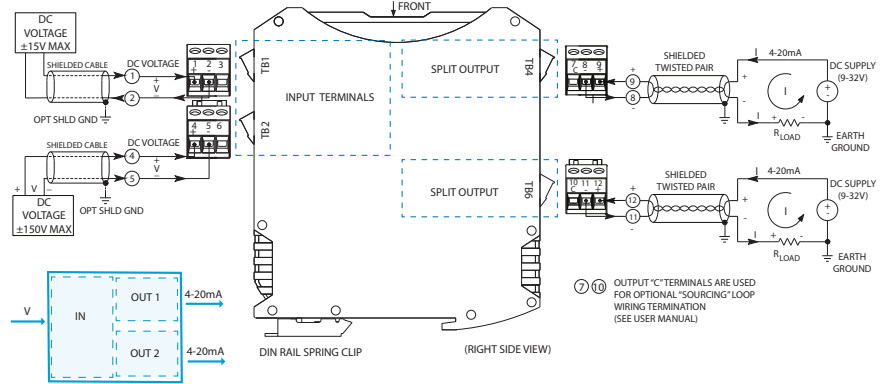


# Process Loop Splitter: SP230 Series

**SP238** High voltage input signal splitter, two-wire



**USB Configured**



Multi-range  $\pm 15V$ ,  $\pm 75V$ , or  $\pm 150V$  input ◆ 4-20mA outputs (sink/source) ◆ 7-32V DC loop/local power

## Description

The SP238 model is a high-performance signal splitter that converts one high-level DC voltage input into two proportional isolated 4-20mA control signals. power is received from one or both output loop currents.

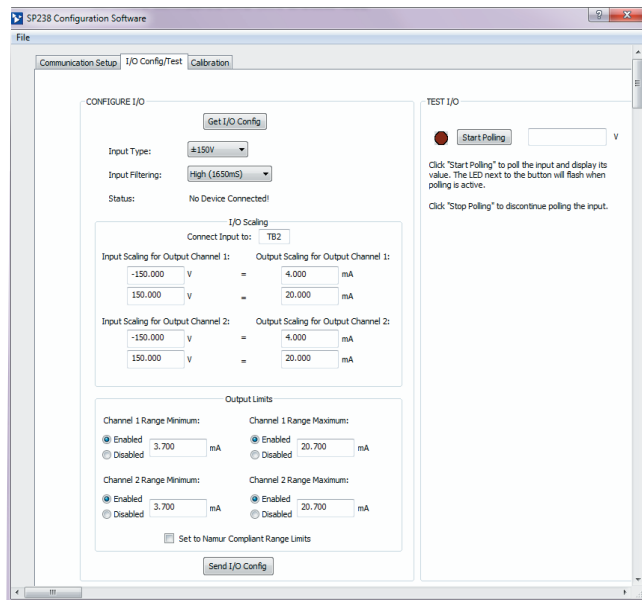
Setup is fast and easy with a USB connection to your PC and our Windows software. Acromag's Agility™ mobile app enables configuration on an Android smart phone or tablet. Software simplifies I/O range scaling, calibration, and advanced signal processing capabilities.

High-voltage isolation separates the input and between the output circuits. 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  $\pm 15V$ ,  $\pm 75V$ , and  $\pm 150V$  DC input ranges
- 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.



Windows configuration software (FREE) at [www.acromag.com](http://www.acromag.com)

Android Agility™ app (FREE) at [Google Play Store](https://play.google.com/store/apps/details?id=com.acromag.agility)

Save configuration files for convenient copy/restore capability.

Tel 877-214-6267 ■ sales@acromag.com ■ www.acromag.com ■ 30765 Wixom Rd, Wixom, MI 48393 USA

# Process Loop Splitter: SP230

## SP238 High voltage input signal splitter, two-wire

### 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:  $\pm 150V$ , medium filtering.

Output: 4 to 20mA.

##### Input Ranges and Accuracy

Range	Accuracy (typical)
$\pm 15V$ DC	$\pm 0.05\%$ of span
0-15V DC	$\pm 0.05\%$ of span
$\pm 150V$ / $\pm 75$ DC	$\pm 0.05\%$ of span
0-150V	$\pm 0.05\%$ of span
0-5V DC	$\pm 0.05\%$ of span

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

##### Ambient Temperature Effect

Better than  $\pm 80\text{ppm}/^\circ\text{C}$  ( $\pm 0.008\%/^\circ\text{C}$ ).

##### Zero Scaling Adjust

0 to 95% of range, typical.

##### Full Scale Adjust

5 to 100% of full scale range, typical.

##### Input Impedance

Greater than 1M ohms.

##### Input Over-Voltage Protection

Bipolar Transient Voltage Suppressors (TVS), 220V working typical.

##### Input Resolution

Bipolar input: 1 part in 50000 ( $\pm 25000$ ).

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

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	88 milliseconds
Low filter	100 milliseconds
Medium filter	237 milliseconds
High filter	1762 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

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.

Ⓜ II 3 G Ex nA IIC T4 Gc -40°C  $\leq$  Ta  $\leq$  +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

##### SP238-0600

Two-wire splitter, high voltage 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

##### 5028-565

USB-OTG 6 inch cable

ISO9001  
AS9100



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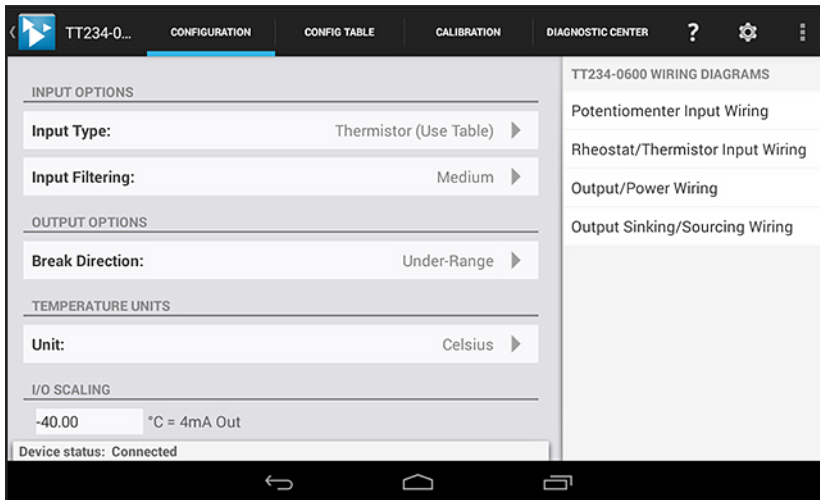
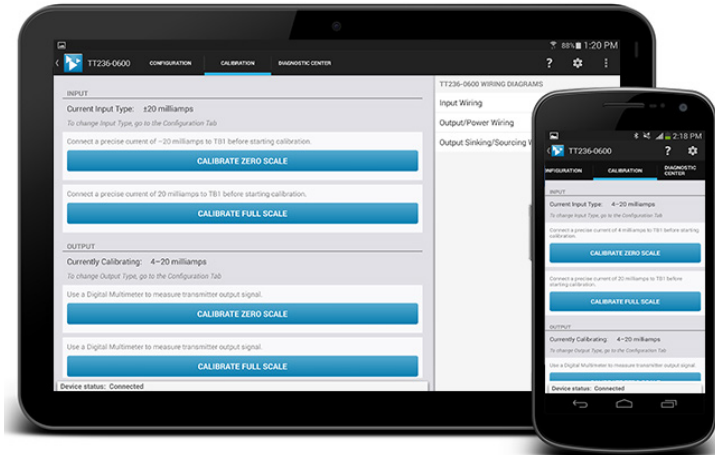
# Software Support: Agility Config

## Acromag Agility™ Config Tool Mobile Application

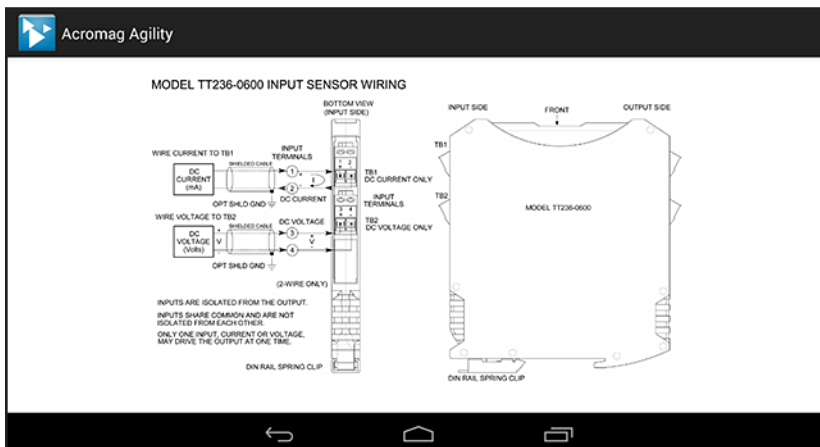
The Agility™ Config Tool is a mobile application that allows easy setup and configuration of Acromag DT and TT Series transmitters and SP Series signal splitters via a tethered mobile device.

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.



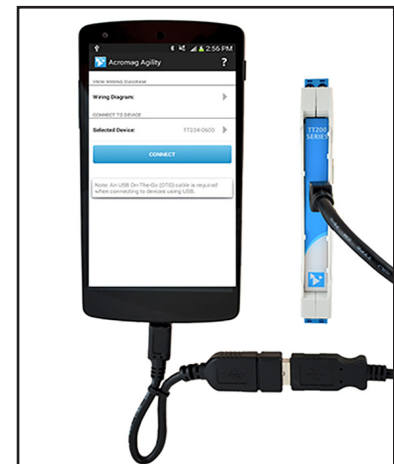
With a couple of taps, quickly configure input, output, unit and scaling options.



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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