

The **Model IL40A In-Line** conditioner are used with conventional *frequency-generating transducers*, such as tachometer pickups, turbine flowmeters, transistor or logic-circuit drivers, and “zero-velocity” (true digital output) sensors.

The **IL40A** will accept sine, square, and irregular waveform inputs, plus TTL. The **IL40A** delivers filtered analog output of **5 Vdc, 10 Vdc or 4-20mA**, selectable. *Exceptional signal stability and accuracy over an unusually wide dynamic range—down to 1.0 % of full scale—are achieved through*

- selectable frequency ranges up to 32 kHz
- selectable input threshold levels
- effective signal isolation & filtering
- capacitive coupling for magnetic pickup inputs
- selectable filtering on the amplified signal output

DYNAMIC ANALOG TRACKING OF THE INPUT FREQUENCY; IDEAL FOR MONITORING AND CONTROLLING OF SPEED OR FLOW PROCESSES THAT REQUIRE HIGH RESPONSE WITH REPEATABLE RESULTS.

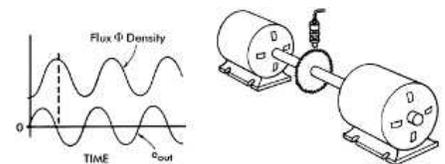
In addition to its standardized pulse-averaging circuit, the Model IL40A incorporates years of design strategies for frequency conditioning in factory environments that require high dynamic response even at low frequencies.

The **IL40A** Module will accept signals from 50mV to 240 Volts RMS with selectable input sensitivity settings for a wide range of frequency wave shapes - floating or grounded, producing a stable analog output signal proportional to the input frequency. The **IL40A** may be used with magnetic pickups, hall effect sensors

turbine flow meters, encoders and other frequency generating devices that represent speed, flow, and other measurement parameters.

The **IL40A** offers eight selectable full scale input frequency ranges from 250 Hz to 32 kHz. These full scale ranges will provide an analog output of 5 Vdc or 10 Vdc or 4-20mA which has been conditioned through a selectable three - pole filter. This maintains a stable analog signal from 1% to 100% of the input frequency range selected;

resulting in a dynamic, amplified signal that is not "time-based" dependent for applications requiring responsive monitoring or control which traditional digital counters and "1/t" based units lack.



Model IL40A Frequency to Voltage Conditioner

Capacitive shunting (or "coupling") of 0.1 microFarads is provided for magnetic pickup inputs, to eliminate false triggering by signal noise. For waveform inputs from approximately 5 Hz to 32 kHz, a "Smart Schmitt" trigger—in conjunction with a variable-sensitivity amplifier—adapts to signal amplitudes from 50 mV to 250 V, thus ensuring reliable triggering for all input levels.

FINE ZERO AND SPAN CONTROLS ENSURES HIGHLY ACCURATE-REPEATABLE CALIBRATION RESULTS

To calibrate a **IL40A**, you can use the onboard reference frequency or provide the unit with a known frequency input. Position the Range and Sensitivity switches to the proper position for your application. With "zero" frequency input (or short plus and minus signal) -

adjust the fine zero control for "0"Vdc or 4 mA output. Apply your known frequency or apply power common to our "Cal" terminal (this will simulate the full scale frequency for the range selected). Adjust the Course and Fine span controls for your appropriate voltage or current analog output.

Specifications

- Housing:** ABS UL94V0 Flame Retardent case.
- Dimensions - Weight:** 7.022" L x 3.00" W x 2.047" H - 12 Oz.
- Power Requirements:** 11- 28 VDC ; 3.6 watts max.
- Input Overvoltage Protection:** Up to 240 VAC rms on all Signal and Excitation lines (except for "capacitive coupling" lines)
- Operating Temperature Range:** -10° C to 70° C (14° F to 158° F)
- Operating Relative Humidity:** 5% to 95%, noncondensing
- Excitation:** 10 Vdc (= ±5 Vdc) ± 2% @ up to 70 mA
- Accuracy:** (as % of full scale overall expected maximum error, following calibration): of input range: ±0.02%

Differential Amplifier:

- Common-Mode Range:** ±1500 V
- Input Impedance:** Greater than 200 kΩ on all ranges

- Offset:** Initial: ±0.02% of full scale; vs. temperature: ±25 ppm/°C; vs. time: ±10 ppm/month
- Gain Accuracy:** ±0.02% of full scale *typical*, following calibration
- Gain Stability:** vs. temperature: ±25 ppm/°C; vs. time: ±10 ppm/month
- Analog Filters:** 4, 16, or 125 Hz, independently selectable
- Analog Outputs:** Filtered 0 to 5 Vdc or 0 to 10 Vdc or 4-20mA selectable; with linearity maintained for 20% overrange
- Frequency Input:**
 - Type:** Any AC or unipolar pulse signal, grounded or floating, regard-less of waveform
 - Sensitivity:** "Smart Schmitt" trigger and differential amplifier with four selectable gains accommodate signals from 50 mV to 250 V
 - Ranges (Nominal, Full-Scale):** 250 Hz to 32 kHz
 - Status Indicator Light :** Power: Green; Over-range: Yellow

Internal Settings and Connections

