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ECT 302-3
Economy 3 Way Isolated Converter

DC Powered Instruction Manual

Introduction:

These instructions refer to the above model. Supplementary sheets are attached if the unit has special options or features. For detailed specifications, see page 4 or refer to the Data Bulletin. All ADTECH instruments are factory calibrated and supplied with a label detailing the calibration. Adjustments are normally not necessary. A simple check should be performed to verify calibration before installation to ensure it matches the field requirement.

General Description:

The ADTECH ECT 302-3 is an Economy Isolated Signal Transmitter that accepts process input signals such as the 4-20 ma dc and converts into a standard control signal output such as 4-20 ma dc.

The input, output and power supply are mutually isolated by 600 vac or 1000 vdc peak minimum. The output is a true current source and provides process signal of 4-20 ma dc. The ECT 302-3 is powered by 24 vdc.

1.0 INSTALLATION

The instrument is supplied in a DIN rail mount general purpose enclosure as standard. Installation area / location must agree with the supplied instruments including operating temperature and ambient conditions.

Many optional mounting configurations are provided as shown in section 10 on page 4.

Mounting
Refer to the appropriate outline drawing for mounting and clearance dimensions. The instrument is surface mounted by means of DIN rails types G or T, 32mm and 35mm respectively.

Electrical Connections

The wire used to connect the instrument to the control system I/O should be twisted pair(s) and sized according to normal practics. Shielded cable is normally not necessary (if used, the shield must be grounded at the input negative of the Adtech instrument and left floating at the sending side).

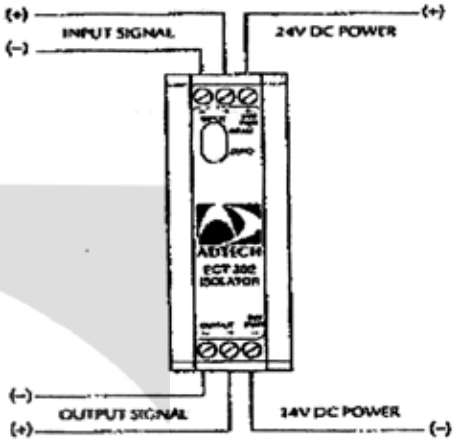
A 6 position compression terminal block is provided for I/O and power connection. A housing ground terminal is not required due to non-metallic housing.

Controls

Multiturn ZERO and SPAN controls are provided to calibrate the instrument. The multiturn controls are accessible through the instrument front panel and are clearly marked for ease of access.

2.0 MAINTENANCE

These instruments are electronic and require no maintenance except periodic cleaning and calibration verification. If the unit appears to be mis-operating it should be checked as installed per section 4.0-5.0. MOST problems are traced to field wiring and/or associated circuits. If the problem appears to be with the instrument , proceed to sections 5.0.



3.0 CONNECTIONS

Standard connections are shown above and on the instrument face plate and also Data Bulletin.

4.0 SET UP AND CALIBRATION

All ADTECH units are factory calibrated per your instructions. Usually, a complete recalibration is not required unless it is required to change input types, output types or the range of the unit. Most calibrations will only require a ZERO and SPAN adjustment.

The calibration process is broken into three separate steps as follows:

4.1 INPUT CONFIGURATION

The ADTECH Model ECT 302-3 Isolated Voltage / Current Transmitter accepts both current and voltage inputs. IMPORTANT: refer to the connection diagram for the appropriate connections to the unit.

Use Input Table on page 3 to change the input range.

4.2 OUTPUT CONFIGURATION

To change the output see page 3. From 4-20 mA to 1-5 VDC add R11 from 1-5 VDC to 4-20 mA delete R11.

4.3 CALIBRATION

To perform a calibration check or re-calibration of the instrument follow this procedure:

A. Make sure the unit I/O wiring is properly connected and that the correct power source per the label is also connected. The instrument must be at normal power for a minimum of 2 minutes before proceeding to B.

B. The input signal source(s) must be adjustable from 0 to 100% in steps of 10% or at least 25%. The source(s) should be either pre calibrated or an accurate meter must be used to monitor the input(s).

C. The output may be monitored either as a direct voltage for a voltage output signal or as a current that can be represented as a voltage across a resistor shunt for a current output signal.

D. Set the input source to minimum input value and adjust the multi turn potentiometer marked ZERO to provide the minimum calibrated output (e.g.) 4.00 ma ∓ 0.01 ma dc. Note: For zero based output it is better to set input at 10% and adjust for 10% output for ZERO adjustment.

E. Set the input source to maximum value and adjust the multi turn potentiometer marked SPAN to provide the maximum calibrated output (e.g.) 20.00 ma ∓ 0.01 ma dc.

F. Repeat steps D and E until readings are within calibration.

G. The instrument should now be checked at 25-50-75% of span minimum.

H. This completes the calibration.

5.0 FIELD TROUBLESHOOTING GUIDE

This section offers a simple, first level troubleshooting aid for an apparent instrument malfunction.

SYMPTOM	CORRECTIVE ACTION
No Output	1. Check the input and output connections carefully.
	2. Check that the power supply polarity is correct and that power is present on the instrument terminals.
	3. Check that the input source(s) is correct and that it changes magnitude between zero and full scale values when so adjusted.
	4. If the output is a current signal (4-20 ma etc.) Make sure the output loop is complete and that the correct meter range is selected.
	All external checks are complete. Problem seems to be internal.

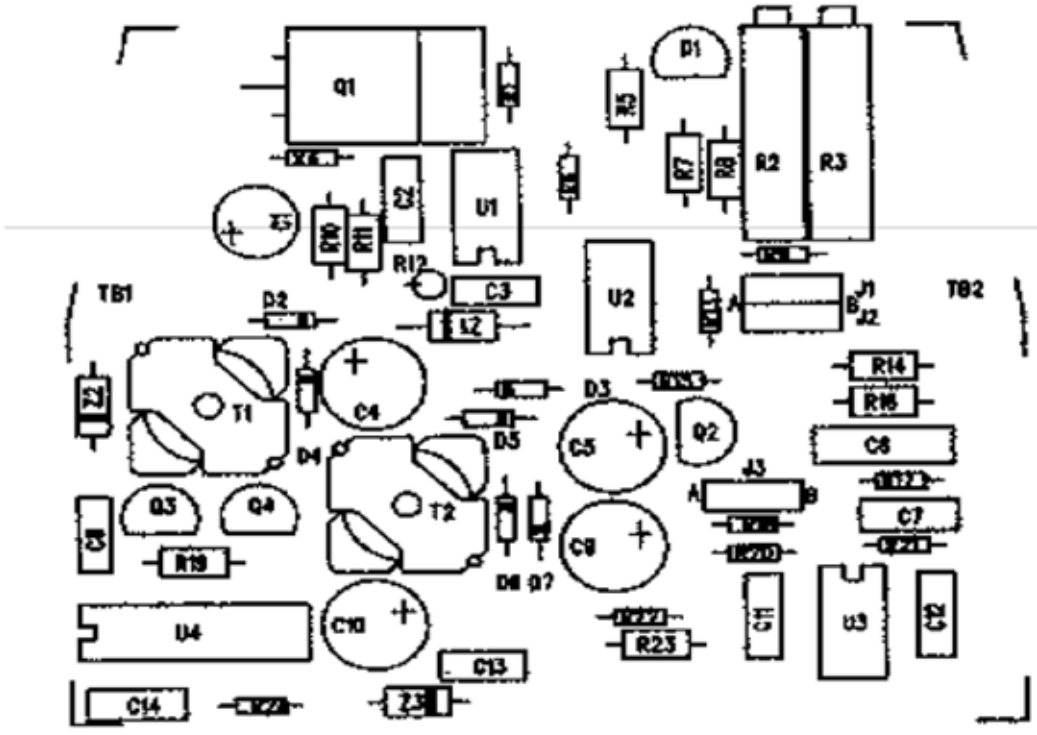
If the problem seems to be internal, replace the instrument with a spare and return the defective instrument to ADTECH for prompt check out and repair. To avoid unnecessary delays always send a cover note with name and telephone number of the contact and return address. Along with a brief description of what the unit is doing when it fails.

6.0 TABLES, PCB LAYOUT

INPUT TABLE

INPUT	J1	J2	J3
4-20 mA dc	B	B	A
0-20 mA dc	B	B	B
1-5 vdc	A	A	A
0-5 vdc	A	A	B

For 1-5 vdc output **R11= 250Ω 1/4 W M.F**
For 4-20 mA output **R11=OUT**



COMPONENT ASSEMBLY

7.0 SPECIFICATIONS

INPUT SIGNALS - STANDARD

a. 4-20 mA dc (Zin 50 ohm)
b. 0-20 mA dc (Z in 50 ohm)
c. 0-5 VDC (Z in 1 meg ohm min)
d. 1-5 VDC (Z in 1 meg ohm min)

OUTPUT SIGNALS- STANDARD

a. 4-20 mA dc 900 ohms max. load
b. 1-5 VDC 250 KΩ min. load

PERFORMANCE

a. **Calibrated Accuracy**: ∓0.1%
b. **Linearity**: ∓ 0.1% maximum, ∓ 0.04% typical
c. **Repeatability**: ∓ 0.05% maximum
d. **Temperature Stability**: ∓0.01% / ^{O}F maximum
∓0.004% / ^{O}F typical
e. **Load Effect :** ∓ 0.01% zero to full load
f. **Output Ripple**: 10 mv P/P typical
g. **Response Time**: 150 milliseconds (2.3 Hz band width)
h. **Temperature Range**: 0^{0} to 140^{o}F (-18^{o} t60^{o}C)
i. **Power Supply Effect:** ∓ 0.05% for a ∓ 10% power variation
j. **Common Mode Rejection:** 100 db @ 60 Hz
k. **Isolation:** Input/ output/power 600 vac, 50/60 Hz, 1000 vdc peak minimum

Note: All accuracies are given as a percentage of span

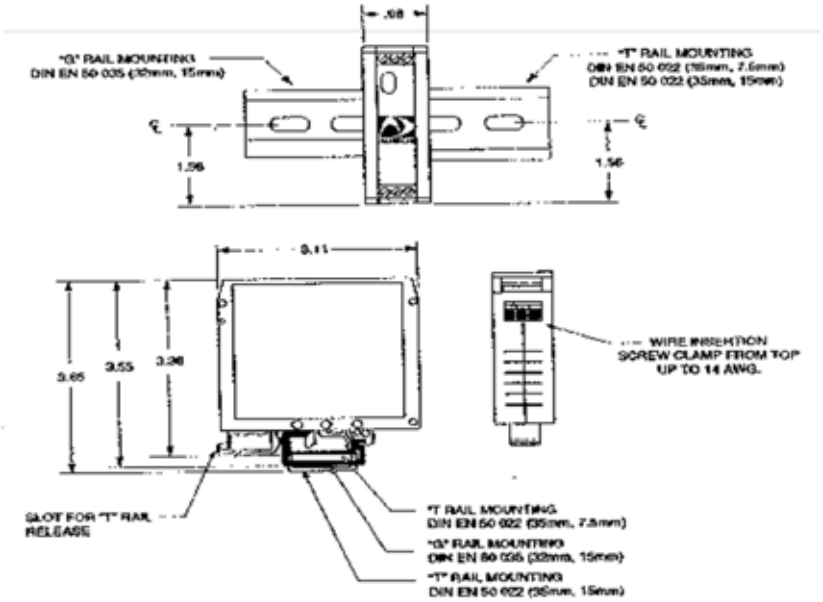
POWER

a. 24 vdc: γ 10% , 1 watt (standard)

HOUSINGS

See Section 8.0

8.0 OUTLINE & MOUNTING



OPTIONAL MOUNTINGS-See separate drawings provided or request from the factory

Option	**H-15D**	**Explosion Proof, Class 1, Group B, C & D**
Option	**H-25**	**Snap Track Mounting (N/C (Specify)**
Option	**H-26**	**Surface Mounting N/C (Specify)**
Option	**H-27**	**NEMA 4 Enclosure**
Option	**H-28**	**T35 DIN T rail 2 ft. Long**
Option	**H-28**	**T32 DIN G rail 2 ft. Longw**