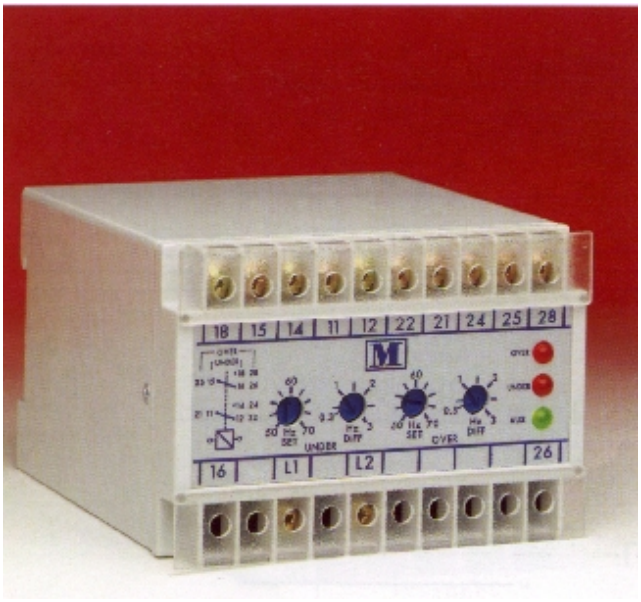
PC&S Panel Components & Systems
149 Main St. - Stanhope, New Jersey 07874 - Phone 800-523-9194 - Fax 973-448-1674

FREQUENCY



SELECTION GUIDE

M200-F1U	*Single or 3 phase under frequency*
M200-F1O	*Single or 3 phase over frequency*
M200-F1C	*Single or 3 phase combined frequency*

TYPICAL APPLICATIONS

The M200 series frequency relays are designed to monitor the frequency of a system and if the frequency deviates outside the adjustable pre-set limits, the relay will operate.
Typically used in protecting generators against over or under speed, this is achieved as speed is proportional to frequency. Other uses such as monitoring mains power supplies, computer supplies etc.
The user is provided with adjustment of both the trip point of frequency being monitored and the differential As is common with all the M200 relays; on over units the relay energises when the input signal exceeds the trip point. On under units the relay de-energises when the input signal goes below the trip point
A red LED indicates the state of the relay, whilst a green LED indicates the condition of the power supply. The frequency relays monitor their own power supply so no auxiliary power is necessary.

TECHNICAL SPECIFICATION

INPUT

Rated value Un	*57.8<500V+ 25%*
Rated Frequency	*50/60/400 Hz*
Burden	*<25 VA*
Overload	*1.5 x Un continuous*
	2 x Un for 3 seconds

SETPOINT

Range 50Hz nominal	*Adjustable 40 to 60Hz*
Range 60Hz nominal	*Adjustable 50 to 70Hz*
Range 400Hz nominal	*Adjustable 360 to 440Hz*
Differential 50 & 60Hz	*Adjustable 0.3 to 3Hz*
Differential 400Hz	*Adjustable 3 to 30Hz*
Repeatability	*Better than 0.5% of full span*
Operating time	*Typically 200 ms*

AUXILIARY
All units self powered

WEIGHT & CASE SIZE

Single units	*Approx. 0.4kg. 55mm case*
Combined units	*Approx. 0.6kg. 100mm case*

ORDERING INFORMATION

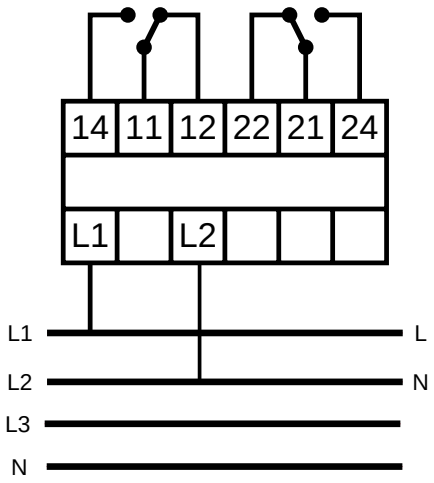
Product Code	*Input V*	*Nominal Freq.*	*Options*
M200-F1C	*230v*	*50Hz*	

OPTIONS

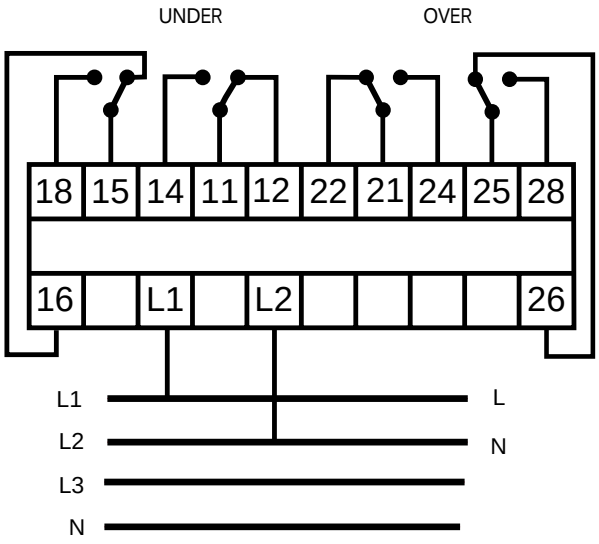
1. On all of the above units an internally set time delay is available for any value between 1 & 10 seconds. To order use the above code, adding a D at the end of the code, e.g. M200-F1U/D 7 seconds (state the fixed delay period)
2. AC auxiliary in range 57.7 to 480 volts
3. Calibration at temperature other than 23º C
4. To prevent nuisance tripping when there is a slight variation in the frequency, the following option is available The external differential is replaced with an external time delay On these units the time delay is adjustable from 200ms to 10 seconds, and the differential is fixed at 1%.

M200-F1X	*Single or 3 phase under frequency*
M200-F1Y	*Single or 3 phase over frequency*
M200-F1W	*Single or 3 phase combined frequency*

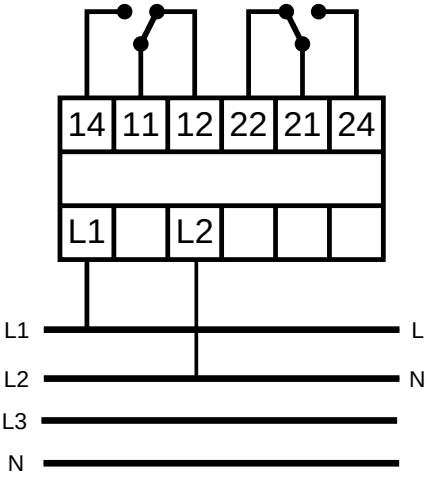
FREQUENCY CONNECTION DIAGRAMS



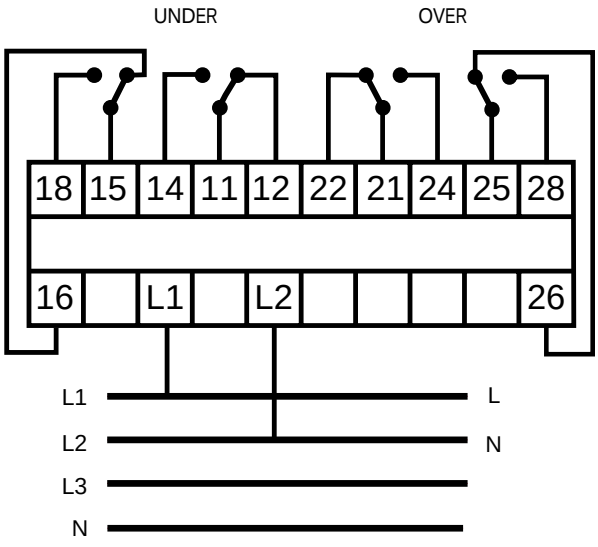
M200F1O M200F1U



M200F1C



M200F1X M200F1Y



M200F1W

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GENERAL SPECIFICATIONS

ENVIRONMENTAL

Working temperature	*0 to +60 deg C*
Functional temperature	*-25 to + 70 deg C*
Storage temperature	*-40 to +85 deg C*
Temperature Coefficient	*0.03% per deg C (3OOppm/^{0}C)*
Relative humidity	*95% non condensing*
Class of climate	*HSE complying with DIN 40040 -3 complying with VDE/VDJ 3540*

INSULATION

Test voltage	*4kV RMS 50Hz 1min between Input / Case /Auxiliary*
Impulse test	*EMC 5kV transient complying with IEC 801 / EN55020*
HF interference test	*EHF 2.5kv 1MHz complying with IEC 255-4*
Protection class	*II complying with IEC 348*

APPLIED STANDARDS

General	*IEC 144/ BS 5420/ VDE/ VDI 0435/ IEC 947/ EN60947*
Safety	*BS EN 61010 DIN 57411 / VDE 0411 ANSI C37*
Surge withstand	*IEC 801 / EN 55020 ANSI C37-90a*
Radio screening	*RFI degree N complies with VDEO87S*
EMC	*Emissions EN50081-2 Immunity EN50082-1*

RELAY OUTPUT

Relay type	*dual pole change over*
Material	*Silver / Cadmium*
Contact resistance	*200mOhm max Typically <50m Ohm*
Rating AC	*250V 5A non resistive 1200VA*
Rating DC	*125V 1A resistive 120 watts*
Electrical lije	*1 x 10^6 at above load*
Mechanical life	*5 x 10^6*
Operating time approx.	*7ms (20ms max)*
Dielectric strength	*Between coil and contacts 5kV RMS 1min Between open contacts 1kV RMS Imin Between adjacent contacts 1kV RMS imin*
Insulation resistance	*1000M Ohm at 5OOV DC*
Operating temperature	*-30 to + 75 deg C*
Approval	*UL and CSA recognised*

ENCLOSURE

Fixing	*Snap on to DIN rail 35 x7.5 mm complies with DIN-EN 50022 BS 5584*
Mounting	*Any position*
Enclosure Code	*Case IP 50/ terminals IP 30 Complies with IEC 529 BS 5490 DIN 40050*
Material	*Complying with UL 94 VO*

APPROVALS

U.L. Approval File No E157034

CASE DIMENSIONS

All Dimensions in mm