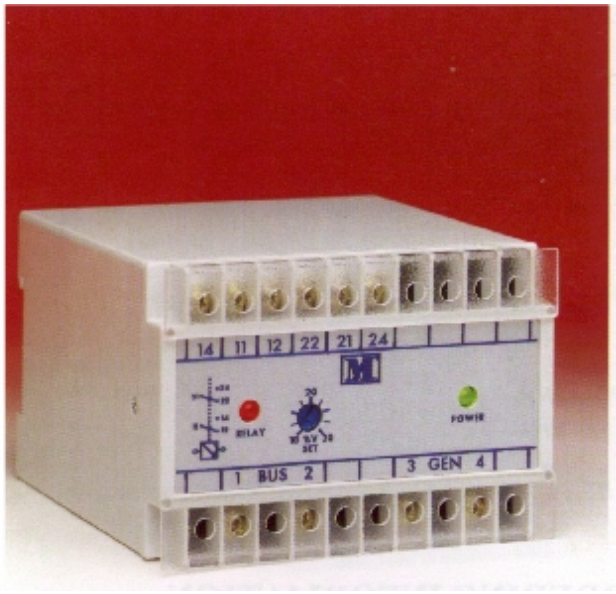
PC&S Panel Components & Systems
149 Main St. - Stanhope, New Jersey 07874 - Phone 800-523-9194 - Fax 973-448-1674

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*

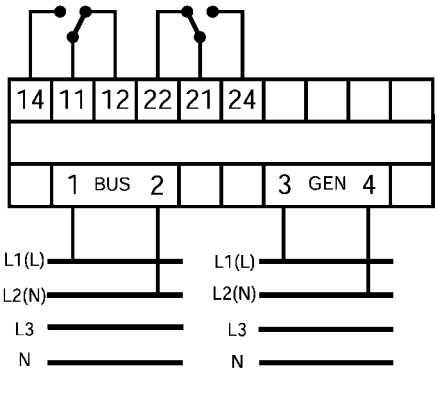
ORDERING INFORMATION

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

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