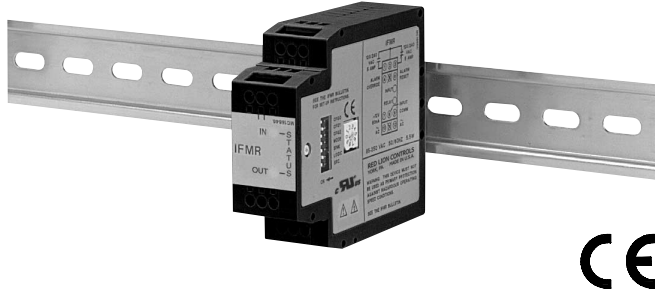


MODEL IFMR - DIN-RAIL SPEED SWITCH



- SIMPLE ON-LINE TRIP FREQUENCY SETTING (USING ACTUAL INPUT SIGNAL OR FREQUENCY GENERATOR)
- USER SETTABLE TRIP FREQUENCY FROM 0.1 Hz to 25 KHz
- OVER-SPEED, UNDER-SPEED, AND ZERO-SPEED DETECTION
- RELAY LATCHING, ALARM OVERRIDE, AND ALARM RESET FUNCTIONS
- PROGRAMMABLE INPUT CIRCUIT ACCEPTS OUTPUTS FROM A VARIETY OF SENSORS
- HYSTERESIS AND OFFSET FUNCTIONS AVAILABLE
- 85 to 250 VAC and 9 to 32 VDC VERSIONS AVAILABLE
- INPUT AND RELAY STATUS INDICATION LED'S



UL Recognized Component,
File # E137808

DESCRIPTION

The Model IFMR accepts a frequency input, and controls a single relay (SPDT) based on the value of the input frequency. The Trip frequency can be set to any value from 0.1 Hz to 25 KHz. The IFMR can be set to trip on overspeed, or underspeed (including zero speed). Offset and hysteresis values can be incorporated into the trip setting to eliminate output chatter. LED indicators for both the Input signal and the Relay status are provided. Two separate input connections for external push-buttons are also provided. One external input overrides the trip detection function, and holds the relay in the release state as long as the input is pulled to common. The other external input clears a latched trip condition when pulled to common.

The IFMR utilizes a seven position DIP switch, a rotary switch, a push-button and two indication LEDs to accomplish input circuit configuration, operational parameter set-up, input signal, and relay status indication. The input circuitry is DIP switch selectable for a variety of sources.

The indication LEDs are used during normal operation to display the input signal and relay status of the IFMR. These LEDs are also used to provide visual feedback to the user of the current parameter settings during parameter set-up.

The IFMR operates in one of six output modes, as selected by the user. The programmable Minimum Response Time provides optimum response vs. input filtering for any input frequency. The offset and hysteresis settings provide flexible adjustment of the relay trip and release points.

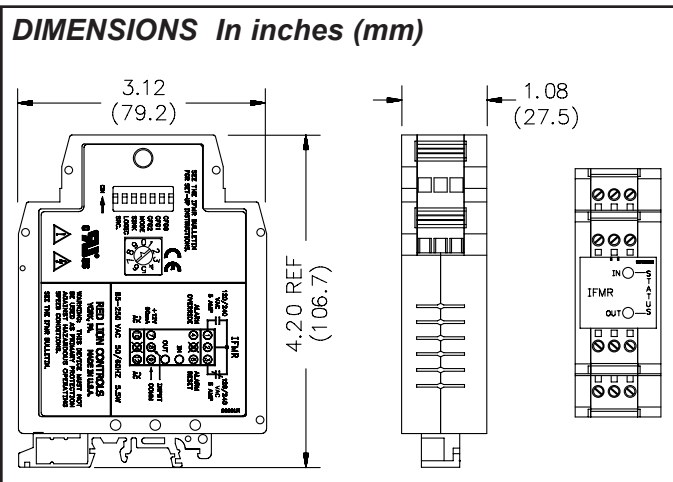
The unit is equipped with a universal mounting foot for attachment to standard DIN style mounting rails, including top hat profile rail according to EN 50 022 - 35 x 7.5 and 35 x 15, and G profile rail according to EN 50 035 - G32.

SAFETY SUMMARY

All safety related regulations, local codes and instructions that appear in the manual or on equipment must be observed to ensure personal safety and to prevent damage to either the instrument or equipment connected to it. If equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.



WARNING: SPEED SWITCHES MUST NEVER BE USED AS PRIMARY PROTECTION AGAINST HAZARDOUS OPERATING CONDITIONS. Machinery must first be made safe by inherent design, or the installation of guards, shields, or other devices to protect personnel in the event of a hazardous machine speed condition. The speed switch may be installed to help prevent the machine from entering the unsafe speed.



SPECIFICATIONS

- POWER:**
 - AC Powered Versions: 85 to 250 VAC; 48 to 62 Hz; 5.5 VA
 - DC Powered Versions: 9 to 32 VDC; 2.0 W
 - Power Up Current: $I_p = 600$ mA for 50 msec max.
- SENSOR POWER:** (AC version only) +12 VDC $\pm 25\%$ @ 60 mA max.
- OPERATING FREQUENCY RANGE:** 0 Hz to 25 KHz
- SIGNAL INPUT:** DIP switch selectable to accept signals from a variety of sources, including switch contacts, outputs from CMOS or TTL circuits, magnetic pickups, and all standard RLC sensors.
 - Current Sourcing:** Internal 1 K Ω pull-down resistor for sensors with current sourcing output. (Max. sensor output current = 24 mA @ 24 V output.)
 - Current Sinking:** Internal 3.9 K Ω pull-up resistor for sensors with current sinking output. (Max. sensor current = 3 mA.)
 - Low Bias:** Input trigger levers $V_{IL} = 0.25$ V, $V_{IH} = 0.75$ V; for increased sensitivity when used with magnetic pickups.
 - Hi Bias:** Input trigger levels $V_{IL} = 2.5$ V, $V_{IH} = 3.0$ V; for logic level signals.
 - Max. Input Signal:** ± 90 V; 2.75 mA max. (with both Current Sourcing and Current Sinking resistors switched off).

ORDERING INFORMATION

MODEL NO.	DESCRIPTION	PART NUMBERS FOR AVAILABLE SUPPLY VOLTAGES	
		9 to 32 VDC	85 to 250 VAC
IFMR	Speed Switch	IFMR0036	IFMR0066

For more information on Pricing, Enclosures & Panel Mount Kits refer to the RLC Catalog or contact your local RLC distributor.

CAUTION: Risk of Danger.
Read complete instructions prior to installation and operation of the unit.

CAUTION: Risk of electric shock.

SPECIFICATIONS (Cont'd)

5. **CONTROL INPUTS:** Active low ($V_{IL} = 0.5$ V max.) internally pulled up to 5 VDC through a 100 K Ω resistor ($I_{SNK} = 50$ μ A). Response Time = 1 msec.
Alarm Reset: Unlatches the relay when pulled to common while the input frequency is in the release region.
Alarm Override: Causes the IFMR to unconditionally release the relay when pulled to common.
6. **RELAY CONTACT OUTPUT:** FORM "C" (SPDT) contacts max. rating. 5 A @ 120/240 VAC or 28 VDC (resistive load), 1/8 H.P. @ 120 VAC (inductive load). The operate time is 5 msec nominal and the release time is 3 msec nominal.
7. **RELAY LIFE EXPECTANCY:** 100,000 cycles at max. rating. (As load level decreases, life expectancy increases.)
8. **ACCURACY:** $\pm 0.1\%$ of the trip frequency setting.
9. **INPUT IMPEDANCE:** 33 K Ω min. with the sink and source DIP switches in the OFF positions. (See Block Diagram)
10. **MINIMUM RESPONSE TIME:** From 5 msec. +1 period to 10 sec. +1 period in ten steps (excluding relay operate time).
11. **HYSTERESIS AND OFFSET:** From 0.25% to 33.33% of Trip Frequency in nine steps. Hysteresis and/or Offset can also be set to 0 (Disabled).
12. **INPUT AND POWER CONNECTIONS:** Screw in terminal blocks
13. **ISOLATION BREAKDOWN VOLTAGE (Dielectric Withstand):** 2200 V between power & input, and power & output; 500 V between input & output for 1 minute.
14. **CERTIFICATIONS AND COMPLIANCES:**

SAFETY

UL Recognized Component, File #E137808, UL508, CSA 22.2 No. 14 Recognized to U.S. and Canadian requirements under the Component Recognition Program of Underwriters Laboratories, Inc.
 IECCE CB Scheme Test Certificate # UL1683A-176645/USA,
 CB Scheme Test Report # 97ME50135-042297
 Issued by Underwriters Laboratories, Inc.
 IEC 61010-1, EN 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory use, Part 1.

ELECTROMAGNETIC COMPATIBILITY

Immunity to EN 50082-2

Electrostatic discharge	EN 61000-4-2	Level 2; 4 Kv contact ¹ Level 3; 8 Kv air
Electromagnetic RF fields	EN 61000-4-3	Level 3; 10 V/m ² 80 MHz - 1 GHz
Fast transients (burst)	EN 61000-4-4	Level 4; 2 Kv I/O Level 3; 2 Kv power
RF conducted interference	EN 61000-4-6	Level 3; 10 V/rms 150 KHz - 80 MHz
Power frequency magnetic fields	EN 61000-4-8	Level 4; 30 A/m

Emissions to EN 50081-2

RF interference	EN 55011	Enclosure class A Power mains class A
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Notes:

- This device was designed for installation in an enclosure. To avoid electrostatic discharge, precautions should be taken when the device is mounted outside an enclosure. When working in an enclosure (ex. making adjustments, setting switches, etc.) typical anti-static precautions should be observed before touching the unit.
- For operation without loss of performance:
 Unit is mounted on a rail in a metal enclosure (Buckeye SM7013-0 or equivalent) and I/O cables are routed in metal conduit connected to earth ground.

Refer to the EMC Installation Guidelines section of this bulletin for additional information.

15. ENVIRONMENTAL CONDITIONS:

- Operating Temperature:** 0 to 50°C
Storage Temperature: -40 to 80°C
Operating and Storage Humidity: 85% max. (non-condensing) from 0°C to 50°C.
Altitude: Up to 2000 meters
16. **CONSTRUCTION:** Case body is black, high impact plastic. Installation Category II, Pollution Degree 2
17. **WEIGHT:** 6 oz. (0.17 Kg)

