



IM-533 Rev E
Date: Nov. 8, 2000
By: Engineering Dept.

**INSTALLATION AND OPERATING INSTRUCTIONS
FOR
ST-4100 SERIES AC LINE-POWERED TRANSMITTERS**

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I. Description

1. General

The ac powered transmitter series is designed to supply a 4 to 20 mA dc signal proportional to a potentiometer input. The ac powered transmitter series is powered by ac line voltage and is completely isolated from the output. The compact design is ideal for small space requirements such as the PF/PT-1000 and PF/PT-1300 series position sensors, but can be installed anywhere near the potentiometer. The ST-4100 series are available with a terminal strip and mounting plate or pigtail leads for electrical connections.

The ST-4110 is rated for 120 Vac input and the ST-4120 for 240 Vac input. Both ac powered transmitters require a 1000 ohm potentiometer and can drive up to a 600 ohm load.

2. Specifications

1. Electrical

Input Power :

ST-4110 (EC-10714)
120 Vac, 50/60 Hz, + 10%, 2W
ST-4120 (EC-10715)
240 Vac, 50/60 Hz, + 10%, 2W

Isolation: 1500 V rms
Signal Input: 1000 ohm potentiometer,
1W (min.), +20%, single or
multiturn, minimum of 60%
pot travel required
Signal Output: 4 to 20 mA dc, adjustable
Maximum Output: (+20%) 25 mA dc
Output Ripple: Less than 20 mVpp
Load regulation: <.05%
Line regulation: <.01%
Linearity regulation: <.1% pot input
Sensitivity: dependent upon type of pot
Load: 0 to 600 ohms
Adjustments: Zero and Span, 20 turn
Auxiliary Outputs: +15Vdc – 25mA max.
-15Vdc – 25mA max.
+5Vdc – 25mA max.

2. Mechanical

Weight: 8 oz (227g); 16oz (454g) with base
Dimensions: See installation diagram
Electrical connections: wire, insulated, 12
in, 22 AWG; or 10
position terminal
strip
Mounting position: Any

3. Environmental

Operating Temp: 0 to 75 C (32 to 167° F)
Relative Humidity: to 95% (non-
condensating)

II. Installation

1. Mounting and Wiring
The ac powered transmitters mounting and overall dimensions are shown on pages 4-5.
2. Fusing
No fusing is required for either one of the ac powered transmitters due to the very low power requirements, unless local electric codes require such protection.
3. Start-Up and Calibration
 1. Install the blue, white, and yellow leads to the potentiometer.
NOTE: For increasing current signal output, potentiometer resistance must increase between the blue and white leads.
 2. Connect the load to the red (+) and the black (-) leads.
 3. Connect the proper input power to the black leads for ST-4110 (120 Vac) or the brown leads for the ST-4120 (240 Vac).

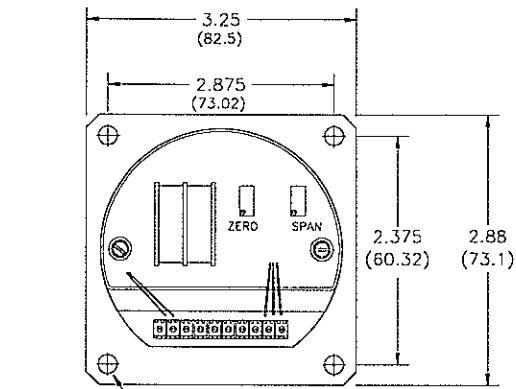
To calibrate do the following:

1. Move the potentiometer to minimum signal position
NOTE: The resistance should be approximately 50 ohms between blue and white leads.
2. Adjust the Zero trim potentiometer until the output is 4 mA.
3. Move the potentiometer to the maximum signal position.
4. Adjust the Span trim potentiometer for 20 mA output.

NOTE: It may be necessary to repeat these steps until interaction no longer occurs. If output signal does not change, or no output is present, refer to the troubleshooting guide.

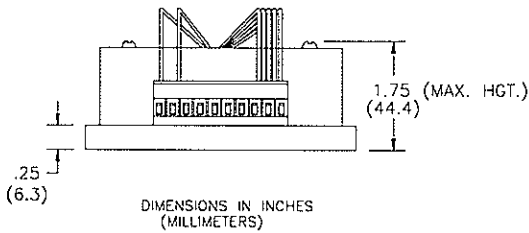
III. Troubleshooting

PROBLEM	POSSIBLE CAUSE	REMEDY
No Output Current	A. Input power is not connected. B. Load is not connected. C. Broken Leads D. Transmitter is defective	A. Connect the input power. B. Connect the load. C. Splice the wire or replace the unit. D. Replace the transmitter
Low Current Output	A. Out of adjustment B. Broken potentiometer wires C. Defective potentiometer D. Load is too large	A. Adjust per specifications. B. Splice the wires or replace the unit. C. Replace the potentiometer. D. Reduce the load below 600 ohms
Current loop does not go to 20 mA	A. Load is too large. B. Potentiometer range is too small	A. Reduce the load below 600 ohms B. Increase the potentiometer signal range
Unit stays at or above 20 mA	A. Unit is defective B. No potentiometer input	A. Replace the unit B. Connect the potentiometer
Cannot adjust the low end to 4 mA	A. Minimum potentiometer resistance is too large	A. Set the potentiometer to 50 ohms at the low end.

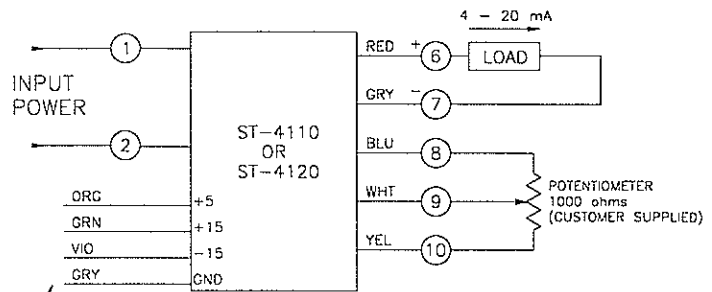


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MOUNTING HOLES
(4 PLACES)

INDIVIDUALLY CAP UNUSED
WIRES FROM ST-4100



INSTALLATION WIRING



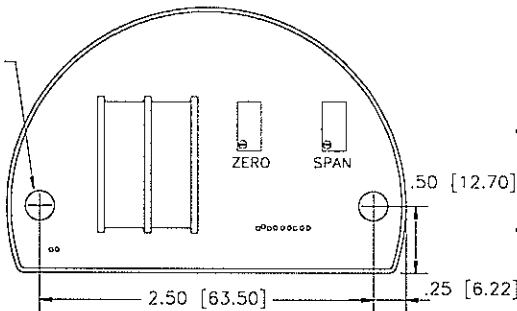
NOTES:

INPUT POWER: THE ST-4110 IS RATED AT
120 Vac 50/60 Hz,
SINGLE PHASE, (BLACK LEADS).
THE ST-4120 IS RATED AT
240 Vac 50/60 Hz,
SINGLE PHASE, (BROWN LEADS).

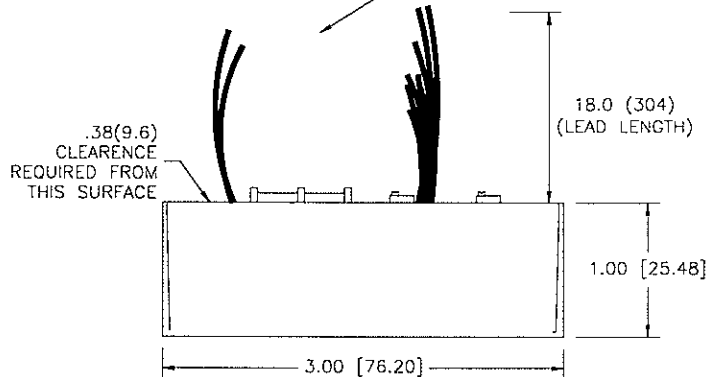
OUTPUT SIGNAL: AN INCREASE IN RESISTANCE AS
MEASURED BETWEEN TERMINAL 8
(BLUE WIRE) AND TERMINAL 9
(WHITE WIRE) WILL RESULT IN AN
INCREASING OUTPUT SIGNAL.
MAXIMUM OUTPUT LOAD IS 600 OHMS.

DIMENSIONS IN INCHES
(MILLIMETERS)

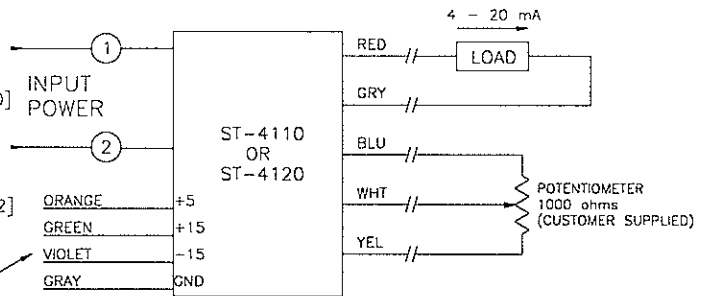
.21(5.3) DIA
MOUNTING HOLE
(2 PLACES)



INDIVIDUALLY CAP UNUSED
WIRES FROM ST-4100



INSTALLATION WIRING



NOTES:

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120 Vac 50/60 Hz,
SINGLE PHASE, (BLACK LEADS).
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IM-0533 Revision Sheet

Rev	Date	Description
A	4/10/86	Initial Release
B		
C	4/19/95	Reformatted
D	1/20/1999	Changed page 5 Drawing to reflect number changes.
E	11/8/00	Added auxiliary outputs and fuse protection information