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300L Series Low Power Three-Wire Field Selectable Wide Ranging Transmitters Guide

FEATURES

- **Types of Inputs:** AC I/V (TRMS or average); frequency, millivolts, potentiometer, RTD, DC I/V, T/C.
- **No Interaction:** Zero and span controls
- **Elevation/Suppression:** Up to 100% of range
- **Power Range:** 7 to 42 VDC, 3.5 mA typical
- **RFI-resistant**
- **Temperature Coefficients:**
  Zero = ±0.007% / °C of span- typical
  Span = ±0.008% / °C of span- Typical
- **Repeatability:** ±0.002% typical
- **Bandwidth:** (-3 dB) : 3.2 Hz typical
- **Isolation:** 1000 VDC or 600 VAC
- **Power Supply Effect:** ±0.005% of span
- **Response Time:** 110 milliseconds typical
- **Reverse Polarity Protection**

Typical Applications

Measurement of :

- Temperature
- Flow
- Speed
- Position
- Displacement
- Rotation
- AC Current
- AC Voltage
- DC Signals

AC INPUT
ACX 340L (Isolated)

Input/Output

Input Signals
AC Current: Any 0-1 to 0-5 amps AC, burden less than 0.5 VA (Selectable average or true RMS responding)
AC Voltage: Any 0-0.25 to 0-250 VAC, burden less than 0.5 VA (Selectable average or true RMS responding) (4 major ranges 0.25, 2.5, 25, 250)
Zero Adjustment: ±5% nominal of span
Course Span Adjustment: 100% of a major range (voltage only)
Fine Span Adjustment: ±5% nominal of major range (±1 Amp for current input)
Input Frequency Range: 25-1,000 Hz
Input Overload Capability: 200% continuous

Output Signals: 1-5 VDC or 0-5 VDC

Output Drive Capability: 10K ohms min.

Performance

* Calibrated Accuracy: ±0.25%
*Independent Linearity: ±0.15% maximum, ±0.06% typical
Repeatability: ±0.005% max., ±0.002% typ.
Zero TC: ±0.01% of span max /°C
Span TC: ±0.02% of span max /°C
Load Effect: ±0.005% zero to full load
Output Ripple: 10 mV P/P maximum
Response Time: 350 milliseconds (10 to 90% step response) average responding
Bandwidth: (-3 db): 1 Hz
Temperature Range:
-25° to 185°F (-31° to 85°C) operating;
-40° to 200°F (-40° to 93°C) storage
Power Supply Effect: ±0.005% of span, max.
Isolation: Input/output/case: 1000VDC, 600 VAC
Note: All accuracies are given as a % of span.

Power

7 to 42 VDC: 3.5 mA typical; 5 mA maximum

Mechanical

Electrical Classification: General Purpose
Connection: Screw, compression type, accepts up to 14 AWG
Controls: One 16-position rotary switch for coarse span; two multiturn potentiometers for fine zero and span control. jumpers for measurement response type TRMS or average and for input ranges and output selection
Mounting: Surface, snap-track, DIN rails, or NEMA 4, or 7
Weight: Net Unit: 4 oz. (115 grams);
Shipping: Nominal 7 oz. (200 grams)

Options

H 15 D, H 25- H 30 Mounting

Frequency Input
FDT 350L (Isolated)

Input/Output

Input Signals
Voltage (Amplitude): 10 mV-100 Vrms (0-5 kHz); 50 mV to 50 Vrms (5 kHz to 30 kHz)
Contact: Dry, 2 mA @ 24 VAC rating
Frequency Range: 0-30 Hz to 0-30 kHz full scale
Major Range Switch: Provides 11 discrete ranges with the zero control adjustable 10% of output and span control adjustable from 50% to 100% of the major range selected

Output Signals: 1-5 VDC or 0-5 VDC
Output Drive Capability: 10K ohms min.

Performance

* Calibrated Accuracy: ±0.1%
*Independent Linearity: ±0.02% maximum, ±0.01% typical
Repeatability: ±0.005% max., ±0.002% typ.
Zero TC: ±0.01% of span max /°C
Span TC: ±0.01% of span max /°C
Load Effect: ±0.005% zero to full load
Output Ripple: 10 mV P/P maximum
Response Time: 350 milliseconds (10 to 90% step response)
Bandwidth: (-3 db): 1 Hz
Temperature Range:
-25° to 185°F (-31° to 85°C) operating;
-40° to 200°F (-40° to 93°C) storage
Power Supply Effect: ±0.005% of span, max.
Isolation: Input/output/case: 1000VDC or 600 VAC

Note: All accuracies are given as a % of span.

Power

7 to 42 VDC: 3.5 mA typical; 5 mA maximum

Mechanical

Electrical Classification: General Purpose
Connection: Screw, compression type, accepts up to 14 AWG
Controls: One 16-position rotary switch for major range; four multiturn potentiometers for zero, span, hysteresis and sensitivity and jumpers for output selection
Mounting: Surface, snap-track, DIN rails, or NEMA 4 or 7
Weight: Net Unit: 4 oz. (115 grams);
Shipping: Nominal 7 oz. (200 grams)

Options

H 15 D, H 25- H 30 Mounting

mV Input
MVT 306L (Non-Isolated)

Input/Output

Input Signals
0.5 mV to 100 mV span (Z in greater than 10 megohms)
Zero Suppression: Up to 100% of the major range selected in 16 divisions of the coarse zero adjustment switch
Span: From 0.5 mV to 100 mV full scale switch selectable. The coarse span switch adds 16 divisions to each major range.

Output Signals: 1-5 VDC or 0-5 VDC
Output Drive Capability: 10K ohms min.

Performance

* Calibrated Accuracy: ±0.1%
*Independent Linearity: ±0.01% maximum
±0.006% typical (14-bit digital linearity)
Repeatability: ±0.005% max., ±0.002% typ.
Zero TC: Zero TC: $\pm \frac{0.025}{\text{input span (mV)}} + 0.005$ % of span max./ °C
Span TC: ±0.008% of span max/°C
Load Effect: ±0.005% zero to full load
Output Ripple: 10 mV P/P maximum
Response Time: 110 milliseconds (10 to 90% step response)
Bandwidth: (-3 db): 3.2 Hz
Temperature Range:
-25° to 185°F (-31° to 85°C) operating;
-40° to 200°F (-40° to 93°C) storage
Power Supply Effect: ±0.005% of span max.

Note: All accuracies are given as a % of span.

Power

7 to 42 VDC: 3.5 mA typical; 5 mA maximum

Mechanical

Electrical Classification: General Purpose
Connection: Screw, compression type, accepts up to 14 AWG
Controls: Two 16-position rotary switches for coarse Zero and Span control; Two multiturn potentiometers fine zero, and span control and jumpers for major range , zero elevation and output selection
Mounting: Surface, snap-track, DIN rails, or NEMA 4, or 7
Weight: Net Unit: 4 oz. (115 grams);
Shipping: Nominal 7 oz (200 grams)

Options

H 15 D, H 25- H 30 Mounting

MV Input
MVT 326L (Isolated)

Input/Output

Input Signals
0.5 mV to 100 mV span (Z in greater than 10 megohms)
Zero Suppression: Up to 100% of the major range selected in 16 divisions of the coarse zero adjustment switch
Span: From 0.5 mV to 100 mV full scale switch selectable. The coarse span switch adds 16 divisions to each major range.

Output Signal: 1-5 VDC or 0-5 VDC
Output Drive Capability: 10K ohms min.

Performance

* Calibrated Accuracy: ±0.1%
Independent Linearity: ±0.01% maximum, ±0.006% typical (14-bit digital linearity)
Repeatability: ±0.005% max., ±0.002% typ.
Zero TC: ± $\frac{0.025}{\text{input span (mV)}}$ + 0.005 % of span max./ °C
Span TC:±0.008% of span max/°C
Load Effect:±0.005% zero to full load
Output Ripple: 10 mV P/P maximum
Response Time: 110 milliseconds (10 to 90% step response)
Bandwidth: (-3 db): 3.2 Hz
Temperature Range:
-25° to 185°F (-31° to 85°C) operating;
-40° to 200°F (-40° to 93°C) storage
Power Supply Effect: ±0.005% of span max.
Isolation: Input/Output/case: 1000 VDC, or 600 VAC
Note: All accuracies are given as a % of span.

Power

7 to 42 VDC: 3.5 mA typical, 5 mA maximum

Mechanical

Electrical Classification: General Purpose
Connection: Screw, compression type, accepts up to 14 AWG
Controls: Two 16-position rotary switches for coarse Zero and Span control; Two multiturn potentiometers for fine zero, and span control and jumpers for major range and zero elevation and output selection
Mounting: Surface, snap-track, DIN rails, or NEMA 4 or 7
Weight: Net Unit: 4 oz. (115 grams);
Shipping: Nominal 7 oz (200 grams)

Options

H 15 D, H 25- H 30 Mounting

Potentiometer Input
PTT 373L (Non-Isolated)

Input/Output

Input Signals
Potentiometers/Slidewire Sensors: 3 Wire
50 ohm to 100 k ohm Resistance Spans Standard
Zero Suppression: Up to 100% of the potentiometer rotation selected in 16 divisions of the coarse zero adjustment switch
Span: From 0-100% full scale switch selectable. The coarse span switch adds 16 range divisions

Output Signal: 1-5 VDC or 0-5 VDC

Output Drive Capability: 10K ohms min.

Performance

* Calibrated Accuracy: ±0.1%
Independent Linearity: ±0.01% maximum, ±0.006% typical (14-bit digital linearity)
Repeatability: ±0.005% max., ±0.002% typ.
Zero TC: ±0.007% of span
Span TC:±0.010% of span max/°C
Load Effect:±0.005% zero to full load
Output Ripple: 10 mV P/P maximum
Response Time: 110 milliseconds (10 to 90% step response)
Bandwidth: (-3 db): 3.2 Hz
Temperature Range:
-25° to 185°F (-31° to 85°C) operating;
-40° to 200°F (-40° to 93°C) storage
Power Supply Effect: ±0.005% of span max.

Note: All accuracies are given as a % of span.

Power

7 to 42 VDC: 3.5 mA typical, 5 mA maximum

Mechanical

Electrical Classification: General Purpose
Connection: Screw, compression type, accepts up to 14 AWG
Controls: Two 16-position rotary switches for coarse Zero and Span control; Two multiturn potentiometers fine zero, and span control and jumpers for output selection
Mounting: Surface, snap-track, DIN rails, or NEMA 4 or 7
Weight: Net Unit: 4 oz. (115 grams);
Shipping: Nominal 7 oz (200 grams)

Options

H 15 D, H 25- H 30 Mounting

RTD Input
RBT 374L (Non-Isolated)

Input/Output

Input Signals
Resistance Bulb Sensor: 2, 3, or 4 wire types
1 to 400 ohm Resistance Spans: Standard
Zero Suppression: Up to 100% of the major range selected in 16 divisions of the coarse zero adjustment switch.
Span: From 0-100% full scale switch selectable. The
coarse span switch adds 16 divisions to each major range.
Lead Compensation: 1% maximum error, of differential lead resistance.

Output Signal: 1-5 VDC or 0-5 VDC
Output Drive Capability: 10K ohms min

Performance

* Calibrated Accuracy: ±0.1%
*Independent Linearity: ±0.025% max., ±0.01% typical
Conformance to RTD Curves: 0.15% max.
Repeatability: ±0.005% max., ±0.002% typ.
Zero TC: ± ($\frac{0.05}{\text{input span (ohms)}}$ + 0.005) % of span/ °C max.
Span TC: ±0.008% of span max/°C
Load Effect: ±0.005% zero to full load
Output Ripple: 10 mV P/P maximum
Response Time: 110 milliseconds (10 to 90% step response)
Bandwidth: (-3 db): 3.2 Hz
Temperature Range:
-25° to 185°F (-31° to 85°C) operating;
-40° to 200°F (-40° to 93°C) storage
Power Supply Effect: ±0.005% of span, max.
Note: All accuracies are given as a % of span.

Power

7 to 42 VDC: 3.5 mA typical, 5 mA maximum

Mechanical

Electrical Classification: General Purpose
Connection: Screw, compression type, accepts up to 14 AWG
Controls: Two 16-position rotary switches for coarse Zero and Span control; Two multiturn potentiometers fine zero, and span control and jumpers for output selection
Mounting: Surface, snap-track, DIN rails, or NEMA 4 or 7
Weight: Net Unit: 4 oz. (115 grams);
Shipping: Nominal 7 oz (200 grams)

Options

H 15 D, H 25- H 30 Mounting

RTD Input
RBT 372L (Isolated)

Input/Output

Input Signals
Resistance Bulb Sensor: 2, 3, or 4 wire types
1 to 400 ohm Resistance Spans: Standard
Zero Suppression: Up to 100% of the major range selected in 16 divisions of the coarse zero adjustment switch.
Span: From 0-100% full scale switch selectable. The coarse span switch adds 16 divisions to each major range.
Lead Compensation: 1% maximum error of differential lead resistance

Output Signals: 1-5 VDC or 0-5 VDC
Output Drive Capability: 10K ohms min.

Performance

* Calibrated Accuracy: ±0.1%
*Independent Linearity: ±0.025% maximum, ±0.01% typical
Conformance to RTD Curves: 0.15% max.
Repeatability: ±0.005% max., ±0.002% typ.
Zero TC: $\pm \frac{0.05}{\text{input span (ohms)}} + 0.005$ % of span/ ºC max.
Span TC: ±0.008% of span max. / ºC
Load Effect: ±0.005% zero to full load
Output Ripple: 10 mV P/P maximum
Response Time: 110 milliseconds (10 to 90% step response)
Bandwidth: (-3 db): 3.2 Hz
Temperature Range:
-25º to 185ºF (-31º to 85ºC) operating;
-40º to 200ºF (-40º to 93ºC) storage
Power Supply Effect: ±0.005% of span max.
Isolation: Input/output/case: 1000VDC, 600 VAC
Note: All accuracies are given as a % of span.

Power

7 to 42 VDC: 3.5 mA typical; 5 mA maximum

Mechanical

Electrical Classification: General purpose
Connection: Screw, compression type, accepts up to 14 AWG
Controls: Two 16 position rotary switches for coarse zero and span control; two multiturn potentiometers for fine zero and span control and jumpers for RTD type; major range, input zero elevation and output selection
Mounting: Din rails, surface, snap track, or NEMA 4 or 7
Weight: Net Unit: 4 oz. (115 grams);
Shipping: Nominal 7 oz. (200 grams)

Options

H 15 D, H 25 - H 30	Mounting

I/V/MV Input
SCT 302L (Isolated)

Input/Output

Input Signals
4-20 mA DC (z in 10 ohms)
0-20 or ± 20 mA DC (z in 10 ohms)
0-10 or ±10 mA DC (z in 20 ohms)
0-1 or ±1 mA DC (z in 200 ohms)
1-5 VDC (z in 1 megohm)
0-5 or ±VDC (z in 1 megohm)
0-10 or ±10 VDC (z in 1 megohm)
Any unipolar or bipolar voltage from 100 mV to 200 VDC. (Option I 14)
Zero Suppression: ±10%
Span Adjustment: ±10%

Output Signals: 1-5 VDC or 0-5 VDC
Output Drive Capability: 10K ohms min

Performance

* Calibrated Accuracy: ±0.1%
*Independent Linearity: ±0.025% maximum, ±0.01% typical
Repeatability: ±0.005% max., ±0.002% typ.
Zero TC: ±0.007% of span max./ºC
Span TC: ±0.008% of span max. / ºC
Load Effect: ±0.005% zero to full load
Output Ripple: 10 mV P/P maximum
Response Time: 110 milliseconds (10 to 90% step response)
Bandwidth: (-3 db): 3.2 Hz
Temperature Range:
-25º to 185ºF (-31º to 85ºC) operating;
-40º to 200ºF (-40º to 93ºC) storage
Power Supply Effect: ±0.005% of span max.
Isolation: Input/output/case: 1000 VDC, 600 VAC
Note: All accuracies are given as a % of span.

Power

7 to 42 VDC: 3.5 mA typical; 5 mA maximum

Mechanical

Electrical Classification: General purpose
Connection: Screw, compression type, accepts up to 14 AWG
Controls: 8 jumpers for ranges, two multiturn potentiometers for zero and span
Mounting: Din rails, surface, snap track, or NEMA 4 or 7
Weight: Net Unit: 4 oz. (115 grams);
Shipping: Nominal 7 oz. (200 grams)

Options

H 15 D, H 25 - H 30	Mounting
LPI 40 D	Loop powered Indicator
I 14	Voltage / current inputs

T/C Input
TCT 326L (Isolated)

Input/Output

Input Signals
*Thermocouple: All standard ISA calibration (B, E, J, K, R, S, T), -20 MV to 100 mV spans (Z in greater than 1 megohm)
Zero Suppression: Up to 100% of the major range selected in 16 divisions of the coarse zero adjustment switch.
Span: From 0.5 mV to 100 mV full scale switch selectable. The coarse span switch adds 16 divisions to each major range.
Upscale/Downscale Burnout Protection: Standard, field selectable
Burnout Current: 0.1 micro amperes-nominal
*Consult factory for other T/C types.

Output Signals: 1-5 VDC or 0-5 VDC
Output Drive Capability: 10K ohms min.

Performance

* Calibrated Accuracy: ±0.1% (of mv input)
*Independent Linearity: ±0.01% maximum,, ±0.006% typical (14-bit digital linearity) (of millivolt input)
Repeatability: ±0.005% max., ±0.002% typ.
Zero TC: $\pm \frac{0.025}{\text{input span (MV)}} + 0.007$ % of span/ ºC max.
Span TC: ±0.008% of span max. / ºC
Load Effect: ±0.005% zero to full load
Output Ripple: 10 mV P/P maximum
Response Time: 110 milliseconds (10 to 90% step response)
Bandwidth: (-3 db): 3.2 Hz
Temperature Range:
-25º to 185ºF (-31º to 85ºC) operating;
-40º to 200ºF (-40º to 93ºC) storage
Power Supply Effect: ±0.005% of span, max.
Isolation: Input/output/case: 1000 VDC, 600 VAC
Cold Junction Compensation Error: 1.5 ºC max (0 to 50 ºC

Note: All accuracies are given as a % of span.

Power

7 to 42 VDC: 3.5 mA typical; 5 mA maximum

Mechanical

Electrical Classification: General purpose
Connection: Screw, compression type, accepts up to 14 AWG
Controls: Two 16 position rotary switches for coarse zero and span control; two multiturn potentiometers for fine zero and span control and jumpers for T/C type major range , input zero elevation and output selection
Mounting: Din rails, surface, snap track, or NEMA 4 or 7
Weight: Net Unit: 4 oz. (115 grams);
Shipping: Nominal 7 oz. (200 grams)

Options

H 15 D, H 25 - H 30	Mounting

The Adtech 300L Low Power Series Three-Wire Transmitters provide mounting efficiency and ease of wiring in a compact DIN package. Their small size makes them ideal for RTU mounting.

Remote monitoring of oil/gas pipelines, water/wastewater facilities, utility substation, laboratory and vehicle testing are a few typical applications.

The units provide independent linearity equivalent to 14-bit digital accuracy and include user friendly features such as wide ranging and non-interactive zero and span controls.

The compact DIN mounting style allows high density mounting in new or existing field mounted or control panel enclosures.

Standard mounting is DIN rail. Surface or snap track mounting is provided at no charge. NEMA 4 or 7 are optionally available.

These units are designed for industrial environments. The housing is made of rugged Krilen for protection against corrosion, moisture an dust. Screw compression terminals are provided for positive field connections.

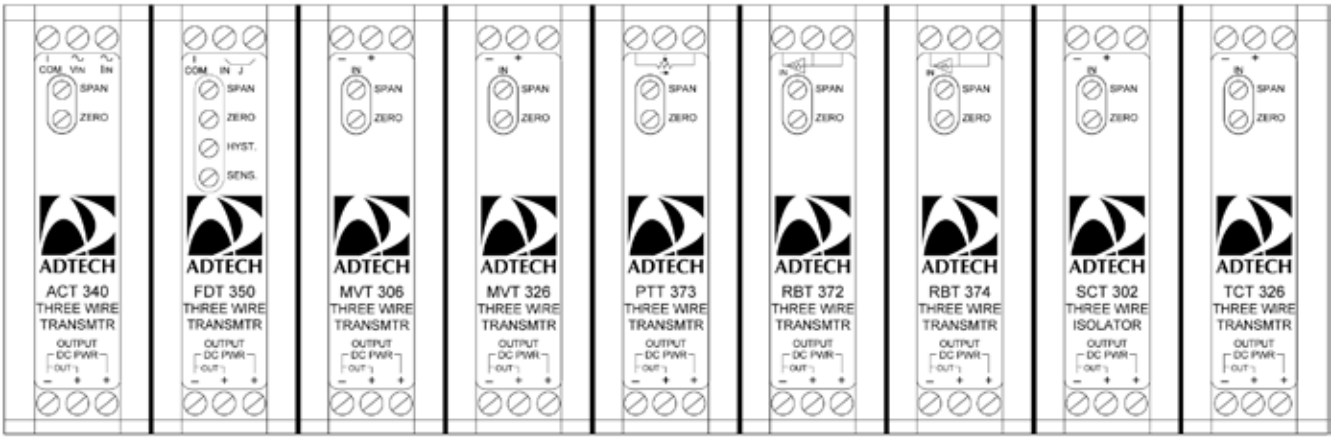
Reverse polarity protection is supplied as standard.

The power range of 7 to 42 VDC; 3.5 mA typical provides low power consumption.

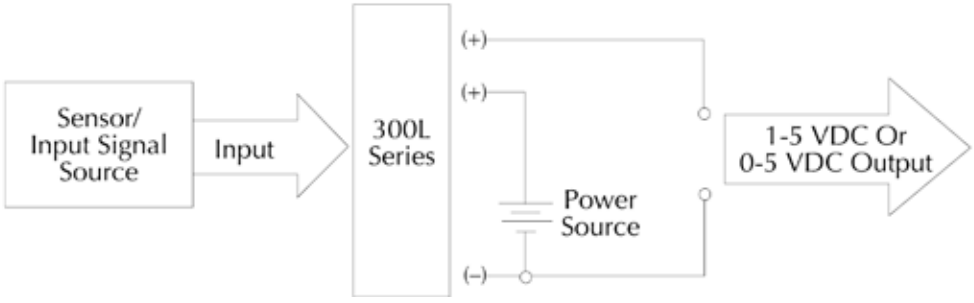
The input/output can be factory set to order as specified (no charge) or reconfigured in the field by simply adjusting switches, multi-turn potentiometers, and plug-in jumpers.

AC to DC or DC to DC instrument power supplies are available. The IPS 2402 AC/DC powers up to 2 units. The IPS 2416 AC/DC or DC/DC powers up to 100 units. DIN, surface, snap track or NEMA mountings are available.

Connections

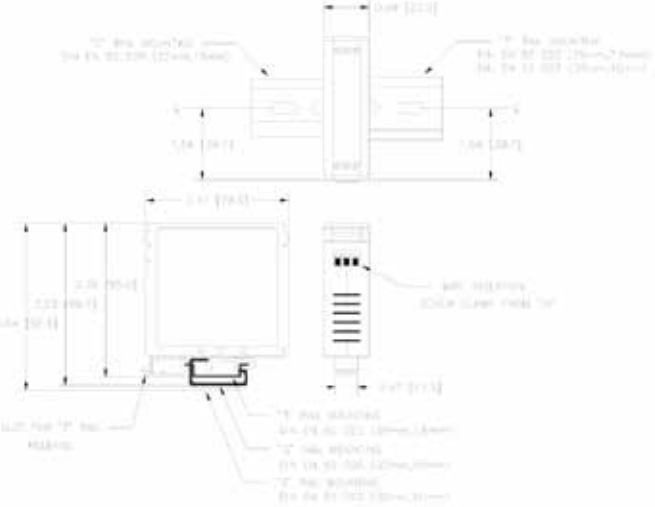


Typical Connection

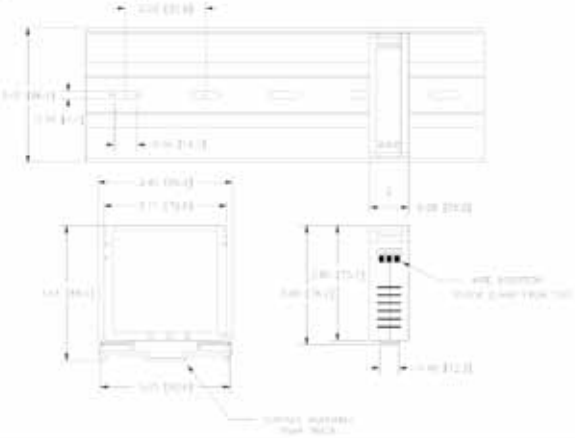


Outline & Mounting

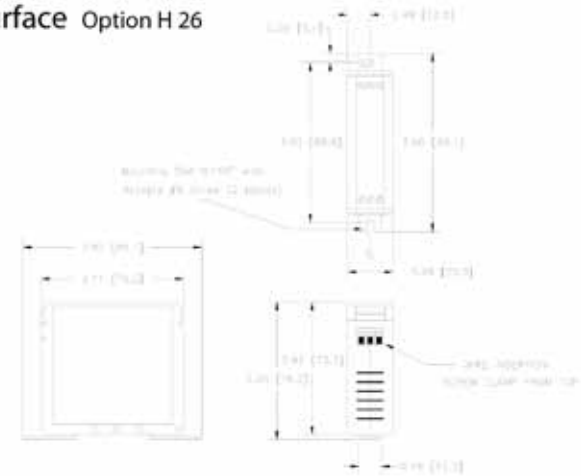
DIN Mount (Standard)



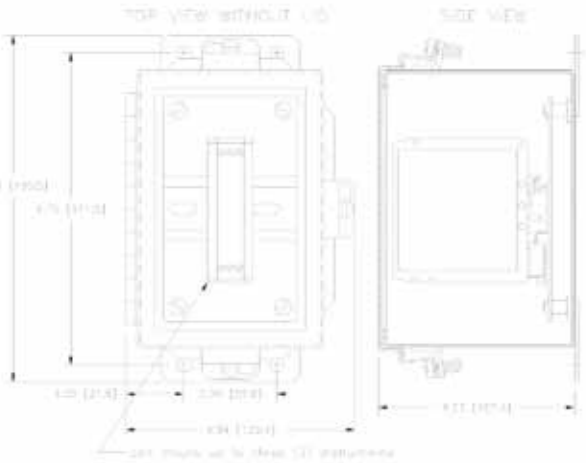
Snap Track Option H 25



Surface Option H 26



NEMA 4 Option H 27



NEMA 7 Option H15D