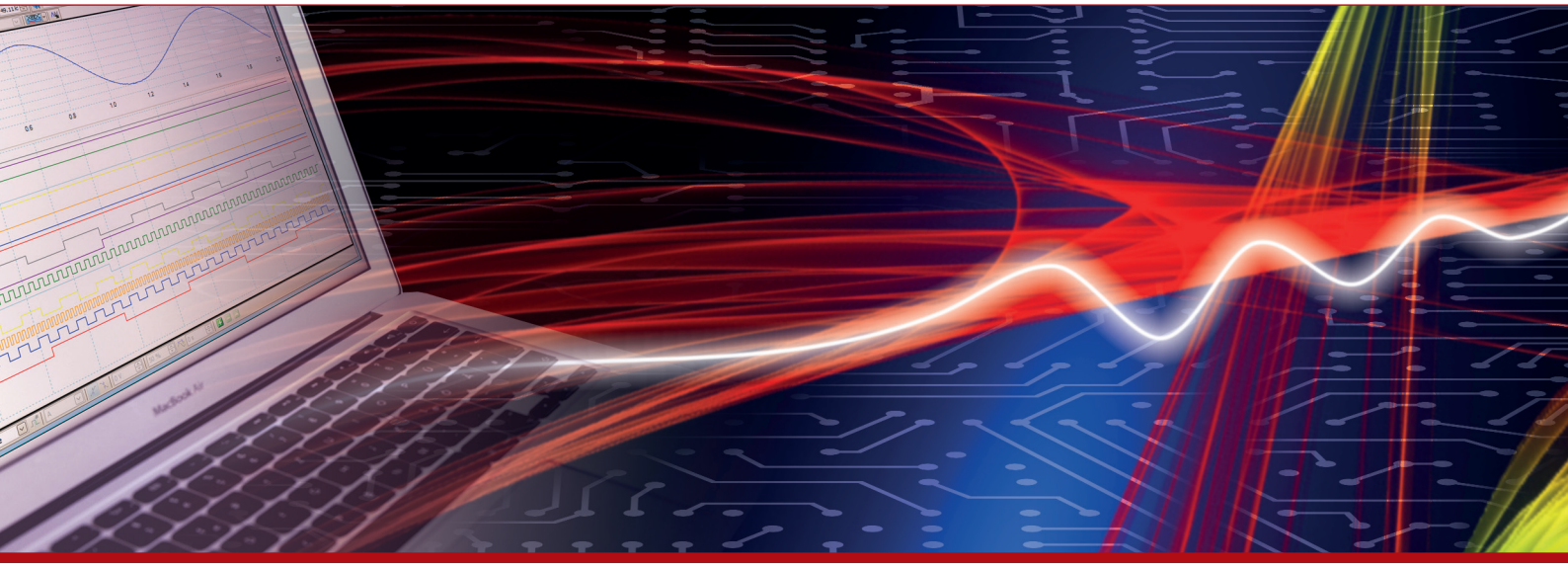
Product Datasheet - Technical Specifications



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

Your contact

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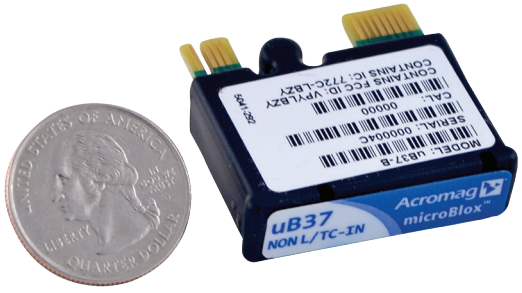
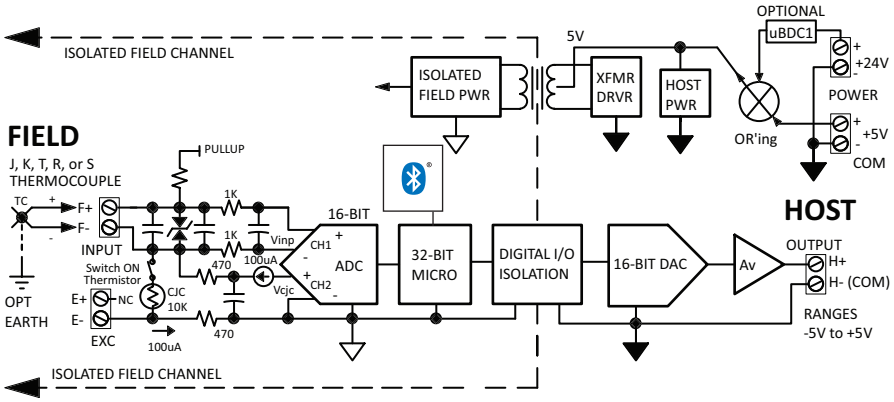
Signal Conditioners: microBlox™ Series

uB37/uB47 Thermocouple Field Input

Bluetooth®





Bluetooth® wireless configuration option ◆ Thermocouple field input ◆ Voltage host output

Description

Field Input: T/C type J, K, T, R, E, S
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 uB37 and uB47 models condition and convert low-level input voltages from field thermocouple sensors to a scaled 0-5V or ±5V output. On uB37 models, output is linear with thermocouple voltage, while uB47 output is linear with thermocouple temperature. Both models have up/downscale sensor-break detection. Cold junction compensation is performed on the backpanel.

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 shareable 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

Acromag®
THE LEADER IN INDUSTRIAL I/O

Signal Conditioners: microBlox™ Series

uB37/uB47 Thermocouple Field Input

Performance Specifications

See Backpanels for additional system specifications.

Field Input

Field Range
Fixed ranges: TC type per range model
User-configurable -B models: TC type/range

Resolution
16-bit ADC. Varies by model & calibration from 1/5878 to 1/36118 (see manual).

Resistance
100MΩ

Lead Break Detection
-B model: Upscale, or selectable upscale/downscale.

Input Sample Rate
40sps

Normal Mode (Bandwidth)
3dB at 5Hz, typical

Common Mode Rejection
130dB typical, 50-60Hz

Host Output

Host Range
Fixed ranges: 0-5V. 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
Output Step 0-98% in 300ms typical

General

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

I/O Resolution
Varies by range. See manual for details.

Accuracy/Non-Linearity
Better than ±0.1%. 0.05% typical for full range.
-CG models: Better than ±0.125%. 0.075% typical.
See manual for accuracy details on narrow ranges.

Cold Junction Compensation
Better than ±2°C, typical

Noise
Better than 0.03% of span p-p rms

Ambient Effect
Better than ±80ppm/°C

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

ISO9001
AS9100
MADE IN USA

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 uBDC1 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 (as a group including 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). ANSI/ISA-82.01-1988.

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.

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 technology microBlox™ modules (-B models) allow input/output ranges to be wirelessly reconfigured and calibrated using a smart phone or tablet. This mobile app. supports smart devices with Android or iOS. Download the Agility app. of charge from Google Play™ store play.google.com (Android), or the Apple® App Store® itunes.apple.com (Apple iOS).

Ordering Information

To order commercial grade modules & backpanels append with -CG (except -B & UBDC-1 models), e.g. uB37J-CG. Note: -CG modules should be paired with only -CG panels.

MODEL	FIELD INPUT	HOST OUTPUT
Non-Linearized		
uB37J	-100 to +760°C	0-5V DC
uB37K	-100 to +1350°C	0-5V DC
uB37T	-100 to +400°C	0-5V DC
uB37R	0 to +1750°C	0-5V DC
uB37S	0 to +1750°C	0-5V DC
uB37-B	Config. J, K, T, R, E, S	Config. ±5V

MODEL	FIELD INPUT	HOST OUTPUT
Linearized		
uB47J-01	0 to +760°C	0-5V DC
uB47J-02	-100 to +300°C	0-5V DC
uB47J-03	0 to +500°C, 5Hz	0-5V DC
uB47J-12	-100 to +760°C	0-5V DC
uB47K-04	0 to +1000°C	0-5V DC
uB47K-05	0 to +500°C	0-5V DC
uB47K-13	-100 to +1350°C	0-5V DC
uB47K-14	0 to +1200°C	0-5V DC
uB47T-06	-100 to +400°C	0-5V DC
uB47T-07	0 to +200°C	0-5V DC
uB47-B	Config. J, K, T, R, E, S	Config. ±5V

Accessories

Model	Accessories 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

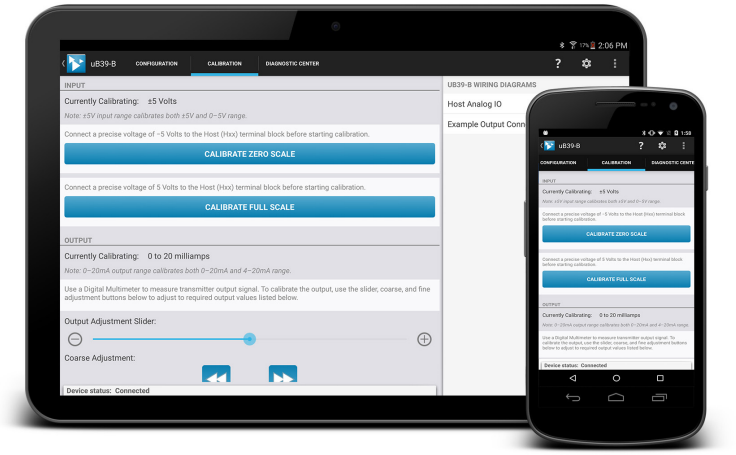
Acromag Agility™ Config Tool Mobile Application

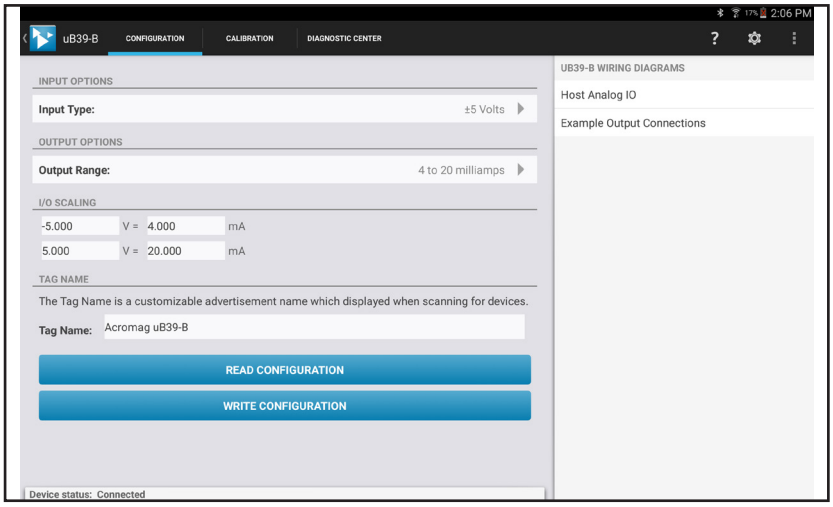
The Agility™ Config Tool is a mobile application that allows easy setup and configuration of Acromag microBlox® Series signal conditioners and alarms.

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).

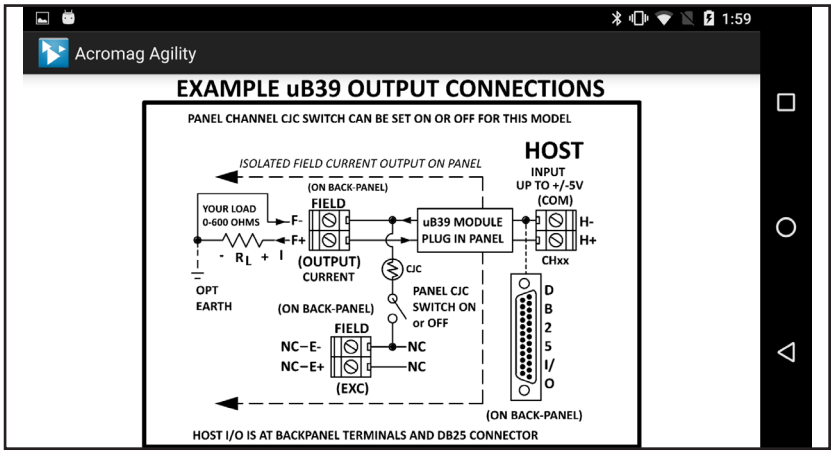
Demo the software, no need for a module. To enter demo mode simply tap the Acromag icon in the upper left corner 8 times.

Bluetooth®





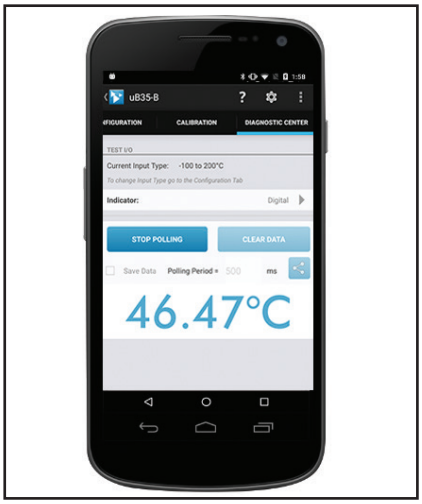
With a couple of taps, quickly configure input, output, unit and scaling options.



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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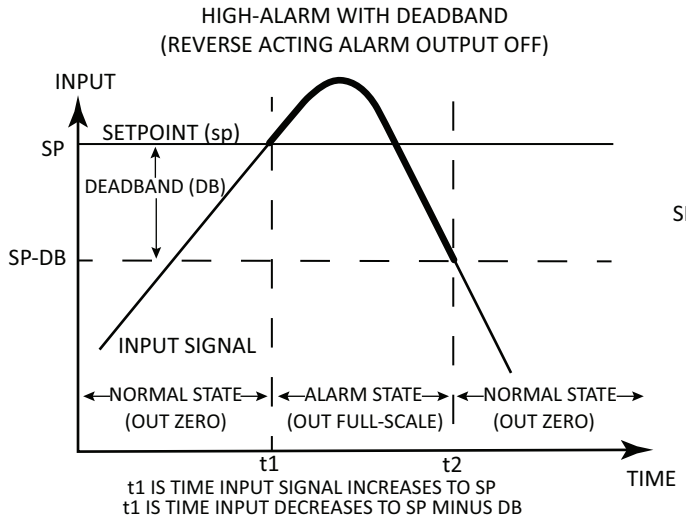
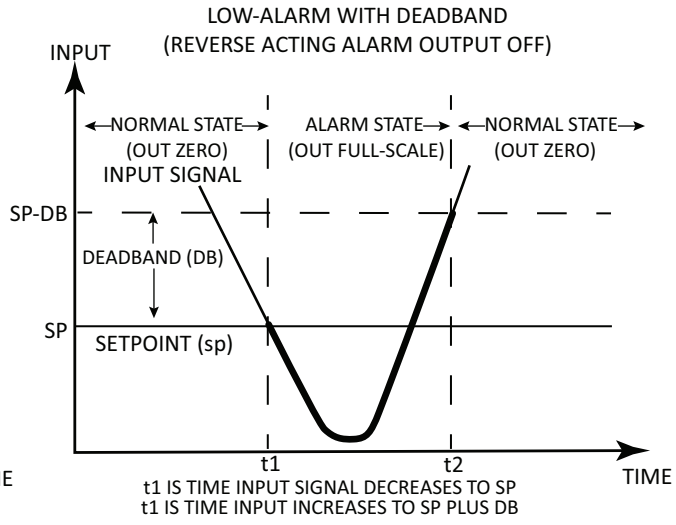
Signal Conditioners: microBlox™ Series

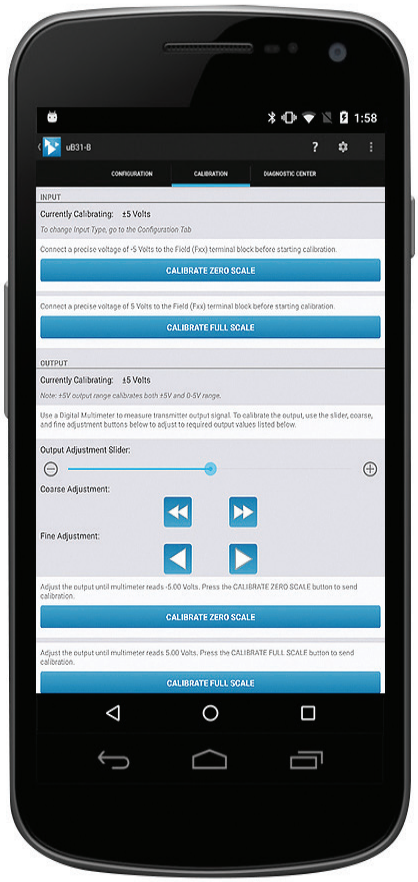
Acromag Agility™ Config Tool Mobile Application

Alarm Function





Calibration



Data Logging

Diagnostics