

Product Datasheet - Technical Specifications



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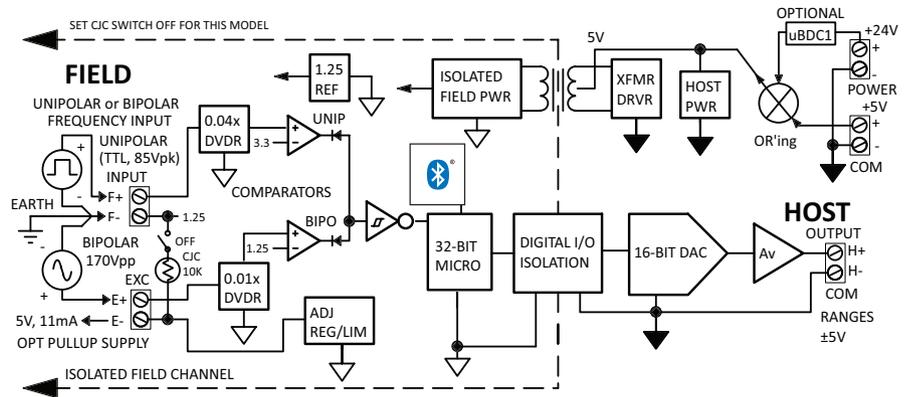
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Signal Conditioners: microBlox™ Series

uB45 Frequency Input Module with Excitation Supply



Bluetooth® wireless configuration option ♦ Frequency field input ♦ Voltage host output

Description

Field Input: 0-50kHz frequency 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 uB45 model conditions and converts a frequency field input signal to a scaled 0-5V or ±5V output. It includes a 5V excitation at the input for interface pull-up when using sensors such as magnetic pickups or contact closures. Bipolar (zero-crossing) and unipolar (digital/TTL) signals are supported.

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

ISO9001
AS9100

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uB45 Frequency Input Module with Excitation Supply

Performance Specifications

See Backpanels for additional system specifications.

Field Input

Field Range

Fixed ranges from 0-50KHz
User-configurable -B models: 0-50KHz

Resistance

10.4MΩ unipolar (IN+ to IN-)
10.1M bipolar (EX+ to IN-) excitation

Threshold

Bipolar (zero-crossing) ±60-85mVpk (1-50KHz) up to ±85Vpk (60V AC or 170Vp-p max.).

Unipolar (TTL) 85Vpk (170Vp-p max), 0.8V max. TTL input low, 2.3-2.7V (5-50KHz) min. TTL high.

Hysteresis

120mVp-p bipolar/zero-crossing, 1.5V unipolar

Field Excitation

+5V/11mA supply (EX- to IN-), for interface applications requiring external pull-up.

Protection

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

Common Mode Rejection

130dB typical, 50-60Hz

Host Output

Host Range

Fixed ranges: 0-5V DC
User-configurable -B models: ±5V

DAC Resolution

16-bit, 0-5V: 1/26305, ±5VDC: 1/52610

Drive Current

5V into 1KΩ minimum or 5mA max load

Response Time

uB45-01: 160ms
uB45-02: 80ms
uB45-03: 35ms
uB45-04: 16ms
uB45-05: 8.5ms
uB45-06: 3.4ms
uB45-07: 1.6ms
uB45-B: varies by range

General

Power Consumption

0.45W, 90mA from 5V max. with no exc. & 5mA host load, or 0.6W, 120mA from 5V w/ 10mA exc. load & 5mA host load.

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 0.05% of span p-p rms

Ambient Effect

Less than ±40ppm/°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 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 (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. uB45-01-CG. Note: -CG modules should be paired with only -CG panels.

Model	Field Input	Min Hz	Host Output
uB45-01	0-500Hz	2Hz	0-5V DC
uB45-02	0-1KHz	4Hz	0-5V DC
uB45-03	0-2.5KHz	8Hz	0-5V DC
uB45-04	0-5KHz	14Hz	0-5V DC
uB45-05	0-10KHz	20Hz	0-5V DC
uB45-06	0-25KHz	30Hz	0-5V DC
uB45-07	0-50KHz	30Hz	0-5V DC
uB45-B	Configurable 0-50KHz	30Hz	Configurable ±5V

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 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 later or iOS 5.0 or later. 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).

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
5020-350	AC current sensor, outputs 0-11.17mA

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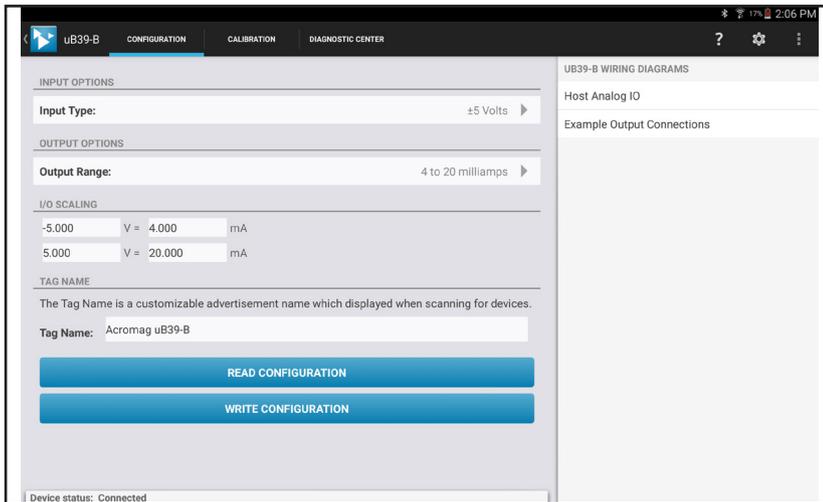
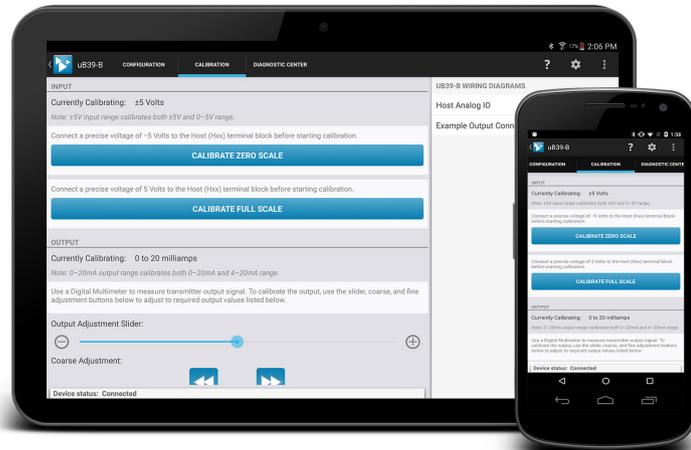
Signal Conditioners: microBlox® Series

Acromag Agility™ Config Tool Mobile Application

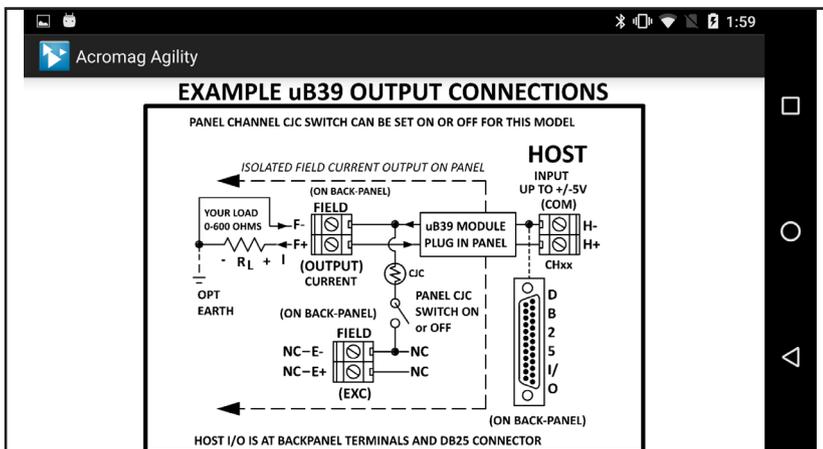
The Agility™ Config Tool is a mobile application that allows easy setup and configuration of Acromag microBlox® Series signal conditioners and alarms.

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  icon in the upper left corner 8 times.



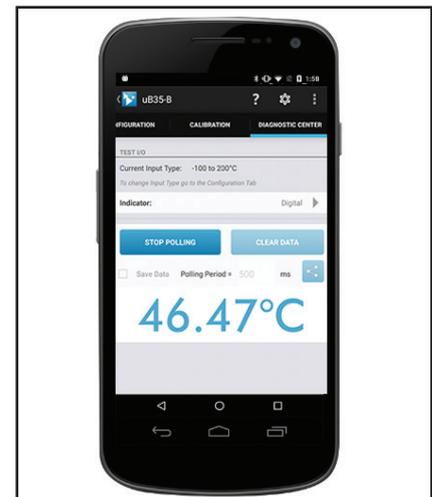
With a couple of taps, quickly configure input, output, unit and scaling options.



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

Key Features & Benefits

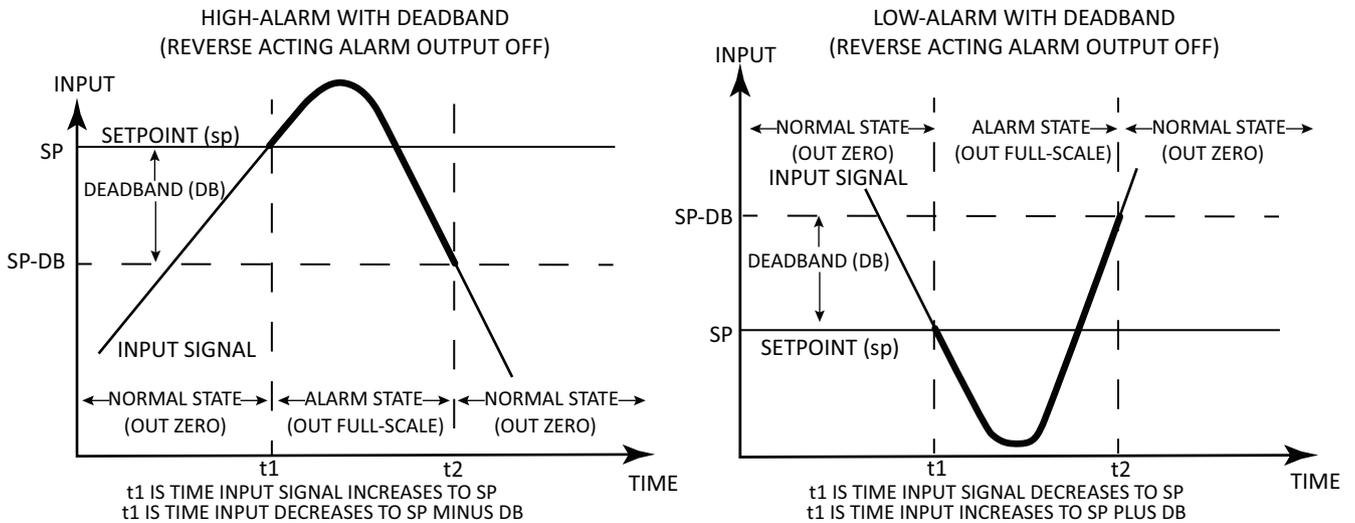
- Connects to microBlox signal conditioners via Bluetooth wireless technology
- Requires the use of a smart device
- Configures and calibrates microBlox UB Series products via phone or tablet running Android 4.3 or later or iOS 8.1 or later.
- View wiring diagrams, even without an internet connection
- Perform quick and easy field diagnostics and troubleshooting
- Ideal for field technicians
- Trend and share field data



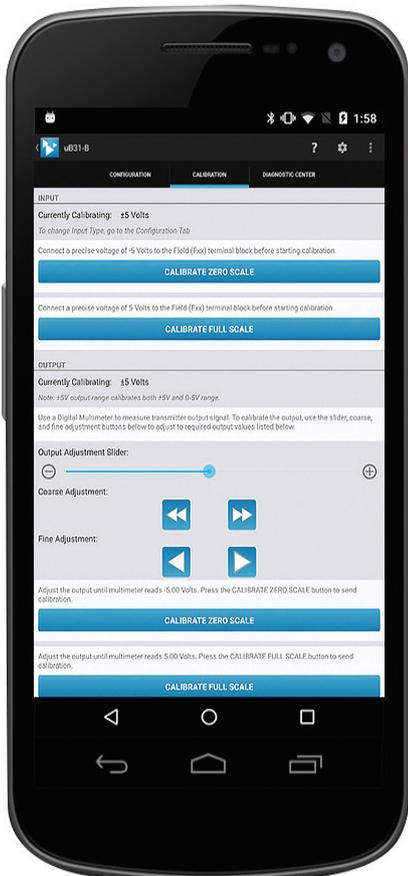
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Acromag Agility™ Config Tool Mobile Application

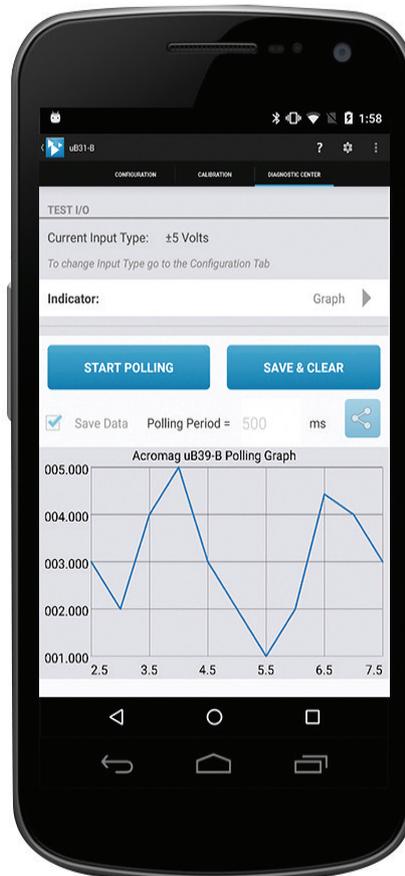
Alarm Function



Calibration



Data Logging



Diagnostics

