

Monitoring Relays

Digital, True RMS 3-Phase, Multifunction

Type MPC72 B001



- RS485 serial port (MODBUS-RTU)
- LED indication for alarm status
- For mounting on DIN-rail in accordance with DIN/EN 50 022
- Dimensions: 4-DIN modules

- Digital TRMS 3-phase over and under voltage, over and under frequency, phase sequence and phase loss monitoring relay
- Detects when all 3 phases are present and have the correct sequence
- Adjustments from the frequency and voltage set-points possible according to DIN V VDE V 0126-1-1
- Detects if all the 3-phase-phase voltages are within the set limits
- Detects if the system frequency is between the set limits
- Detects if the derivative frequency is below the absolute set limit
- Measures its own power supply voltage
- Front joystick configuration
- Instantaneous variables readout: 4 DGT
- Event counter and data logger
- Autotest function
- Last 10 events recording (date, time, cause)
- Output: 1 x 8 A relay DPDT

Product Description

Digital 3-phase line voltage Relays outputs and RS485 monitoring relays for phase communication port. sequence, phase loss, over Recording of the last 10 and under voltage, over and events. under frequency, derivative Supply range from 380 to 415 VAC. Joystick configuration and LCD data displaying.

Ordering key

MPC 72 D M48 B001

Housing	_____
Function	_____
Type	_____
Item number	_____
Output	_____
Power supply	_____
Special version	_____

Type Selection

Mounting	Output	Communication port	Supply: 380 to 415 VAC
DIN-rail	DPDT	RS 485	MPC 72 D M48 B001

Input Specifications

Input L1, L2, L3	Terminals 55, 53, 51 Measures its own supply	Frequency derivative setpoints Range (absolute value) Step adjustment Preset value	0.1 to 1 Hz/s 0.1 Hz/s Monitoring not enabled
Nominal voltage	400 VAC	Hysteresis Voltage Frequency Derivative frequency	20 VAC 0.1 Hz 0.020 Hz
Voltage setpoints Lower setpoint Range Step adjustment Preset value	320 to 400 VAC 1 VAC 320 VAC	Display Type	LCD, h 7 mm 3 lines (1 x 8 DGT, 2 x 4 DGT) 4 DGT 9999 0.000
Upper setpoint Range Step adjustment Preset value	400 to 480 VAC 1 VAC 460 VAC	Instant. variables read-out Max. indication Min indication Overload/underload status Voltage and frequency	EEE / -EEE indication when the value exceeds the max./min.measurement capacity EEE indication when the value exceeds the max measurement capacity
System frequency	50 Hz, 60 Hz	Derivative frequency	
Frequency setpoints Lower setpoint Range Step adjustment Preset value	45 to 65 Hz 0.1 Hz 47.5 Hz	Display refresh time	750 ms
Upper setpoint Range Step adjustment Preset value	45 to 65 Hz 0.1 Hz 50.2 Hz		

Output Specifications

Relay output Terminals 11, 12, 13 / 8, 9, 10	1 x DPDT N.E. Voltage/frequency related (both outputs release in case of phase loss or wrong phase sequence)
Relay contact ratings (AgSnO ₂) Resistive loads AC 1 DC 12 Small inductive loads AC 15 DC 13	μ 8 A @ 250 VAC 5 A @ 24 VDC 2.5 A @ 250 VAC 2.5 A @ 24 VDC
Relay mechanical life	≥ 30 x 10 ⁶ operations
Relay electrical life	≥ 10 ⁵ operations (at 8 A, 250 V, cosφ = 1)
Relay operating frequency	≤ 7200 operations/h

RS485 Type	Multidrop, bidirectional (static and dynamic variables)
Connections	2-wire (terminals 31, 32, 33)
Addresses	255, selectable
Protocol Data (bidirectional)	MODBUS/JBUS (RTU)
Dynamic Static Data format	Reading only Reading/writing 1 start bit, 8 data bit, 1 parity bit (even, odd or none (default) control), 1 stop bit
Speed	9600 (default) or 4800 bit/s, selectable
Driver input impedance	1/5 unit load, max. 160 devices on the same bus

Supply Specifications

Power supply Rated operational voltage through terminals: Delta Voltage:	Overvoltage cat. III (IEC 60664, IEC 60038) 55, 53, 51 380 to 415 VAC ± 15% 45 to 65 Hz
Rated operational power	8 VA Supplied by L2 and L3

Mode of Operation

Connected to the 3 power programming procedure.
supply, MPC72 B001 oper- Every failure is detected
ates when the frequency and through the DPDT output
the voltage of the mains are relay.
within the setpoints.
The setpoints are freely
modifiable by entering the

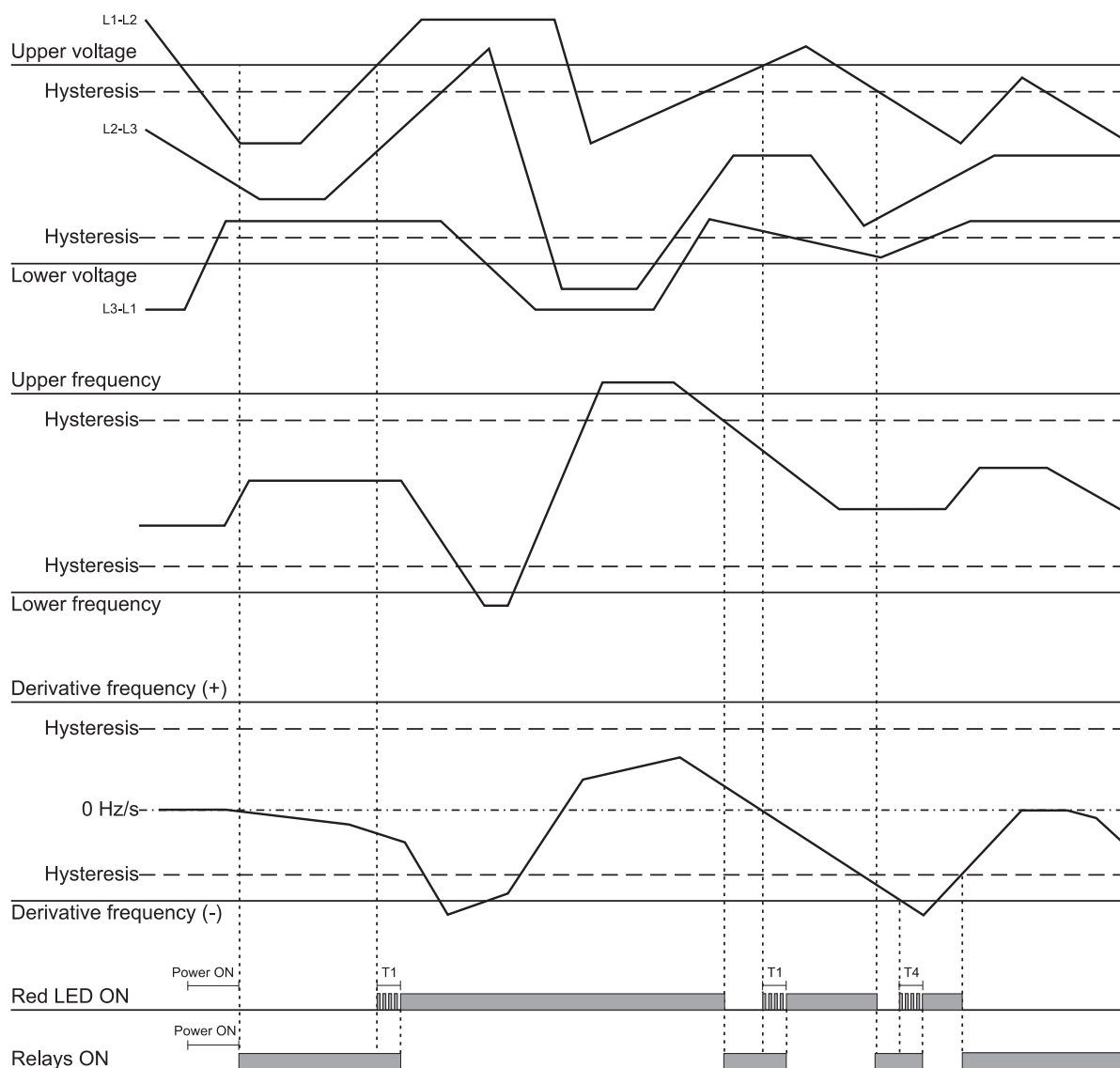
General Specifications

Timings		Accuracy (Display + RS 485)	(@25 °C ±5 °C, R.H. < 60%, 45 to 65 Hz)
Power ON delay (T0)		Voltage	± (0.5 % RDG + 1 DGT)
Range	1 to 6 s	Frequency	± 0.01 Hz (45 to 65 Hz)
Step adjustment	1 s	Derivative frequency	± 0.01 Hz/s (45 to 65 Hz)
Preset value	1 s	Temperature drift	< 200 ppm/°C
Upper (T1) and lower (T2) voltage delay on alarm		Insulation	
Range	0.05 to 1 s	Input to relays output	4 kV (1.2/50 μs), ≥ 2 kVAC (rms)
Step adjustment	0.05 s	Input to RS485 port	4 kV (1.2/50 μs), ≥ 2 kVAC (rms)
Preset value	0.05 s	RS485 port to relays output	4 kV (1.2/50 μs), ≥ 2 kVAC (rms)
Upper (T3) and lower (T4) frequency delay on alarm		LED indication	Red LED
Range	0.05 to 1 s	Flashing 5 Hz	During voltage, frequency and derivative frequency delay ON alarm times
Step adjustment	0.05 s	Flashing 10 Hz	For wrong phase sequence connection (note: the device is provided with the phase sequence monitoring not enabled)
Preset value	0.05 s	Steady	During alarm status (DPDT output released)
Derivative frequency delay on alarm (T5)		Environment	(EN 60529)
Range	0.05 to 1 s	Degree of protection	IP50
Step adjustment	0.05 s	Front	IP20
Preset value	0.05 s (if the monitoring is enabled)	Screw terminals	3
Incorrect phase sequence or total phase loss		Pollution degree	
Alarm ON delay	< 50 ms ± 15 ms (if the monitoring is enabled, no other adjustment is allowed)	Operating temperature	8A output -20 to +50°C, R.H. < 95% 5A output -20 to +60°C, R.H. < 95%
		Storage temperature	-30 to +80°C, R.H. < 95%

General Specifications (cont.)

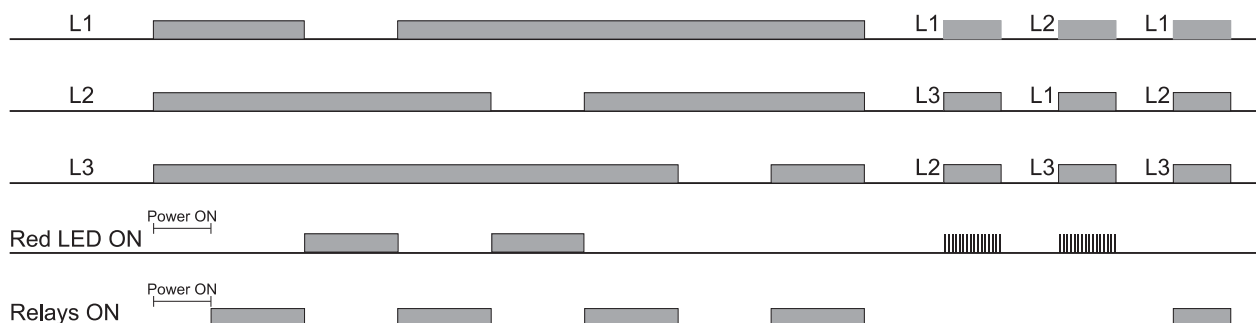
Housing		CE Marking	Yes
Dimensions	71.6 x 90 x 66.3 mm	LVD	According to EN 61010-1
Material	PA66	EMC	Electromagnetic Compatibility
Weight	Approx. 300 g	Immunity	According to EN 61000-6-2
Screw terminals		Emissions	According to EN 61000-6-3
Tightening torque	Min 0.4 Nm, Max. 0.8 Nm		

Operation Diagrams

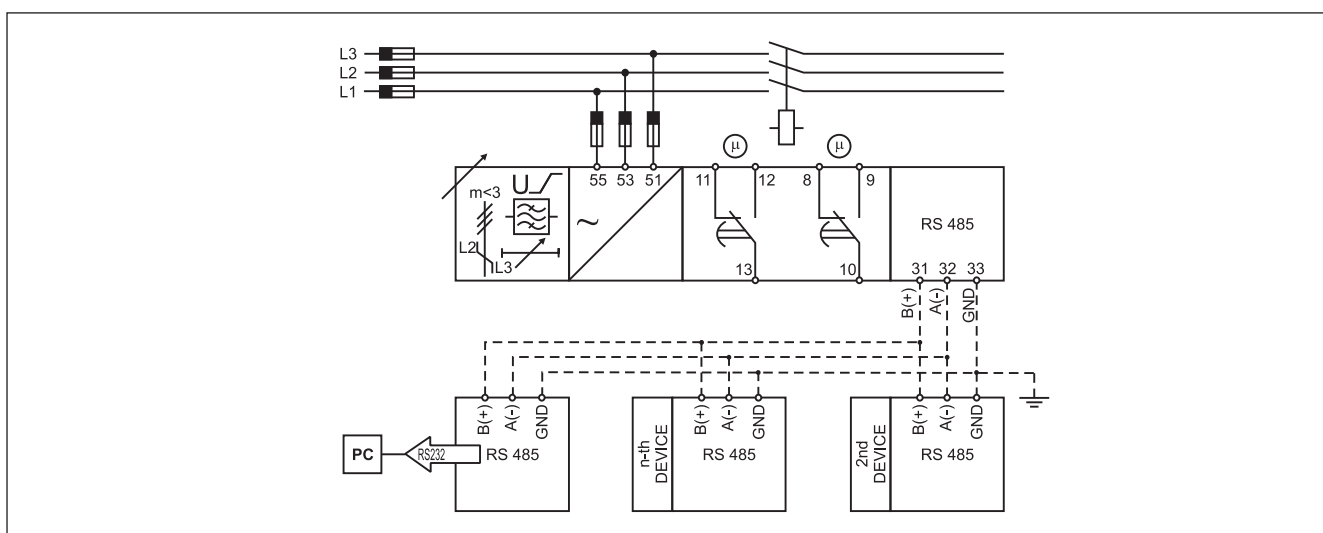


Operation Diagrams (Cont.)

Phase sequence, total phase loss



Wiring Diagram



Dimensions

