DT330 Dual-Channel Transmitters Series

- DIN-Rail Mount
- Easy Configuration
- Slim design

USB-Programmable Saves Space and Cost
Depend on Acromag

Experience counts:
especially when you are selecting an I/O partner.
And with 60+ years of I/O experience, Acromag can help you to improve reliability, increase productivity and reduce your costs.

Acromag: The I/O Leader
Acromag is a customer-driven manufacturer focused on developing process automation I/O products that provide the best long term value in the industry. Compare and you’ll find that Acromag products offer an unmatched balance of price, performance, and features.

60+ Years of I/O Experience
Acromag has more than 60 years of measurement and control experience. Since 1957, we have delivered nearly a million units to thousands of customers around the globe for manufacturing, power, environmental, transportation, and military applications.

Top Quality and a 2-Year Warranty
We take every measure to guarantee you dependable operation and products that perform at or beyond their specifications. Our state-of-the-art manufacturing and military-grade components add an extra degree of ruggedness. Most products qualify for an extended 2-year warranty. And with ISO 9001/AS9100 certified quality control, you get full confidence.

Online Ordering
For your convenience, Acromag provides full product documentation and pricing information on our website. You can obtain quotes or even place your order directly on our website.

Fast Delivery from Stock
Most products can be shipped within 24 hours of receiving your order.

Special Services
We are happy to accommodate your special requirements and offer the following services:
- custom product development
- custom calibration
- source inspections, quality audits
- special shipping, documentation
- protective humiseal coating
- plastic and stainless steel tagging

Certification and Approvals
Many Acromag products carry globally recognized agency approvals and safety certifications.
- CE
- UL, cUL
- ATEX
- CSA
- Ethernet conformance
- Modbus conformance
- Profibus certification
- IECEx

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# Transmitters: DT Series

## DT Series
Programmable Dual-Channel Transmitters

## Introduction
The new DT Series transmitters are designed to offer a cost-effective space-saving solution to interface a variety of process and sensor signals to your control systems. Each model supports several input ranges and can output proportional 0/4-20mA, 0-10V, or ±10V DC signals.

### Input
- Thermocouple/Millivolt, RTD/Resistance, Process Voltage, High Voltage, Current/Millivolt

### Output
- Proportional 0/4-20mA, 0-10V, or ±10V DC

### Power
- **DT230 Series:** 7-32V DC loop/local power
- **DT330 Series:** 6-32V DC local/bus power

## Key Features and Benefits
- USB-programmable (allows easy selection of options that is not possible with pots or jumpers)
- Dual unit saves space and reduces costs
- Signal splitter capability
- Selectable filtering levels
- Configurable output clamp levels (NAMUR)
- Removable, front-facing terminal blocks (simplify your wiring tasks)
- Rail power bus and redundancy
- Supports sink/source wiring
- -40 to 80°C operation (DT230 Series)
- -40 to 70°C operation (DT330 Series)
- Hazloc approvals UL C1D2, ATEX/IECEx Zone2

## DT Series: Programmable Dual-Channel Transmitters

### DT233 Thermocouple, Millivolt Input
- **Input:**
  - Type J, K, T, R, S, E, B, N thermocouple
  - ±100mV
  - ±1V

### DT235 RTD/resistance Input
- **Input:**
  - RTD
  - Pt (100/200/500Ω)
  - Ni (120Ω)
  - Cu (10Ω)
  - Resistance 0-4500Ω

### DT236 Current/millivolt Input
- **Input:**
  - ±20mA
  - ±500mV

### DT237 Medium DC Voltage Input
- **Input:**
  - ±1V
  - ±10V

### DT238 High Voltage Input
- **Input:**
  - ±15V
  - ±150V

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See data sheet

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See data sheet
Key Features

Removable Terminal Blocks
Pluggable terminal blocks simplify wiring for easy installation and removal of modules.

Scalable Current or Voltage Output
DT230 Series: Supports sink or source 4-20mA output
DT330 Series: Supports scalable current or voltage output ranges: 0-20mA, 4-20mA, ±5V, ±10V, 0-5V, 0-10V DC

2-wire, Loop-powered
4-wire, External-powered
DT230 Series: 7-32V DC Power is received from the output loop (2-wire).
DT330 Series: 6-32V DC power connects (4-wire) on a terminal block, a rail bus, or both for redundancy.

Simple Configuration
A USB connection to a Windows® PC or Android™ device enables simple, precise configuration of I/O ranges and a variety of operational settings with free software.

Input Options

Space Saving
A strikingly thin enclosure, at only 17.5mm wide, to easily achieve high-density DIN-rail mounting.

Rugged Design
Wide ambient temperature operation, shock and vibration-resistant, as well as CE Compliant, UL/cUL Class I Div 2, ATEX/IECEx Zone 2 approvals (pending).

All trademarks are property of their respective owners.
Transmitters: DT Series

General Operation and Performance Specifications

The following specifications are common to all DT Series transmitter modules.

### USB Interface

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB Connector</td>
<td>USB Mini-B type socket, 5-pin.</td>
</tr>
<tr>
<td>USB Data Rate</td>
<td>12Mbps. USB v1.1 and 2.0 compatible.</td>
</tr>
</tbody>
</table>

### Output

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Ranges</td>
<td>0-20mA, 4-20mA, ±5V, ±10V, 0-5V, 0-10V DC</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.05%, typical. ±0.1%, maximum.</td>
</tr>
</tbody>
</table>

### Environmental

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>DT230 Series: -40 to 80°C (-40° to 176°F).</td>
</tr>
<tr>
<td></td>
<td>DT330 Series: -40 to 70°C (-40° to 158°F).</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40 to 85°C (-40° to 185°F).</td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>5 to 95% non-condensing.</td>
</tr>
<tr>
<td>Power Requirement</td>
<td>DT230 Series: 7-32V SELV, 24mA DC max, loop power.</td>
</tr>
<tr>
<td></td>
<td>DT330 Series: 6-32V SELV, 15.5mA max.</td>
</tr>
<tr>
<td>Isolation</td>
<td>1500V AC peak. 250V AC (354V DC) continuous</td>
</tr>
<tr>
<td></td>
<td>isolation between input, output, and power (5-way).</td>
</tr>
<tr>
<td>Shock and Vibration Immunity</td>
<td>Vibration: 4g, per IEC 60068-2-6</td>
</tr>
<tr>
<td></td>
<td>Shock: 25g, per IEC 60068-2-27.</td>
</tr>
<tr>
<td>Electromagnetic Compatibility (EMC) Compliance</td>
<td>Radiated Emissions: BS EN 61000-6-4, CISPR 16.</td>
</tr>
<tr>
<td></td>
<td>RFI: BS EN 61000-6-2, IEC 61000-4-3.</td>
</tr>
<tr>
<td></td>
<td>Conducted RFI: BS EN 61000-6-2, IEC 61000-4-6.</td>
</tr>
<tr>
<td></td>
<td>ESD: BS EN 61000-6-2, IEC 61000-4-2.</td>
</tr>
<tr>
<td></td>
<td>EFT: BS EN 61000-6-2, IEC 61000-4-4.</td>
</tr>
<tr>
<td></td>
<td>Surge Immunity: BS EN 61000-6-1, IEC 61000-4-5.</td>
</tr>
<tr>
<td>Approvals</td>
<td>CE compliant. UL/cUL listed Class I Div. 2. Groups ABCD.</td>
</tr>
<tr>
<td></td>
<td>ATEX, IECEx certified Zone 2.</td>
</tr>
<tr>
<td></td>
<td>II 3 G Ex nA IIC T4 Gc -40°C ≤ Ta ≤ +80°C</td>
</tr>
</tbody>
</table>

### Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Measurement (in millimeters (inches))</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOP VIEW (OUTPUT/POWER)</td>
<td>114.5 (4.51)</td>
</tr>
<tr>
<td>BOTTOM VIEW (INPUT)</td>
<td>99.0 (3.90)</td>
</tr>
</tbody>
</table>

DT Series USB Transmitter Connections

- **Personal Computer Running Windows OS**
  - **HOST PC RUNNING ACROMAG CONFIGURATION SOFTWARE**
    - **CABLE Model 4001-112**
  - **USB-ISOLATOR (Recommended)**
    - **MODEL: USB-ISOLATOR**
      - **MODEL: USB-ISOLATOR**
        - **MODEL: USB-ISOLATOR**
  - **CABLE Model 4001-113**
  - **Acromag**
    - **THE LEADER IN INDUSTRIAL I/O**

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Module Configuration

Screen shots of Windows-based transmitter configuration software.
Using simple pull-down menus and user-input, your transmitter is ready for use in a snap.

Screen shots of the Agility App for Android, allowing for mobile configuration in the field.
# Transmitters: DT Series

## Accessories

### Configuration Software
![Configuration Software](image)

**DT Series Configuration**
Simple to use, whether you need the full software interface package (includes USB isolator and cables) or just the configuration software itself. Acromag makes it easy to get started.

**Acromag Agility™ Config Tool**
Easy to download, configuration too mobile app for free download at the [Google Play Store](https://play.google.com/store/apps). 

### Bus-Kit
![Bus-Kit](image)

**TT Bus-Kit**
DIN rail bus power connector and left/right terminal blocks. One kit supports multiple DT Series transmitters.

### Mounting Hardware
![Mounting Hardware](image)

**Din-Rail Mounting**
For your convenience, Acromag offers several mounting accessories to simplify your system installation. Our 19" rack-mount kit provides a clean solution for mounting your I/O modules and a power supply. Or you can buy precut DIN rail strips for mounting on any flat surface.

### Power Supplies
![Power Supplies](image)

**Universal Slimline Power Supplies**
Input Power Requirement
Universal Input (85-264V AC / 100-370V DC)
Output
10W, 15W, 30W, 60W, 90W, 120W, 240W

### USB Isolator
![USB Isolator](image)

**USB-to-USB Isolator**
This compact, industrial-grade isolator provides a high-voltage isolation barrier between a computer and a connected USB device; protecting equipment from electrical surges, transient voltage spikes, and ground loop currents.

### USB Cables
![USB Cables](image)

**USB Cables**
Cables for PC-to-USB isolator, USB isolator-to-transmitter connections, and mobile device-to-USB isolator-to-transmitter connections.

## Ordering Information

<table>
<thead>
<tr>
<th>TTC-SIP</th>
<th>Software Interface Package for Acromag DT/SP/TT Series. Includes configuration software CD-ROM, USB-isolator and two USB cables (4001-112, 4001-113)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DT230-Config/Cal, DT330-Config/Cal</td>
<td>Factory custom configuration/calibration service. Specify input type, input/output zero and full-scale values, filtering, and sensor fault settings on order.</td>
</tr>
</tbody>
</table>

**Ordering Information**

| TTBUS-Kit | DIN rail bus power connector and left/right terminal blocks for DT, SP, or TT Series. |

| 20RM-16-DIN | 19” rack-mount kit with DIN rail. |
| DIN RAIL 3.0 | DIN RAIL 16.7 |
| DIN rail strip, Type T, 3 inches (75mm) or 16.7 inches (425mm) |

**Ordering Information**

| PSSR-VB24 | Power supply, 15W, 0.65A at 24V DC |
| PSSR-VD24 | Power supply, 60W, 2.5A at 24V DC |

Visit [www.acromag.com](https://www.acromag.com) for additional models and more information.

**Ordering Information**

| USB-Isolator | USB isolator, includes USB cable (Part # 4001-112) for isolator-to-PC connection |

**Ordering Information**

| 4001-112 | USB Cable, Type A to Type B, 1 meter |
| 4001-113 | USB Cable, Type A to Mini-B, 1 meter |
| 5028-565 | USB Cable, USB OTG Cable, 6 inches |

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Transmitters: DT330 Series

**DT333 Thermocouple/millivolt input four-wire dual transmitter**

**Description**

DT330 series signal conditioners provide two independent I/O channels in a single, space-saving unit. The DT333 model is a four-wire dual transmitter that isolates and converts millivolt or thermocouple sensor inputs to proportional control signals. Each channel supports DC current or voltage output. An optional DIN rail bus can deliver primary or redundant power to multiple units.

High-voltage isolation separates inputs, outputs, and power 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. 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 thermocouple/millivolt input types: (TC Type J, K, T, R, S, E, B, N, ±100mV, ±1V)
- Selectable current and voltage output ranges: 0-20mA, 4-20mA, ±5V, ±10V, 0-5V, 0-10V DC
- Supports reverse-acting (inverse) output
- High accuracy, linearity, stability, and reliability
- User-selectable filtering (none, low, med., high)
- Selectable up/downscale fault detection
- Bus power, local power, or both (redundancy)
- Space-saving 17.5mm (0.7 inch) unit with pluggable terminals for convenient wiring
- 1500V input isolation, 5-way, (power/input/output)
- Wide ambient operation (-40 to 70°C)
- CE compliant. UL/cUL Class I Div 2, ATEX/IECEx Zone 2 approvals pending.

**Dual channels ◆ Universal thermocouple, mV inputs ◆ 6-32V DC local/bus power**

**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)

Save configuration files for convenient copy/restore capability.
Transmitters: DT330 Series

DT333  Thermocouple/millivolt input four-wire dual transmitter

Performance Specifications

**IMPORTANT:** To prevent damage or errors from grounded PCs and surges, Acromag strongly recommends use of their USB-ISOLATOR when configuring a DT330 Series transmitter.

**USB Interface**
- **Type:** USB Mini-B type socket, 5-pin.
- **Data rate:** 12Mbps. USB v1.1 and v2.0 compatible.
- **Power Requirement:** 5 to 95% non-condensing.
- **Relative humidity:** 5 to 95% non-condensing.

**Input (two channels)**
- **Default Configuration/Calibration**
  - Output: 4 to 20mA, upscale break detect.
  - Input Impedance: Better than ±80ppm/°C (±0.008%/°C).

**Input Ranges and Accuracy**

<table>
<thead>
<tr>
<th>Input Type</th>
<th>Range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC J</td>
<td>-210 to 760°C (-346 to 1400°F)</td>
<td>±0.5°C</td>
</tr>
<tr>
<td>TC K</td>
<td>-200 to 1372°C (-328 to 2502°F)</td>
<td>±0.5°C</td>
</tr>
<tr>
<td>TC T</td>
<td>-260 to 400°C (-436 to 752°F)</td>
<td>±0.5°C</td>
</tr>
<tr>
<td>TC R</td>
<td>-50 to 1768°C (-58 to 3214°F)</td>
<td>±1.0°C</td>
</tr>
<tr>
<td>TC S</td>
<td>-50 to 1768°C (-58 to 3214°F)</td>
<td>±1.0°C</td>
</tr>
<tr>
<td>TC E</td>
<td>-200 to 1000°C (-328 to 1832°F)</td>
<td>±0.5°C</td>
</tr>
<tr>
<td>TC B</td>
<td>260 to 1820°C (500 to 3308°F)</td>
<td>±1.0°C</td>
</tr>
<tr>
<td>TC N</td>
<td>-230 to 170°C (-382 to -274°F)</td>
<td>±1.0°C</td>
</tr>
<tr>
<td>TC C</td>
<td>-230 to 1370°C (-382 to 2372°F)</td>
<td>±0.5°C</td>
</tr>
<tr>
<td>mV</td>
<td>-100 to 1000mV</td>
<td>±0.5%</td>
</tr>
</tbody>
</table>

Thermocouple Reference (Cold Junction Compensation) ±0.2°C typical, ±0.5°C maximum at 25°C.

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

**Scaling Adjust**
Full range.

**Lead Break (Sensor Burnout) Detection**
Upscale/downscale full range.

**Input Impedance**
15M ohms.

**Input Over-Voltage Protection**
Bipolar Transient Voltage Suppression (TVS) and diode clamping.

**Input Filter**
RC filter plus variable digital filter (none, low, med., high).

**Output (two channels)**
- **D/A Converters (DAC)** Two 16-bit D/A converters.
- **Output Ranges**
  - Output 10V (±11V maximum).
  - ±5V (±5.5V maximum).
  - 0 to 10V (11V maximum).
  - 0 to 5V (5.5V maximum).
  - 0 to 20mA (24mA maximum).
  - 4 to 20mA (24mA maximum).
- **Output Accuracy** ±0.05%, typical. ±0.1%, maximum.
- **Output Compliance** 11V, typical.
- **Output Response Time (for step input change)**
  - Time to reach 98% of final output value (typical):
    - No filter: 13 milliseconds
    - Low filter: 38 milliseconds
    - Medium filter: 122 milliseconds
    - High filter: 1158 milliseconds
- **Output Ripple** Less than ±0.1% of output span.

**Operating Temperature Range**
- Operation: -40 to 70°C (-40° to 158°F).
- Storage: -40 to 85°C (-40° to 185°F).

**Relative humidity** 5 to 95% non-condensing.

**Power Requirement**
6-32V DC SELV, 1.6W max.

**Isolation**
1500V AC peak. 250V AC (354V DC) continuous isolation between inputs, outputs, and power (5-way).

**Shock and Vibration Immunity**
Vibration: 4g, per IEC 60068-2-6. Shock: 25g, per IEC 60068-2-27.

**Approvals (pending)**
CE compliant. UL/cUL listed Class I Division 2 Groups ABCD. ATEX, IECEx certified Zone 2.

**Electromagnetic Compatibility (EMC) Compliance**
Radiated Emissions: BS EN 60000-6-4, CISPR 16.
- 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.
  - **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**
  - DT333-0700
    - Four-wire dual transmitter, thermocouple/millivolt inputs, isolated current or voltage outputs.
- **Services**
  - DT330-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
- **Accessories**
  - TTBUS-KIT
    - DIN rail bus power connector and left/right terminal blocks. One kit supports multiple transmitters.
  - USB-ISOLATOR
    - USB-to-USB isolator, includes USB cable (4001-112).
  - USB cable, 1 meter, with Type A to Type B plugs.
  - USB cable, 1 meter, with Type A to Mini-B plugs.
  - USB-ISOLATOR
  - USB-OTG 6 inch cable.

**Ordering Information**
- **Models**
  - DT333-0700
    - Four-wire dual transmitter, thermocouple/millivolt inputs, isolated current or voltage outputs.
- **Services**
  - DT330-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
- **Accessories**
  - TTBUS-KIT
    - DIN rail bus power connector and left/right terminal blocks. One kit supports multiple transmitters.
  - USB-ISOLATOR
    - USB-to-USB isolator, includes USB cable (4001-112).
  - USB cable, 1 meter, with Type A to Type B plugs.
  - USB cable, 1 meter, with Type A to Mini-B plugs.
  - USB-ISOLATOR
  - USB-OTG 6 inch cable.

**Ordering Information**
- **Models**
  - DT333-0700
    - Four-wire dual transmitter, thermocouple/millivolt inputs, isolated current or voltage outputs.
- **Services**
  - DT330-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
- **Accessories**
  - TTBUS-KIT
    - DIN rail bus power connector and left/right terminal blocks. One kit supports multiple transmitters.
  - USB-ISOLATOR
    - USB-to-USB isolator, includes USB cable (4001-112).
  - USB cable, 1 meter, with Type A to Type B plugs.
  - USB cable, 1 meter, with Type A to Mini-B plugs.
  - USB-ISOLATOR
  - USB-OTG 6 inch cable.
Transmitters: DT330 Series

DT335 RTD/Resistance input four-wire dual transmitter

Description
DT330 series signal conditioners provide two independent I/O channels in a single, space-saving unit. The DT335 model is a four-wire dual transmitter that isolates and converts RTD or linear resistance sensor inputs to proportional control signals. Each channel supports DC current or voltage output. An optional DIN rail bus can deliver primary or redundant power to multiple units.

High-voltage isolation separates inputs, outputs, and power 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 RTD and linear resistance input types: Pt 100/200/500Ω, Ni 120Ω, Cu 10Ω, 0-4500Ω
- Supports 2, 3, and 4-wire sensor connections
- Selectable current and voltage output ranges: 0-20mA, ±10V, ±5V, ±10V, 0-5V, 0-10V DC
- High accuracy, linearity, stability, and reliability
- User-selectable filtering (none, low, med., high)
- Selectable up/downscale break detection
- Bus power, local power, or both (redundancy)
- Space-saving 17.5mm (0.7 inch) unit with pluggable terminals for convenient wiring
- 1500V input isolation, 5-way, (power/input/output)
- Wide ambient operation (-40 to 70°C)
- CE compliant. UL/cUL Class I Div 2, ATEX/IECEx Zone 2 approvals pending.

Save configuration files for convenient copy/restore capability.

Windows configuration software (FREE) at www.acromag.com
Android Agility™ app (FREE) at Google Play Store

Dual channels ◆ RTD (Pt, Ni, Cu) or 0-4500 ohm input ◆ 0-20mA, ±10V outputs ◆ 6-32V DC local/bus power
**DT335** RTD/Resistance input four-wire dual transmitter

### Performance Specifications

**IMPORTANT:** To prevent damage or errors from grounded PCs and surges, Acromag strongly recommends use of their USB-ISOLATOR when configuring a DT330 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.
- **Input Bandwidth**
  - RC filter plus variable digital filter (none, low, med., high).
- **Input Filter**
  - Bipolar Transient Voltage Suppression (TVS) and Input Over-Voltage Protection
- **Lead Break (Sensor Burnout) Detection**
  - full-range.
- **Scaling Adjust**
  - Better than ±80ppm/°C (±0.008%/°C).
- **Ambient Temperature Effect**
  - Input Ranges
    - Two 24-bit Sigma Delta ADCs (only 16-bits used).
- **A/D Converters (ADC)**
  - Two 16-bit Sigma Delta ADCs.
- **Output: 4 to 20mA, upscale break detect.**
- **Default Configuration**
  - USB drivers of the Windows operating system.
- **Not required.** Uses built-in Human Interface Device (HID)
- **USB Driver**
  - USB drivers of the Windows operating system.
- **Transient voltage suppression on power and data lines.**
- **Maximum cable length:** 5.0 meters.
- **Data rate:** 12Mbps. USB v1.1 and 2.0 compatible.
- **Type:** USB Mini-B type socket, 5-pin.

### Output (two channels)
- **D/A Converters (DAC)**
  - Two 16-bit D/A converters.
- **Output Ranges**
  - ±10V (±11V maximum).
  - ±5V (±5.5V maximum).
  - 0 to 10V (11V maximum).
  - 0 to 5V (5.5V maximum).
  - 0 to 20mA (24mA maximum).
  - 4 to 20mA (24mA maximum).
- **Output Accuracy**
  - ±0.05% typical, ±0.1% maximum.
- **Output Load**
  - Voltage output: 1k ohms minimum.
  - Current output: 0-550 ohms.
- **Output Compliance**
  - 11V, typical.
- **Output Response Time (for step input change)**
  - Time to reach 98% of final output value (typical)
    - No filter: 25 milliseconds
    - Low filter: 44 milliseconds
    - Medium filter: 146 milliseconds
    - High filter: 1068 milliseconds
- **Output Ripple**
  - Less than ±0.1% of output span.

### Environmental
- **Operating Temperature Range**
  - Operation: -40 to 70°C (-40° to 158°F).
  - Storage: -40 to 85°C (-40° to 185°F).
- **Relative humidity**
  - 5 to 95% non-condensing.
- **Power Requirement**
  - 6-32V DC SELV, 1.6W max.
- **Isolation**
  - 1500V AC peak. 250V AC (354V DC) continuous isolation between inputs, outputs, and power (5-way).
- **Shock and Vibration Immunity**
  - Vibration: 4g, per IEC 60068-2-6.
  - Shock: 25g, per IEC 60068-2-27.
- **Approvals (pending)**
  - CE compliant.
  - UL/UL listed Class I Division 2 Groups A/BCD, ATEX, IECEx certified Zone 2.
  - • I 3 G Ex nA IIC T4 Gc -40°C ≤ Ta ≤ +80°C.
- **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.
  - Conducted EFT: BS EN 61000-6-2, IEC 61000-4-4.
  - Surge Immunity: BS EN 61000-6-2, IEC 61000-4-5.

### Ordering Information

**Models**
- **DT335-0700**
  - Four-wire dual transmitter, isolated RTD/resistance input, isolated current or voltage outputs.

**Services**
- **DT330-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**
- **TTBUS-KIT**
  - DIN rail bus power connector and left/right terminal blocks. One kit supports multiple transmitters.
- **USB-ISOLATOR**
  - USB-to-USL, 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.

**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.
Transmitters: DT330 Series

DT336  Current/millivolt input four-wire dual transmitter

Description
DT330 series signal conditioners provide two independent I/O channels in a single, space-saving unit. The DT336 model is a four-wire dual transmitter that isolates and converts DC current or low voltage inputs to proportional control signals. Each channel supports DC current or voltage output. An optional DIN rail bus can deliver primary or redundant power to multiple units.

High-voltage isolation separates inputs, outputs, and power from each other. Isolation protects from surges, reduces noise, and eliminates ground loop errors.

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 current and voltage input ranges: 0/4-20mA, ±0.5V, ±500mV DC
- Compatible with 0-20A AC sensor input
- Selectable current and voltage output ranges: 0-20mA, ±10V, ±0.5V, ±5V, ±10V, ±50V DC
- Supports reverse-acting (inverse) output
- 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
- Bus power, local power, or both (redundancy)
- 1500V input isolation, 5-way, (power/input/output)
- Wide ambient operation (-40 to 70°C)
- CE compliant. UL/cUL Class I Div 2, ATEX/IECEx Zone 2 approvals pending.

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.

Food channels  ◆  ±20mA, ±500mV inputs  ◆  0-20mA, ±10V outputs  ◆  6-32V DC local/bus power

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

Android Agility™ app (FREE) at Google Play Store

Save configuration files for convenient copy/restore capability.
Transmitters: DT330 Series

DT336  Current/millivolt input four-wire dual transmitter

Performance Specifications

IMPORTANT: To prevent damage or errors from grounded PCs and surges, Acromag strongly recommends use of their USB-ISOLATOR when configuring a DT330 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 meters.
Transient voltage suppression on power and data lines.

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

Input (two channels)

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

A/D Converters (ADC)
Two 24-bit Sigma Delta ADCs (only 16-bits used).

Input Ranges
Path A: ±1mA, ±20mA, 0 to 11.17mA, 0-20mA, 4-20mA DC.
Path B: ±0.5V, 0-500mV DC.

Ambient Temperature Effect
Better than ±0.05% typical, ±0.1% maximum.

Scaling Adjust
Full-range.

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

Input Over-Voltage Protection
Bipolar Transient Voltage Suppression (TVS) and diode clamping.

Input Filter
RC filter plus variable digital filter (none, low, med., high).

Input Bandwidth
-3dB @ 34Hz (no filtering).

Noise Rejection
Common Mode: 100dB, no filter (120dB, high filter).
Normal Mode: 70dB, no filter (>80dB med./high filter).

Output (two channels)

D/A Converters (DAC)
Two 16-bit D/A converters.

Output Ranges
±10V (±11V maximum).
±5V (±5.5V maximum).
0 to 10V (11V maximum).
0 to 5V (5.5V maximum).
0 to 20mA (24mA maximum).
4 to 20mA (24mA maximum).

Output Accuracy
±0.05% typical, ±0.1% maximum.

Output Load
Voltage output: 1K ohms minimum.
Current output: 0-550 ohms.

Output Compliance
1V, typical.

Output Response Time (for step input change)
Time to reach 98% of final output value (typical)
No filter: 25 milliseconds
Low filter: 41 milliseconds
Medium filter: 140 milliseconds
High filter: 1140 milliseconds

Output Ripple
Less than ±0.1% of output span.

Environmental

Operating Temperature Range
Operation: -40 to 70°C (-40° to 158°F).
Storage: -40 to 85°C (-40° to 185°F).

Relative humidity
5 to 95% non-condensing.

Power Requirement
6-32V DC SELV, 1.6W max.

Isolation
1500V AC peak. 250V AC (354V DC) continuous isolation between inputs, outputs, and power (5-way).

Shock and Vibration Immunity
Vibration: 4g, per IEC 60068-2-6. Shock: 25g, per IEC 60068-2-27.

Approvals (pending)
CE compliant. UL/CSA listed Class I Division 2 Groups A/B/C/D. ATEx, IECEX certified 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 61000-6-3, IEC 61000-4-6, ESD: BS EN 61000-6-2, IEC 61000-4-2.
EMF: 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
DT336-0700
Four-wire dual transmitter, current/millivolt inputs, isolated current or voltage outputs.

Services
DT330-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

Accessories
TTBUS-KIT
DIN rail bus power connector and left/right terminal blocks. One kit supports multiple transmitters.

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.

5020-350
AC current sensor (toroidal transformer); converts 0-20A AC to 0-11.17mA DC.
Transmitters: DT330 Series

**DT337 Medium DC voltage input four-wire dual transmitter**

Dual channels  ◆ ±1V, ±10V inputs  ◆ 0-20mA, ±10V outputs  ◆ 6-32V DC local/bus power

**Description**

DT330 series signal conditioners provide two independent I/O channels in a single, space-saving unit. The DT337 model is a four-wire dual transmitter that isolates and converts process-level DC voltage inputs to proportional control signals. Each channel supports DC current or voltage output. An optional DIN rail bus can deliver primary or redundant power to multiple units.

High-voltage isolation separates inputs, outputs, and power 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 medium voltage input ranges: ±1V, ±5V, ±10V, 0-1V, 0-5V, 0-10V DC
-Selectable current and voltage output ranges: 0-20mA, 4-20mA, ±5V, ±10V, 0-5V, 0-10V DC
- Supports reverse-acting (inverse) output
- High accuracy, linearity, stability, and reliability
- User-selectable filtering (none, low, med., high)
- Bus power, local power, or both (redundancy)
- Space-saving 17.5mm (0.7 inch) unit with pluggable terminals for convenient wiring
- 1500V input isolation, 5-way, (power/input/output)
- Wide ambient operation (-40 to 70°C)
- CE compliant. UL/cUL Class I Div 2, ATEX/IECEx Zone 2 approvals pending.
## DT337 Medium DC voltage input four-wire dual transmitter

### Performance Specifications

**IMPORTANT**: To prevent damage or errors from grounded PCs and surges, Acromag strongly recommends use of their USB-ISOLATOR when configuring a DT330 Series transmitter.

<table>
<thead>
<tr>
<th><strong>USB Interface</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USB Connection</strong></td>
</tr>
<tr>
<td>Type: USB Mini-B type socket, 5-pin.</td>
</tr>
<tr>
<td>Data rate: 12Mbps. USB v1.1 and 2.0 compatible.</td>
</tr>
<tr>
<td>Maximum cable length: 5.0 meters.</td>
</tr>
<tr>
<td>Transient voltage suppression on power and data lines.</td>
</tr>
<tr>
<td><strong>USB Driver</strong></td>
</tr>
<tr>
<td>Not required. Uses built-in Human Interface Device (HID) USB drivers of the Windows operating system.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Input (two channels)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Default Configuration/Calibration</strong></td>
</tr>
<tr>
<td>Input: ±10V, medium filter.</td>
</tr>
<tr>
<td>Output: 4 to 20mA.</td>
</tr>
<tr>
<td><strong>A/D Converters (ADC)</strong></td>
</tr>
<tr>
<td>Two 24-bit Sigma Delta ADCs (only 16-bits used).</td>
</tr>
<tr>
<td><strong>Input Ranges</strong></td>
</tr>
<tr>
<td>Path A: ±1V, 0-1V.</td>
</tr>
<tr>
<td>Path B: ±5V, 0-5V 0-10V DC.</td>
</tr>
<tr>
<td><strong>Ambient Temperature Effect</strong></td>
</tr>
<tr>
<td>Better than ±80ppm/°C (±0.008%/°C).</td>
</tr>
<tr>
<td><strong>Scaling Adjust</strong></td>
</tr>
<tr>
<td>Full range.</td>
</tr>
<tr>
<td><strong>Input Impedance</strong></td>
</tr>
<tr>
<td>Path A: 15MΩ.</td>
</tr>
<tr>
<td>Path B: 1MΩ.</td>
</tr>
<tr>
<td><strong>Input Over-Voltage Protection</strong></td>
</tr>
<tr>
<td>Bipolar Transient Voltage Suppression (TVS) and diode clamping.</td>
</tr>
<tr>
<td><strong>Input Filter</strong></td>
</tr>
<tr>
<td>RC filter plus variable digital filter (none, low, med., high).</td>
</tr>
<tr>
<td><strong>Input Bandwidth</strong></td>
</tr>
<tr>
<td>-3dB @ 34Hz (no filtering).</td>
</tr>
<tr>
<td><strong>Noise Rejection</strong></td>
</tr>
<tr>
<td>Common Mode: 100dB, no filter (120dB high filter). Normal Mode: Path A 7dB, Path B 29dB, 60Hz, no filter. (&gt;80dB med./high filter).</td>
</tr>
<tr>
<td><strong>Output (two channels)</strong></td>
</tr>
<tr>
<td><strong>D/A Converters (DAC)</strong></td>
</tr>
<tr>
<td>Two 16-bit D/A converters.</td>
</tr>
<tr>
<td><strong>Output Ranges</strong></td>
</tr>
<tr>
<td>±10V (±11V maximum).</td>
</tr>
<tr>
<td>±5V (±5.5V maximum).</td>
</tr>
<tr>
<td>0 to 10V (11V maximum).</td>
</tr>
<tr>
<td>0 to 5V (5.5V maximum).</td>
</tr>
<tr>
<td>0 to 20mA (24mA maximum).</td>
</tr>
<tr>
<td>0 to 20mA (24mA maximum).</td>
</tr>
<tr>
<td><strong>Output Accuracy</strong></td>
</tr>
<tr>
<td>±0.05% typical, ±0.1% maximum.</td>
</tr>
<tr>
<td><strong>Output Load</strong></td>
</tr>
<tr>
<td>Voltage output: 1K ohms minimum.</td>
</tr>
<tr>
<td>Current output: 0-550 ohms.</td>
</tr>
<tr>
<td><strong>Output Compliance</strong></td>
</tr>
<tr>
<td>±1V, typical.</td>
</tr>
<tr>
<td><strong>Output Response Time (for step input change)</strong></td>
</tr>
<tr>
<td>Time to reach 98% of final output value (typical) No filter: 25 milliseconds</td>
</tr>
<tr>
<td>Low filter: 4 milliseconds</td>
</tr>
<tr>
<td>Medium filter: 140 milliseconds</td>
</tr>
<tr>
<td>High filter: 1140 milliseconds</td>
</tr>
<tr>
<td><strong>Output Ripple</strong></td>
</tr>
<tr>
<td>Less than ±0.1% of output span.</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
</tr>
<tr>
<td><strong>Operating Temperature Range</strong></td>
</tr>
<tr>
<td>Operation: -40 to 70°C (-40° to 158°F).</td>
</tr>
<tr>
<td>Storage: -40 to 85°C (-40° to 185°F).</td>
</tr>
<tr>
<td><strong>Relative humidity</strong></td>
</tr>
<tr>
<td>5 to 95% non-condensing.</td>
</tr>
<tr>
<td><strong>Power Requirement</strong></td>
</tr>
<tr>
<td>6-32V DC SELV, 1.6W max.</td>
</tr>
<tr>
<td><strong>Isolation</strong></td>
</tr>
<tr>
<td>1500V AC peak. 250V AC (354V DC) continuous isolation between inputs, outputs, and power (5-way).</td>
</tr>
<tr>
<td><strong>Shock and Vibration Immunity</strong></td>
</tr>
<tr>
<td>Vibration: 4g, per IEC 60068-2-6.</td>
</tr>
<tr>
<td>Shock: 25g, per IEC 60068-2-27.</td>
</tr>
<tr>
<td><strong>Approvals (pending)</strong></td>
</tr>
<tr>
<td>CE compliant. UL/cUL listed Class I Division 2 Groups A,B,C,D. IECEx certified Zone 2.</td>
</tr>
<tr>
<td><strong>Electromagnetic Compatibility (EMC) Compliance</strong></td>
</tr>
<tr>
<td>Radiated Emissions: BS EN 61000-6-4, CISPR 16.</td>
</tr>
<tr>
<td>RFI: BS EN 61000-6-2, IEC 61000-4-3.</td>
</tr>
<tr>
<td>Conducted RFI: BS EN 61000-6-2, IEC 61000-4-6.ESD: BS EN 61000-6-2, IEC 61000-4-2.</td>
</tr>
<tr>
<td>EFT: BS EN 61000-6-2, IEC 61000-4-4.</td>
</tr>
<tr>
<td>Surge Immunity: BS EN 61000-6-2, IEC 61000-4-5.</td>
</tr>
</tbody>
</table>

| **Physical** |
| **General** |
| General-purpose enclosure designed for mounting on 35mm “T-type” DIN rail. |

### Ordering Information

**Models**

**DT337-0700**

Four-wire dual transmitter, medium voltage DC inputs, isolated current or voltage outputs.

**Services**

**DT330-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**


**Accessories**

**TTCBUS-KIT**

DIN rail bus power connector and left/right terminal blocks. One kit supports multiple transmitters.

**USB-ISOLATOR**

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

**4001-112**

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

**4001-113**

USB cable, 1 meter, with Type A to Type B plugs.

**4001-325**

DIN rail end stop for hazloc approvals.

**5028-565**

USB-OTG 6 inch cable.
**DT338 High DC voltage input four-wire dual transmitter**

**Description**
DT330 series signal conditioners provide two independent I/O channels in a single, space-saving unit. The DT338 model is a four-wire dual transmitter that isolates and converts high-level DC voltage inputs to proportional control signals. Each channel supports DC current or voltage output. An optional DIN rail bus can deliver primary or redundant power to multiple units.

High-voltage isolation separates inputs, outputs, and power from each other. Isolation protects from surges, reduces noise, and eliminates ground loop errors.

**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 high voltage input ranges: ±15V, ±75V, ±150V, 0-15V, 0-75V, 0-150V DC
- Selectable current and voltage output ranges: 0-20mA, 4-20mA, ±5V, ±10V, 0-5V, 0-10V DC
- Supports reverse-acting (inverse) output
- High accuracy, linearity, stability, and reliability
- User-selectable filtering (none, low, med., high)
- Bus power, local power, or both (redundancy)
- Space-saving 17.5mm (0.69 inch) unit with pluggable terminals for convenient wiring
- 1500V input isolation, 5-way, (power/input/output)
- Wide ambient operation (-40 to 70°C)
- CE compliant. UL/cUL Class I Div 2, ATEX/IECEx Zone 2 approvals pending.

**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.

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

**Android Agility™ app (FREE)** at Google Play Store

Save configuration files for convenient copy/restore capability.
Transmitters: DT330 Series

DT338  High DC voltage input four-wire dual transmitter

Performance Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USB Interface</strong></td>
<td></td>
</tr>
<tr>
<td>Connection</td>
<td>Type: USB Mini-B type socket, 5-pin.</td>
</tr>
<tr>
<td>Data rate</td>
<td>12Mbps. USB v1.1 and 2.0 compatible.</td>
</tr>
<tr>
<td>Maximum cable length</td>
<td>5.0 meters.</td>
</tr>
<tr>
<td>Transient voltage suppression</td>
<td>on power and data lines.</td>
</tr>
<tr>
<td><strong>Input (two channels)</strong></td>
<td></td>
</tr>
<tr>
<td>Default Configuration/Calibration</td>
<td>Input: ±150V, medium filter.</td>
</tr>
<tr>
<td>Output</td>
<td>4 to 20mA.</td>
</tr>
<tr>
<td>A/D Converters (ADC)</td>
<td>Two 24-bit Sigma Delta ADCs (only 16-bits used).</td>
</tr>
<tr>
<td>Input Ranges</td>
<td>Path A: ±15V, 0-15V. Path B: ±75V, ±150V, 0-150V DC.</td>
</tr>
<tr>
<td>Ambient Temperature Effect</td>
<td>Better than ±80ppmv/°C (±0.008%/°C).</td>
</tr>
<tr>
<td>Scaling Adjust</td>
<td>Full range.</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>Path A: 500MΩ. Path B: 1MΩ.</td>
</tr>
<tr>
<td>Input Over-Voltage Protection</td>
<td>Bipolar Transient Voltage Suppression (TVS) and diode clamping.</td>
</tr>
<tr>
<td>Input Filter</td>
<td>RC filter plus variable digital filter (none, low, med., high).</td>
</tr>
<tr>
<td>Input Bandwidth</td>
<td>-3dB @ 34Hz (no filtering).</td>
</tr>
<tr>
<td>Noise Rejection</td>
<td>Common Mode: 100dB no filter (120dB high filter). Normal Mode: Path A 32dB, Path B 52dB, 60Hz no filter. (&gt;80dB med./high filter).</td>
</tr>
<tr>
<td>Output Accuracy</td>
<td>±0.05% typical, ±0.1% maximum.</td>
</tr>
<tr>
<td>Output Compliance</td>
<td>1V, typical.</td>
</tr>
<tr>
<td>Response Time (for step input change)</td>
<td>Time to reach 98% of final output value (typical) No filter: 25 milliseconds Low filter: 41 milliseconds Medium filter: 140 milliseconds High filter: 1140 milliseconds</td>
</tr>
<tr>
<td>Output Ripple</td>
<td>Less than ±0.1% of output span.</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>Operation: -40 to 70°C (-40° to 158°F). Storage: -40 to 85°C (-40° to 185°F).</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>5 to 95% non-condensing.</td>
</tr>
<tr>
<td>Power Requirement</td>
<td>6-32V DC SELV, 1.6W max.</td>
</tr>
<tr>
<td>Isolation</td>
<td>1500V AC peak. 250V AC (354V DC) continuous isolation between inputs, outputs, and power (5-way).</td>
</tr>
<tr>
<td>Shock and Vibration Immunity</td>
<td>Vibration: 4g, per IEC 60068-2-6. Shock: 25g, per IEC 60068-2-27.</td>
</tr>
<tr>
<td>Approvals (pending)</td>
<td>CE compliant. UL/ULC listed Class I Division 2 Groups AB/C. ATex. IECEx certified Zone 2. Ex il 3 G Ex na IIC T4 Gc -40°C &lt; T &lt; +80°C. 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 61000-4-2. EFT: BS EN 61000-6-2, IEC 61000-4-4. Surge Immunity: BS EN 61000-6-2, IEC 61000-4-5.</td>
</tr>
<tr>
<td><strong>Physical</strong></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>General-purpose enclosure designed for mounting on 35mm “T-type” DIN rail.</td>
</tr>
</tbody>
</table>

USB-ISOLATOR
USB-to-TOS-OTG 6 inch cable.
USB cable, 1 meter, with Type A to Type B plugs.
USB cable, 1 meter, with Type A to Mini-B plugs.
DIN rail end stop for hazardous approvals.

Software

TTC-SIP (recommend one kit per customer)
Windows Software Interface Package for Acromag DT Series transmitters. Includes configuration software 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

TTC-SIP
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 hazardous apps.
5028-565 USB-OTG 6 inch cable.

Electromagnetic Compatibility (EMC) Compliance

- CE compliant.
- UL/ULC listed Class I Division 2 Groups AB/C.
- ATex. IECEx certified Zone 2.
- Ex il 3 G Ex na IIC T4 Gc -40°C < T < +80°C.
- 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 61000-4-2.
- EFT: BS EN 61000-6-2, IEC 61000-4-4.
- Surge Immunity: BS EN 61000-6-2, IEC 61000-4-5.

Specifications

- ±10V (±5V maximum).
- ±5V (±5V maximum).
- 0 to 10V (1V maximum).
- 0 to 5V (5V maximum).
- 0 to 20mA (24mA maximum).
- 4 to 20mA (24mA maximum).
- Output Accuracy: ±0.05% typical, ±0.1% maximum.
- Output Compliance: 1V, typical.
- Output Response Time (for step input change): Time to reach 98% of final output value (typical)
- No filter: 25 milliseconds
- Low filter: 41 milliseconds
- Medium filter: 140 milliseconds
- High filter: 1140 milliseconds
- Output Ripple: Less than ±0.1% of output span.

Ordering Information

Models

DT338-0700
Four-wire dual transmitter, high voltage DC inputs, isolated current or voltage outputs.

Services

DT330-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
Recommended one kit per customer
Windows Software Interface Package for Acromag DT Series transmitters. Includes configuration software and two USB cables (4001-112, 4001-113).

Agility Mobile Application

Accessories

TTC-SIP
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 hazardous apps.
5028-565 USB-OTG 6 inch cable.
USB-ISOLATOR  USB-to-USB Isolator

**Description**

This compact, industrial-grade isolator provides a high-voltage isolation barrier between a computer and a connected USB device. The isolation protects equipment from electrical surges and transient voltage spikes. It also eliminates ground loop currents flowing between the PC and peripherals which can cause damage and inaccurate measurements. Additionally, isolation minimizes conducted noise from static discharge, magnetic fields, and radio frequency interference.

Acromag's USB isolator is very easy to use. The isolator inserts in-line with the USB connection and operates transparently. No special software drivers are required. The unit receives power from the PC's USB port and isolates that power to the connected device. High noise immunity and low radiated emissions ensure reliable data transfer in sensitive applications.

A number of high-performance features help provide convenient and dependable operation. The green LED indicates that power is being received and blinks if the connected device draws too much current. An internal jumper lets you switch from Full Speed (12 Mbps) to Low Speed (1.5 Mbps) communication. The reset button offers a simple way to reinitialize a connected device without breaking the cable connection. High-retention USB sockets keep cables securely attached under shock and vibration.

**Key Features & Benefits**

- Isolates and protects a USB peripheral from a USB host
- Electrical isolation up to 1500V AC / 2100V DC
- Common mode filtering on all data lines
- Built-in surge/transient suppression up to 8kV on all ports
- Self-powered through the USB port
- Supports USB 2.0 full speed (12 Mbps) and USB 1.1 low speed (1.5 Mbps) data rates with jumper-selection
- LED for power indication and diagnostics
- Reset button to reinitialize and re-enumerate peripheral devices
- Output short circuit protection with auto-retry
- No software or configuration required (transparent operation)
- Uses standard high-retention USB Type A/B cable connections (includes 1m cable)
- Compact size and rugged design for harsh environments
- Wide ambient temperature operation -40 to 70°C (-40 to 158°F)
- CE, FCC, UL/cUL approvals

**Ordering Information**

**Models**

- **USB-ISOLATOR**
  USB isolator, includes USB cable (Part # 4001-112) for isolator-to-PC connection
- **TTC-SIP**
  CD-ROM (Part #5040-944), USB isolator and two USB cables (Part # 4001-112, 4001-113) for configuration of Acromag DT, TT and ST Series Transmitters, and SP and uBSP Series Signal Splitters.
- **XT-SIP**
  CD-ROM (Part #5041-094), USB isolator, two USB cables (Part # 4001-112, 4001-113), and one Ethernet cable (Part # 5035-360) for configuration of Acromag BusWorks XT Series Ethernet modules.

**Accessories**

- **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
**Accessories**

## USB-ISOLATOR  USB-to-USB Isolator

### Performance Specifications

**USB Port Interface**

- **Standards**
  - USB 1.1 and 2.0 compatible, full speed (12Mbps, default) and low speed (1.5Mbps) data rates supported. For low speed data rates, an internal jumper is provided for user setting. Connection is transparent, no software or configuration is required. Isolator will not be enumerated in the device manager.

**Physical**

- **Dimensions**
  - 2.40” Length x 1.85” Wide x 0.925” High (60.96mm x 46.99mm x 23.495mm).
  - Connectors: Standard high retention USB A/B connectors with minimum withdrawal force of 15 Newtons. 1 meter A/B cable included.

- **PC Connector**
  - USB Type B receptacle

- **Device Connector**
  - USB Type A receptacle

- **LED Indicator**
  - Green LED indicates isolator receiving 5V power from the USB computer bus. Flashing indicates short circuit/retries on peripheral side.

- **Reset Button**
  - Resets the connection to the USB peripheral device for reinitialization and re-enumeration.

- **Enclosure Material**
  - ABS Resin, UL94 rated, IP30 plastic case.

### Environmental

- **Operating temperature**
  - -40 to 70°C (-40° to 158°F).

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

- **Relative humidity**
  - 5 to 95% non-condensing.

- **Power**
  - **PC Connect Side**: Standard USB bus power (5V DC).
  - **Device Connect Side**: 5V DC / 120mA with full power connection from PC. Includes over-current protection with auto-retry.

- **Isolation**
  - 1500V AC / 2100V DC peak isolation.
  - 250V AC continuous safety isolation.

- **Agency Approvals**
  - CE and FCC compliant. UL/cUL Class 1 Div. 2 Zone 2.

### Environmental

- **Radiated Field Immunity (RFI)**
  - Designed to comply with IEC1000-4-3 Level 3 and EN50082-1.

- **Electromagnetic Compatibility (EMC)**
  - Minimum immunity per EN61000-6-2:2001

- **Electrostatic Discharge (ESD) Immunity**
  - Per IEC61000-4-2.

- **Radiated Field Immunity (RFI)**
  - Per IEC61000-4-3.

- **Electrical Fast Transient Immunity (EFT)**
  - Per IEC61000-4-4. Complies with IEC1000-4-4 Level 3 and EN50082-1.

- **Surge Immunity**
  - Complies with IEC1000-4-5 Level 3 and EN50082-1.

- **Conducted RF Immunity (CRI)**
  - Per IEC61000-4-6.

- **Emissions**
  - Per EN61000-6-4:2001.

### Example USB Connections (TT Series, SP Series, uBSP Series, XT Series, or ST Series)

- **Personal Computer** Running Windows OS
- **microBlox uBSP Series** Signal Splitter Carrier
- **ST Series Transmitter** Model ST131-06000
- **Busworks XT Series**
- **SP / TT Series**

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**Acromag**

**ISO9001 AS9100**

**MAD IN USA**

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The Agility™ Config Tool is a mobile application that allows easy setup and configuration of Acromag 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 DT230 and DT330 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 DT230 and DT330 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