

DAYTRONIC

QUALITY, TRUSTED PRODUCTS SINCE 1954



MODEL 5M40

FREQUENCY TO VOLTAGE CONDITIONER
[5M SERIES]



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

The **Model 5M40 DIN** conditioner are used with conventional frequency-generating transducers, such as tachometer pickups, turbine flowmeters, transistor or logic-circuit drivers, and “zerovelocity” (true digital output) sensors. The 5M40 will accept sine, square, and irregular waveform inputs, plus TTL. The **5M40** 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**
- **Capacitive coupling for magnetic pickup inputs**
- **Selectable filtering on the amplified signal output**
- **Effective signal isolation & ESD protection**

In addition to its standardized pulse-averaging circuit, the Model **5M40** incorporates years of design strategies for frequency conditioning in factory environments that require high dynamic response even at low frequencies. The **5M40** 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 **5M40** may be used with magnetic pickups, hall effect sensors The **5M40** 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 “timebased” dependent for applications requiring responsive monitoring or control which traditional digital counters and “1/t” based units lack.

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.



MODEL 5M40

FREQUENCY TO VOLTAGE CONDITIONER

[5M SERIES]

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

To calibrate a **5M40**, 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: DIN mount housing; non-removable screw terminals.

Dimensions: 114.5 mm D x 22.5 mm W x 99.0 mm H

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, regardless of waveform

Sensitivity: “Smart Schmitt” trigger and differential amplifier with four selectable gains accommodate signals from 50 mV to 250 V

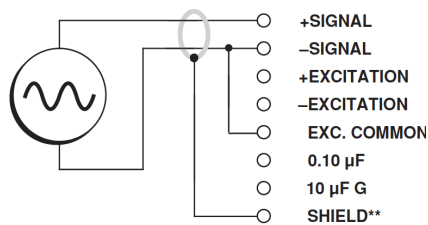
Ranges (Nominal, Full-Scale): 250 Hz to 32 kHz

Status Indicator Light: Power: Green; Over-range: Yellow

Transducer Field Connector: (Non-Removable Screw Terminals)—typical wiring shown for ungrounded frequency source

FRONT PANEL SWITCH SETTINGS

| | Left | Right |
|-----------------------|-----------|-----------|
| Output Mode | Current | Voltage |
| Voltage Level | 10 Vdc | 5 Vdc |
| Filter Setting | 125 HZ | 16 Hz |
| Filter Setting | 4 Hz | 16 Hz |
| Range A | see table | see table |
| Range B | see table | see table |
| Range C | see table | see table |
| Sensitivity A | see table | see table |
| Sensitivity B | see table | see table |



** Not Isolated

Power - Aux. Output - Analog Connector

