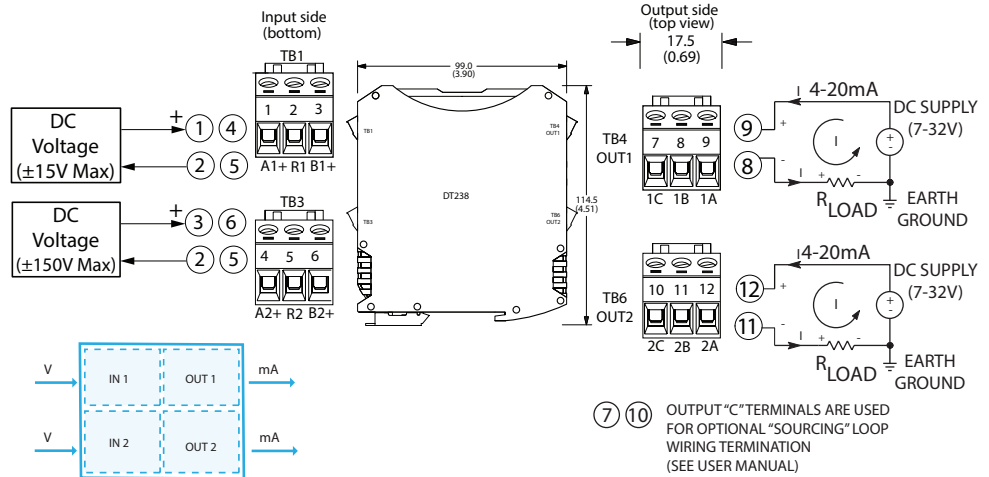


# Transmitters: DT230 Series

## DT238 High DC voltage input two-wire dual transmitter



Dual inputs ♦ 0±150V input ♦ 4-20mA outputs (sink/source) ♦ 7-32V DC loop/local power

### Description

DT230 series signal conditioners provide two independent I/O channels in a single, space-saving unit. The DT238 model is a two-wire dual transmitter that isolates and converts high-level DC voltage inputs to proportional 4-20mA control signals. Power is received from the output loop current or a DC supply when using a three-wire connection.

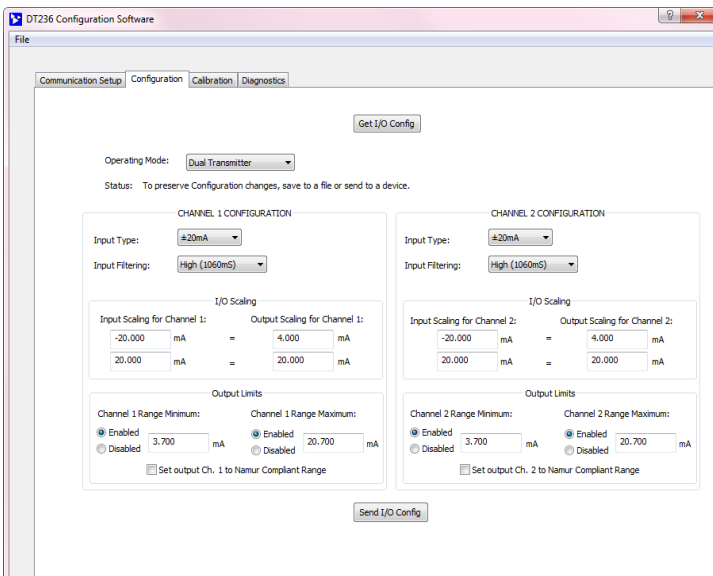
High-voltage isolation separates all input and output circuits from each other. Isolation protects from surges, reduces noise, and eliminates ground loop errors.

Setup and calibration are fast and easy with a convenient USB connection to your PC and Acromag's Windows configuration software. The Android app enables setup with mobile devices.

Advanced signal processing capabilities, variable range input/output, and convenient USB programming make this instrument very versatile. These transmitters can withstand harsh industrial environments and operate reliably across a wide temperature range with very low drift. They feature RFI, EMI, ESD, EFT, and surge protection plus low radiated emissions.

### Key Features & Benefits

- Operate as a dual transmitter, a single transmitter, or a signal splitter
- Easy configuration via USB with Windows software or Agility™ app for Android
- Independently adjustable and scalable input and output ranges
- Selectable voltage input ranges: ±15V, ±75V, ±150V, 0-15V, 0-75V, 0-150V DC
- 4-20mA current loop outputs support sinking or sourcing circuit configurations
- Supports reverse-acting (inverse) output
- User-configurable output range clamp levels support NAMUR-compliant operation
- Very low 7V two-wire loop burden
- High accuracy, linearity, stability, and reliability
- User-selectable filtering (none, low, med, high)
- Space-saving 17.5mm (0.7 inch) unit with pluggable terminals for convenient wiring
- 1500V isolation, 4-way (inputs/outputs)
- Wide ambient operation (-40 to 80°C)
- CE compliant. UL/cUL Class I Div 2, ATEX/IECEx Zone 2



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.

**Acromag**   
THE LEADER IN INDUSTRIAL I/O

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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 DT230 Series transmitter.

#### ■ USB Interface

##### USB Connection

Type: USB Mini-B type socket, 5-pin.  
Data Rate: 12Mbps. USB v1.1 and 2.0 compatible.  
Maximum cable length: 5.0 meters.  
Transient voltage suppression on power and data lines.

#### ■ Input (two channels)

##### Default Configuration/Calibration

Input:  $\pm 150V$ , medium filter.  
Output: 4 to 20mA.

##### Scaling Adjust

Full range.

##### Input Impedance

Path A: 15M $\Omega$   
Path B: 1M $\Omega$ .

##### Input Over-Voltage Protection

Bipolar Transient Voltage Suppression (TVS) and diode clamping.

##### Input Filter

RC filter plus variable digital filter  
(none, low, medium, high).

##### Input Bandwidth

-3dB @ 16Hz (no filtering).

##### Noise Rejection (@ 60Hz, no filter)

Common Mode: 70dB no filter (113dB high filter).  
Normal Mode: Path A 32dB, Path B 51dB no filter  
(>80dB high filter).

#### ■ Output (two channels)

##### D/A Converters (DAC)

Two 16-bit D/A converters.

##### Output Ranges

4-20mA DC. 3.5-24mA under/over-range capability.

##### Output Accuracy

$\pm 0.05\%$ , typical.  $\pm 0.1\%$ , maximum.

##### 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 output value (typical)	
No filter	34 milliseconds
Low filter	62 milliseconds
Medium filter	195 milliseconds
High filter	1109 milliseconds

##### Output Ripple

Less than  $\pm 0.1\%$  of output span.

#### ■ Environmental

##### Operating temperature

Operation:  $-40$  to  $80^{\circ}C$  ( $-40^{\circ}$  to  $176^{\circ}F$ ).  
Storage:  $-40$  to  $85^{\circ}C$  ( $-40$  to  $185^{\circ}F$ ).

##### Relative humidity

5 to 95% non-condensing.

##### Power Requirement

Loop-powered, 7-32V DC SELV, 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 60068-2-6.  
Shock: 25g, per IEC 60068-2-27.

##### Approvals

CE compliant. UL/cUL listed Class I Division 2 Groups ABCD. ATEX/IECEx Zone 2.

##### 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.

#### ■ Physical

##### General

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

##### Case Material

Self-extinguishing polyamide, UL94 V-0 rated.

##### 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 (0.7 x 4.51 x 3.90 inches).  
Unit weight: 0.16 kg (0.35 pounds).  
Shipping Weight: 0.22 kg (0.5 pounds) packed.

### Ordering Information

#### Models

##### [DT238-0600](#)

Two-wire dual transmitter, high DC voltage inputs, isolated current or voltage outputs.

#### Services

##### [DT230-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 DT Series transmitters. 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  MADE IN USA

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