



# ADTECH

95 Mt. Read Blvd # 149  
Rochester, New York 14611 USA  
Phone: 1.585.698.1845  
Fax: 1.585.697.0445

[www.adtech-inst.com](http://www.adtech-inst.com)

## 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 =  $\pm 0.007\%$  / °C OF SPAN- TYPICAL  
SPAN =  $\pm 0.008\%$  / °C OF SPAN- TYPICAL
- **REPEATABILITY:**  $\pm 0.002\%$  TYPICAL
- **BANDWIDTH:** (-3 DB) : 3.2 HZ TYPICAL
- **ISOLATION:** 1000 VDC OR 600 VAC
- **POWER SUPPLY EFFECT:**  $\pm 0.005\%$  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)	FREQUENCY INPUT FDT 350L (ISOLATED)	MV INPUT MVT 306L (NON-ISOLATED)
INPUT/OUTPUT	INPUT/OUTPUT	INPUT/OUTPUT
<p><b>INPUT SIGNALS</b>  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</p> <p>OUTPUT SIGNALS: 1-5 VDC OR 0-5 VDC</p> <p>OUTPUT DRIVE CAPABILITY: 10K OHMS MIN.</p>	<p><b>INPUT SIGNALS</b>  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</p> <p>OUTPUT SIGNALS: 1-5 VDC OR 0-5 VDC  OUTPUT DRIVE CAPABILITY: 10K OHMS MIN.</p>	<p><b>INPUT SIGNALS</b>  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.</p> <p>OUTPUT SIGNALS: 1-5 VDC OR 0-5 VDC  OUTPUT DRIVE CAPABILITY: 10K OHMS MIN.</p>
PERFORMANCE	PERFORMANCE	PERFORMANCE
<p>* 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.</p>	<p>* 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.</p>	<p>* 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: ± <math>\frac{0.025}{\text{INPUT SPAN (MV) \% OF SPAN MAX / °C}}</math> + 0.005  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.</p>
POWER	POWER	POWER
7 TO 42 VDC: 3.5 MA TYPICAL; 5 MA MAXIMUM	7 TO 42 VDC: 3.5 MA TYPICAL; 5 MA MAXIMUM	7 TO 42 VDC: 3.5 MA TYPICAL; 5 MA MAXIMUM
MECHANICAL	MECHANICAL	MECHANICAL
<p>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)</p>	<p>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)</p>	<p>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)</p>
OPTIONS	OPTIONS	OPTIONS
H 15 D, H 25- H 30 MOUNTING	H 15 D, H 25- H 30 MOUNTING	H 15 D, H 25- H 30 MOUNTING



RTD INPUT RBT 372L (ISOLATED)	I/V/MV INPUT SCT 302L (ISOLATED)	T/C INPUT TCT 326L (ISOLATED)
INPUT/OUTPUT	INPUT/OUTPUT	INPUT/OUTPUT
<p><b>INPUT SIGNALS</b> 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 AD- JUSTMENT 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</p> <p>OUTPUT SIGNALS: 1-5 VDC OR 0-5 VDC OUTPUT DRIVE CAPABILITY: 10K OHMS MIN.</p>	<p><b>INPUT SIGNALS</b> 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%</p> <p>OUTPUT SIGNALS: 1-5 VDC OR 0-5 VDC OUTPUT DRIVE CAPABILITY: 10K OHMS MIN</p>	<p><b>INPUT SIGNALS</b> *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 AD- JUSTMENT SWITCH. SPAN: FROM 0.5 MV TO 100 MV FULL SCALE SWITCH SELECTABLE. THE COARSE SPAN SWITCH ADDS 16 DIVI- SIONS TO EACH MAJOR RANGE. UPSCALE/DOWNSCALE BURNOUT PROTECTION: STAN- DARD, FIELD SELECTABLE BURNOUT CURRENT: 0.1 MICRO AMPERES-NOMINAL *CONSULT FACTORY FOR OTHER T/C TYPES.</p> <p>OUTPUT SIGNALS: 1-5 VDC OR 0-5 VDC OUTPUT DRIVE CAPABILITY: 10K OHMS MIN.</p>
<b>PERFORMANCE</b>	<b>PERFORMANCE</b>	<b>PERFORMANCE</b>
<p>* 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: ± <math>\frac{0.05}{\text{INPUT SPAN (OHMS)}} + 0.005</math> % 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. ISOLATION: INPUT/OUTPUT/CASE: 1000VDC, 600 VAC NOTE: ALL ACCURACIES ARE GIVEN AS A % OF SPAN.</p>	<p>* 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./°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, 600 VAC NOTE: ALL ACCURACIES ARE GIVEN AS A % OF SPAN.</p>	<p>* CALIBRATED ACCURACY: ±0.1% ( OF MV INPUT) *INDEPENDENT LINEARITY: ±0.01% MAXIMUM, ±0.006% TYPICAL (14-BIT DIGITAL LINEARITY) (OF MIL- LIVOLT INPUT) REPEATABILITY: ±0.005% MAX., ±0.002% TYP. ZERO TC: ± <math>\frac{0.025}{\text{INPUT SPAN (MV)}} + 0.007</math> % 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. ISOLATION: INPUT/OUTPUT/CASE: 1000 VDC, 600 VAC COLD JUNCTION COMPENSATION ERROR: 1.5 °C MAX (0 TO 50 °C NOTE: ALL ACCURACIES ARE GIVEN AS A % OF SPAN.</p>
<b>POWER</b>	<b>POWER</b>	<b>POWER</b>
7 TO 42 VDC: 3.5 MA TYPICAL; 5 MA MAXIMUM	7 TO 42 VDC: 3.5 MA TYPICAL; 5 MA MAXIMUM	7 TO 42 VDC: 3.5 MA TYPICAL; 5 MA MAXIMUM
<b>MECHANICAL</b>	<b>MECHANICAL</b>	<b>MECHANICAL</b>
<p>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)</p>	<p>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)</p>	<p>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)</p>
<b>OPTIONS</b>	<b>OPTIONS</b>	<b>OPTIONS</b>
H 15 D, H 25 - H 30 MOUNTING	H 15 D, H 25 - H 30 MOUNTING LPI 40 D LOOP POWERED INDICATOR I 14 VOLTAGE / CURRENT INPUTS	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/WASTE-WATER 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 AND DUST. SCREW COMPRESSION TERMINALS ARE PROVIDED FOR POSITIVE FIELD CONNECTIONS.

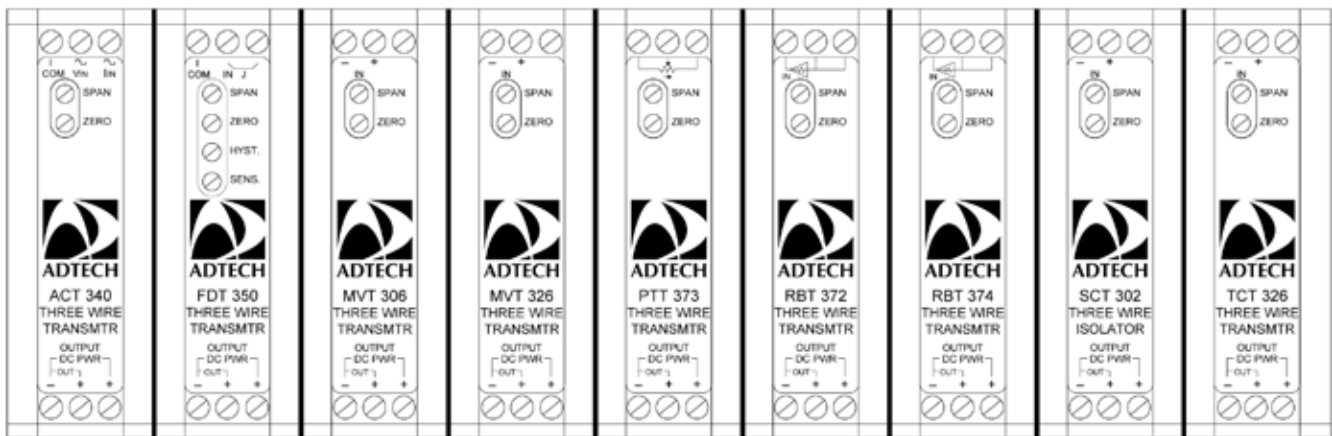
REVERSE POLARITY PROTECTION IS SUPPLIED AS STANDARD.

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

