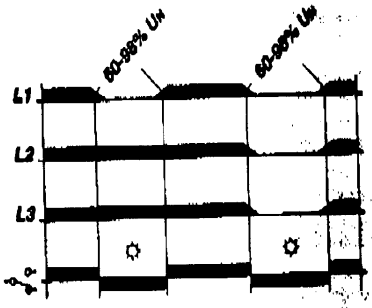
DESCRIPTION

A relay for monitoring a 3-phase AC power supply with or without Neutral. The relay monitors that all phases are available and in the correct phase sequence (U,V,W), that none of the phases are shifted more than 20°C in relation to each other and that one or more of the phase voltages are not too low. When all three monitoring criteria are fulfilled the relay is activated. If one or more of the criteria are not fulfilled the relay de-energises and a red LED indicates failure. The nominal phase voltage is adjustable ± 15% of the selected voltage version (3 x 115/3x230/3x400VAC). The low-voltage limit is also adjustable from 60-98% thus allowing detection of a motor-generated phase.
With connection of Neutral the measuring abilities are optimal, as Neutral works as a measuring reference. Without Neutral, the phase monitoring relay generates a Noutral reference from the connected phases.

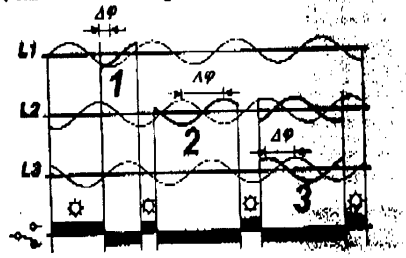
Features
- Monitoring of
  - Phase rotation
  - Phase shift less than 20°
  - Low voltage
- Adjustable measuring voltage Un +/- 15% of rated voltage Un.
- Low voltage detection, adjustable 60- 98% of measuring voltage Un.
- Output SPTD.
- Operating voltage via phases V and W (L2 and L3).

OPERATION

Voltage monitoring



Phase monitoring



Examples of types of phase error:
1. Motor-generated phase, for example, when L1 is disconnected to an unloaded or lightly loaded 3-phase motor ($\Delta\varphi$>20°).
2. Ohmic load or heavily loaded 3-phased motor, where L2 is disconnected ($\Delta\varphi$=180°).
3. Reversed phase sequence (L2 and L3) ($\Delta\varphi$=120°).

OPTION:
Can be delivered with separate supply voltage

VERSION/ORDERING CODES

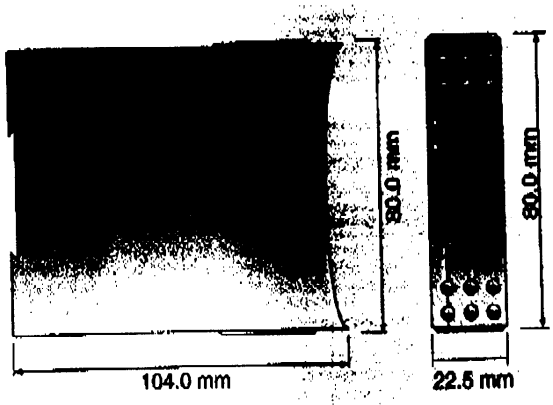
Type:
Phase monitoring relay — MXP-10

Supply voltage/measuring voltage

3 x 115V AC	115
3 x 230V AC	230
3 x 400V AC	400

MXP-10 230

MECHANICAL DIMENSIONS



TECHNICAL DATA

Input:

Input signal	Impedance	Umax
3 x 115V AC + N	150 kOhm	600V AC
3 x 230V AC + N	316 kOhm	600V AC
3 x 400V AC + N	560 kOhm	600V AC

Frequency: 47-53Hz.
Measuring cycle: 80ms.
Temperature drift: Max. 0,05%/°C.
Response time: τ = 0.2s, worstcase 6 x τ.
Setting accuracy: Un = Typically ±3V AC.
Low voltage typically ±1%.

Output:

SPDT relay: Contact material:AgNi0.15 with hardened gold plating Au.
Max. Load AC; 8A/240VAC (cosφ=1)
Max. breaking capacity 2000VA.
Inductive load. See fig. 1.
Max. load DC, 8A/24V DC
Max. breaking capacity 60-270W. See fig. 2.

Max. in rush current: 15A (max. 4a/duty cycle less than 10%).

Min. in rush current: 10mA, 24V DC.
Frequency : Max. 1000 operations pr. hour.
Life time: Mech.Min. 1x 10^8 operations.
Elect.Min. 3 x 10^7 operations.
with full load.
Delay; <20ms.

Supply voltage:
Supplied via phase: V(L2) and W(L3).
Consumption: 3VA.

General data:
Ambient temperature: -20 to 55°C.
Storage temperature: -40 to 80°C.

Mounting: 35mm DIN-rail (EN50022).

Terminals: Screw terminals with dual compartment.
Terminal screws are combined crosshead/ slotted.
Up to 2 x 2.5mm² wire(2 x 1.5mm² inc. ferrule).
Recommended torque, 0.5 Nm.,

Max. 0,7 Nm. (VDE0609-1).
Terminal identification in accordance with DIN46199/EN50005.

Indicators: Green LED = operating voltage.
RedLED = relay off - failure.

Protection: IP20.

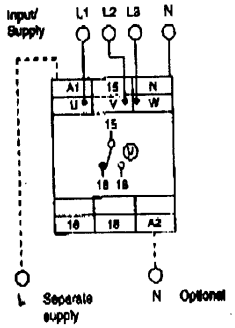
Electric isolation: 3.75kVAC (1 min.) between input, supply and relay uotput (EN60950).

Housing: Noryl (GE), UL94V1.

Terminal block: Noryl (GE), UL94V0.

Weight: 180 g.

WIRING DIAGRAM



SPECIFICATIONS:

MXP-10 is designed and developed with regard to relevant specifications:

- EN60204-1 / VDE0113 electrical material on machines.
- VDE0110 / IEC664 Isolation specifications/creepage and clearance distances.
- Electrical safety in accordance with EN61010.
- IEC414 Safety regulations for control and monitoring equipment.
- EMC: Emission, EN50081-1
  Immunity, EN50082-2
- Humidity in accordance with IEC68-2-3; RH=95%, 40°C
- Vibration in accordance with IEC68-2-6:
- Shock when mounted, in accordance with IEC68-2-27.

MXP-10 is CE-marked in accordance with EMC-and the Low Voltage Directive.

OUTPUT LOAD DIAGRAMS

Fig. 1

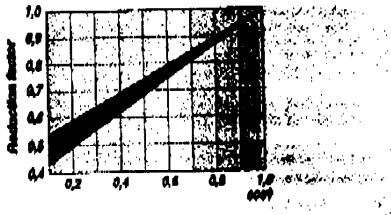


Fig. 2