

Changeover module

UMC108E

Changeover module for safety power supplies



UMC108E – Typical example

Device features

- Complete solution for changeover between the normal power supply and the safety power supply
- Factory-made, tested module for time and cost-saving installation
- Reliable changeover within $t \leq 0.5$ s
- Nominal current I_n 25...80 A
- Suitable for all common DIN rail systems
- Screwless-type connection technique
- Bus technology for easy installation and reduced fire load
- Plain text display provides concise information
- Clear menu structure with LC display allows easy parameter setting
- Power supply for MK2430/MK800
- Voluntary testing by TÜV Süddeutschland

Product description

The factory-made modules of the UMC108E... series are designed to change over between two power supply sources, e.g. safety devices, safety lighting etc. Information exchange between the changeover equipment and the alarm indicator and operator units is established via bus technology. The module is suitable for mounting onto all common DIN rail systems (equipment racks have to be provided by the customer).

Application

- Changeover between two power supply sources of AC systems in building distribution boards.

Function

In fault-free condition, the preferred supply line is switched on. If the voltage drops below the set response value, changeover to the second supply will automatically take place. The changeover period can be set individually. In order to ensure operational readiness, the second line as well as the output of the changeover equipment (Line 3) are monitored too. On voltage recovery, return to the preferred supply line occurs automatically. Owing to variable delay times (return transfer time or pause time), the UMC meets the individual installation-specific requirements (e.g. coordination of several changeover modules, reduction of switching energy). The function of the changeover equipment can be tested via the test button.

Functions in accordance with DIN VDE 0108

- Voltage monitoring with control function
 - on the preferred supply
 - on the second supply
 - at the output of the changeover module
- Changeover period $t \leq 0.5...20$ s
- Protection against wrong operation by multiple interlocking
- Cables laid to resist short-circuits and earth faults
- Control circuit with single fault tolerance
- Automatic return on recovery of the voltage
- functional testing including checking of the operating times

Further measures to increase the electrical safety

- Continuous monitoring of the actuation devices and automatic processes (coil, control contacts, connections).
- Monitoring for short-circuits upstream and at the output of the changeover device and the pre-defined switching behaviour.

Single fault tolerance

The changeover modules continuously monitor the functions and in this way ensure that an individual, foreseeable error cannot lead to a failure of the power supply at the output of the automatic changeover equipment.

Indications/messages

- Plain text messages display for all essential operating, fault and alarm messages.
- Information exchange between alarm indicator and operator units via BMS bus
- Common alarm contact with protective separation in accordance with DIN EN 50178

Technical data changeover equipment UMC108E

Insulation coordination acc. to IEC 60664-1

Rated insulation voltage	AC 250 V
Rated impulse voltage/pollution degree	4 kV/3

Power unit/ switching elements

Switching elements	latched contactors
Rated operational voltage U_e	N AC 230 V
Operating range U_e	0.8...1.15 x U_e
Frequency f_e	50...60 Hz
Rated operational current I_e (acc. to IEC 60364-7-710)	see ordering information
Fuse	see ordering information
Utilization category	AC-3
Changeover period, adjustable	≤ 0.5 s...20 s

Supply voltage devices

Supply voltage devices U_S	AC 230 V
Operating range of U_S	0.8...1.15 x U_e
Frequency range of U_S	50...60 Hz
Power consumption	see ordering information

Control and indicating device PRC487

Display, characters	LCD, illuminated, 2 x 16 characters
Control inputs	≤ DC 5 V

Voltage monitoring

Response value undervoltage, adjustable	0.7...0.9 x U_e
Response value overvoltage	1.15 x U_e
Response time t_{an}	50...250 ms
Response time t_{off} adjustable (50 ms steps)	0...9950 ms
Return transfer time t_{on} adjustable (1 s steps)	0...249 s
Delay time, adjustable (50 ms steps)	0...9950 ms

Interface

Interface/protocol	RS-485/BMS
Baud rate	9.6 kbit / s
Cable length	≤ 1200 m
Recommended cable (shielded, shield connected to PE on one side)	min. J-Y(St)Y 2 x 0.6
Terminating resistor	120 Ω (0.25 W)
Device address, BMS bus	PRC487: 2...30
Factory-set device address	PRC487: 4

Switching elements (alarm contacts PRC487)

Number of changeover contacts	1 changeover contact
Operating principle	N/C operation

Contact data acc. to IEC 60947-5-1

Rated operational voltage U_e	AC 230 V / DC 220 V
Rated operational current I_e	AC 5 A / DC 0.2 A
Utilization category	AC 14/DC 12
Electrical service life, number of cycles	10.000
Minimum contact load	1 mA at AC / DC > 10 V

Terminals

Control unit

Connection	cage clamp spring terminal
Connection properties rigid/flexible/conductor sizes	0.08...2.5 mm ² /AWG 28-12
Stripping length	8...9 mm

Power supply unit

Connection	cage clamp spring terminal
Connection properties rigid/flexible/conductor sizes	6...35 mm ² /AWG 8-2
Stripping length	23 mm

General data

EMC immunity	acc. to EN 61000-6-2
EMC emission	acc. to EN 61000-6-4
Classification of climatic conditions acc. to IEC 60721	
Stationary use	3K5
Transport	2K3
Storage	1K4
Operating temperature	-10 °C...+55 °C
Classification of mechanical conditions acc. to IEC 60721	
Stationary use	3M4
Transport	2M1
Long-time storage	1M3
Operating mode	continuous operation
Mounting position	vertical
Degree of protection, internal components (IEC 60529)	IP30
Degree of protection, terminals (IEC 60529)	IP20
Mounting into standard distribution panels	see table "Dimensions and weights"
Flammability class	UL94V-0
Product standards	DIN VDE 0100-718 (VDE 0100-718)
Operating manual	TGH1322 + supplementary sheet
Weight	table "Dimensions and weights"

Ordering information				
Type	Rated operational current I_e (AC-3)	Fuse max.	Power consumption max.	Art. No
UMC108E-25	25 A	25 A gL/gG	26 W	B 9205 6007
UMC108E-65	65 A	80 A gL/gG	34 W	B 9205 6008
UMC108E-80	80 A	100 A gL/gG	34 W	B 9205 6009

Dimension and weights			
Type	Dimensions fields/rows (W/H/D mm)	Recommended cabinet depth	Weight approx.
UMC108E-25	1/5 (250/750/220)	300 mm	12 kg
UMC108E-65	1/5 (250/750/220)	300 mm	13 kg
UMC108E-80	1/5 (250/750/230)	300 mm	14 kg