Vorne Industries

Model 77/415
Rate Monitor
User's Manual

Model 77/415 Rate Monitor

Table of Contents

1. INTRODUCTION TO THE DISPLAY

1.1 Operation

The Vorne 77/415 Rate Monitor displays rate per minute on a 2 to 6 digit display field. Large 3.3 inch characters allow the 77/415 to be easily read from a distance of 100 ft.

The 77/415 averages the input, calculates the rate, and updates the display approximately once per second. Updating the display in this manner results in accurate, stable readings. Standard sinking inputs accept both TTL and open collector outputs. The count rate is field selectable for high or low input rates. Absence of an input signal for 6 seconds will zero the display.

An optional scale factor converts inputs received to parameters you need by multiplying the input by any factor from 0.0001 to 9999. This allows the 77/415 to display data in engineering units. Since it is microprocessor based, parameters such as time base, sample size, etc. can be modified through custom software.

2. WIRING AND SPECIFICATIONS

2.1 Display

The display contains from 2 to 6 digits with 3.3" high LED characters. An optional decimal point in front of any digit position is available.

2.2 Input Type

S: SINKING INPUT - The input has an internal 10K pull-up resistor to +5 volts. Sinking this input to ground with a contact closure or open collector NPN transistor activates the input. The "S" sinking input is TTL or CMOS compatible with a minimum high of 3.5 VDC and a maximum low of 1.5 VDC.

2.3 Output Voltage

A regulated output voltage of 5 or 12 volts DC at 100 mA is provided for auxiliary use at terminal #6.

2.4 Scale Factor Option Adjustment

The model 77/415 (with the scale factor option) displays the product of the input count and a presettable scale factor. The scale factor can be set to any number from 0.0001 to 9999 with five DIP switches located on the main logic board of the 77/415.

To set the scale factor, orientate the unit with the terminal connector on the left. The four left-most DIP switches determine the four digits of the scale factor. The decimal location is determined by the fifth or right-most switch by multiplying the four digits of the scale factor by 10^{-n}, where n is the setting of the fifth switch. Positions 5 to 9 on this switch are not valid.

Example: If the switches are set from left to right as 2-4-3-2-1, then the scale factor will be 2432×10^{-1} or 243.2.
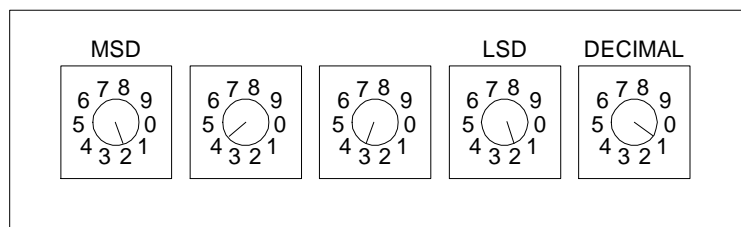
2.5 Count Rate

L: LOW SPEED - 3,000 CPM maximum with .01 second minimum on/off times.
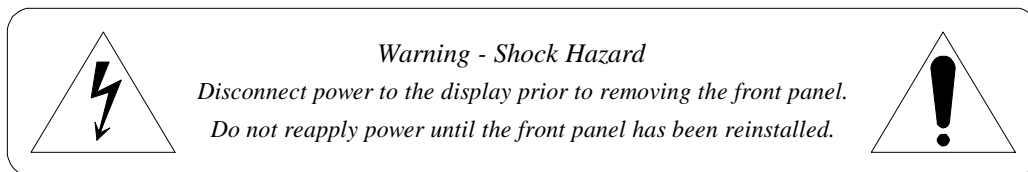H: HIGH SPEED - 60,000 CPM maximum with 250 microsecond minimum on/off times.

The count rate is field programmable to low or high speed by positioning a shorting jumper located inside the unit. Units are shipped with the jumper set to low speed if the count rate is not specified. Shielded wire for the input (Terminal 7) is recommended when the jumper is set to high speed but not required on low speed.

2.6 Power Requirements

120 VAC ± 15%, 15VA. AC hot and neutral are wired to terminals #1 and #2 (polarity not important). Terminal #3 is Earth ground only. The maximum power required is 15 Volt Amps.
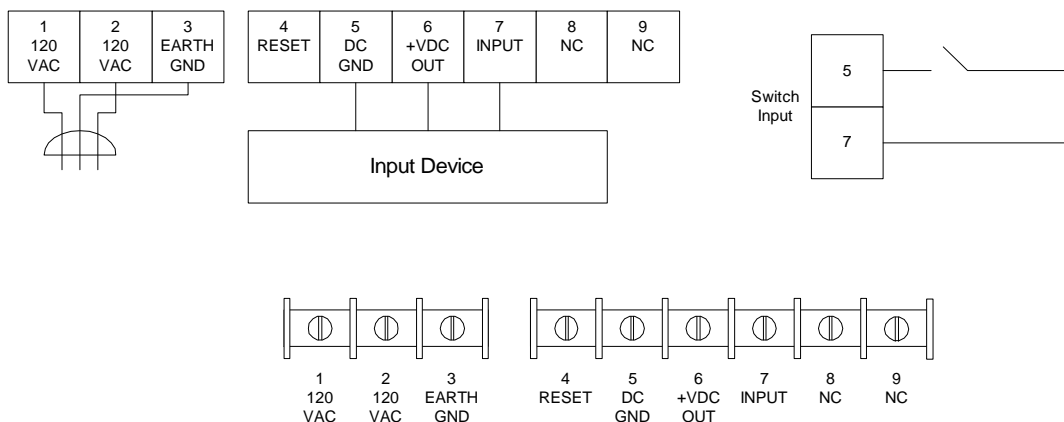
2.7 Accessing the Logic Board

All wiring points are located on the logic board of the 77/415. This board is mounted to the front panel of the display. For access, remove the six #8 screws which hold the front panel to the rest of the enclosure.

Warning - Shock Hazard
Disconnect power to the display prior to removing the front panel.
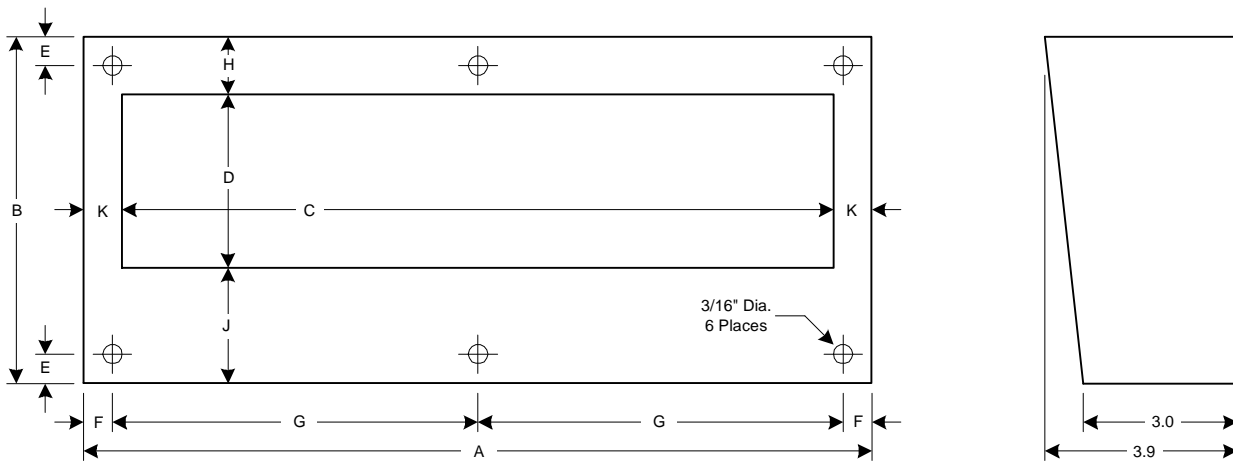*Do not reapply power until the front panel has been reinstalled.*

2.8 Wiring

Screw terminal strip, mounted on a PC board inside the enclosure.

SAFETY GROUND : On AC power units, use a 3 wire
grounded power cord with the earth ground tied to terminal 3.
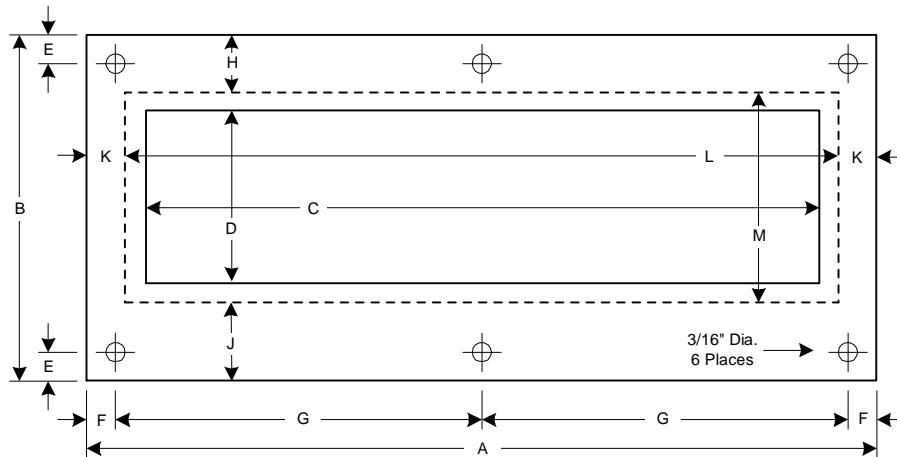
2.9 Dimensions
(Not to scale)   **Stand Alone Enclosure**

	A	B	C	D	E	F	G	H	J	K
3 digit	10.85	7.10	9.15	3.80	.35	.55	4.87	1.05	2.25	.85
4 digit	13.60	7.10	11.90	3.80	.35	.55	6.25	1.05	2.25	.85
5 digit	16.35	7.10	14.65	3.80	.35	.55	7.63	1.05	2.25	.85
6 digit	19.10	7.10	18.40	3.80	.35	.55	9.00	1.05	2.25	.35

All dimensions in inches.

Bezel Mount

- - - Dotted line indicates approximate panel cutout.

	A	B	C	D	E	F	G	H	J	K	L*	M*
3 digit	11.75	7.0	9.15	3.80	.30	1.0	4.87	.45	.65	.45	10.85	5.90
4 digit	14.50	7.0	11.90	3.80	.30	1.0	6.25	.45	.65	.45	13.60	5.90
5 digit	17.25	7.0	14.65	3.80	.30	1.0	7.63	.45	.65	.45	16.35	5.90
6 digit	20.0	7.0	18.40	3.80	.30	1.0	9.00	.45	.65	.45	19.10	5.90

All dimensions in inches.
* Dimensions of panel cutout.