multitek

MONITORING RELAYS

CONTENTS PAGE

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

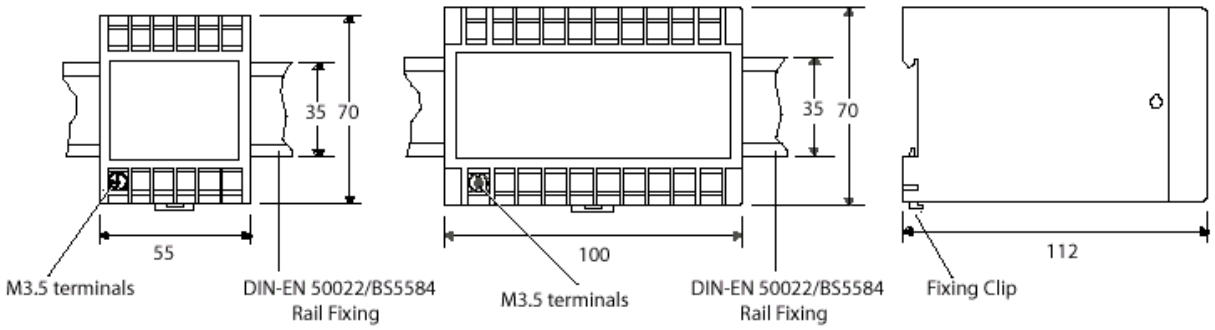
Fixing	*Snap on to DIN rail 35 x7.5 mm complies with DIN-EN 50022 BS 5584*
Mounting	*Any position*
Enclosure Code	*Case IP 50/ terminals IP 30 Complies with IEC 529 BS 5490 DIN 40050*
Material	*Complying with UL 94 VO*

APPROVALS

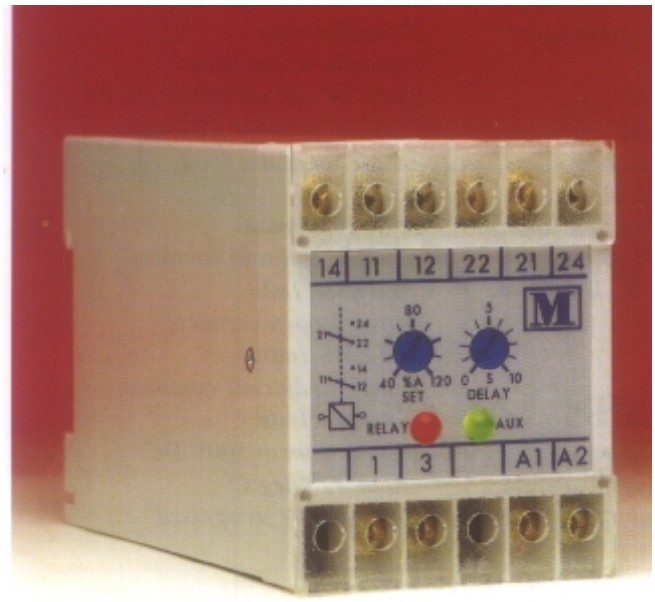
U.L. Approval File No E157034

CASE DIMENSIONS

All Dimensions in mm



AC CURRENT



SELECTION GUIDE

M200-A1U	*Single phase under current*
M200-A1O	*Single phase over current*
M200-A1C	*Single Phase combined current*
M200-A3U	*3 Phase under current*
M200-A3O	*3 Phase over current*

TYPICAL APPLICATIONS

The M200 AC current relays provide current monitoring and protection in both single and 3 phase systems. Used in applications such as motor protection, load detection and generator control.
Under over and combined under/over units are available.
The relay operates when the adjustable trip point is reached. An externally adjustable time delay is provided to prevent nuisance tripping.
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.

TECHNICAL SPECIFICATION

INPUT	
Rated value In	*1A or 5A from CT 0.2 to 10 Amp direct connected*
Frequency	*50 /60 /400 Hz*
Burden	*<0.5 VA per phase*
Overload	*2 x In continuous*
	10 x In for 3 seconds
SETPOINT	
Range Over	*Adjustable 40% to 120% In*
Range Under	*Adjustable 0% to 80% In*
Repeatability	*Better than 0.5% of full span*
Differential	*Fixed 5%*
Time Delay	*Adjustable 200ms to 10 seconds*
AUXILIARY	
AC Voltage	*115/230/400V (± 25% /45-65 Hz / <2 VA)*
DC Voltage	*24 volt (± 20% /galvanically isolated) <3 watt*
WEIGHT& CASE SIZE	
Single units	*Approx. 0.4kg. 55mm case*
Combined units	*Approx. 0.6kg. 100mm case*

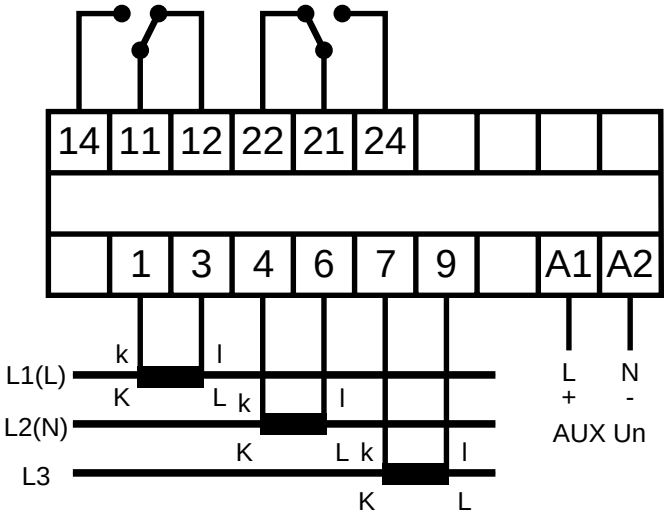
ORDERING INFORMATION

Product Code	*Input*	*Freq.*	*Aux. Options*
M200-A30	*5A*	*50Hz*	*230V*

OPTIONS

1.Adjustable time delay max 30 seconds
2.AC Auxiliary in the range 57.7 to 480 volts
3.Calibration at nominal Hz 35 450Hz
4.Calibration at temperature other than 23° C

AC CURRENT CONNECTION DIAGRAMS



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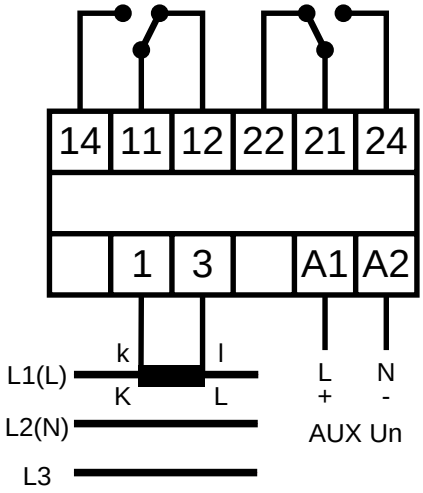

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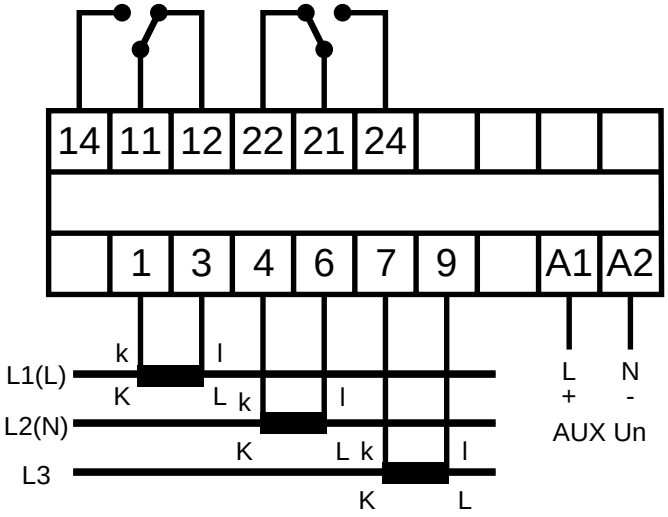

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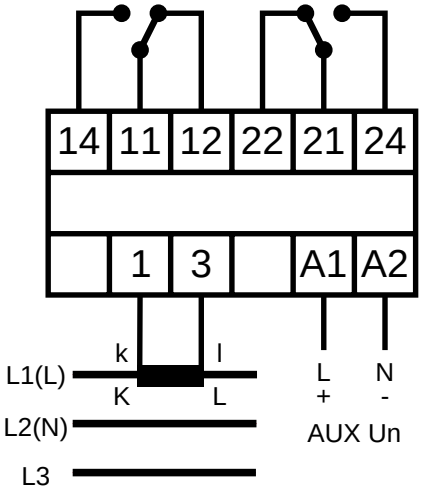

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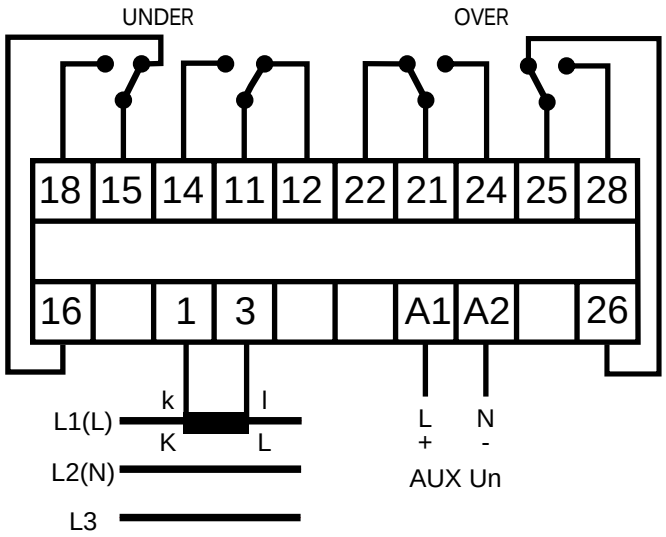
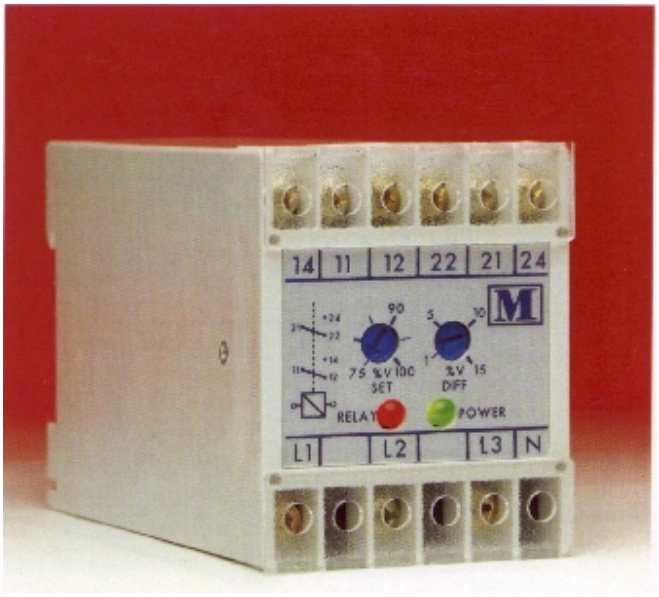


M200A1C

AC VOLTAGE



SELECTION GUIDE

M200-V1U	*Single phase under voltage*
M200-V1O	*Single phase over voltage*
M200-V1C	*Single phase combined voltage*
M200-V33U	*3 phase 3 wire under voltage*
M200-V33O	*3 phase 3 wire over voltage*
M200-V33C	*3 phase 3 wire combined*
M200-V34U	*3 phase 4 wire under voltage*
M200-V34O	*3 phase 4 wire over voltage*
M200-V34C	*3 phase 4 wire combined voltage*

TYPICAL APPLICATIONS

The M200 AC voltage relay provides voltage monitoring and protection in both single and 3 phase systems. Used in applications such as mains failure, regulation of power supplies and to protect voltage sensitive equipment. Under, over and combined under/over units are available. The relay operates when the externally adjustable trip point is reached. An external differential control is provided with adjustment 1-15%. The differential ensures that the parameter being measured returns to % set above or below (depending on whether it is under or over unit) the trip point before the relay returns to its original state. As is common with al/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.

TECHNICAL SPECIFICATION

INPUT

Rated value Un	*Single phase 57.8 <500 V*
	Three phase 100 <500 V
Frequency	*50/60/400 Hz*
Burden	*<2.5 VA per phase single units*
	<3 VA per phase combined unit
Overload	*1.5x Un continuous*
	2 x Un for 3 seconds

SETPOINT

Range under	*Adjustable 75% to 100% Un*
Range over	*Adjustable 100% to 125% Un*
Repeatability	*Better than 0.5% of full span*
Differential	*Adjustable 1 to 15%*
Operating time	*Typically 200ms*

AUXILIARY
All units self powered.

WEIGHT& CASE SIZE

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

ORDERING INFORMATION

Product Code	*Input*	*Freq*	*Options*
M200-V34U/D	*230V*	*50Hz*	*5 sec t/d*

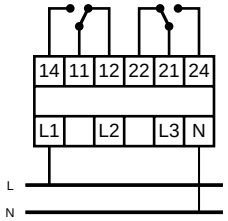
OPTIONS

1. On all of the above units, except the combined, an internally set time delay is available for any value between 1 & 10 seconds. To order use the above codes adding a D at the end of the code, e.g. M200-V34U/D 5 seconds (state the fixed delay period).
2. To prevent nuisance tripping when there is a slight variation in the voltage supply the following option is available. The external differential is replaced on the following products with an externally adjustable time delay. On these units the time delay is adjustable from 200ms to 10 seconds, and the differential is fixed at 1%.

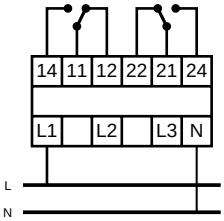
M200- V1X	*Single phase under voltage*
M200-V1Y	*Single phase over voltage*
M200-V1W	*Single phase combined voltage*
M200-V33X	*3 phase 3 wire under voltage*
M200- V33Y	*3 phase 3 wire over voltage*
M200-V33W	*3 phase 3 wire combined voltage*
M200-V34X	*3 phase 4 wire under voltage*
M200- V34Y	*3 phase 4 wire over voltage*
M200- V34W	*3 phase 4 wire combined voltage*

3. Calibration at temperatures other than 23º C

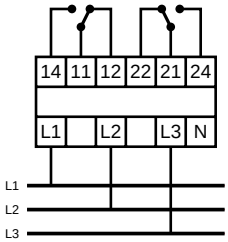
AC VOLTAGE CONNECTION DIAGRAMS



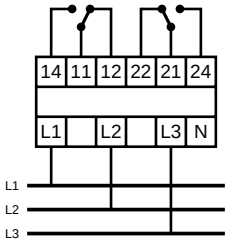
M200V1O



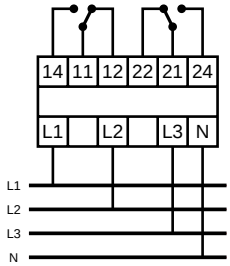
M200V1U



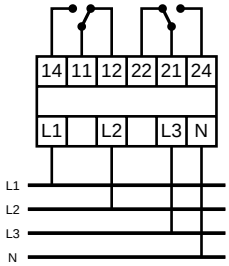
M200V33O



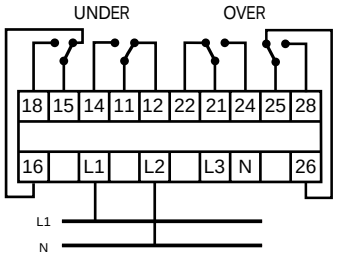
M200V33U



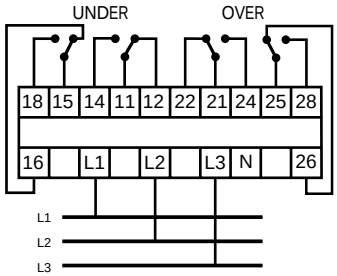
M200V34O



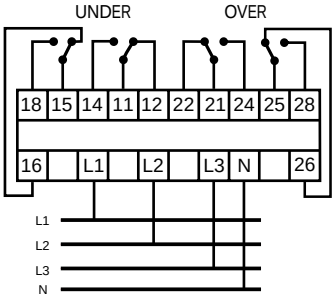
M200V34U



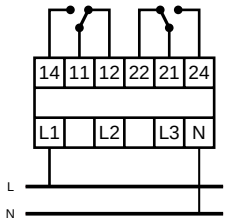
M200V1C



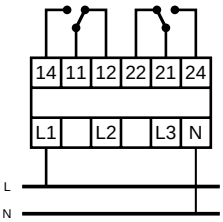
M200V33C



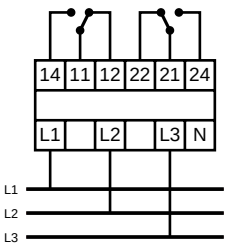
M200V34C



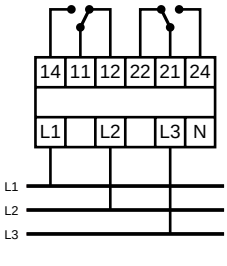
M200V1X



M200V1Y



M200V33X



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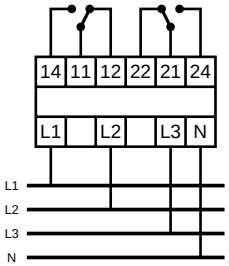
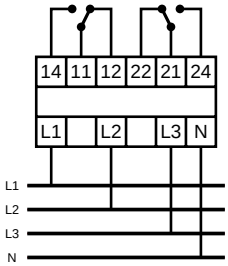
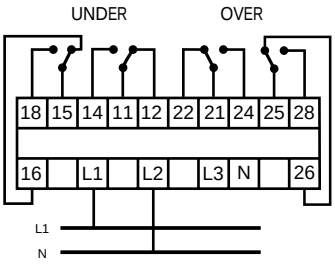


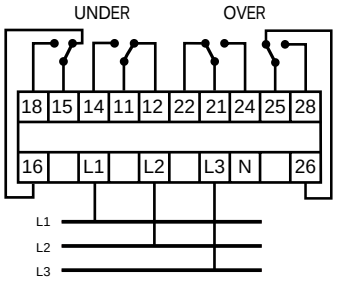
M200V34X



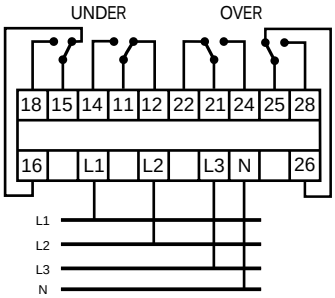
M200V34Y



M200V1W

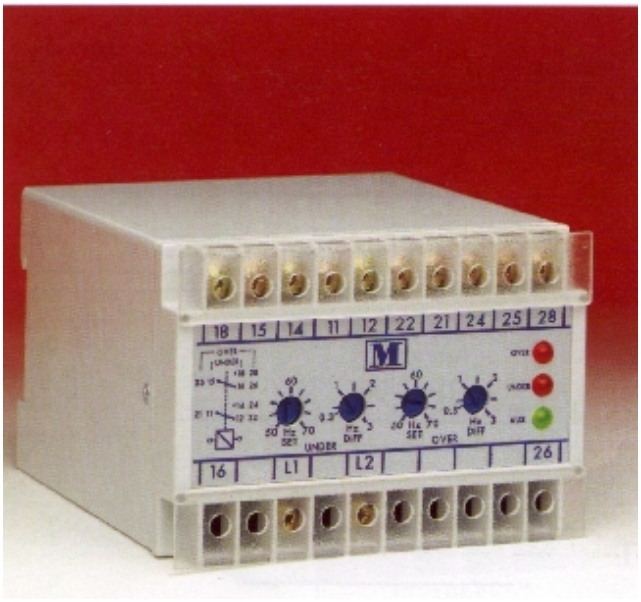


M200V33W



M200V34W

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

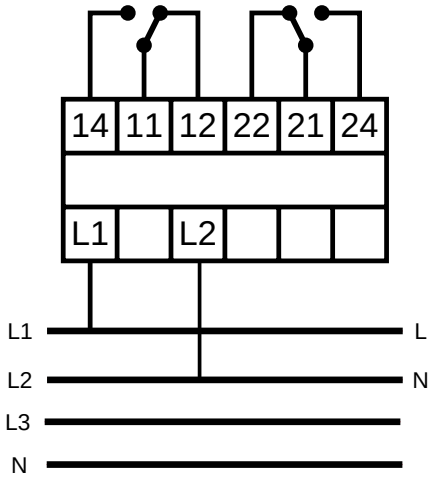
Product Code	*Input V*	*Nominal Freq.*	*Options*
M200-F1C	*230v*	*50Hz*	

OPTIONS

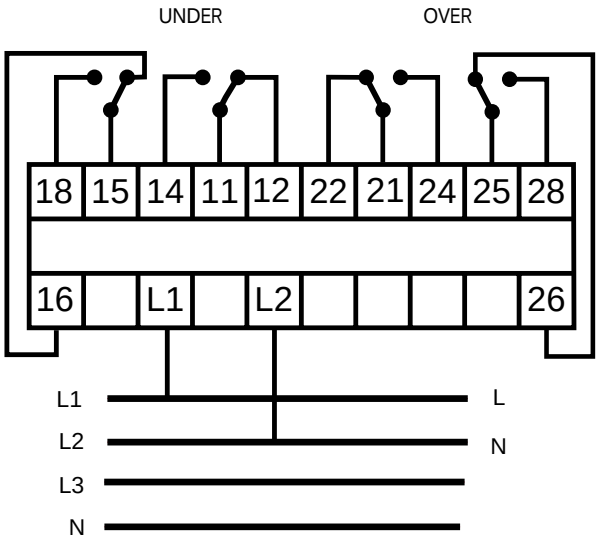
1. On all of the above units an internally set time delay is available for any value between 1 & 10 seconds. To order use the above code, adding a D at the end of the code, e.g. M200-F1U/D 7 seconds (state the fixed delay period)
2. AC auxiliary in range 57.7 to 480 volts
3. Calibration at temperature 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*

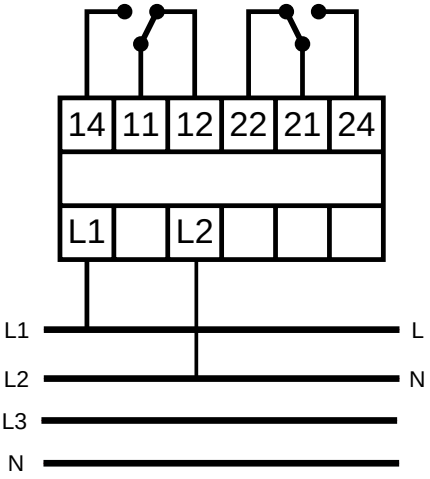
FREQUENCY CONNECTION DIAGRAMS



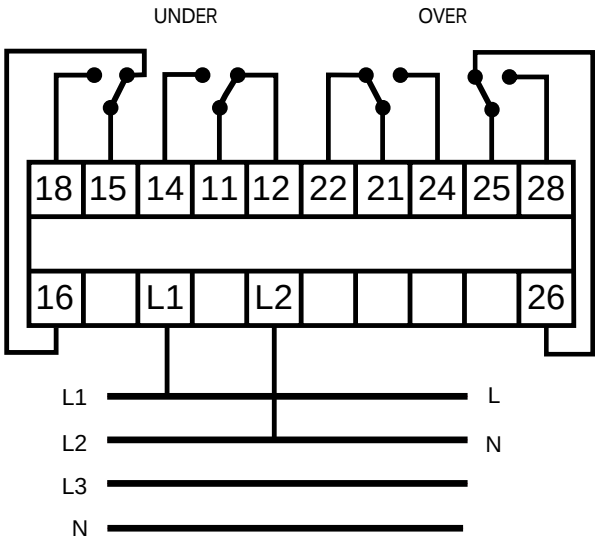
M200F1O M200F1U



M200F1C

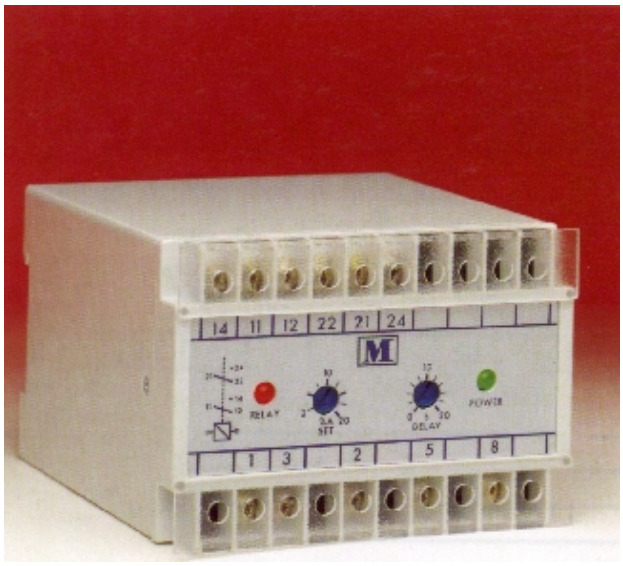


M200F1X M200F1Y



M200F1W

REVERSE POWER



SELECTION GUIDE

M200-RP1	*Single phase or 3 phase 4 wire*
M200-RP3	*3 phase 3 wire*

TYPICAL APPLICATIONS

The M200 reverse power relay is used to monitor the direction of power from AC generators. If the current in the system being monitored is reversed, to a value greater than the customer adjustable pre-set limit, the relay will energise.
The adjustable trip point is 2 to 20% of input current. An adjustable time delay of 0 to 20 seconds is provided. Correct setting of the trip point and time delay will ensure protection against motoring in the event of a generator failure and prevent tripping due to transients encountered during synchronising.
A red LED indicates the state of the relay and a green LED indicates the condition of the power supply

TECHNICAL SPECIFICATION

INPUT

Rated value Un	*57.8 <500V ± 25%*
Rated value In	*C. T operated 1 or 5A amp direct connection 0.2 to 10A*
Frequency	*50 / 60 /400Hz*
Burden	*<3VA voltage < 0.5 VA current*
Overload	*1.5 x Un 2 x In continuous* *2x Un 10 x In for 3 seconds*

SETPOINT

Range	*2% to 20% reverse current*
Repeatability	*Better than 0.5% of full span*
Time delay	*Adjustable 200ms to 20 sec*
Hysteresis	*1%*

AUXILIARY
All units self powered

WEIGHT & CASE SIZE Approx. 0.6kg. 100mm case

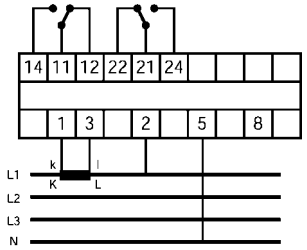
ORDERING INFORMATION

Product Code	*In*	*Input Un*	*Input Freq.*
M200-RP3	*1 Amp*	*400V*	*50Hz*

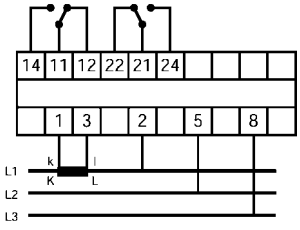
OPTIONS

1. Adjustable time delay max 30 seconds
2. AC auxiliary in range 57.7 to 480 volts
3. Calibration at nominal Hz 35 450Hz
4. Calibration at temperature other than 23 C

CONNECTION DIAGRAMS

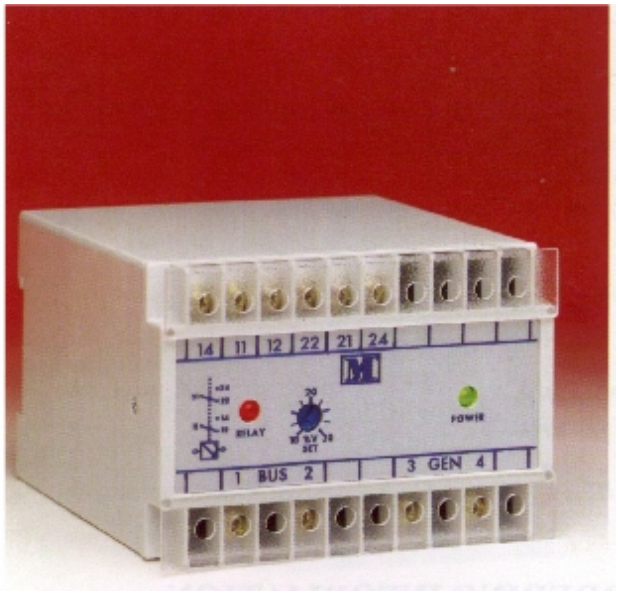


M200RP1



M200RP3

SYNCHRONISING CHECK



SELECTION GUIDE

M200-PLL *1 generator 1 bus or 2 generators*
M200-PLD *1 generator 1 bus with dead bus facility*
Both units can be used on Single or 3 phase systems.

TYPICAL APPLICATIONS

The M200-PLL & PLD are synchronising check relays, also known as paralleling relays. They are used to ensure at two AC supplies are synchronised. For a system to be synchronised, frequency, phase angle and voltage have to within pre-set limits.
The M200-PLL can monitor either mains bus bar and incoming generator or two generators.
The PLL has customer adjustment of the differential voltage between 10 to 30%. This voltage corresponds to 6 to 20 electrical degrees. The unit compares the input voltage and phase relationship of the bus bar to that of the generator when the signal is within the pre-set limits, the relay energises.
The M200-PLD operates as the M200-PLL but has the additional feature of the dead bus facility. This enables the relay to energise with a generator supply only, which is a common requirement when mains failure occurs.

TECHNICAL SPECIFICATION

INPUT	
Rated value Un	*57.8<500V± 25%*
Frequency	*50 /60/400 Hz*
Burden	*<4VA terminals marked GEN*
	<2VA terminals marked BUS
Overload	*1.5x Un continuous*
	10x Un for 3 seconds
SETPOINT	
Range	*Adjustable 10% to 30% of nominal system voltage (6-20 electrical degrees)*
Repeatability	*Better than 0.5% of full span*
Differential	*Fixed at 5%*
Operating time	*Typically 500ms*

AUXILIARY
Both units self powered.

WEIGHT & CASE SIZE Approx. 0.6kg. 100mm case

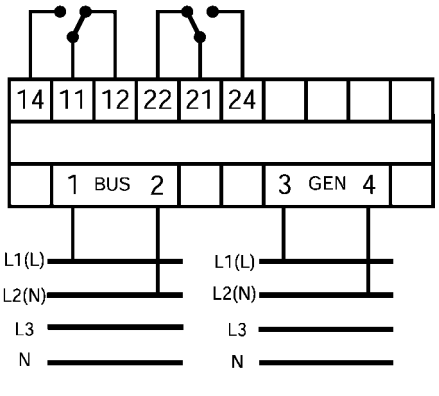
ORDERING INFORMATION

Product Code	*System Voltage*	*Freq.*	*Options*
M200-PLD	*400V*	*50Hz*	*Cal at 35^0 C*

OPTION

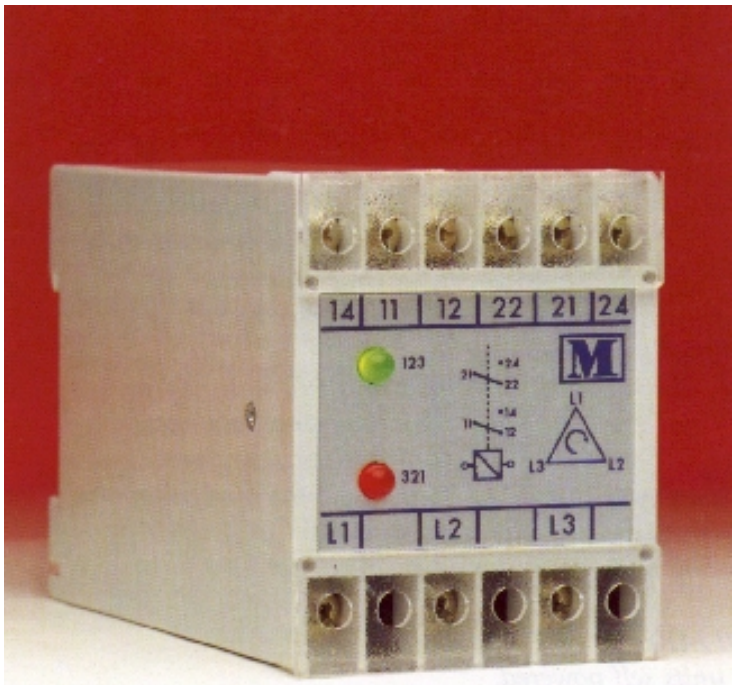
1. *Calibration at temperature other than 23^0 C*

CONNECTION DIAGRAM



M200PLL M200PLD

PHASE SEQUENCE



SELECTION GUIDE

M200-PS1 *3 phase 3 or 4 wire*

TYPICAL APPLICATIONS

The M200-PS1 provides phase and sequence phase failure protection. Used to ensure the sequence is correct when connecting 3 phase loads.
With an incorrect phase sequence the relay will de-energise preventing the starting of incorrectly connected machinery.
The relay will also trip if there is a phase loss and can therefore be used as a phase failure relay.
Note if regenerated voltage is present in the open phase the M200-PB1 or M200-PB2 should be used.
The red LED "ON" indicates phase sequence incorrect and relay is de-energised.
The green LED "ON" indicates phase sequence correct and relay is energised.

TECHNICAL SPECIFICATION

INPUT

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

SETPOINT
Not adjustable

AUXILIARY
Self powered.

WEIGHT & CASE SIZE Approx. 0.4kg. 55mm case

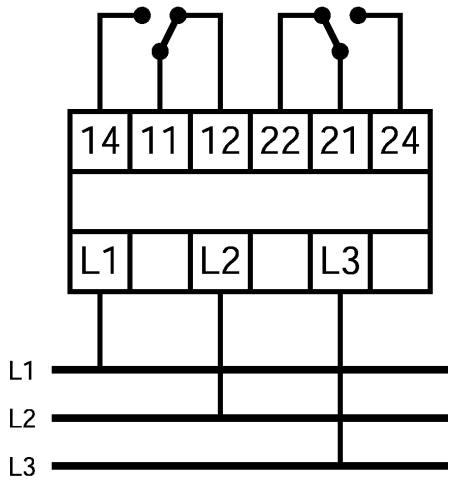
ORDERING INFORMATION

Product Code	*Input Un*	*Freq.*	*Options*
M200-PS1	*415v*	*50Hz*	*Cal 35º C*

OPTIONS

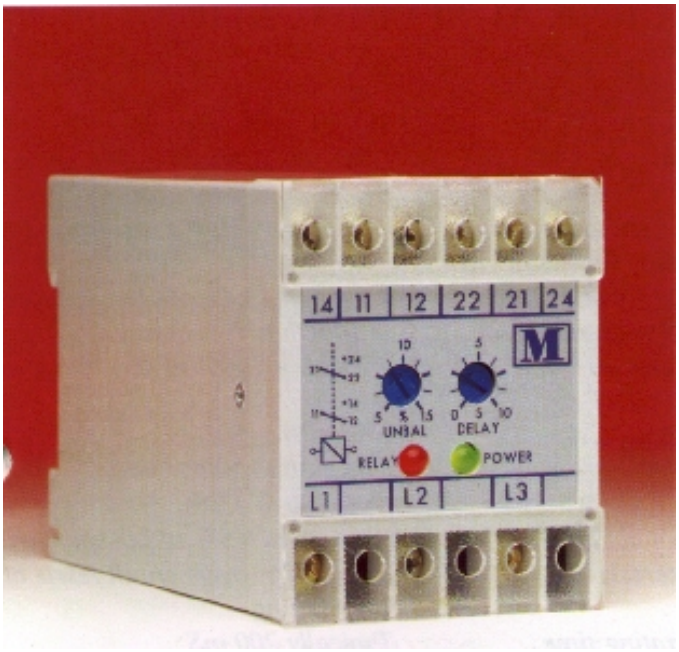
1. Calibration at nominal Hz 35…450Hz
2. Calibration at temperature other than 23º C

CONNECTION DIAGRAM



M200PSI

PHASE BALANCE



SELECTION GUIDE

M200-PB1 *Detects phase loss & phase unbalance*
M200-PB2 *Detects phase loss, phase unbalance & symmetrical under-voltage*

TYPICAL APPLICATIONS

The M200-PB1 can detect the following conditions in phase 3 or 4 wire systems. Phase Unbalance, Phase Loss, Phase Reversal and Phase Sequence.

The phase balance relays are used to detect phase loss and unbalance in systems using motors, generators, heater elements, transformers etc. A Phase unbalance as small as 10% in a 3 phase motor can cause the temperature in the motor winding to increase by more than 120%, correct setting of the PB1/PB2 will ensure this does not occur. Protection against open phase regenerated voltage, created if a single phase should fail is also provided.

Customer adjustment of unbalanced voltage between 5 to 15% is provided along with time delay adjustment of 200ms to 10 seconds.

If the system being monitored is healthy, the relay is energised, and the red LED will be illuminated. If a phase unbalance greater than the pre-set level or phase loss / reversal occurs, the relay de-energises after the time delay period. The M200-PB2 provides all the protection features of the PB1 with the additional benefit of having symmetrical under voltage protection. This means that if all the phase voltages remain balanced but drop below a pre-set value, the relay will de-energise. The under voltage is internally set. For standard units it is set at 85% below the nominal voltage, but this value can optionally be between 70% and 90%

TECHNICAL SPECIFICATION

INPUT	
Rated value Un	*57.8<500V± 25%*
Frequency	*50/60/400 Hz*
Burden	*<2VA*
Overload	*1.5x Un*
	2x Un
SETPOINT	
Range	*Adjustment 5 to 15% unbalanced voltage*
Repeatability	*Better than 0.5% of full span*
Under-voltage	*PB2 only, pre-set 85% of nominal voltage (optional 90% to 70%)*
Time delay	*Adjustable 200 ms to 10 sec*
AUXILIARY	
Self powered	

WEIGHT& CASE SIZE Approx. 0.4kg. 55mm case

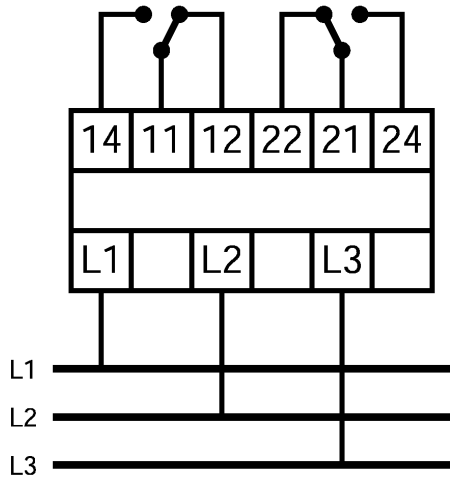
ORDERING INFORMATION

Product Code	*Un Input Freq.*	*Option*
M200-PB2	*415 v 50Hz*	*Under Volts at 70%*

OPTIONS

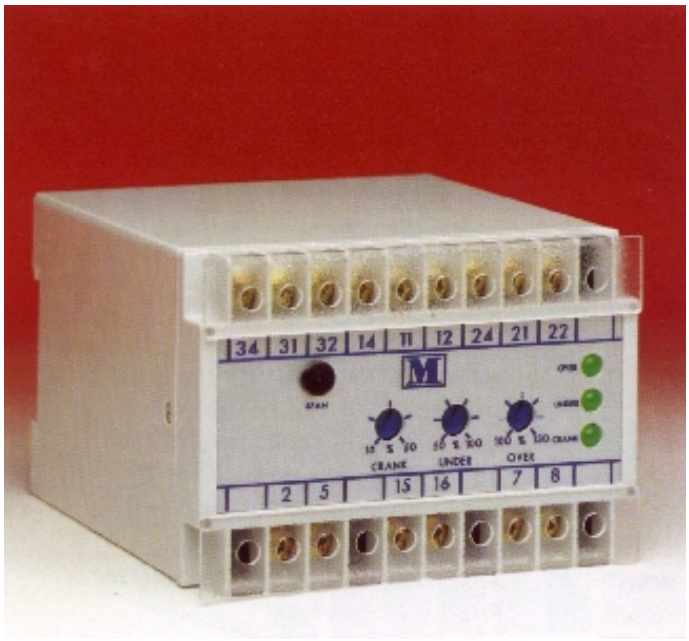
1. *Adjustable time delay max 30 seconds*
2. *Internal under voltage set between 90% to 70%*
3. *Calibration at nominal Hz 35….450Hz*
4. *Calibration at temperature other than 23° C*

CONNECTION DIAGRAM



M200PB1 M200PB2

SPEED SENSING



TYPICAL APPLICATIONS

The M200-ST3 is most commonly used to detect the speed of engines used in generating sets. The pick-up, situated close to the flywheel, produces a high frequency pulse train directly proportional to the number of teeth passing it. The frequency is converted by the ST3 into a mA signal directly proportional to the rotational speed of the flywheel.

The relay provides the user with the following adjustments, which allows the control of start up and normal running and protects against over and under speeds of the generator.

Adjustment of crank speed 10 to 50%
Adjustment of under speed 50 to 100%
Adjustment of over speed 100 to 133 %
A mA output signal proportional to input frequency.

Typical start-up as follows -

When the speed of the motor reaches the crank's set-point, the crank relay energises, disengaging the crank starter. When the under speed set-point is reached, the under speed relay is energised and the motor is now in the normal running condition with all relays energised. Should an under or over speed condition occur the appropriate relay is de-energised. Two other safety features are incorporated; if the pick-up sensor input lead breaks the over speed relay will de-energise also the crank relay will only de-energise when the input frequency goes below 20% of the set-point. The mA output signal can be fed to digital or analogue meters scaled in speed, or to provide a control signal to a PLC etc.

TECHNICAL SPECIFICATION

INPUT	
Pulses	*5V-75V peak to peak*
Frequency	*1000-10000 Hz (speed of rotation RPM x number of teeth / 60)*
Open circuit protection	*Over-speed relay de-energised*
OUTPUT	
Rated value	*0-1mA = 133% of nominal speed*
Load resistance	*< lOk Ohm*
Calibration Value	*0.75mA = 100% of nominal speed*
SETPOINT	
Range	*Crank 10 to 50%* *Under 50 to 100%* *Over 100 to 130%*
Repeatability	*Better than 0.5% of full span*
Hysteresis	*2% (under, over) crank resets at 20% setting*
Operating time	*Typically 200 ms*
AUXILIARY	
DC Voltage	*24 VDC ±20%*
WEIGHT& CASE SIZE	*Approx. 0.5kg. l00mm case*

NOTE: The 3 relays in this product are single pole changeover. The remainder of this specification is as per general specification on page 3.

SELECTION GUIDE

M200-ST3	*Speed sensing relay*

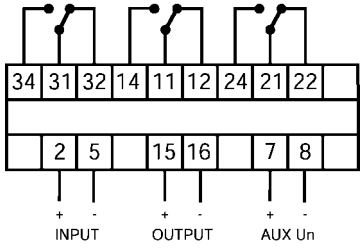
ORDERING INFORMATION

Product Code	*M200-ST3*
Normal running speed	*1800 rpm*
Number of teeth on flywheel	*50*
Magnetic pick up output voltage	*10 volt pk-pk*

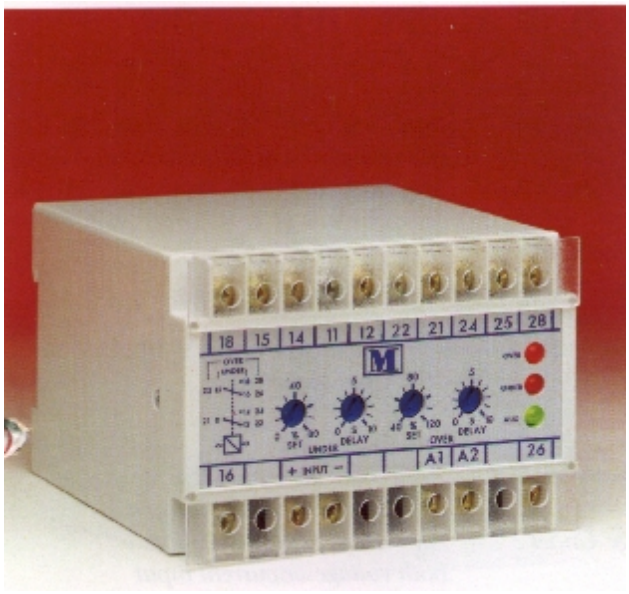
OPTIONS

1. Calibration at temperature other than 23º C
2. Set-points are factory set. Specify frequency of crank; under speed and over speed settings required.

CONNECTION DIAGRAM



DC TRANSDUCER TRIP



SELECTION GUIDE

M200-TAU	*DC volts or mA under trip*
M200-TAO	*DC volts or mA over trip*
M200-TAC	*DC volts or mA combined trip*

TYPICAL APPLICATIONS

The M200 DC transducer trips have endless applications. As the name implies they are designed to accept inputs from transducers and transmitters, and provide a relay operation when the transducer signal deviates outside a pre-set limit.
Any of the M100 series transducers can be used with the transducer trip. A typical application is to control power using a M100-WA5 with a 4-20mA signal fed to a M200-TAO. For example the output goes above a pre-set limit of 80%, the TAO relay will close, setting off an alarm or shutting down a process.
Either DC voltage or DC current inputs can be used. As is common with all the M200 relays, on over units the relay energises when the input signal exceeds the trip point and 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.

TECHNICAL SPECIFICATION

INPUT	
Rated value In	*0<20mA or 4- 20mA*
Voltage drop	*1 volt*
Rated value Un	*1<50 volt or 1-5 volt*
Impedance	*10k Ohm / Volt*
Overload	*2xIn 1.5x Un continuous* *10x In 2x Un for 3 seconds*
SETPOINT	
Range Over	*Adjustable 40% to 120% for both voltage and current input.*
Range Under	*Adjustable 0% to 80% for both voltage and current input.*
Repeatability	*Better than 0.5% of full span*
Time delay	*Adjustable 200 ms to 10 seconds*
Differential	*Fixed 5%*
AUXILIARY	
AC Voltage	*115/230/400 V* *± 25% / 45-65Hz / 2VA*
DC voltage	*24 volt (± 20% / galvanically isolated)* *<3 watt*
WEIGHT & CASE SIZE	
Single units	*Approx. 0.4kg. 55mm case*
Combined unit	*Approx. 0.6 kg. 100mm case*

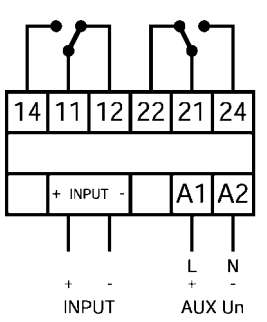
ORDERING INFORMATION

Product Code	*Input Vn or In*	*Aux*	*Freq*
M200-TAC	*1mA*	*110v*	*50Hz*

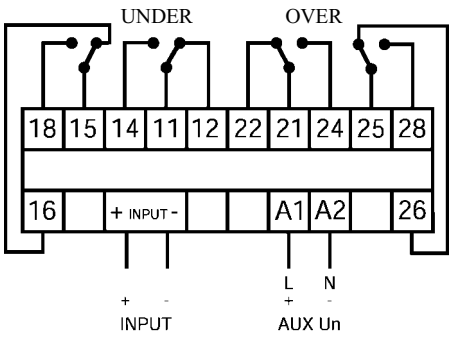
OPTIONS

1. Adjustable time delay max 30 seconds
2. AC auxiliary in the range 57.7 to 480 volts
3.Calibration at nominal Hz 35…..450Hz
4.Calibration at temperature other than 23º C

CONNECTION DIAGRAMS

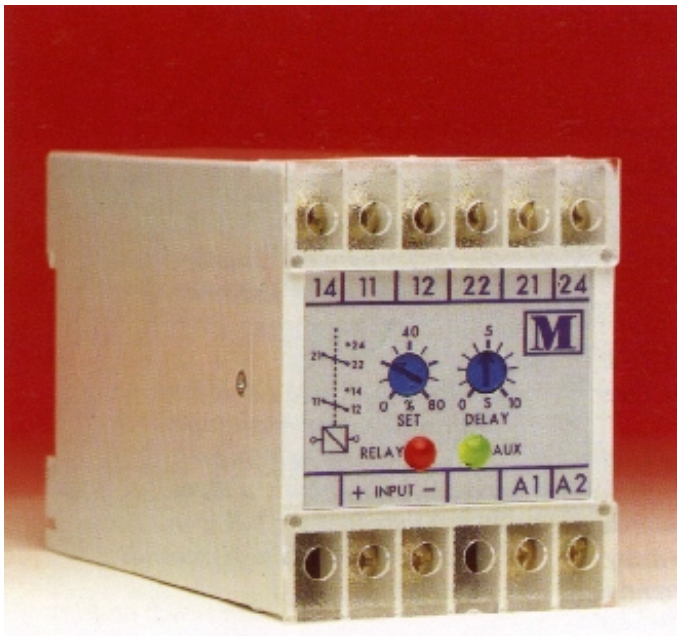


M200TAO M200TAU



M200TAC

THERMOCOUPLE



SELECTION GUIDE

M200-TJU	*J type thermocouple under trip*
M200-TJO	*J type thermocouple over trip*
M200-TKU	*K type thermocouple under trip*
M200-TKO	*K type thermocouple over trip*

TYPICAL APPLICATIONS

Designed to monitor thermocouples and provide a relay signal if the temperature being monitored exceeds the pre-set limit. J and K type thermocouples inputs are available covering a wide range of temperatures. As is common with all the M200 relays, on over units the relay energises when the input signal exceeds the trip point and 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.

TECHNICAL SPECIFICATION

INPUT	
Type J Fe/const	*Min range 0-185ºC (min span 10mV)*
	Max range 0-870ºC (max span 50mV)
Type K NiCr/NiAl	*Min range 0-245ºC (min span 10mV)*
	Max range 0-1230ºC (max span 50mV)
Thermocouple break protection	*Upscale energise*
Cold junction Compensation	*Automatic over range 0-50 C*
Overload	*10 x Input continuous*
SETPOINT	
Range Over	*Adjustable 40% to 120% for both voltage and current input*
Range Under	*Adjustable 0% to 80% for both voltage and current input*
Repeatability	*Better than 0.5% of full span*
Time delay	*Adjustable 200ms to 10 seconds*
Differential	*Fixed 2%*
AUXILIARY	
AC Voltage	*115/230/400V*
	± 25% / 45-65Hz / 2VA
DC Voltage	*24 volt (± 20% / galvanically isolated)*
	<3 Watt
WEIGHT & CASE SIZE	*Approx. 0.4kg 55mm case*

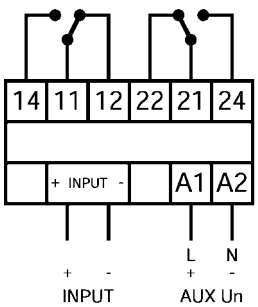
ORDERING INFORMATION

Product Code Temp range Aux Freq Options
M200-TJO 0-300ºC 120V 60Hz 0-30 sec T/D

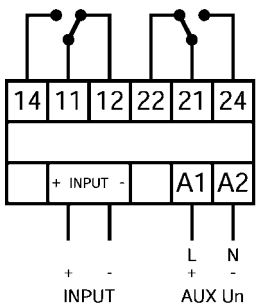
OPTIONS

1. Adjustable time delay max 30 seconds
2. AC auxiliary in the range 57.7 to 480 volts
3. Calibration at temperature other than 23º C

CONNECTION DIAGRAMS

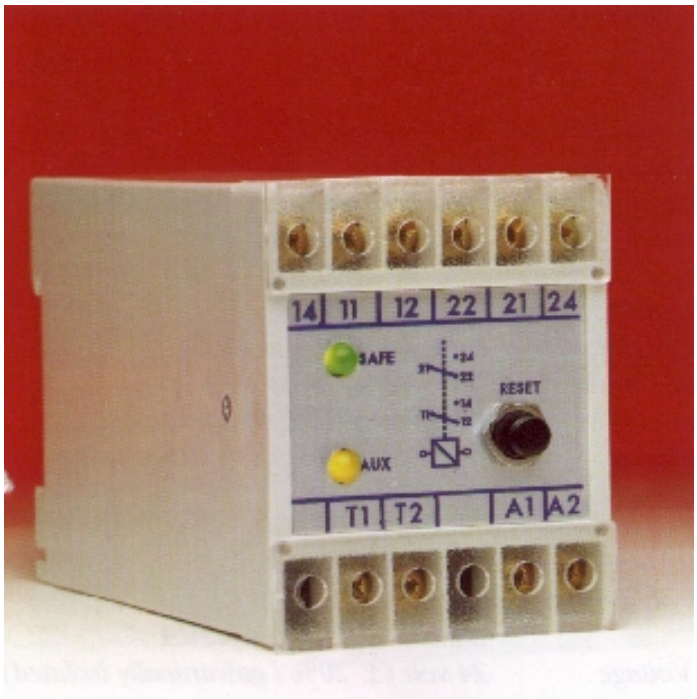


M200TJO M200TKO



M200TJU M200TKU

THERMISTOR TRIP



SELECTION GUIDE

M200- TTA	*Automatic reset*
M200-TTM	*Manual reset*

TYPICAL APPLICATIONS

The M200 thermistor trip accepts positive temperature coefficient thermistor inputs. Typically used to monitor temperature in motor windings.
When the thermistor is below its predetermined temperature the resistance is low and the M200-TTA / TTM relay is energised. A green LED indicates the safe condition. When the temperature exceeds the predetermined temperature, the resistance of the thermistor rapidly increases, this increase in temperature is detected by M200-TTA/TTM and the relay is de-energised.
The M200-TTM is manually reset. Once the relay has de-energised it will stay de-energised regardless of the temperature being monitored. The relay can only be reset via the reset push button on the front of the unit. The M200-TTA automatically resets once the temperature has dropped below the trip point
A yellow LED is provided to indicate the condition of the power supply.

TECHNICAL SPECIFICATION

INPUT	
Positive temperature coefficient thermistors	*<1500 Ohms max at nominal temperature. Sensors can be connected in series but 1500 ohm must not be exceeded.*
Trip point	*2500-3500 Ohms*
Reset point	*1500-2300 Ohms*
Total resistance of sensor loop	*1500 Ohms max at nominal temperature*
Differential	*Fixed 5%*
Repeatability	*Better than 5% of range*
RESET	
M200-TTA	*Automatic*
M200-TTM	*Manual via push switch on front of product*
AUXILIARY	
AC Voltage	*115/230/400V ± 25% / 45-65Hz / 2VA*
DC Voltage	*24 volt (± 20% / non isolated) <3 watt*
WEIGHT & CASE SIZE	*Approx. 0.3kg 55mm case*

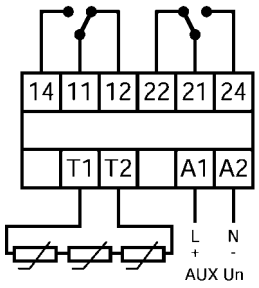
ORDERING INFORMATION

Product Code	*Aux Freq*	*Options*
M200-TTA	*230V*	*50Hz*

OPTIONS

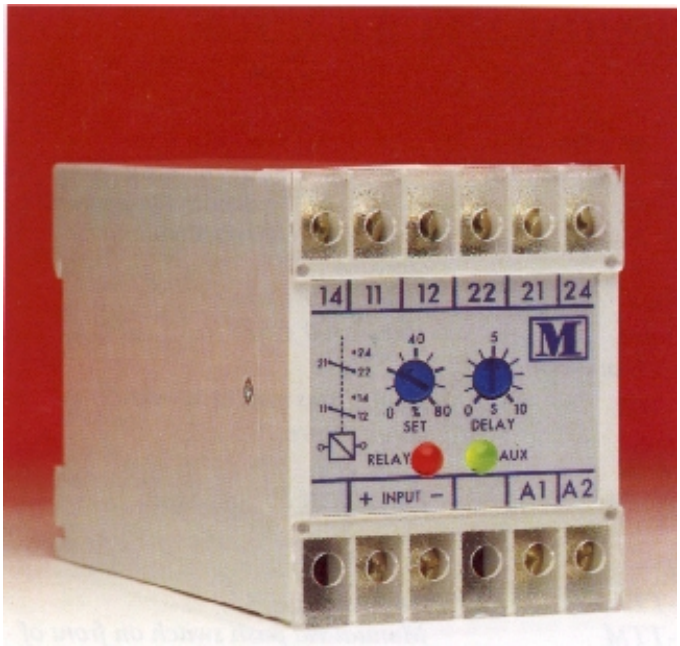
1. *AC auxiliary in the range 57.7 to 480 volts*
2. *Calibration at temperature other than 23 C*

CONNECTION DIAGRAMS



M200TTA M200TTM

MILLIVOLT TRIP



SELECTION GUIDE

M200-MVU	*mV under trip*
M200-MVO	*mV over trip*
M200-MVC	*mV combined trip*

TYPICAL APPLICATIONS

The mV trip relays will accept DC millivolt signals from shunts, sensors and transducers.
A common application is to protect equipment from over current in a DC charging system. For example using a 400A to 75mV shunt. The 75mV signal is fed to the M200-MVO if the customer wishes to ensure the current does not exceed 300 amps then the MVO trip would be set at 75 % (56.25mv). If the current goes above 300 Amps the relay would energise. As is common with all the M200 relays, on over units the relay energises when the input signal exceeds the trip point and 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.

TECHNICAL SPECIFICATION

INPUT	
Rated value mV dc	*l0-999.9mV dc*
Input Impedance	*50k Ohm*
Source impedance	*100 ohms max*
Overload	*10 x Input continuous*
SETPOINT	
Range Over	*Adjustable 40% to 120%*
Range Under	*Adjustable 0% to 80%*
Repeatability	*Better than 0.5% of full span*
Time delay	*Adjustable 200 ms to 10 seconds*
Differential	*Fixed 5%*
AUXILIARY	
AC Voltage	*115/230/400V ± 25% / 45-65 Hz / <2VA*
DC Voltage	*24V (± 20% galvanically isolated) < 3 W*
WEIGHT & CASE SIZE	
Single units	*Approx. 0.4kg 55mm case*
Combined units	*Approx. 0.6kg 100mm case*

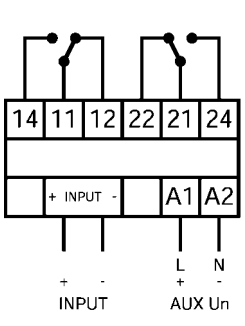
ORDERING INFORMATION

Product Code	*Input*	*Aux*	*Freq*	*Options*
M200-MVU	75mV	230V	50Hz	Cal 40ºC

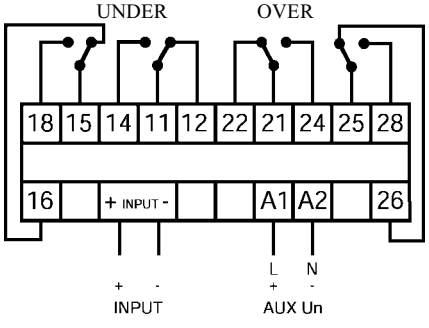
OPTIONS

1.Adjustable time delay max 30 seconds
2.AC auxiliary in the range 577 to 480 volt
3.Calibration at temperature other than 23º C

CONNECTION DIAGRAMS

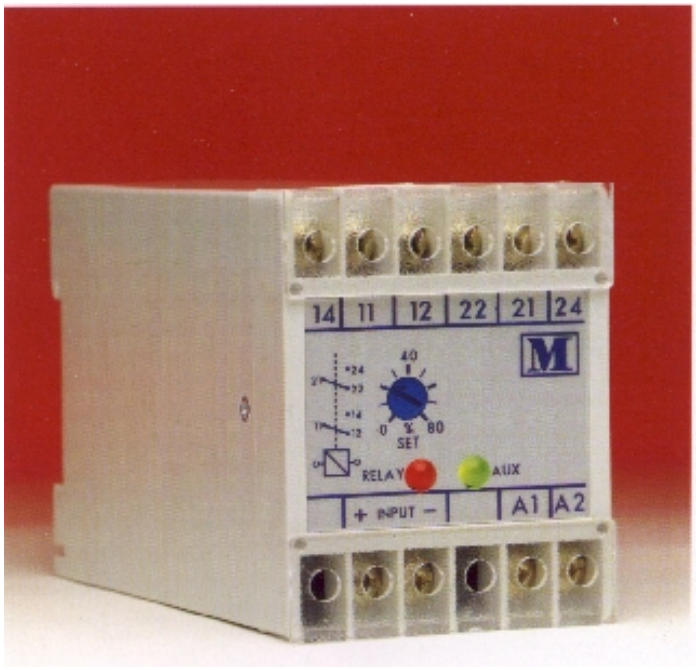


M200MVO M200MVU



M200MVC

DC VOLTAGE TRIP



SELECTION GUIDE

M200-TVU	*DC volts under trip*
M200- TVO	*DC volts over trip*
M200-TVC	*DC volts combined trip*

TYPICAL APPLICATIONS

The M200 DC voltage trips are commonly used for monitoring battery voltage conditions but can be used in any application where the dc voltage level is critical. The user is provided with an adjustable set-point of 0-80% on under units and 40-120% on over units. The differential is internally set at 5%; no time delay is provided.
As is common with all M200 relays, on over units the relay energises when the input signal exceeds the trip point and 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 state of the power supply.

TECHNICAL SPECIFICATION

INPUT	
Rated value Un	*1<150 volt*
Impedance	*10k Ohm / Volt*
Overload	*1.5 x Un continuous* *2 x Un for 3 seconds*
SETPOINT	
Range Over	*Adjustable 40% to 120%*
Range Under	*Adjustable 0% to 80%*
Repeatabiltiy	*Better than 0.5% of full span*
Differential	*Fixed 5%*
AUXILIARY	
AC Voltage	*115/230/400V* *± 25% / 45-65Hz / 2VA*
DC Voltage	*24 volt (± 20% / galavanically isolated)* *<3 watt*
WEIGHT & CASE SIZE	
Single units	*Approx. 0.4kg. 55mm case size*
Combined unit	*Approx. 0.6kg. 100mm case size*

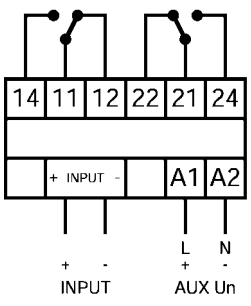
ORDERING INFORMATION

Product Code	*Input Vn*	*Aux Freq*	*Options*
M200-TVU	*24V*	*110V 50Hz*	

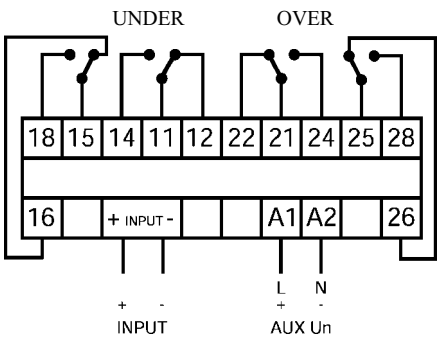
OPTIONS

1. AC auxiliary in the range 57.7 to 480 volts
2. Calibration at nominal Hz 35…450Hz
3. Calibration at temperature other than 23º C

CONNECTION DIAGRAMS



M200TVO M200TVU



M200TVC

THE MULTITEK RANGE

TRANSDUCERS, MONITORING RELAYS, DIGITAL PANEL METERS, PANEL MOUNT EARTH LEAKAGE RELAYS, PANEL MOUNT 3 PHASE CURRENT RELAYS

multitek ®

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