

AC Powered Frequency Input DIN Rail Signal Conditioner



- ✓ Eliminates Ground Loops
- ✓ Field Configurable Input Ranges
2 Hz to 10,000 Hz
- ✓ Field Configurable Output Ranges
- ✓ 150 mV to 150V Input Amplitude
- ✓ Provides an Isolated DC Output in Proportion to Input Frequency
- ✓ Touch Calibration
- ✓ Universal AC Power
85 to 265 Vac

The DRI-FR is a DIN rail mount, frequency input signal conditioner with 1800 Vdc isolation between input, output and power. The field configurable input and output offers flexible, wide ranging capability for variable frequency drives, magnetic pickups, turbine flow meters, and other pulse or frequency output transducers.

The input of the DRI-FR can be configured for any frequency span from 2 to 10,000 Hz. The input amplitude threshold sensitivity can be adjusted from 150 mVp to 150 Vp to ensure accurate frequency measurement and minimize transient noise related errors. The maximum input amplitude is 150 Vrms. The output can be set for either 0 to 5V, 0 to 10V, 0 to 1 mA, 0 to 20 mA or 4 to 20 mA.

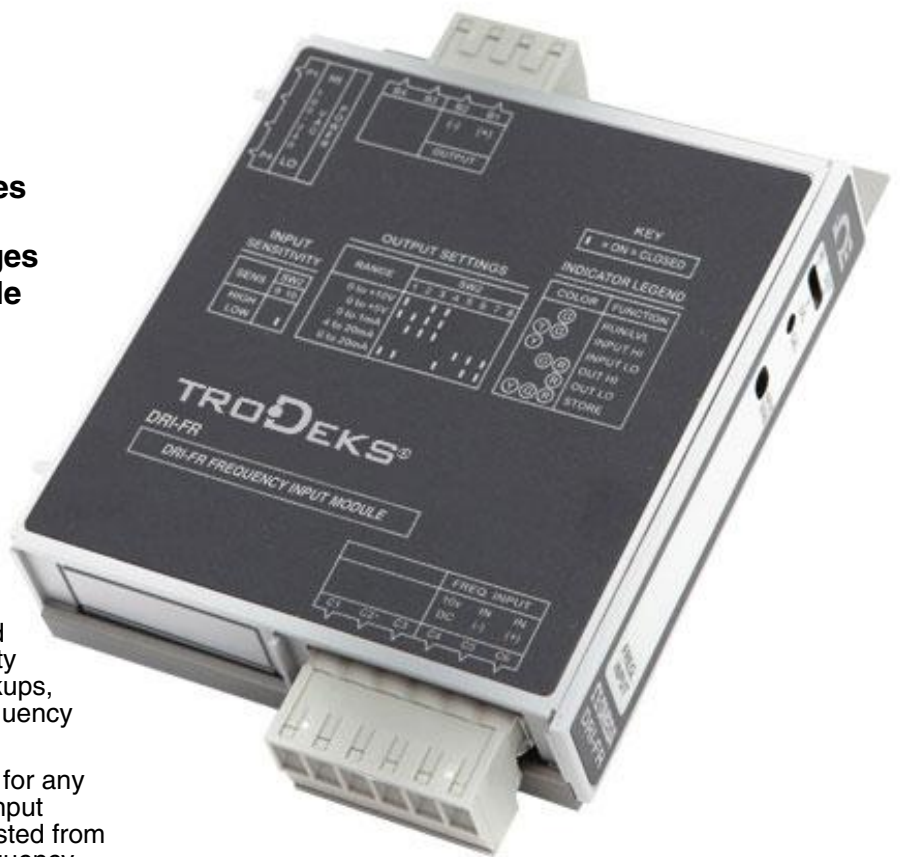
The DRI-FR can be field configured for virtually any frequency input to DC signal output within the ranges specified. There is also an 8 Vdc excitation source common to the input. This can be used as a signal source for relay contacts or as an excitation source for open collector type proximity sensors. The DRI-FR is AC powered and will accept any power between 85 and 265 Vac.

The DRI-FR utilizes Touch Calibration to greatly simplify configuration. The high and low input ranges are stored in nonvolatile memory and correspond to the high and low output range which is selected via DIP switches.

The DRI-FR utilizes three diagnostic LEDs. The green (RUN) LED indicates DC power and input signal status. Active line power is indicated by an illuminated LED. If the input signal is 7% or more high, the LED will flash at 8 Hz. If the input signal is 7% or more low, the LED will flash at 4 Hz.

The yellow (IN) LED is lit when calibrating the input. The red (OUT) LED is lit when calibrating the output.

The DRI-FR field configurable, frequency input signal conditioner is useful in eliminating ground loops and interfacing pulse output transducers, such as turbine flow meters and magnetic pickups, to data acquisition and control systems.



DRI-FR shown actual size.

Advanced digital technology, combined with ASIC technology, provides a stable output at low frequencies for higher accuracy, and 3-way isolation which completely eliminates ground loops from any source.

Any 2 Hz range from 0 to 10,000 Hz can be converted to a full scale output signal (e.g. 0 to 2 Hz/4 to 20 mA or 9998 to 10,000 Hz/4 to 20 mA).

The factory default configuration for the DRI-FR is as follows:

Input Range: 0 to 1000 Hz

Sensitivity (Noise Rejection Level or Trigger Threshold of the Input): 1 Vrms

Output Range: 4 to 20 mA

Specifications

INPUT

Frequency:

Full Scale Range: 2 Hz to 10,000 Hz

Amplitude Range: 150 mVp to 150 Vrms

Impedance: >10 kΩ

Overvoltage: 180 Vrms max

Over-Range: 20 KHz max

Common Mode (Input to Gnd): 1800V max

Zero Turn-Up: 99% of full scale range (9998 Hz)

Span Turn-Down: 99% of full scale range (2 Hz)



OUTPUT

Voltage Output:

Range: 0 to 5V, 0 to 10V (dip-switch selectable)

Source Impedance: <100 Ω

Drive: 10 mA max (1 k Ω min @ 10 V)

Current Output:

Output: 0 to 1 mA, 0 to 20 mA, 4 to 20 mA (dip-switch selectable)

Source Impedance: >100 k Ω

Compliance:

0 to 1 mA: 7.5V max (7.5 k Ω max)

0 to 20 mA: 12V max (600 Ω max)

4 to 20 mA: 12V max (600 Ω max)

Accuracy (Including Linearity and Hysteresis): $\pm 0.1\%$ of selected range at 25°C

Temperature Stability: $\pm 0.025\%/^{\circ}\text{C}$ maximum of selected range

Excitation Voltage: 8 Vdc, for open collector and contact closure inputs (5 mA short circuit current max)

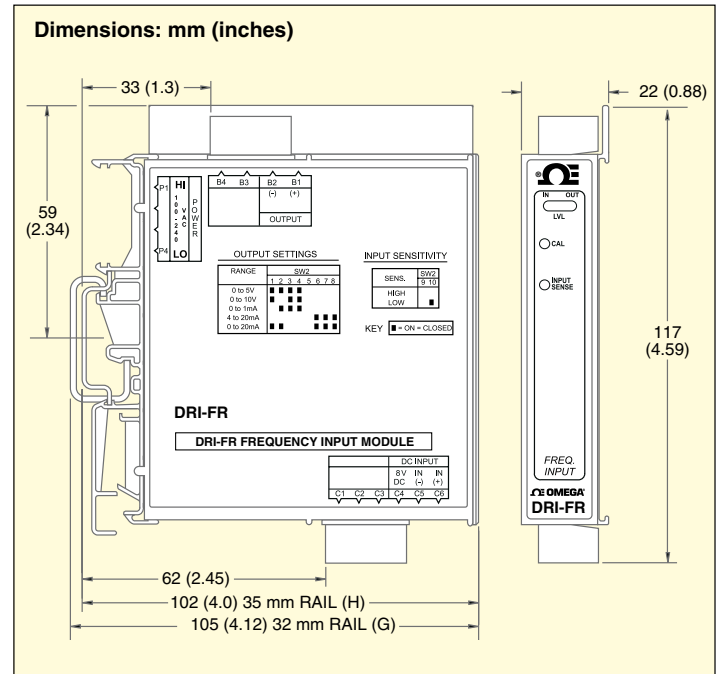
Response Time (10 to 90%): 500 msec, or 100 times the period of the full scale frequency

Common Mode Rejection: DC: 100 dB; >60 Hz: 80 dB

Isolation: 1800 Vdc between input, output and power



DRI-FR smaller than shown actual size.



ESD Susceptibility: Capable of meeting IEC 801-2 level 3 (8 KV)

LED Indication:

LVL (Green): Lit when power is on; input <107% then 8 Hz flash; input >7% then 4 Hz flash

IN (Yellow): Input range programming status

OUT (Red): Output range programming status

Humidity (Non-Condensing):

Operating: 15 to 95% RH @ 45°C (113°F)

Soak: 90% RH for 24 hours @ 65°C (149°F)

Temperature Range:

Operating: 0 to 55°C (5 to 131°F)

Storage: -25 to 70°C (-13 to 158°F)

Power: 100 to 240 Vac $\pm 10\%$, 50 to 400 Hz; 2.5 W max

Wire Terminations: Screw terminals for 12 to 22 AWG

Weight: 227 g (0.50 lb)

To Order

Model No.	Description
DRI-FR	AC powered frequency input DIN rail signal conditioner
ACPB-2	AC power distribution bus for 2 modules
ACPB-4	AC power distribution bus for 4 modules
ACPB-8	AC power distribution bus for 8 modules

Note: An ACPB power rail is required to power the modules and is ordered separately.