



## Isolated Transmitters



## 610T Units Multi-Channel, Universal DC I/O

### Models

611T: Single I/O channel  
612T: Dual I/O channels

### Input Ranges

Universal input with automatic configuration  
±100mA (self-ranging),  
±100V DC (self-ranging),  
0 to 20 amps AC (with optional sensor)

### Output Ranges

Universal output (user-configured ranges)  
0 to 20mA (full range capability),  
0 to 10V DC (full range capability)

### Power Requirement

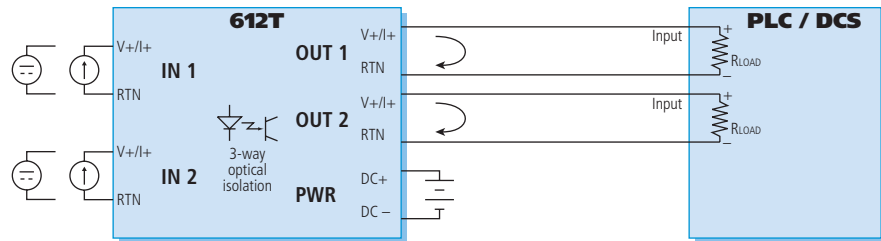
10 to 36V DC

### Approvals

CE marked. UL, cUL listed.



## Single/Dual-Channel DC-Powered Transmitter



### Description

These units receive DC current or voltage input signals, provide isolation, and output proportional DC current or voltage signals. With support for universal DC I/O ranges, 610T series transmitters provide a solution for a wide variety of isolation and signal conversion tasks. The single-channel 611T and dual-channel 612T are ideal for panel shops and end-users who require a high-density signal conditioner that can accommodate a broad range of instrumentation applications.

Installation is fast and simple with Acromag's built-in auto-configuration feature. Using your standard calibrator, the 610T's internal microcontroller automatically senses the input source type (voltage or current) and selects the optimum performance range for your zero and full-scale input values. To adjust your output values, simply push the up or down buttons on the front panel until you read the desired output signal on your meter. The up/down buttons help you calibrate for normal (proportional) or reverse-acting (inverse) response in seconds. After you select the desired calibration, just press the set button and your configuration settings are safely saved to nonvolatile memory.

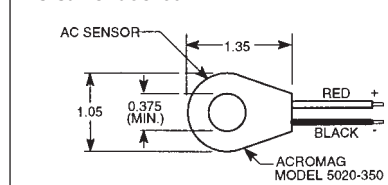
Both models provide high-voltage isolation between the input, output and power (3-way). On dual channel units, each channel operates independently, with inputs isolated from each other, to prevent interaction between channels.

For easy troubleshooting, each channel has diagnostic LEDs to identify input over/under range conditions. An additional status LED indicates the unit is operating properly or that the front panel pushbutton lockout feature has been invoked.

### Special Features

- Universal DC input and output ranges offer flexibility to fit many applications.
- Auto-configuration and self-ranging technologies speed installation without pots, switches, jumpers, or software.
- Optical isolation eliminates ground loops, reduces noise, and blocks transient signals.
- Push-button calibration simplifies field adjustments for faster and easier maintenance.
- Configuration lockout safety feature prevents tampering and accidental changes.
- Reverse-acting output capability enables inverse proportional control signals.
- Each input channel can drive two outputs (a voltage and a current output signal).
- Dual channel model saves space and reduces equipment costs.
- High-resolution  $\Sigma-\Delta$  A/D converters deliver superior accuracy for reliable measurements.

### AC Current Sensor



Optional terminal blocks: barrier strip (left) and spring clamp (right). Cage clamp terminal is standard.



## Performance

### General Input

Analog to Digital Converter (ADC)  
16-bit  $\Sigma$ - $\Delta$  A/D converter.

### Noise Rejection

Normal Mode: Better than 40dB @ 60Hz.  
Common Mode: Better than 100dB @ 60Hz.

### Input Overvoltage Protection

Bipolar Transient Voltage Suppressors (TVS).

### DC Current Input

DC Current Input Range  
 $\pm 100$ mA DC with full range capability.  
Minimum recommended span is  $\pm 4$ mA.

### DC Current Input Impedance

10 ohms.

### DC Current Input Accuracy

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

### DC Voltage Input

DC Voltage Input Range  
 $\pm 100$ V DC with full range capability.  
Minimum recommended span is 1.0V.

### Input impedance

Greater than 100K ohms.

### DC Voltage Input Accuracy

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

### AC Current Input

AC Current Input Range (optional)  
An optional external AC current sensor is required to monitor AC current signals (Model 5020-350).

AC Current Range	Primary Turns
0 to 20A AC	1
0 to 10A AC	2
0 to 5A AC	4
0 to 2A AC	10
0 to 1A AC	20

### AC Current Input Accuracy

Better than  $\pm 0.5\%$  of output span.

### Output (DC V/mA)

#### Current Output

Range: 0 to 20mA maximum (user-configured range).  
Compliance: 11V DC typical.  
Load resistance range: 0 to 550 ohms.

#### Voltage Output

Ranges: 0 to 10V maximum (user-configured range).  
Compliance: 10mA max. with short circuit protection.  
Output impedance: 1 ohms.

### Accuracy (overall input to output)

Better than  $\pm 0.1\%$  of span for nominal output ranges of 0 to 10V or 0 to 20mA.

### Ambient Temperature Effect

Better than  $\pm 0.018\%$  of output span per  $^{\circ}\text{C}$  or  $\pm 1\mu\text{V}$ , whichever is greater.

### Output Response Time (for input step change)

800mS typical to 98% of final output value.

## Environmental

### Ambient Temperature

Operating:  $-25$  to  $70^{\circ}\text{C}$  ( $-13$  to  $158^{\circ}\text{F}$ ).  
Storage:  $-40$  to  $85^{\circ}\text{C}$  ( $-40$  to  $185^{\circ}\text{F}$ ).

### Relative Humidity

5 to 95%, noncondensing.

### Power Requirements

611T: 10 to 36V DC. 24V DC @ 55mA.  
612T: 10 to 36V DC. 24V DC @ 75mA.

### Isolation

3-way (input/output/power). 1500V AC for 60 seconds or 250V AC continuous. Dual channel model includes input-to-input isolation and outputs share a common.

### Radiated Field Immunity (RFI)

Complies with EN61000-4-3 Level 3 and EN50082-1.

### Electromagnetic Field Immunity (EMI)

Less than  $\pm 0.25\%$  of output span effect.

### Electrical Fast Transient (EFT)

Complies with EN61000-4-4 Level 3 and EN50082-1.

### Surge Withstanding Capability (SWC)

Complies with EN61000-4-5 Level 3 and EN50082-1.

### Electrostatic Discharge (ESD)

Complies with EN61000-4-2 Level 3 and EN50082-1.

### Radiated Emissions

Meets or exceeds EN50081-1 for Class B equipment.

### Approvals

CE marked, UL, cUL listed (USA, Canada).  
UL3121 general product safety.

## Physical

### Enclosure

Case: Self-extinguishing NYLON type 6.6 polyamide thermoplastic UL94 V-2 NEMA Type 1 enclosure.

### Connectors (Removable Terminal Blocks)

Wire Range: AWG #12-24.

### Printed Circuit Boards

Military grade FR-4 epoxy glass circuit board.

### Dimensions

1.05W x 4.68H x 4.35D inches.  
26.7W x 118.9H x 110.5D millimeters.

### Shipping Weight

1 pound (0.45 Kg) packed.

## Ordering Information

### Models

611T-0500 (add "-C" for factory calibration)  
Single channel isolated transmitter

612T-0500 (add "-C" for factory calibration)  
Dual channel isolated transmitter

### Accessories (see Page 138)

#### 5020-350

AC current sensor. See Page 219 for details.

#### PS5R-D24

Power supply (24V DC, 2.1A).  
See Power Supplies on page 213.

#### TBK-802

Optional terminal block kit, barrier strip style, 4 pcs.

#### TBK-502

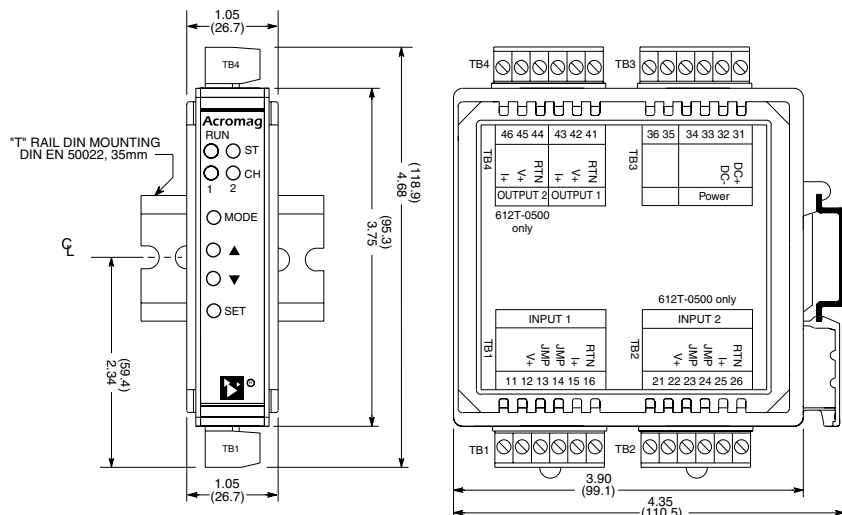
Optional terminal block kit, spring clamp style, 4 pcs.

#### DIN RAIL 3.0 or DIN RAIL 16.7

DIN rail strip, Type T, 3 in.(75mm) or 16.7 in. (425mm)

#### 20RM-16-DIN

19" rack-mount kit with DIN rail.  
Holds sixteen 610T series transmitters.



NOTE: ALL DIMENSION ARE IN INCHES (MILLIMETERS)



## Accessories

### Terminal Blocks

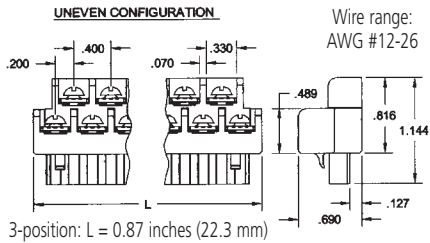
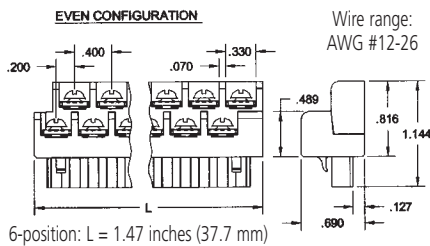


Barrier strip (left) and spring clamp (right).

#### Ordering Information

See individual I/O modules for compatibility.

#### Barrier Strip Terminal Blocks

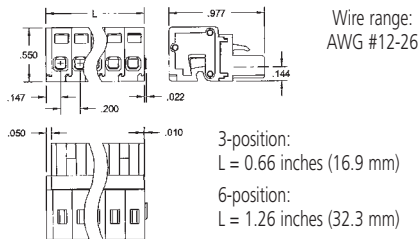


**TBK-B01**  
Terminal block kit,  
two 6-position pieces

**TBK-B03**  
Terminal block kit,  
one 3-position and  
three 6-position pieces

**TBK-B02**  
Terminal block kit,  
four 6-position pieces

#### Spring Clamp Terminal Blocks



**TBK-S01**  
Terminal block kit,  
two 6-position pieces

**TBK-S03**  
Terminal block kit,  
one 3-position and  
three 6-position pieces

**TBK-S02**  
Terminal block kit,  
four 6-position pieces

### Mounting Hardware

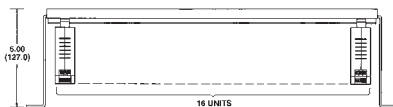
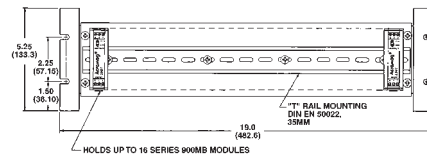


#### DIN-Rail Mounting

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.

#### Ordering Information

- 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)



### Power Supplies



#### 50W Supply

**Input Power Requirement**  
85 to 264V AC or 105 to 370V DC

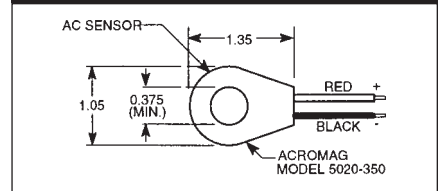
**Output**  
24V DC, 2.1A (50W)

#### Ordering Information

**PSSR-D24**  
Universal 50W power supply

See Power Supplies on page 213 for other models and more information.

### AC Current Sensor



#### Ordering Information

**5020-350**  
AC current sensor