



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 **IL-70** delivers filtered analog output of **±5 VDC**, **±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

- internally sensed excitation, user-selectable
- chopper-stabilized low-drift amplification
- configurable low-pass active filtering
- “shunt” switch-based calibration
- wide range Zero & Span adjustments

THE **IL-70** 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 **IL-70** 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 **IL-70** 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 **IL-70** 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 **IL-70** conditioner to avoid measurement errors associated with long cable lengths.
- **Wide Zero & Span**, through the use of coarse rotary switch & potentiometers, the **IL70** 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 10 k Ohm.
- **Wide Input Power range** from 11 to 28 Vdc, the **IL-70** is well suited for industrial, process and mobile environments

MODEL IL70

DC STRAIN GAGE CONDITIONER

[IN-LINE SERIES]

INTERNAL "SHUNT" CALIBRATION WITH WIDE ZERO AND SPAN SETTINGS - ENSURES HIGHLY ACCURATE 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. Zero-ing 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 **IL-70** provides the user with three low pass filter options depending on his needs.

SPECIFICATIONS

Housing: ABS UL94VO Flame Retardent case; mountable to panel, fixture, or DIN-rail

Dimensions: 4.80" L x 2.60" W x 1.65" H

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

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

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)

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

Amplifier:

Common-Mode Range: 0 to 3 V

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

Input Impedance (Differential and Common-Mode): Greater than 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

IL-70 CONNECTIONS AND ADJUSTMENTS

IL-70 Connections and Adjustments

Switch	Open	Closed
1 Mode	Volts	Current
2 Volts	5 Vdc	10 Vdc
3 Current	4-20	4-12-20
4 Filter	200Hz	5KHz
5 Filter	200Hz	10Hz
6 Exc	2.5	5.0
7 Zero	Low	High

