

INSTALLATION OF PRESSURE TRANSMITTERS SERIES: T10, T20, T30 AND T40

NOTE: Each transmitter is calibrated in the vertical position. For maximum accuracy, re-zero the transmitter if it is mounted in other than the vertical position. It is not necessary to respin the instrument.

The Modus differential pressure transmitter is suitable for clean air or inert gas applications. If dust is present, a small in-line filter is recommended to insure long, trouble-free operation. The normal operating temperature range is from 0°C to 45°C (32°F to 115°F), and the normal humidity range from 10% to 90% R.H.

Air connections are by means of 3/16" (4.75mm) barbed fittings suitable for 1/4" O.D. polyethylene tubing (6mm), 1/8" I.D. Tygon or polyurethane tubing (3 - 4mm).
The two mounting holes are 0.19" (4.8mm) in diameter and are suitable for #8 or #10 mounting screws.
Electrical connections are by means of 3/8" terminal strips with #6 screws.

Care should be taken not to exceed the maximum overpressure.

Maximum Safe Momentary Overpressure Table		
Range	Overpressure	
	English	Metric
0.1" to 1.0" H ₂ O	25 to 250 Pa	8" H ₂ O 2 kPa
2.0" to 4" H ₂ O	0.5 to 1.00 kPa	1 PSID 6.9 kPa
5.0" to 10.0" H ₂ O	1.25 to 2.5 kPa	5 PSID 35 kPa
11" H ₂ O to 5 PSID	2.7 to 35 kPa	20 PSID 140 kPa
6 PSID to 15 PSID	40 to 100 kPa	30 PSID 200 kPa
16 PSID to 30 PSID	110 to 200 kPa	60 PSID 420 kPa

Zero and Span Adjustment

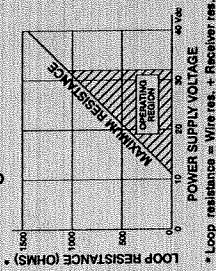
The transmitter may be re-zeroed if overpressure occurs and a permanent drift is noted.
Vent both pressure ports to atmosphere before re-zeroing the transmitter.

A. Series T10 or T20- Connect a voltmeter across the signal terminals and adjust the zero potentiometer until the voltage is equal to or less than 0.15 Volts. Consult the Data Sheet for the appropriate output voltage at zero pressure if the transmitter is bidirectional.

B. Series T30 or T40- Connect an ammeter in the loop and adjust the zero potentiometer R2 until the ammeter reads 4.00mA. Consult the Data Sheet for the appropriate output voltage at zero pressure if the transmitter is bidirectional.

Should re-spanning of the transmitter become necessary in the field a manometer or gage of satisfactory accuracy must be used.

Figure 4



The standard transmitter is current-limited to about 3.85 mA at the low end and approximately 27 mA at the high end. An internal diode protects the transmitter against reversal of polarity (there is no current flowing through the loop if the leads are reversed).

T40 PRESSURE TRANSMITTER

This transmitter may be powered with a 24 Vac, 120 Vac or 240 Vac input voltage (depending on the model number) and supplies a 4-20 mA current to a loop. No external DC supply is needed to power the loop.

- T40-XXXXCXXX is 24 Vac (20-30 Vac)
- T40-XXXDXXX is 120 Vac (100-140 Vac)
- T40-XXXEXXX is 240 Vac (200-260 Vac)

Power consumption is about 1 Watt.

The supply voltage to the loop is 15 Volts and the current is limited to approximately 27 mA, should the maximum pressure be exceeded. Receiver and wire resistances can not exceed 600 Ohms for full output of 20 mA.

The power supply leads are connected to the two leftmost terminals (terminals 1 and 2) on the terminal strip (see Figure 5). The output signal is accessed across terminals 3 and 4, the rightmost terminals, labeled "+" and "-" (see Figure 5). The output terminals are transformer-isolated from the power supply. The output current is totally floating and either the "+" or "-" terminal may be grounded.

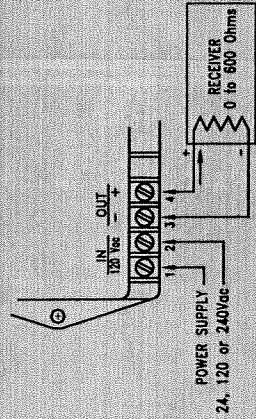


Figure 5

A. Series T10 or T20- With the voltmeter connected across the signal terminals (see Figure 1 or Figure 2, respectively), apply full pressure to the instrument and adjust the Span potentiometer R1, until the output reading is 5.00V (if 0-5V Span) or 10.00V (if 0-10V Span).

B. Series T30 or T40- With an ammeter connected in the loop (see Figure 3 or Figure 5, respectively), apply full pressure to the instrument and adjust the Span potentiometer R1, until the output reading is 20.00 mA.

Consult the Data Sheet for appropriate output voltage or current at zero pressure if the transmitter is bidirectional. Check the zero reading again for accuracy, and repeat the above steps if necessary.

T10 PRESSURE TRANSMITTER

This transmitter is powered by an external power supply between 11 and 32 Vdc, the current drawn is less than 8.5 mA. The output voltage is limited to about 5.6V for the 0-5V transmitter and about 10.6V for the 0-10V transmitter when the applied pressure exceeds the range of the transmitter. Short-circuiting the signal terminals will not damage the transmitter.

- There are three terminals for electrical connections (see Fig. 1)
1. The left terminal labeled "COM" is the negative terminal common to both the power supply and the output signal.
 2. The middle terminal labeled "Vsup" is connected to the positive power supply lead.
 3. The right terminal labeled "Vout" is the positive signal voltage output. The current (either sinking or sourcing) through this terminal should be limited to about 3.5 mA. Linearity will suffer if this current is exceeded. The output is current-limited to protect against short circuits and also voltage-limited to about 5.6 Volts (or 10.6V), should the maximum pressure be exceeded.

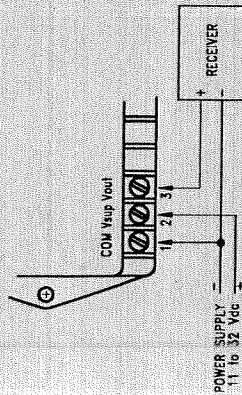


Figure 1

CAUTION: REVERSAL OF THE "Vdc SUPPLY" AND "SIGNAL OUT" MAY RESULT IN PERMANENT DAMAGE TO THE TRANSMITTER.

T20 PRESSURE TRANSMITTER

This transmitter is powered with 24 Vac, 120 Vac or 240 Vac (depending on the model number) and supplies a voltage output:

- T20-XXXXXXXX is 24 Vac (20-30 Vac)
- T20-XXXXXXXX is 120 Vac (100-140 Vac)
- T20-XXXXXXXX is 240 Vac (200-260 Vac)

Power consumption is under 1.5 Watt

The power supply leads are connected to the two leftmost terminals (terminals 1 and 2) on the terminal strip (see Figure 2). The output signal is accessed across terminals 3 and 4, the rightmost terminals, labeled "−" and "+" (see Figure 2). The signal output is transformer-isolated from the power supply. The output signal is totally floating and either the "−" or the "+" terminal may be grounded.

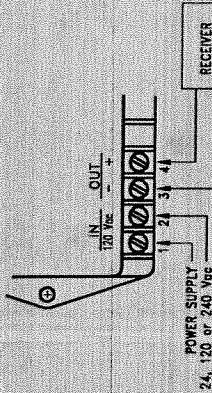


Figure 2

The output current, whether sinking or sourcing, should be limited to about 3.5 mA as connected to the + terminal. Linearity will suffer if this current is exceeded. The output voltage is limited to about 5.6V for the 0-5V transmitter and about 10.6V for the 0-10V transmitter when the applied pressure exceeds the range of the transmitter. Short-circuiting the signal terminals will not damage the transmitter.

T30 PRESSURE TRANSMITTER

This is a 2-wire, 4-20 mA pressure transmitter which requires an external DC power supply of 11 to 32 Vdc to power the loop. The supply voltage should not exceed 32 Vdc (see Figure 3).

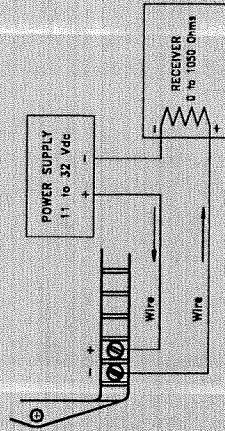


Figure 3

The following graph (see Figure 4) illustrates the maximum wire and receiver resistances as a function of supply voltage. For example: the total loop resistance should not exceed 650 Ohms for a typical supply voltage of 24 Vdc.