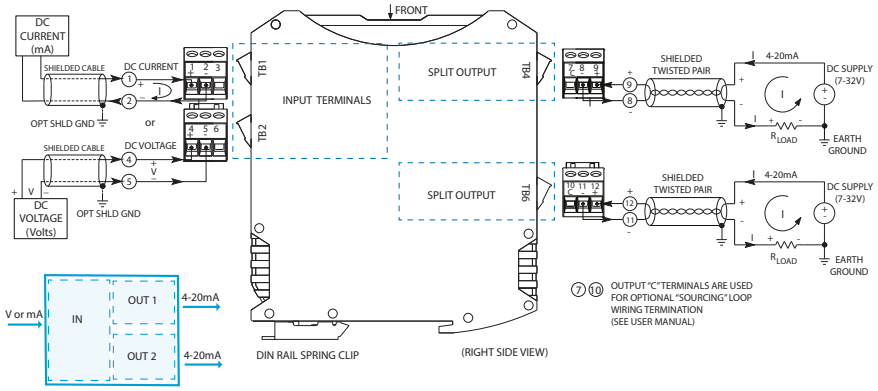
Process Loop Splitter: SP230 Series

SP236 Current/millivolt input signal splitter, two-wire



DC current and low voltage input ◆ 4-20mA outputs (sink/source) ◆ 7-32V DC loop power

Description

The SP236 model is a high-performance signal splitter that converts one DC current or millivolt input into two isolated proportional 4-20mA control signals. Power is received from one or both output loop currents.

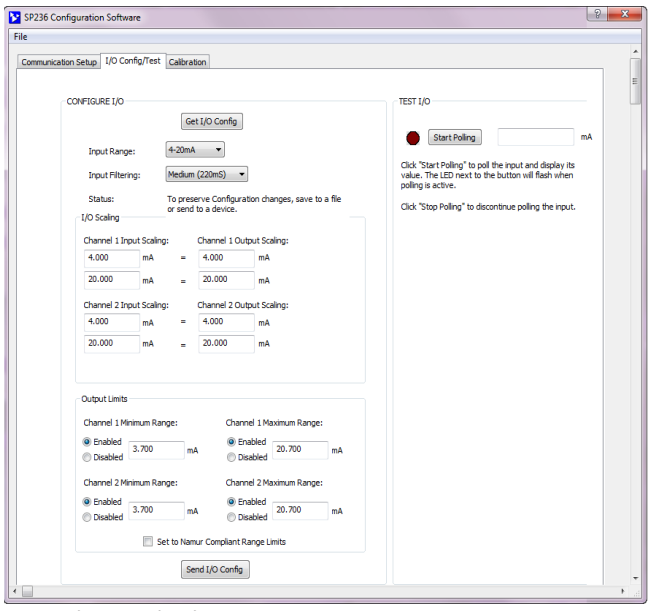
Setup is fast and easy with a USB connection to your PC and our Windows software. Acromag's Agility™ mobile app enables configuration on an Android smart phone or tablet. Software simplifies I/O range scaling, calibration, and advanced signal processing capabilities.

High-voltage isolation separates the input from each output circuit. The isolation protects from surges, reduces noise, and eliminates ground loop errors.

These rugged instruments withstand harsh industrial environments to operate reliably across a wide temperature range with very low drift. They feature high immunity to RFI, EMI, ESD, and EFT, plus low radiated emissions.

Key Features & Benefits

- Easy configuration via USB with Windows software or Agility app for Android
- Single unit accepts input ranges up to ±500mV, ±20mA DC, or 0-20A AC (with external sensor)
- Input scales independently at each output
- User-selectable filtering (none, low, med, high)
- User-configurable output range clamp levels support NAMUR-compliant operation
- Supports reverse-acting (inverse) output
- Supports sink or source output wiring
- Very low 7V two-wire loop burden
- High accuracy, linearity, stability, and reliability
- 1500V isolation
- Space-saving 17.5mm (0.69 inch) design with pluggable terminals for easier wiring
- Shock (25g) and vibration (4g) resistant
- Wide ambient operation (-40 to 80°C)
- CE compliant. UL/cUL Class I Div 2, ATEX / IECEx Zone 2 approvals.



Save configuration files for convenient copy/restore capability.

Windows configuration software (FREE) at www.acromag.com

Android Agility™ app (FREE) at [Google Play Store]

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Performance Specifications

IMPORTANT: To prevent ground loop error between a grounded PC and a grounded input signal, Acromag strongly recommends use of a USB isolator like Acromag's USB-Isolator when configuring a SP230 Series transmitter.

USB Interface

USB Connector
USB Mini-B type socket, 5-pin.

USB Data Rate
12Mbps. USB v1.1 and 2.0 compatible.

USB Transient Protection
Transient voltage suppression on power and data lines.

USB Cable Length
5.0 meters maximum.

Driver
Not required. Uses built-in Human Interface Device (HID) USB drivers of the Windows operating system.

Input (Passive)

Default Configuration/Calibration
Input: 4 to 20mA, medium filter
Output: 4 to 20mA

Input Ranges and Accuracy

Range	Accuracy (typical)
±20mA	±0.05% of span
0 to 20mA	±0.05% of span
4 to 20mA	±0.05% of span
0 to 11.17mA (for AC sensor)	±0.05% of span
±1mA	±0.05% of span
±0.5V	±0.05% of span
0 to 500mV	±0.05% of span

Error includes the effects of repeatability, terminal point conformity, and linearization.

Ambient Temperature Effect
Better than ±80ppm/°C (±0.008%/°C)

Zero Scaling Adjust
0 to 95% of range, typical

Full Scale Adjust
5 to 100% of full scale range, typical

Input Impedance
Current input: 24.9 ohms
Voltage input: 15M ohms

Input Over-Voltage Protection
Bipolar Transient Voltage Suppressers (TVS), 5.6V clamp level typical.

Input Resolution
Bipolar input: 1 part in 50000 (±25000).
Unipolar input: 1 part in 25000.

Input Filter
Selectable digital filtering settings (none, low, medium, high).

Input Filter Bandwidth
Normal mode plus digital filtering within the ADC. Bandwidth (-3dB) varies with digital filter setting from 4Hz without filtering to 0.33Hz with high filtering.

Noise Rejection (Common Mode, High Filter)
138dB @ 60Hz, typical with 100 ohm input unbalance.

Output (Two Signals, Passive)

Output Range
Dual isolated 4 to 20mA DC.

Output Compliance
R_{LOAD} = (V_{SUPPLY} - 7V) / 0.020A.
R_{LOAD} = 0 to 850 ohms @ 24V DC.

Output Response Time (for step input change)

Time to reach 98% of final output value (typical)	
No filter	17 milliseconds
Low filter	41 milliseconds
Medium filter	138 milliseconds
High filter	1142 milliseconds

Environmental

Operating temperature
-40 to 80°C (-40° to 176°F)

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

Relative humidity
5 to 95% non-condensing

Power Requirement
Loop powered, 7-32V DC SELV (Safety Extra Low Voltage),
24mA max

Isolation
1500V AC peak. 250V AC (354V DC) continuous isolation between input and output circuits.

Shock and Vibration Immunity
Vibration: 4g, per IEC 60068-2-64
Shock: 25g, per IEC 60068-2-27

Electromagnetic Compatibility (EMC) Compliance
Radiated Emissions: BS EN 61000-6-4, CISPR 16
RFI: BS EN 61000-6-2, IEC 61000-4-3
Conducted RFI: BS EN 61000-6-2, IEC 61000-4-6
ESD: BS EN 61000-6-2, IEC 61000-4-2
EFT: BS EN 61000-6-2, IEC 61000-4-4
Surge Immunity: BS EN 61000-6-2, IEC 61000-4-5

Approvals
CE compliant. Designed for UL/cUL Class I Division 2 Groups ABCD, ATEX / IECEx Zone 2.
Ⓔx II 3 G Ex nA IIC T4 Gc -40°C ≤ Ta ≤ +80°C

Physical

General
General-purpose enclosure designed for mounting on 35mm "T-type" DIN rail.

Case Material
Self-extinguishing polyamide, UL94 V-0 rated, color light gray. General-purpose NEMA Type 1 enclosure.

I/O Connectors
Removable plug-in terminal blocks rated for 12A/250V; AWG #26-12, stranded or solid copper wire.

Dimensions
17.5 x 114.5 x 99.0 mm (0.69 x 4.51 x 3.90 inches).

Shipping Weight
0.22 kg (0.5 pounds) packed.

Ordering Information

Models

SP236-0600
Two-wire splitter, current/millivolt input.

Services

SP230-Config/Cal
Factory custom configuration/calibration service. Specify input type, input/output zero and full-scale values, filtering, and sensor fault settings on order.

Software

TTC-SIP (recommend one kit per customer)
Windows Software Interface Package for Acromag SP Series signal splitters. Includes configuration software CD-ROM (5040-944), isolator (USB-ISOLATOR) and two USB cables (4001-112, 4001-113).

Agility Mobile Application
Software configuration software for an Android smart device. Download for free from the Google Play Store. Requires 5028-565 and 4001-113 cables

Accessories

USB-Isolator
USB-to-USB isolator, includes USB cable (4001-112)

4001-112
USB cable, 1 meter, with Type A to Type B plugs

4001-113
USB cable, 1 meter, with Type A to Mini-B plugs

4001-252
DIN rail end stop for hazloc approvals

5020-350
AC current sensor (toroidal transformer); converts 0-20A AC to 0-11.17mA DC

5028-565
USB-OTG 6 inch cable

ISO9001
AS9100
MADE IN USA

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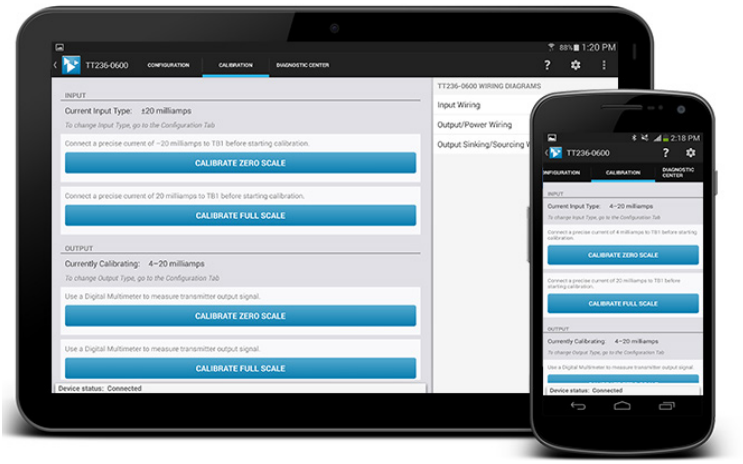
Software Support: Agility Config

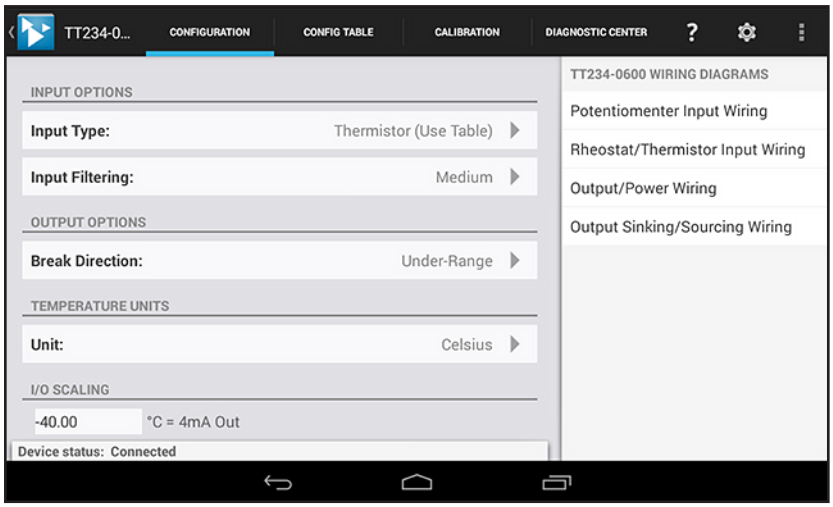
Acromag Agility™ Config Tool Mobile Application

The Agility™ Config Tool is a mobile application that allows easy setup and configuration of Acromag DT and TT Series transmitters and SP Series signal splitters via a tethered mobile device.

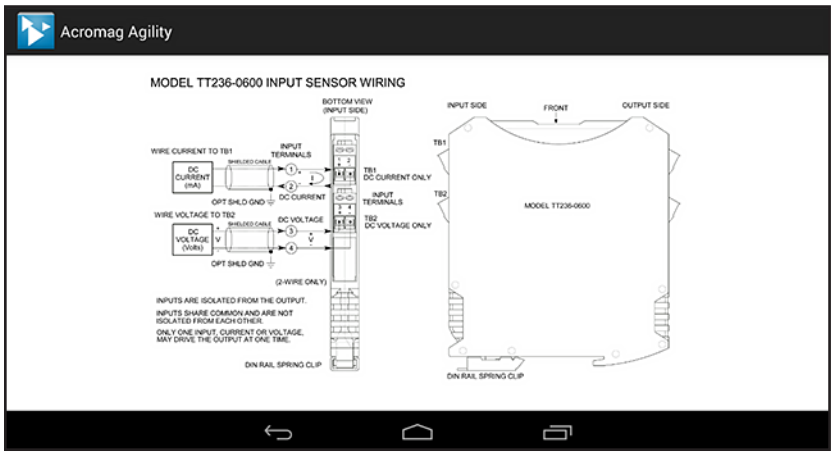
This free app is available for Android devices at the Google Play store at Acromag Agility™ Config Tool.

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 Acromag DT and TT Series transmitters (except model TT231), and SP Series signal splitters.
- Requires the use of USB OTG Cable (Acromag part # 5028-565) and USB A to Mini B Cable (Acromag part # 4001-113)
- Configures and calibrates DT, TT, and SP Series products via phone or tablet running Android 4.3 ICS (Ice Cream Sandwich) or later.
- View wiring diagrams, even without an internet connection.
- Perform quick and easy field diagnostics and troubleshooting.
- Ideal for field technicians.

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