Acromag®

User's Manual: Series 350T
Model 350T Frequency Input, DC-Powered Transmitters

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IMPORTANT SAFETY CONSIDERATIONS

It is very important for the user to consider the possible adverse effects of power, wiring, component, sensor, or software failures in designing any type of control or monitoring system. This is especially important where economic property loss or human life is involved. It is important that the user employ satisfactory overall system design. It is agreed between the Buyer and Acromag, that this is the Buyer's responsibility.

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8500-329-B95J003

INTRODUCTION:

These instructions cover the model types listed in Table 1 below. Supplementary sheets are attached for units with special options or features.

Table 1: A. Model Number Format :
350T-Input-Output-Mounting-Certification-Calibration
B. Typical Model Number: 350T-FQ1-Y-DIN-NCR-C

Series	Input	Output	Mtg.	Cert.	Calib.
350T	-FQ1	-Y	-DIN	-NCR	Blank
		-V0			-C
		-V5			

Notes (Table 1):
1. The FQ1 can be ordered with or without the factory calibration ("-C") option. Any customer-specified calibration information will be included on a separate calibration label on the unit.
2. Consult the factory for current information on agency (e.g. Canadian Standards Association, etc.) approvals.

DESCRIPTION:

These DC-powered transmitters accept a periodic or pulse waveform signal, such as those originating from tachometers, magnetic transducers, and turbine flow meters, and convert this signal to a process current or voltage output directly proportional to the signal frequency. The input circuit is direct-coupled and can accept signal amplitudes from ±25mV to 150V RMS. Input circuit isolation is standard and wide-range zero and span adjustments are included. Any one of ten input frequency ranges, from 25 to 25600Hz spans, can be selected by changing one jumper (shunt block) on a digital divider network. These transmitters are RFI and EMI protected, operate over large temperature ranges, and feature excellent temperature coefficients, which minimize the effects from the harsh plant environment.

The 350T Series is a DIN-rail mounted transmitter family designed to be used as a functional component to provide the user with a modular approach to the varied applications in the field. The Series 350T complements the Acromag Series 250T two-wire transmitter line, providing the same input conditioning for three-wire applications. That is, Series 350T transmitters require a separate power supply connection, while the output signal and DC power share a common lead. The small package size, low power requirements, and wide supply range offers maximum flexibility to the system designer. As a three-wire DC-powered device, it can also be used in critical applications that require the use of redundant supplies. The Series 350T includes reverse polarity protection, current limiting, and operates from a single 10-36V DC supply. In applications requiring only a single transmitter, the 350T can use available DC power, or it can be wired to an optional Series 35PS power supply module. The Series 35PS power supply module receives it's power from either 115V or 230V AC.

Applications requiring multiple transmitters at a single location can more efficiently share a single DC supply. The modular approach of this design and wide selection of companion Acromag flat-pack modules allows additional transmitters, input modules, isolators, and alarms to be easily integrated, as required. See Drawing 4501-294 for a simplified Series 350T schematic.

Additional features of this unit include the following. A quartz crystal time-base design is used for improved temperature performance. Three field-selectable filter network time constants are provided to optimize the output response-time and ripple characteristics. Two field-selectable input threshold circuits are provided; one for bipolar (zero crossing) signals and one for unipolar (non-zero crossing) signals. In the bipolar mode, the transmitter has a zero volt threshold and fixed hysteresis. If configured in the unipolar mode, the module has a 1.5 volt threshold and fixed hysteresis. In addition, the unipolar mode provides an excitation or pull-up circuit. This excitation allows interfacing to passive frequency inputs, such as with "dry-rated" contact closure and open collector transistor switching.

Input wiring is inserted in the bottom of the unit, while output and power wiring is inserted at the top of the unit. Screws to secure the wiring are located on the front panel. Connectors are screw-clamp type and accept wire size up to14 AWG.

SPECIFICATIONS:

Function: This family of isolated, DC powered transmitters accepts a frequency, periodic, or pulse waveform input signal, provides input circuit isolation, and converts the input signal to a process current or voltage output. The output and DC power share a common terminal (3-Wire connection). Wide-range zero and span adjustments utilize 22-turn potentiometers which are accessible on front of the unit. The transmitter is DIN-rail mounted.

MODEL/SERIES: 350T- (Color coded with a white label)

INPUT: Frequency: direct-coupled input for span ranges from 25 to 25,600 Hz. The input impedance is 50KΩ typical. Input span and zero ranges are adjustable as specified below, except for special ranges which are factory calibrated per customer specifications.

-**FQ1:** Frequency: Span 25Hz to 25,600Hz, Zero: 0 to 20% of Span. The input span is continuously adjustable over the preselected input span range. The minimum input frequency for any range, can be from 0 to 20% of the full scale frequency.

FREQUENCY RANGE	SPAN RANGE		
Range A	25	to	50 Hz
Range B	50	to	100 Hz
Range C	100	to	200 Hz
Range D	200	to	400 Hz
Range E	400	to	800 Hz
Range F	800	to	1,600 Hz
Range G	1,600	to	3,200 Hz
Range H	3,200	to	6,400 Hz
Range I	6,400	to	12,800 Hz
Range J	12,800	to	25,600 Hz

Isolation: The input circuit is electrically isolated from the output and power circuits, allowing the input to operate at up to 250VAC, or 354V DC off ground, on a continuous basis (will withstand 1500V AC dielectric strength test for one minute without breakdown). This complies with test requirements outlined in ANSI/ISA-S82.01-1988 for the voltage rating specified.

Input Circuit Open Response: Down-scale drive standard.

Bipolar Input Configuration: User configured by internal jumpers(shunt blocks): Threshold: 0.0V DC; Input Amplitude: ±25mV to 150V RMS; Hysteresis: ±25mV fixed, nominal; The switching points are -25mV and +25mV (nominal), or 0.0V ±0.025V.

Unipolar Input Configuration: User configured by internal shunt jumper.

- Threshold: 1.5V DC. Attenuator resistors may be installed on the PC board to further reduce sensitivity by raising the threshold level--consult the factory.
- Hysteresis: ±25mV fixed, nominal. The switching points are +1.525V and +1.475V (nominal), or +1.5V ±0.025V
- Input Amplitude: 0 to 2V to 150V RMS.
- Unipolar Excitation Supply: In the unipolar mode, the (L) terminal provides an excitation supply for contact closure or open collector transistor switching circuits. Nominal excitation/pull-up is 5VDC through 15KΩ (0.333mA, nominal).
  NOTE: If input leads are long, capacitance developed across the input leads could limit use to lower frequencies.

Minimum Pulse Width: The minimum pulse width required is 10uS.

OUTPUT: Process Current or Voltage output. The output shares a common with the power supply. Voltage outputs are designed to provide true voltage out, with zero volts included, and to be stable with capacitive loads.

-Y : 4 to 20mA DC (see Load Resistance Range Equation)
-V0: 0 to 10V DC into 10,000 ohms or greater
-V5: 0 to 5V DC into 5,000 ohms or greater

Load Resistance Range Equation (-Y output option): The maximum load resistance for 20mA compliance is a function of input supply voltage as follows:

R-Load (Maximum) = (Minimum VDC supply - 2.5V) / 0.02A
At 10.0V DC supply, R-Load = 0 to 375Ω
At 12.5V DC supply, R-Load = 0 to 500Ω
At 15.0V DC supply, R-Load = 0 to 625Ω
At 24.0V DC supply, R-Load = 0 to 1075Ω

Output Limiting: Voltage units: 150% of full scale output, nominal; Current units; 125% of full-scale output, nominal.

Output Ripple: Less than +/-0.1% of the maximum output span for inputs from 10-100% of full-scale when recommended filter is selected.

Power: An external DC power supply is required between the output (P) and (-) terminals. Transmitter current is for rated supply inputs, full-scale output, and no load on voltage output units. Diode on transmitter provides reverse polarity protection. CAUTION: Do not exceed 36V DC peak, to avoid damage to the transmitter.

A. Process Current Output (-Y): +10.0V to 36.0V DC, 30mA (35mA at current limit).
B. Voltage Output (-V0): +12.5V to 36.0V DC, 9mA maximum.
C. Voltage Output (-V5): +10.0V to 36.0V DC, 9mA maximum.

Power Supply Effect:
DC Volts: less than ±0.001% of output span per volt DC, for rated power supply variations.
60/120 Hz ripple: less than ±0.01% of span per volt peak-to-peak of power supply ripple.

Reference Test Conditions: Input: 0-12800Hz, 100Ω resistive source; Output (-Y units): 4-20mA DC (500Ω load); Output (-Vx units): 0-10V DC into 10KΩ or greater; Ambient 77^{O}F (25^{O}C); +15V DC supply.

Accuracy: Better than ±0.1% of calibrated span. The error includes the combined effects of transmitter repeatability, hysteresis, terminal point linearity and adjustment resolution. Does not include sensor error.

Ambient Temperature Range: -13^{O}F to 185^{O}F (-25^{O}C to 85^{O}C).

Ambient Temperature Effect: (Combined effects of zero/span over temperature) Less than ± 0.01 % of output span per ^{O}F (±0.018% per ^{O}C) over ambient temperature range for reference test conditions.

Bandwidth: -3dB at 25600 Hz, typical.

Response Time: The shunt-block selection of the filter networks on the circuit board will result in different response times. The standard unit is shipped with a 0.4 second response filter. To maintain low output ripple, for each frequency range, use the recommended filter. For a step change in the input frequency, the nominal response time for a 98% change of the output span is specified below. Install shunt blocks per Table below (refer to Drawing 4501-295).

Table: Frequency Range/Response Time Selection

RESPONSE TIME (98%)	Frequency Span Range	Filter Jumpers Jumper Block: J1 (shunt)	
8.0 seconds	A thru J	Pins 1 & 3	Pins 2 & 4
5.0 seconds	C thru J	Pins 3 & 5	Pins 2 & 4
0.4 seconds	D thru J	Pins 3 & 5	Pins 4 & 6

Noise Rejection:
Common Mode: 115dB, 60 Hz, 100Ω unbalance, typical.
Normal Mode: Not applicable.

RFI Resistance: Less than ±0.5% of output span with RFI field strengths of up to 10V/meter at frequencies of 27MHz, 151MHz, and 467MHz.

EMI Resistance: Less than ±0.25% of output span effect with switching solenoids or commutator motors.

Surge Withstand Capability (SWC): Input/Output terminations are rated per ANSI/IEEE C37.90-1978. Unit is tested to a standardized test waveform that is representative of surges (high frequency transient electricalinterference), observed in actual installations.

Construction:
Printed Circuit Boards: Military grade FR-4 epoxy glass.
Terminals: Compression type, wire size 14 AWG maximum.
Case: Self-extinguishing NYLON Type 6.6 polyamide thermoplastic UL94 V-2, color-black. General Purpose, NEMA Type 1 enclosure.
Printed Circuit Board Coating: Fungus resistant acrylic conformal coat.
Mounting Position: Position insensitive.

MOUNTING:

-DIN: General Purpose Housing, DIN Rail-Mount - accepts both "G" & "T" rails. "G" Rail (32mm), Type EN50035; "T" Rail (35mm), Type EN50022. Refer to Drawing 4501-540 for outline and clearance dimensions. Shipping Weight: 1 pound (0.45 Kg) packed.

CERTIFICATION: Consult the factory for current information on the availability of agency (e.g. Canadian Standards Association, Factory Mutual, etc.) approvals.

-NCR: No Certification Required.

INSTALLATION:

This transmitter is packaged in a general purpose type of enclosure, use an auxiliary enclosure to protect the unit against unfavorable environments and locations. Maximum operating ambient temperatures should be within -13 to 185^{O}F (-25 to 85^{O}C) for satisfactory performance. If the unit is factory calibrated, it is ready for installation. Connect as shown in the Connection Drawing 4501-294. If the unit is not factory calibrated, refer to the "CALIBRATION" section.

Mounting: Mount transmitter assembly - refer to Drawing 4501-252 for mounting and clearance dimensions.

DIN Rail Mounting: Use suitable fastening hardware to secure the DIN rail to the designated mounting surface. The transmitter is supplied with the DIN Rail mounting option (-DIN) and can be mounted to either the "T" or "G" style rails. Installation of the alarm to the rail depends on the type of DIN rail used. Units can be mounted side-by-side on 1.6 inch centers, if required.

"T" Rail (35mm), Type EN50022: To attach a transmitter to this style of DIN rail, angle the top of the unit towards the rail and locate the top groove of the adapter over the upper lip of the rail. Firmly push the unit towards the rail until it snaps solidly into place. To remove a transmitter, insert a screwdriver into the lower arm of the connector and pull downwards while applying outward pressure to the bottom of the unit.

"G" Rail (32mm), Type EN50035: To attach a transmitter to this style of DIN rail, angle the unit so that the upper groove of the adapter hooks under the top lip of the rail. Firmly push the unit towards the rail until it snaps solidly into place. To remove an transmitter, pull the lower part of the unit outwards until it releases from the rail and lift the unit from rail.

Electrical Connections:

The electrical connections are independent of the mounting configuration. The wire size used to connect the unit to the control system is not critical. All terminal strips can accommodate wire from 14-26 AWG. Strip back wire insulation 1/4-inch on each lead before installing it into the terminal block. Input wiring may be either shielded or unshielded twisted pair. Output wires should be twisted pair. Since common mode voltages can exist on signal wiring, adequate wire insulation should be used and proper wiring practices followed. It is recommended that output/power wiring be separated from signal wiring for safety, as well as for low noise pickup.

1. Power: Connect DC power supply per Connection Drawing 4501-294. These transmitters operate from DC power supplies only. Power supply voltage is not critical and normally should be from 10.0V to 36V DC. The supply voltage must not exceed 36 Volts, even instantaneously, and must be adequate to furnish full-scale current or voltage to the load. Variations in power supply voltage above the minimum required, or variations in load resistance have negligible effect on transmitter accuracy. Refer to "POWER" in the preceding SPECFICATIONS section for current requirements. The minus (-) power supply lead and the minus (-) output lead share a common terminal. This device includes input current limiting and reverse polarity protection. Refer to Drawing 4501-254 for other power supply configurations.
2. Output: Connect output per Connection Drawing 4501-294. Load range is a function of the module's output type; refer to "Output" in the preceding "SPECIFICATIONS" section. The output shares a common with the power supply.
3. Grounding: The General Purpose Housing of this transmitter is plastic and does not require an earth ground connection.
4. Input: Connect the input per Connection Drawing 4501-294. Be sure to observe proper polarity on unipolar inputs, see label for input type. If unit is factory calibrated, the calibration label indicates range of input.

   Note: The input circuit is electrically isolated from the output/power circuit, allowing the input to operate up to 250V AC, or 354V DC off ground, on a continuous basis. If your input is from a contact closure or from an open collector transistor, the excitation circuit must be activated by placing a short jumper wire between the input (+) and (L) terminal of the transmitter. The input circuit of this transmitter accepts most periodic waveforms and will trigger on the positive edge of the input waveform. The input stage of this transmitter has a built-in low-pass filter (R1, C1) to remove any high frequency noise that may be present on the input signal. If a digital 5V pulse is used to drive the input stage, the width of the pulse should be greater than 10 microseconds.

   Note: If the input signal amplitude is not adequate to meet the threshold/hysteresis requirements, the output will go to a value that represents 0 Hertz.

CALIBRATION:

A. TRANSMITTER

This section provides information for unit configuration and calibration. If the unit was factory calibrated, jumpers have been placed in their proper positions and verification of the calibration can be made per the Adjustment Procedure. If the calibration of the unit is to be changed, first go to the "Shunt Block Configuration Procedure" before going to the Transmitter Adjustment Procedure.

1. Transmitter - Shunt Block Configuration Procedure:

The frequency transmitter is quite universal in that it can be configured for Unipolar or Bipolar input signals, a large number of frequency ranges, and ripple/response filtering. Before the adjustment procedure can proceed, the jumpers have to be configured to the requirements of the application (refer to Drawing 4501-295 for details). To gain access to the Configuration Jumpers, first remove transmitter from the installation. Second, remove the circuit boards from the plastic enclosure as described in the Jumper Configuration procedure below. Third, configure the jumpers (shunt blocks) as described in the Jumper Configuration procedure below (refer to Drawing 4501-295).

Note: Calibration per the Adjustment Procedure should be performed before the circuit boards are reassembled within the plastic enclosure.

Disassembly Procedure for the 350T Plastic Housing:

The plastic housing has no screws, it "snaps" together. A flat-head screwdriver (Acromag 5021-216 or equivalent) is needed to pry the housing apart as described in the following steps.

CAUTION: Do not push the screwdriver blade into the housing more than approximately 0.1 inches while prying it apart. Handling of the printed circuit boards should only be done at a static-free workstation, otherwise, damage to the electronics could result.

1. To begin disassembly (refer to Drawing 4501-295) place the screwdriver at point A (left side of the transmitter). While pressing the blade into the seam, use a twisting motion to separate the sides slightly. Repeat this operation at point B.
2. Now that the two pieces have been partially separated, use the screwdriver blade to work the left side of the package loose by working around the transmitter and carefully prying the sides further apart. Repeat this action until it is easy to remove the left side from the plastic pins holding the pieces together.
3. Repeat this operation for the right side at points C and D.

CAUTION: If the two PC boards become separated while taking the package apart, re-align the boards making sure that both interconnection headers are aligned with their mating sockets at locations E & F and carefully push the boards back together.

Jumper Configuration (Shunt Blocks):

Shunt blocks are provided to accommodate in-field configuration changes. In case of misplacement, additional shunt blocks may be ordered from the factory. When ordering additional shunt blocks, refer to Acromag Part Number 1004-332.

1. Input Conditioning Selection: Determine whether the input signal is a zero crossing or a non-zero crossing signal. The sinusoidal output from a passive magnetic pickup is a typical "zero-crossing" signal. A typical TTL output is a non-zero crossing signal type. Refer to Drawing 4501-295 for proper jumper (shunt) position.
2. Input Frequency Range: Select the desired frequency range for the input signal and place the shunt block in the required range position, A through J. Refer to Drawing 4501-295 for proper jumper (shunt block) position. NOTE: for best results, select the smallest frequency range that will cover the frequency span being monitored.
3. Output Ripple/Response Time: Select the filter for desired results. Refer to table 1 on Drawing 4501-295 for proper jumper (shunt) position. Refer to "Response Time" in the preceding "SPECIFICATIONS" section, which describes the frequency/response-time combinations that can be achieved while maintaining less than ±0.1% output ripple from 10 to 100% of full-scale. Faster response-times may be used when output ripple is not critical. Units which have not been factory calibrated have a response time of 0.4 seconds.
4. Important: Mark the Transmitter's Configuration on the calibration label located on the enclosure.
   Example: IN: Bipolar, Range "I"; 0 to 12,800Hz
   Filter - 3; 0.4 seconds.

Jumper Configuration Example:

The following is the configuration for the example given below, make adjustments to the configuration as required for your application. For our example, configure the internal jumpers as follows:

A. Unipolar/Bipolar: Bipolar (Shunt Block J1, pins 9 & 10).
B. Frequency Range: Range I, 0 to 12800Hz (Shunt Block J2, position I).
C. Ripple/Response: 0.4 Seconds (Shunt Block J1, pins 3 to 5 & 4 to 6).

Transmitter - Adjustment Procedure:

Connect transmitter as shown in the Connection Drawing 4501-294. The input signal source must be adjustable over the entire frequency range (0-25600 Hz) of the transmitter. In addition, the frequency source must be adjustable and stable to any specific frequency with an accuracy of 0.1% or better. Signal amplitude should be set at a level representative of the actual input signal. It is recommended that a frequency counter be used to measure input frequency, as most dial markings are not accurate enough. The transmitter power supply voltage must be between 10 and 36V at the terminals of the transmitter. The output voltage must be measured to 0.1% accuracy or better for proper results.

The Zero and Span adjustments are accessible on the front panel of the transmitter, see Drawing 4501-294 for their location. The screwdriver blade, used to adjust the potentiometers, should not be more than 0.1 inch (2.54mm) wide.

Transmitter - Calibration Example:

Model : 350T-FQ1-Y-DIN-NCR
Input : 0-12800Hz, Bipolar input, Filter: 0.4 second step response.
Output: 4-20mA DC

1. The calibration signal amplitude requirements are a function of the "Input Conditioning Type" selected.
   A. Unipolar (Threshold: 1.5V DC Nominal), use a 0-2.0V signal or greater.
   B. Bipolar (Threshold: 0.0V DC Nominal), use a +/-0.2V signal or greater.
2. Set the input frequency to 0 Hz. Adjust the Zero (Z) pot until the output reads 4.000mA. If the output cannot be reduced to 4.000mA, turn the "Span" pot counter clockwise until the output is reduced to the desired value. NOTE: If the minimum input is 0 Hz, it can be simulated by temporarily disconnecting the signal generator and shorting the input terminals of the transmitter. Before going to Step 3, remove the short circuit and connect the signal generator to the input terminals.
3. Set the input frequency to 12,800 Hz. Adjust the Span (S) pot until the output reads 20.000mA.
4. Repeat Steps 2 and 3 above until the readings converge. The instrument is now calibrated. Several mid-point values should also be checked to verify proper operation of the transmitter.
5. After the above calibration procedure is complete, install the transmitter PC Board assembly back into its case as described in the assembly procedure below.

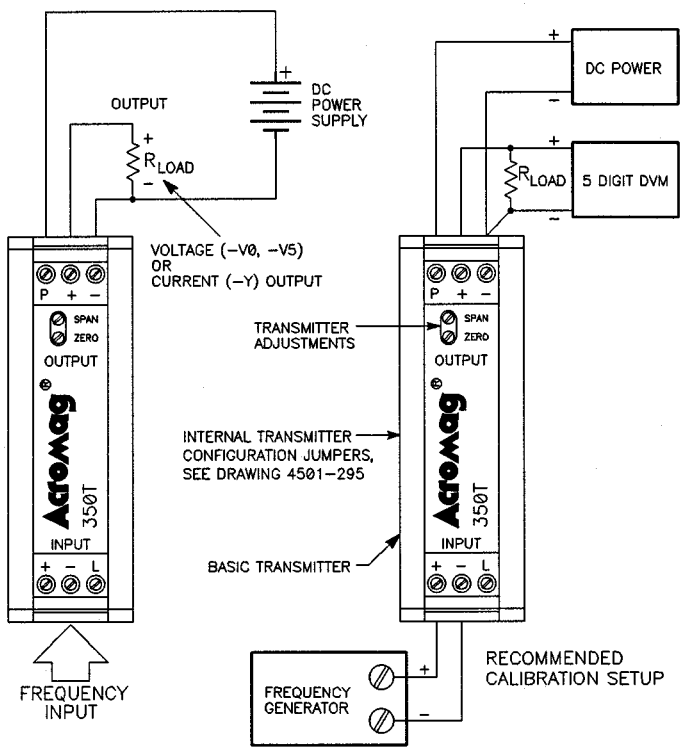
Assembly Procedure for the 350T Plastic Housing:

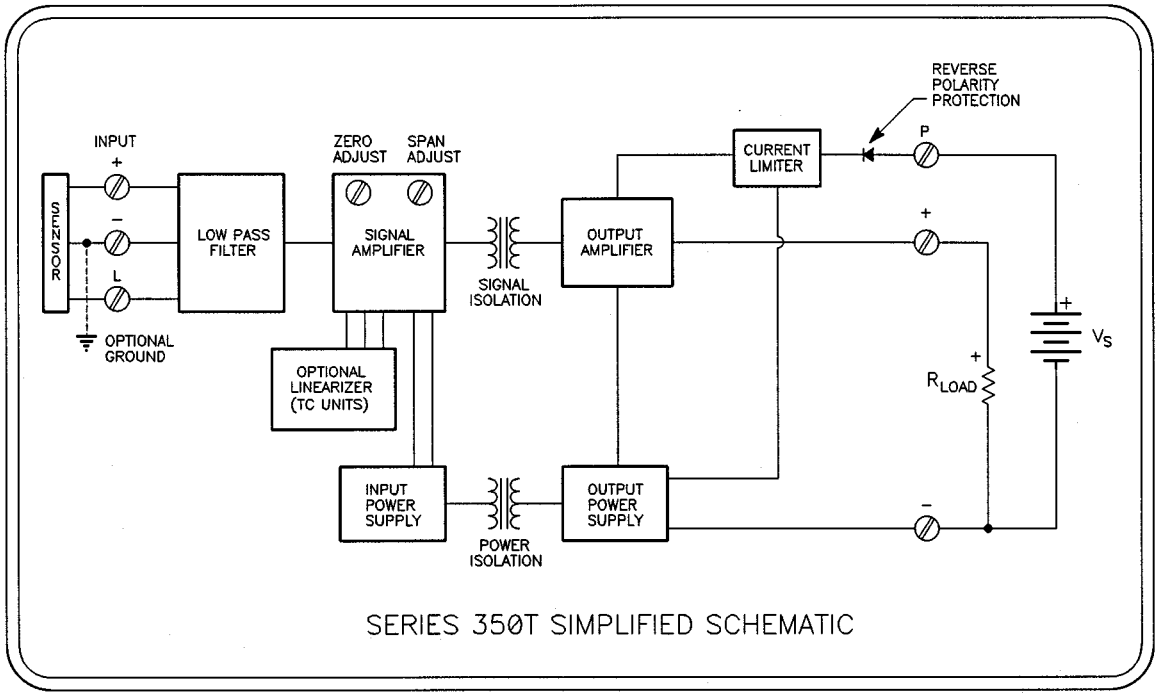
Note: The Model/Serial Number label is attached to the left plastic side.

1. Refer to drawing 4501-295 and line up the left plastic side with the board and terminal assembly. Carefully but firmly press the pieces together.
2. Before installing the right side, place the DIN rail mounting bracket around the pins at the back of the housing.
3. Line up the right side of the housing with the assembly and carefully but firmly press the pieces together.

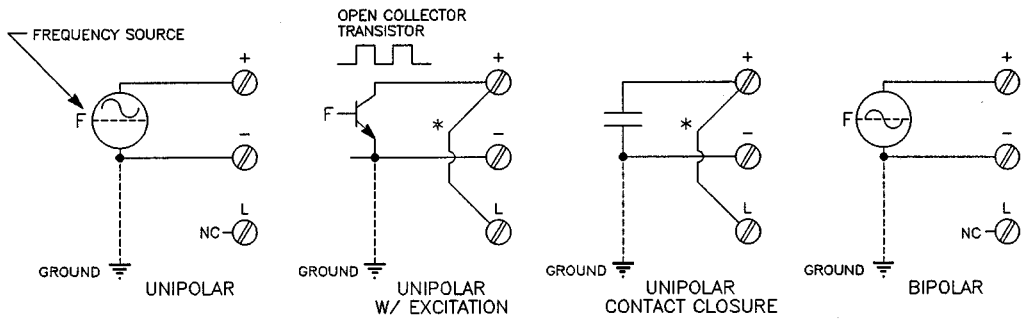
GENERAL MAINTENANCE:

The transmitter contains solid-state components and requires no maintenance except for periodic cleaning and calibration verification. When a failure is suspected, a convenient method for identifying a faulty transmitter is to exchange it with a known good unit. It is highly recommended that a non-functioning transmitter be returned to Acromag for repair, since Acromag makes use of tested and burned-in parts, and in some cases, parts that have been selected for characteristics beyond that specified by the manufacturer. Further, Acromag has automated test equipment that thoroughly checks the performance of each transmitter.





SERIES 350T SIMPLIFIED SCHEMATIC

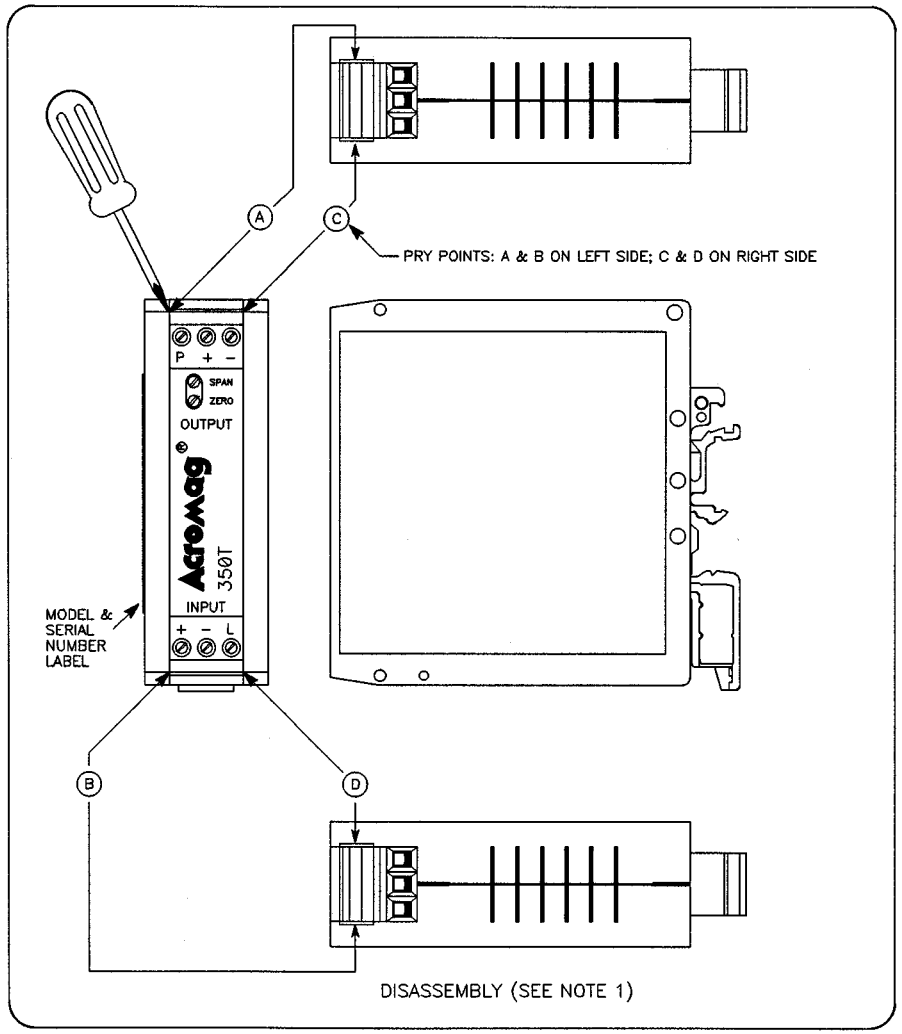


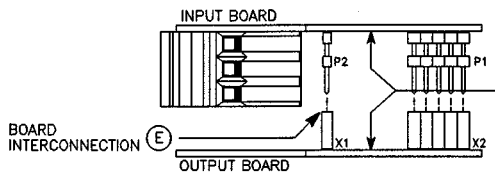
FREQUENCY TRANSMITTER INPUT CONNECTIONS

SERIES 350T FREQUENCY TRANSMITTER ELECTRICAL CONNECTIONS

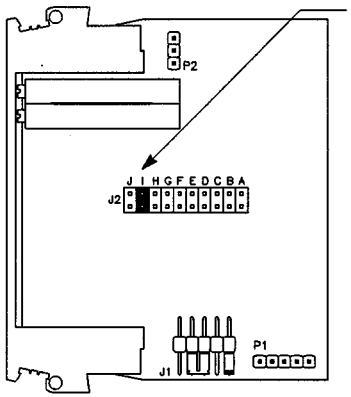
* EXCITATION IS ACTIVATED BY AN EXTERNAL JUMPER BETWEEN INPUT (+) AND (L) TERMINALS.

Acromag WIXOM, MICH.							
17-DEC-92	A	——	BC	BC			
DATE	REV	ECN	DR	ENG	CLP		
TITLE: 350T FREQ. ELECTRICAL CONNECTIONS							
D	SERIES: 350T	1 OF 1	DWG NO. 4501-294	A			





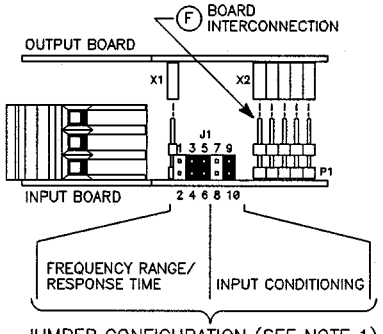
CAREFULLY SEPARATE THE TWO BOARDS FOR ACCESS TO THE RANGE SELECTION JUMPER J2



RANGE SELECTION JUMPER J2:

	J I H G F E D C B A
RANGE A: 25 TO 50 Hz	
RANGE B: 50 TO 100 Hz	
RANGE C: 100 TO 200 Hz	
RANGE D: 200 TO 400 Hz	
RANGE E: 400 TO 800 Hz	
RANGE F: 800 TO 1600 Hz	
RANGE G: 1600 TO 3200 Hz	
RANGE H: 3200 TO 6400 Hz	
* RANGE I: 6400 TO 12800 Hz	
RANGE J: 12800 TO 25600 Hz	

* Example Configuration – Range I, 0 TO 12,800 Hz



JUMPER CONFIGURATION (SEE NOTE 1)

FREQUENCY RANGE/ RESPONSE TIME SELECTION (TO 98%)

1 3 5 / 2 4 6 — FILTER 1 – 8.0 SECOND RESPONSE FREQUENCY RANGES A THROUGH J PIN 1 TO 3 AND PIN 2 TO 4

1 3 5 / 2 4 6 — FILTER 2 – 5.0 SECOND RESPONSE FREQUENCY RANGES C THROUGH J PIN 1 TO 3 AND PIN 4 TO 6

* 1 3 5 / 2 4 6 — FILTER 3 – 0.4 SECOND RESPONSE FREQUENCY RANGES D THROUGH J PIN 3 TO 5 AND PIN 4 TO 6

INPUT CONDITIONING

7 9 / 8 10 — UNIPOLAR W/ 1.5V DC THRESHOLD

* 7 9 / 8 10 — BIPOLAR (ZERO CROSSING) W/ 0V DC THRESHOLD

* Example Configuration: Filter 3, 0.4 Second Response; Bipolar Input.

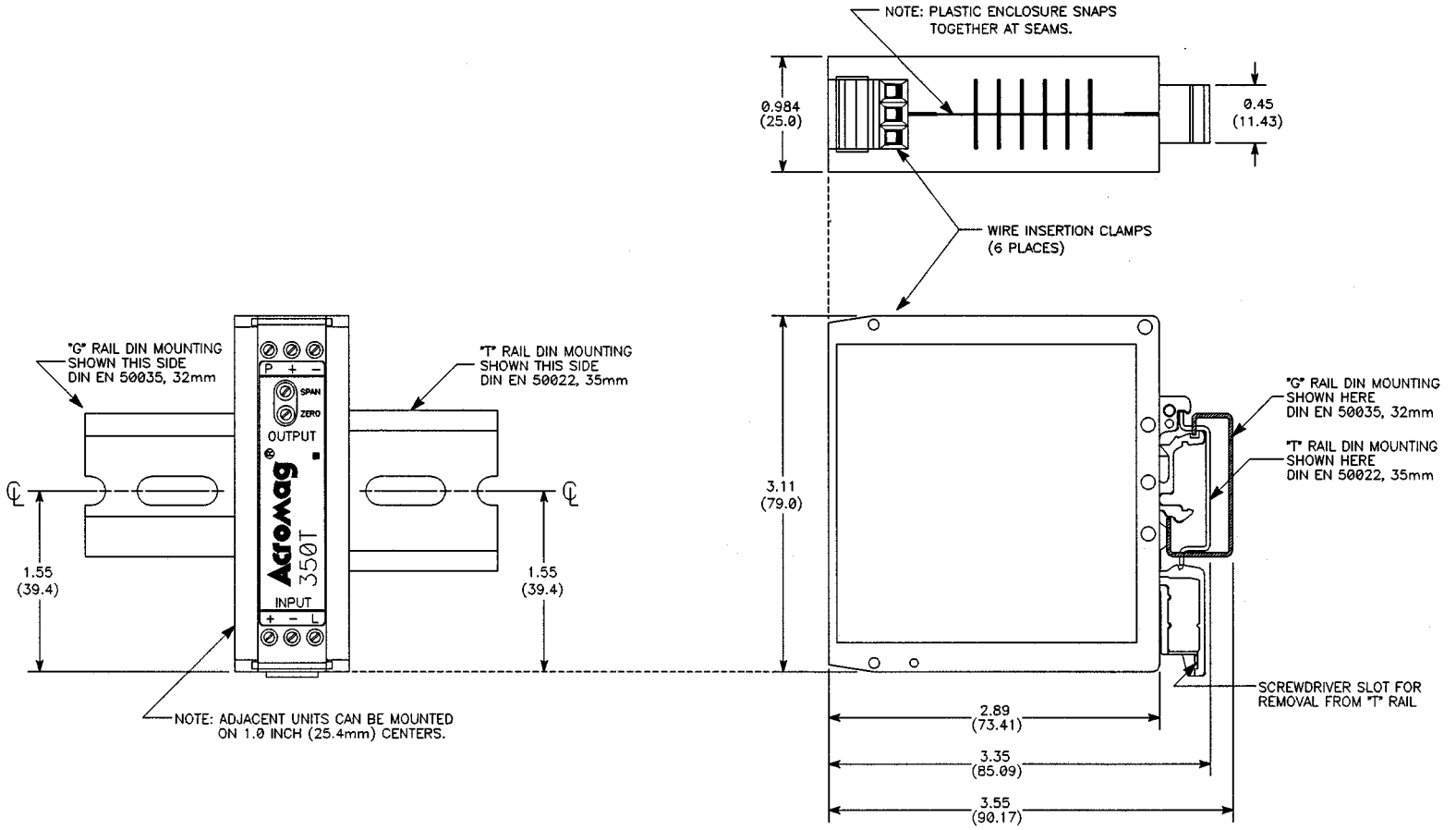
NOTE: 1. REFER TO THE CALIBRATION SECTION OF THE MANUAL FOR DETAILED INSTRUCTIONS.

SERIES 350T FREQUENCY JUMPER CONFIGURATION

Acromag WIXOM, MICH.	DATE	REV	ECN	DR	ENG	CLP
	18-DEC-92	A		BC	BC	

TITLE: 350T FREQ. JUMPER CONFIGURATION

SIZE	SERIES		DWG NO.	REV
D	350T	1 OF 1	4501-295	A



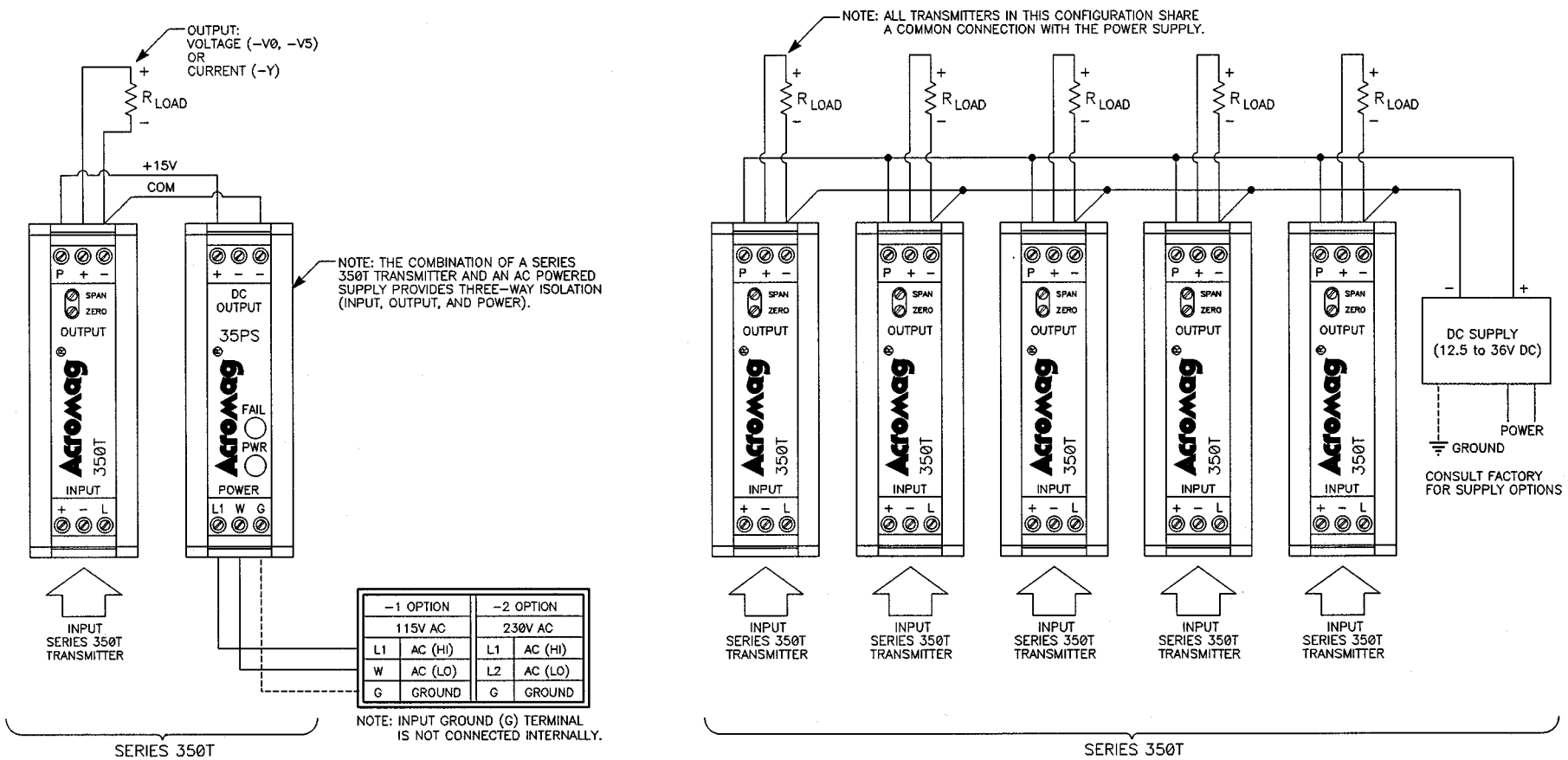
ENCLOSURE DIMENSIONS FOR DIN RAIL MOUNTING

NOTE: ALL DIMENSIONS ARE IN INCHES (MILLIMETERS).

Acromag WIXOM, MICH.	DATE	REV	ECN	DR	ENG	CLP
	12-FEB-93	B	93801	BC	BC	TH
	27-JAN-93	A	———	BC	BC	

TITLE: 350T HOUSING: DIN RAIL MOUNT

SIZE	SERIES		DWG NO.	REV
D	350T	1 OF 1	4501-252	B



POWER SUPPLY CONFIGURATIONS

Acromag WIXOM, MICH.							
	11–JAN–93	A		BC	BC		
	DATE	REV	ECN	DR	ENG	CLP	
TITLE: ELECTRICAL CONNECTIONS							
D	SERIES: 350T	1 of 1	DWG NO. 4501–254	A	REV		