DAYTRONIC

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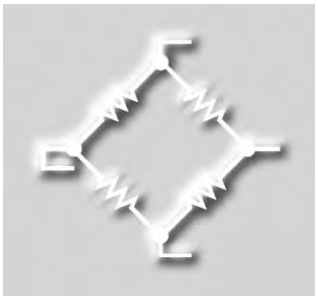
# IL70A

## IN-LINE DC STRAIN GAGE INSTRUMENT

# *IN-LINE Series*

The **Model IL70A** In-Line unit is a low cost, general-purpose single-channel conditioner for input of pressure, force, torque, weight, and other variables measured by conventional DC-excited strain gage transducers.

The **IL70A** delivers filtered analog output of **±5, ±10 VDC or 4-20 ma**; switch selectable by the user. Advanced analog design directly addresses the problem of measurement inaccuracy in industrial environments of high electromechanical noise. *Exceptional signal stability and accuracy over a remarkably wide range of sensor inputs are achieved through .....*

- **sensed excitation**
- **chopper-stabilized low-drift amplification**
- **selectable low-pass active filtering**
- **"shunt" switch-based calibration**
- **wide range Zero & Span adjustments for 0.5 mV/V to 10.0 mV/V sensors**

**THE IL70A IN-LINE CONDITIONER IS A LOW COST UNIT FOR DC BASED - FULL BRIDGE STRAIN - GAGES FROM 0.5 to 10 mV/V**

For steady indication and smooth, dependable control action, the **IL70A** can provide a true average value of the measured variable, even in the face of substantial dynamic content. Housed in a durable - flame retardant enclosure, the **IL70A** is ideal for industrial process applications. The analog output and gain settings are easily configured through the use of a simple coarse rotary switch and precision range potentiometers which results in a highly repeatable, stable and accurate measurement.

- **Powerful low-pass active filtering**, selectable by the user, the **IL70A** low pass filter removes unwanted high-frequency measurement signal components and the elimination of aliasing errors, if the module's output is subsequently digitized.
- **Selectable excitation** of 2.5 or 5.0 Vdc bridge voltage which is slaved to an extremely stable reference voltage.
- **Rugged construction** which allows forward placement of the **IL70A** conditioner to avoid measurement errors associated with long cable lengths.
- **Wide Zero & Span**, through the use of coarse rotary switch & potentiometers, the **IL70A** will accommodate 100% zero authority and a wide range of full bridge DC strain gage sensors, foil or semiconductor type with bridge resistance from 120 to 10K Ohm.
- **Wide Input Power range** from 11 to 28 Vdc, the **IL70A** is well suited for industrial, process and mobile environments
- **Internal 59K Ohm shunt** provided. Jumper selectable for external - user provided or transducer installed shunt

# Model IL70A DC Strain Gage Conditioner Module

**USE INTERNAL or EXTERNAL "SHUNT" CALIBRATION WITH WIDE ZERO AND SPAN SETTINGS - FOR REPEATABLE CONDITIONING RESULTS**

To calibrate, use either the"deadweight"or "shunt"method. Through the use of internal switch controls, the user will specify the mV/V range desired and adjust the fine and coarse controls to achieve the desired analog output - ±5 or ±10 VDC or 4-20 ma full-scale.

Zeroing of the sensor is achieved in the same manner with the coarse and fine controls which will adjust the zero position +/- 100%. This gives the user the full working range of the conditioner for applications which require large offsets or to accommodate an external A/D device for higher resolution needs. Along with the wide zero and span controls, the **IL70A** provides the user with three low pass filter options depending on the application need.

Daytronic uses their "industry proven" modified three pole butterworth filter design to provide a repeatable - analog response signal which minimizes over-shoot and provides quick stablization of the signal which results in a reliable limit or "peak capture" value needed for saftey and product qualification applications.

## Specifications

**Housing**: ABS UL94VO Flame Retardant case.

**Dimensions - Weight**: 7.022" L x 3.00" W x 2.047" H - 12 Oz.

**Power Requirements** : 11- 28 VDC ± 10%; 100 mA max.

**Operating Temperature Range** : -10° C to 70° C (14° F to 158° F)

**Operating Relative Humidity** : 5% to 95%, noncondensing

**Transducer Types**: Conventional 4-arm strain gage bridges, 120 Ω to 10 kΩ; zero range is 100% of the stated full scale; a screw terminal is provided for user-supplied shunt calibration resistor (see diagram, below, for typical cabling)

**Input Ranges (Nominal, Full-Scale)** : .5 to 5 mv/V or 1 to 10 mv/V via internal switch settings.

**Analog Outputs**: Filtered ± 0 to 5 Vdc or ±0 to 10 Vdc or 4-20 ma (sourcing). Mode is switch selectable with linearity maintained for 20% overrange (in voltage mode only)

**Amplifier**:

**Common-Mode Range**: 0 to 3 V

**Common-Mode Rejection Ratio (at @1/2 Excitation)**:-60 dB

**Input Impedance (Differential and Common-Mode)**: > 10,000 MΩ

**Offset**: adjustable; vs. temperature: ±0.10 µV/°C; vs. time: ±5 µV/month

**Gain Accuracy**: limited only by calibration accuracy

**Gain Stability**: vs. temperature: ±30 ppm/°C; vs. time: ±10 ppm/month

**Excitation**: Nominal 2.50 VDC up to 70 mA or 5.00 VDC up to 70 mA selectable via internal switch setting

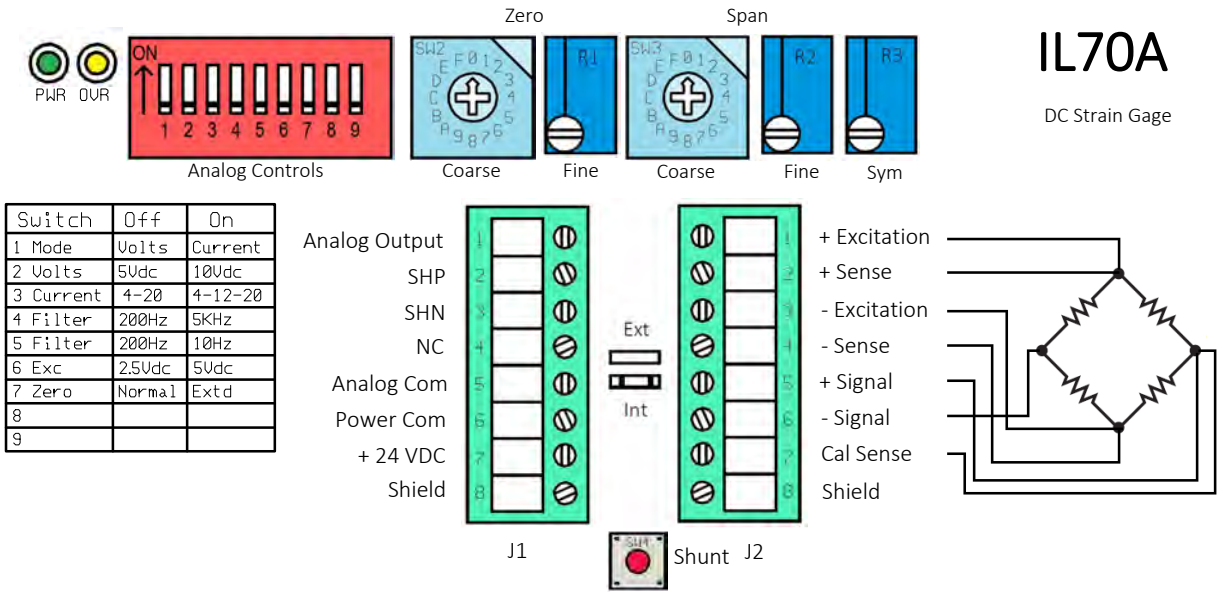
**Analog Filters**: 10, 200, or 5000 Hz, switch selectable

**Shunt Enable :** Activates shunt when taken to power common potential; ±25 V without damage; internal pull-up nom. 5 kΩ; input assume Logic 1 state in the absence of connection

**Power Status Indicator** : Green; indicates module power input

**Over range Status Indicator** : Yellow; indicates analog over-range situation

## Internal Settings and Connections




| Switch | Off | On |
|---|---|---|
| 1 Mode | Volts | Current |
| 2 Volts | 5Vdc | 10Vdc |
| 3 Current | 4-20 | 4-12-20 |
| 4 Filter | 200Hz | 5KHz |
| 5 Filter | 200Hz | 10Hz |
| 6 Exc | 2.5Vdc | 5Vdc |
| 7 Zero | Normal | Extd |
| 8 | | |
| 9 | | |