

DR4380A DC INPUT FIELD RANGEABLE ISOLATED TRANSMITTER DIN RAIL MOUNT



DESCRIPTION

The DR4380A provides an isolated DC voltage or current output proportional to a DC voltage or current input. The input and output can be ranged in the field utilizing slide DIP switches. Zero and Span controls provide $\pm 26\%$ adjustability.

The DR4380A provides 3 way isolation between input, output, and power source. The isolation makes the product useful for measuring input signals with high common mode voltages and for breaking ground connections to eliminate ground loops. Its wide choice of inputs and outputs allow signal conversion and scaling as well.

The screw terminal blocks plug into the case, which allows easy wiring and removal of products.

All of the DR Series of products provide transient protection to help eliminate damage from lightning and from other transients created on the power and signal leads.

INSTALLATION

The DR Series of products mount on standard 35 mm DIN rails. Install by hooking the top of the case's latch onto the top of the DIN rail. Then push down on the case, letting it pivot on the DIN rail. The bottom slide of the mount will snap behind the rail and secure the product. To remove, insert a screwdriver into the hole on the metal latch on the bottom of the case, and pull the latch down until it allows the front of the case to be lifted up.

CALIBRATION

The DR4380A is factory calibrated to the input and output noted on the case side label. Terminal connections are shown on the front label.

The product can be ranged in the field by selecting settings on DIP switches.

Inputs can be selected for voltages from ± 50 mV to ± 256 V and for currents from ± 1 mA to ± 100 mA.

Outputs are selectable for $-10/10$ V, $-5/5$ V, $0/10$ V, $1/5$ V, $0/5$ V, $0/1$ V, and $0/0.25$ V and for currents of $0/1$ mA, $0/20$ mA, and $4/20$ mA.

The output may also be selected for normal or reverse acting output related to the input. (ie - $0/10$ V in = $0/10$ V out (Normal) or = $10/0$ V out (Reversed).

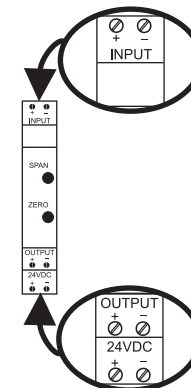
To make field adjustments to the product:

- Squeeze the two tabs that hold the case front section to the rear section and pull the case apart. The circuit board is attached to the front section and will slide out of the case.
- Use the label on the side of the case to determine switch settings and place the switches in the proper position for the desired input, output, and offset.

WARRANTY

The DR4300 Series of products carry a limited 3 year warranty. In the event of a failure due to defective material or workmanship, the unit will be repaired or replaced at no charge.

INPUT		OUTPUT	
SPAN	CURRENT	CANCEL OFFSET	CURR
VOLT	NOT USED	SUPP	NORM
	.062 V 3.2 mA	ELEV	REV
	.13 V 6.4 mA	25%	0/25 V 0/1 mA
	.25 V 13 mA	50%	0/1 V 0/4 mA
	.5 V 25 mA	75%	0/5 V 0/20 mA
	1 V 50 mA	100%	1/5 V 4/20 mA
	4 V 100 mA		0/10 V
2V	8 V		-5/5 V
	16 V		-10/10 V
	32 V		
	64 V		
	128 V		
	256 V		
DR4380A			
INPUT			
OUTPUT			
POWER			
CODE			



INPUT SETTINGS (4/20 mA input example)

SET INPUT SPAN switch - The top segment selects "CURRENT" or "VOLTAGE" input. The levels by each switch segment is the maximum span of the product for that switch selection. The minimum span is the value by the next lower switch which is 1/2 of the higher switch. The SPAN adjustment has a range of 2.2 so all of the span ranges can be overlapped for continuous coverage of the minimum to maximum settings of the switches.

Span is equal to Full Scale Input - Zero Scale Input.

For 4/20 mA Span = $20 - 4 = 16$ mA

Slide the CURRENT/VOLTAGE segment to the CURRENT position. Select the 25 mA switch segment which will cover spans from 25 mA to 12 mA.

The ZERO adjustment has a range of $\pm 26\%$ of Span. The 4 mA input is 25% of 16 mA so additional OFFSET must be introduced to insure adequate ZERO adjustment of the 4 mA input.

Each of the 25%, 50%, 75%, and, 100% switch selections generates the indicated amount of OFFSET for the input. The ELEVATED selection cancels elevated (4/20 mA, 1/5 V, etc) offsets and the SUPPRESSED selection cancels negative (-5/5V, etc) offsets.

Select the 25% offset and ELEVATED type. The ZERO adjustment will now cover the range of 0% to 50% for the 4 mA offset.

OUTPUT SETTINGS (4/20 mA example)

The CURRENT/VOLTAGE slide switch selects the type of output. Select CURRENT.

Select the level desired (4/20 mA for our example).

Slide the unit back into the pcb slots in the case until the cover latches snap into the case.

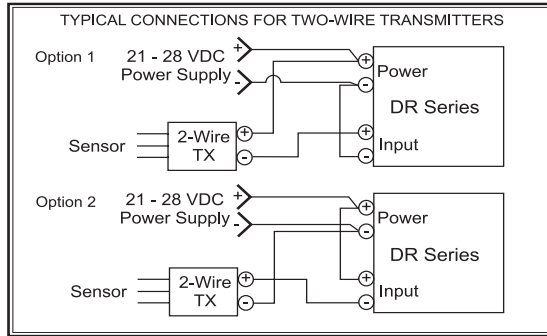
ADJUSTMENTS:

1. Connect a calibrator to the input terminals.
2. Connect an accurate voltmeter or current meter to the output terminals.
3. Apply power to the unit.
4. Set the input for its zero scale and adjust the Zero control for zero scale output.
5. Set the input for its full scale and adjust the Span control for full scale output.
6. Repeat once or twice until no further adjustment is required.
7. The side label is a write-on. Record the new setup with a pencil.

TWO-WIRE TRANSMITTER WIRING

In installations where isolation between the power supply and the input terminals is not required, the DR Series power supply can also be used to power a Two-Wire Transmitter (see drawing).

If isolation is required, a separate power supply must be used to power the Two-Wire Transmitter.



SPECIFICATIONS

INPUT RANGE

Voltage

Select any range between
 ± 50 mV to ± 256 V
 (Minimum span 50 mV)
 (Maximum span 256 V)

Current

Select any range between
 ± 1 mA to ± 100 mA, internal
 shunt
 (Minimum span 1 mA)
 (Maximum span 100 mA)

INPUT IMPEDANCE

Voltage

1 megohm

Current

Current Input 20 ohms

OUTPUT RANGE

Voltage

-10/10 V, -5/5V, 0/10 V,
 1/5 V, 0/5 V

Current

0/1 mA, 0/20 mA, 4/20 mA

BANDWIDTH

-3 dB at 3 Hz

OUTPUT RIPPLE (peak to
 peak)

<0.1% of span

ACCURACY

$\pm 0.1\%$ of span

LINEARITY

$\pm 0.05\%$ of span

COMMON MODE REJECTION

100 dB, DC to 60 Hz

ISOLATION,

OUTPUT/INPUT/POWER

>500 megohms

1000 V peak

OPERATING TEMPERATURE

14°F to 158°F/-10°C to 70°C

TEMPERATURE STABILITY

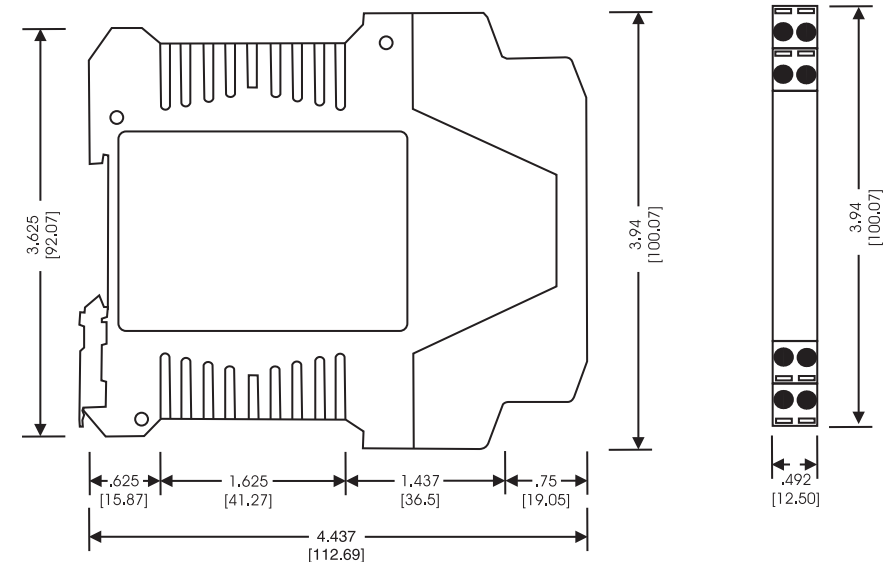
$\pm(0.01\%$ of span)/°C max

POWER

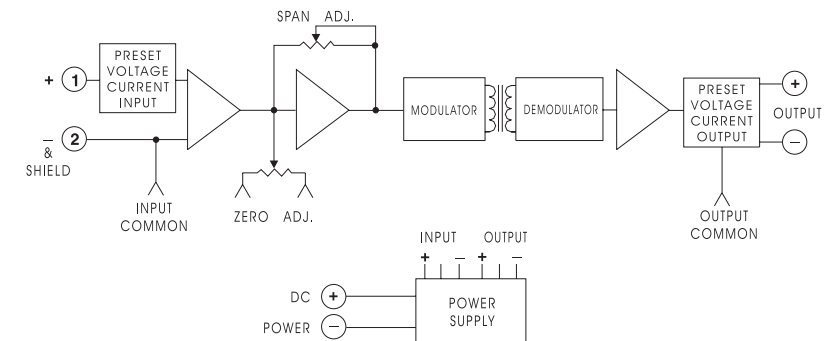
21 to 28 VDC, 50 mA max

Polarity protected

CASE DIMENSIONS INCHES [mm]



BLOCK DIAGRAM AND PIN CONNECTIONS



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