

# DEVAR Inc.

## UNIVERSAL ISOLATED SENSOR SIGNAL CONDITIONER MODEL 18-115A

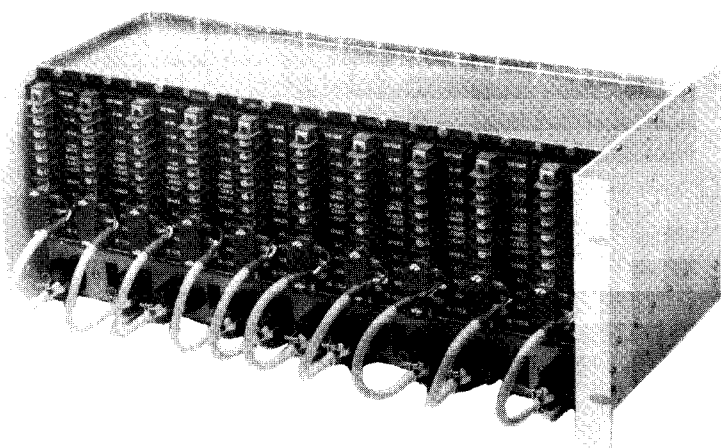
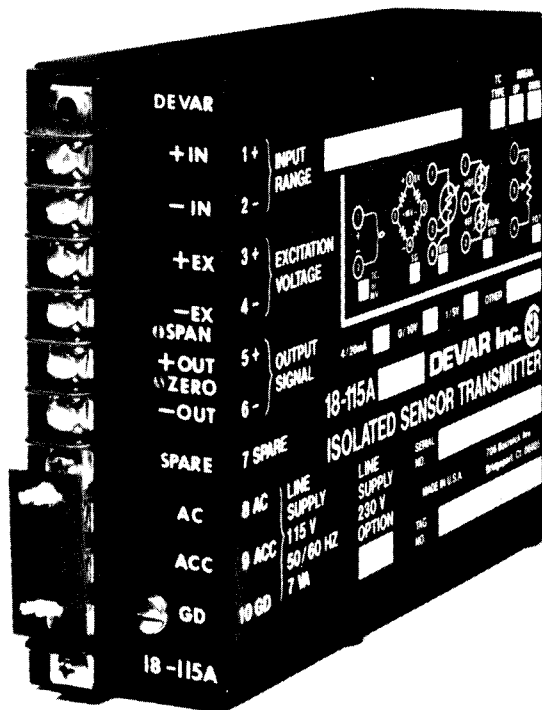
### CONNECT THESE SENSORS DIRECTLY

- \* MILLIVOLT ANALYZERS
- \* THERMOCOUPLE (ALL I.S.A. TYPES)
- \* R.T.D'S
- \* DIFFERENTIAL TEMPERATURE
- \* STRAIN GAGE
- \* LOAD CELL
- \* POTENTIOMETRIC
- \* VOLTAGE
- \* CURRENT
- \* RESISTANCE

AND PROVIDE STANDARD VOLTAGE OR CURRENT SIGNALS COMPLETELY ISOLATED TO YOUR COMPUTER, CONTROLLER OR DATA ACQUISITION SYSTEM

\*  LR 97521

CHEMICAL, POWER, LABORATORIES AND INDUSTRIAL PROCESS INDUSTRIES



RACK MOUNT 18-010R-PDP

# DEVAR Inc.

Acquiring signals from field sensors such as analyzers, temperature devices, weigh cells, positioning elements or other process loop variables may require a variety of signal conditioning units. These devices are available from many manufacturers and contain various mounting formats and power requirements.

For over 25 years Devar has been manufacturing solid state isolater/converters capable of accepting signals from mV-T/C, R.T.D., differential R.T.D. and strain gage sources. Originally encapsulated in cast epoxy type packages, these units provided exact signal reproduction in the form of voltage or current signals directly proportional to the input signal. Recognizing the need for ease of calibration in the field, a unique, patented inductive calibration technique was utilized enabling the user to change calibration by simple external wire positioning.

Today's technology of optical isolation and digital circuitry are incorporated in the new universal sensor isolator/converter. The model 18-115A will accept an input signal directly from a mV source, Thermocouple, Resistance Temperature Detector, Potentiometer, Strain Gage Transducer, Load Cell or voltage and current sources.

To calibrate, a simple circuit is provided utilizing digitally coded dip-switches. Positioning of these switches provide for spans of 2 to 126mV, and offsets up to  $\pm 63\text{mV}$  directly. Replacing components, such as resistors, when range changes are desired is not required. Other ranges up to 500VDC may be accepted via a divider input option. Utilization of this technique eliminates the need for purchasing various models.

The 18-115A features a modular packaging scheme which incorporates single unit back of panel mounting or a 10 channel, 5 $\frac{1}{4}$ " high x 19" wide rack mount. It also comes fully RFI protected and may incorporate 10 segment signal linearization as an option.

## SPECIFICATIONS

### Inputs:

- mV, T/C, Span 2 to 126mV, Offset 0 to  $\pm 63.5\text{mV}$
- T/C Type, J, K, T, R, S, E (Cold junction built-in)
- Voltage, 0 to 500VDC (Optional E-88 volt divider)
- Current, 1 to 5, 4 to 20, 10 to 50mA
- Resistance, 0 to 1000 ohms
- RTD, PT 100 ohm
- Differential RTD
- Strain Gage, Load cell;
- 10VDC @ 57mA
- Potentiometer, 50,000 ohms max.

### Calibration Adjustments

**Internal Dip Style Switches** – Adjust Span, Offset Range, Upscale/Downscale T/C Break, Positive or Negative Offset Selection.

**Multiturn Trimmers** – Externally Accessible at Terminations for Fine Tuning of Span & Offset.

### Outputs:

**Voltage and Min. Load**  
0 to 10VDC @ 1K ohms  
0 to 5VDC @ 500 ohms  
1 to 5VDC @ 500 ohms

**Current and Max. Load**  
1 to 5mA @ 3K ohms  
4 to 20mA @ 750 ohms  
10 to 50mA @ 300 ohms  
0 to 20mA @ 750 ohms

**Load Effect:**  $\pm .01\%$  Span

**Temperature Coefficient of Output:**  $0.01\%/^{\circ}\text{C}$

**Ambient Temperature Range:**  $-20^{\circ}\text{F}$  to  $125^{\circ}\text{F}$   
( $-29^{\circ}\text{C}$  to  $50^{\circ}\text{C}$ )

**Ripple:** 0.1% F.S.

**Isolation:** Input/Output 500VDC via optical coupling.  
Transformer isolated power circuits for input, output and excitation supplies.

**Input Impedance:** 10 meg ohm min.

**Leakage Resistance:** Greater than 20,000 meg ohm @ 200VDC.

**Source Current:** 10nA Typ, 28nA max.

**Accuracy:** 0.1%

**Common Mode:** 160db min @ 60HZ

**Band Width:** 1 HZ

**Weight:** 1 lb.

**Power:** 117VAC 50/60 HZ 7 watts  
230VAC -Option E71  
24VDC -Option E92

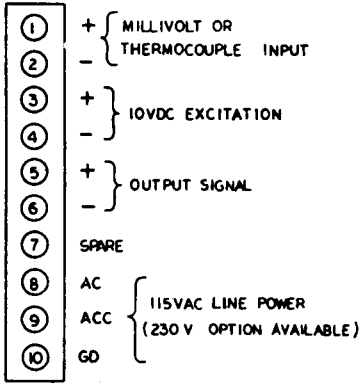
**Supply Regulation:**  $.01\%/V$  (Between 105 and 125VAC)

**Excitation Supply:** 10VDC @ 57 mA

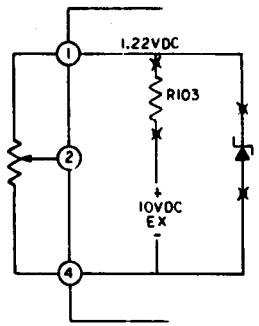
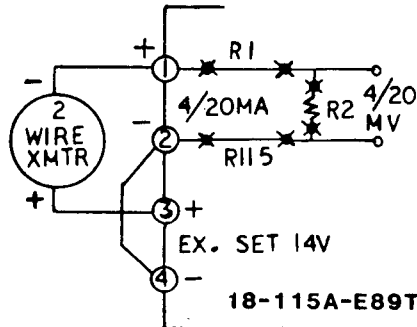
**Linearization Option:** Provides 10 to 1 improvement of non-linear signal

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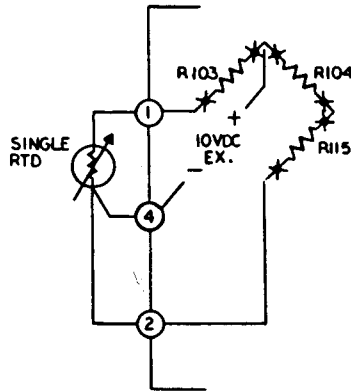
## ELECTRICAL CONNECTIONS



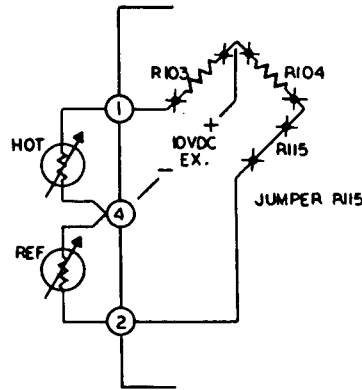
MILLIVOLT  
THERMOCOUPLE  
VOLTAGE  
CURRENT



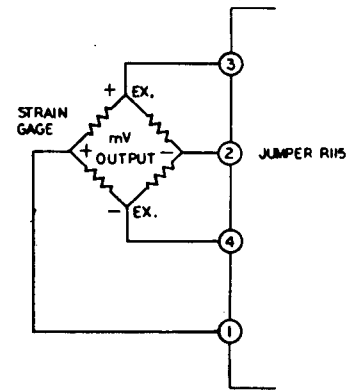
POTENTIOMETER



R.T.D.  
VARIABLE  
RESISTANCE

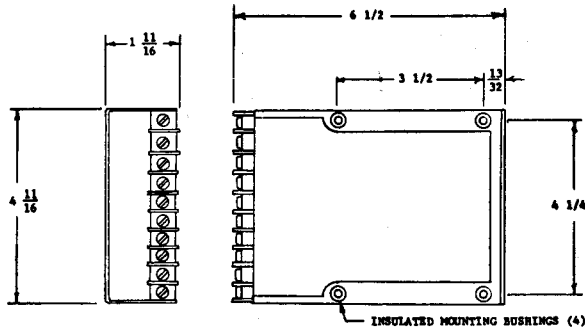


DIFFERENTIAL R.T.D.



STRAIN GAGE  
LOAD CELL

## MECHANICAL DIMENSIONS



### Options:

- E114 HI level input signal.  
Multiply span & zero switch settings by 10.  
(Ex. span x 10 = 20 to 1260 mV)  
(zero x 10 = 0 to ± 635 mV)
- E139 HI input impedance.  
(source current, 1 PICO AMP typ.)

-E2510 Fast Response (12 Hz)

## HOW TO ORDER MODEL 18-115A

### Input Signal \* (Code)

Millivolt	-mV
Thermocouple	-TC
Resistance	-R
RTD	-RD
Strain Gage Load Cell	-SG
Potentiometer	-POT
Output Circuit	
Transient Protection	-E73
Voltage	-E88
Current	-E89
Current with 24 VDC	-E89T

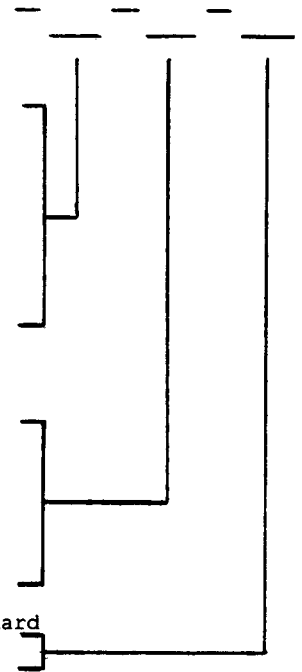
### Output Signal

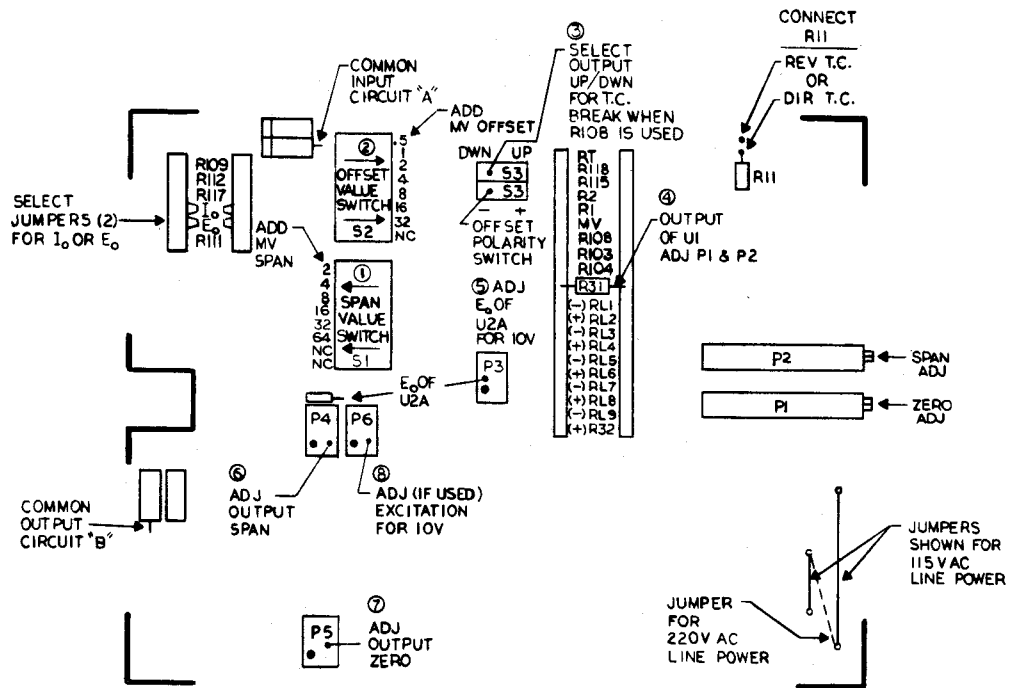
Voltage:	0 to 10 VDC	-E5
	0 to 5 VDC	-E74
	1 to 5 VDC	-E94
Current:	1 to 5 mA	-E54
	4 to 20 mA	-E44
	10 to 50 mA	-E80
	0 to 20 mA	-E70

Power Source:	117 VAC Standard	
	220 VAC	-E71
	24 VDC	-E92

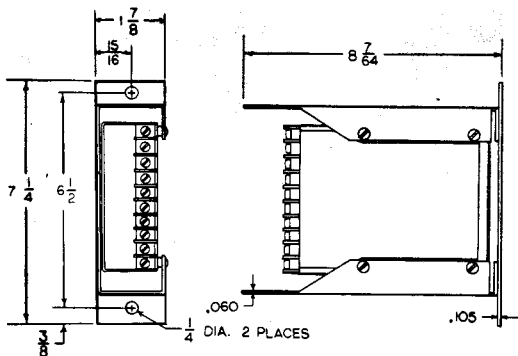
### \* Specify Code

-mV	Millivolt
-TC	T/C Type and Range
-R	Ohmic Range
-RD	R <sub>s</sub> and Ohmic Range
-SG	Sensitivity @ 10 VDC Excitation
-E88	Voltage Range
-E89	Current Range

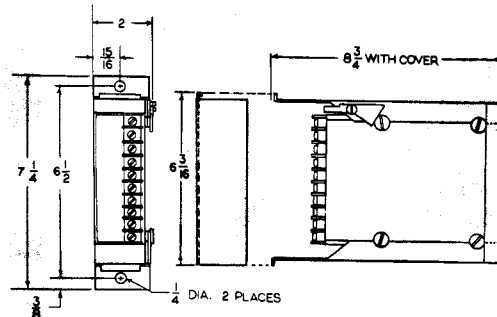




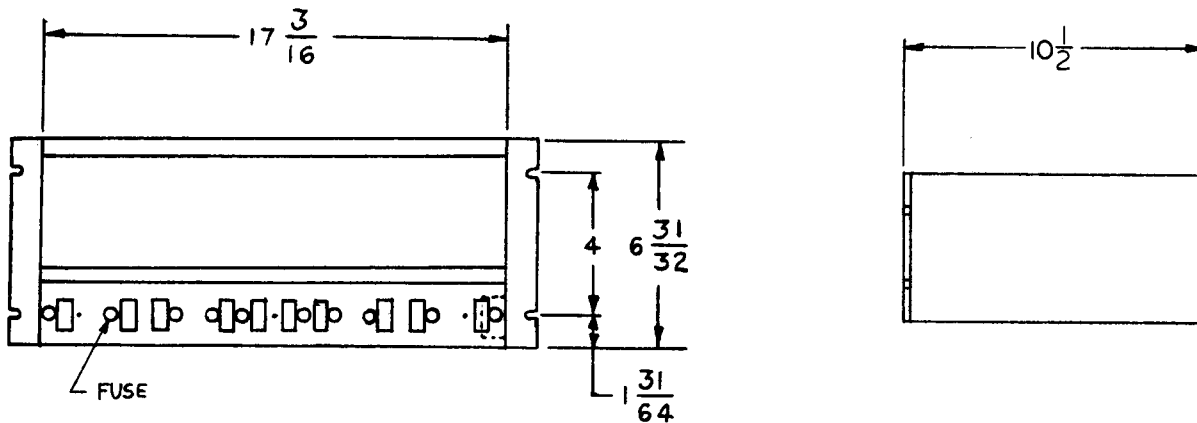
**MODEL 18-115A LOCATION OF CALIBRATION COMPONENTS & ADJUSTMENTS**



**M-31 MOUNTING BRACKET**



**M-32 MOUNTING BRACKET**



**18-010R-PDP MOUNTING RACK**

**DEVAR Inc.**

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 use: <http://www.devarinc.com>