

Modular devices



SUMMARY OF MODELS

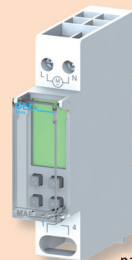
Timers
switch according to internal program in real time



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Type	MAE-A	MAN-A	MAE-D	MAN-D	MAA-D
Design	analog	analog	digital	digital	digital
Arrangement of contacts	001, 100	001, 100	001, 002, 100	001, 002	001, 002
Permanent ON/OFF	yes	yes	yes	yes	yes
Run reserve	-	100 hours	3 years	5 years	5 years
Menu language	-	-	EN	CS, EN, DE, PL, RU, IT, FR, ES, PT, NL, DA, FI, NO, SV, TR	
Number of programs	-	-	28	56	56
Program test	-	-	yes	yes	yes
Holiday mode	-	-	-	yes	yes
Random switching mode	-	-	-	yes	yes
PIN code protection	-	-	-	yes	yes
Astro function	-	-	-	-	yes

Monitoring relays
switch depending on monitored physical quantity



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Type	MMR-U3 MMR-X3	MMR-P	5SV8	MMR-HL	MMR-T1	MMR-T2, MMR-TD
Rated voltage U_c	AC 230 V	AC 230 V	AC 230 V	AC 230 V	AC 230 V	AC 230 V
Arrangement of contacts	001	001	001, 002, 40	001	001	200
Operating voltage of contact	AC 250 V	AC 250 V	AC 230 V	AC 250 V	AC 250 V	AC 250 V
Operating current of contact	8 A	16 A	6 A	16 A	8 A	16 A
Monitored quantity	Voltage	Current	Residual current	Level	Temperature	Temperature
Function	- overvoltage - undervoltage - phase failure - phase sequence ^{*)} - asymmetry ^{*)}	- indication at reach of: 0.1 ÷ 1 A 0.5 ÷ 5 A 2.5 ÷ 25 A (adjustable)	- indication at reach of: 0.03 ÷ 30 A (adjustable)	- liquid drawing off - liquid filling	- motor protection - local reset - remote reset - auto reset	- from -25 °C - up to +95 °C - 2 channels

^{*)} It is only available for version X3.

VOLTAGE MONITORING RELAYS MMR-U3, MMR-X3



MMR-U3-001-A230

Voltage monitoring relays MMR-U3

- For overvoltage, undervoltage, phase failure monitoring.
- The relay is also functional in case of unconnected N-conductor. Breaking of N-conductor is not monitored.
- The relay is equipped with an output make-and-break contact 8 A.
- It can be also used for one-phase circuits.
- Overvoltage and undervoltage monitoring can be switched off separately. Then the relay reacts only to phase failure only.
- Adjustable time delay $0 \div 10$ s.
- Light indication of presence of supply voltage (green LED).
- Closing of contact 15-18 (red LED).

Type	Order code	Number of modules	Weight [kg]	Package [pcs]
MMR-U3-001-A230	OEZ:43244	1	0.091	1



MMR-X3-001-A230

Voltage monitoring relays MMR-X3

- For overvoltage, undervoltage, phase failure, phase sequence and asymmetry monitoring.
- The relay is also functional in case of unconnected N-conductor. Breaking of N-conductor is not monitored.
- The relay is equipped with an output make-and-break contact 8 A.
- Overvoltage, undervoltage and asymmetry monitoring can be switched off separately. Then the relay reacts only to phase sequence and phase failure only.
- Adjustable time delay $0 \div 10$ s.
- Light indication of presence of supply voltage (green LED).
- Closing of contact 15-18 (red LED).

Type	Order code	Number of modules	Weight [kg]	Package [pcs]
MMR-X3-001-A230	OEZ:43245	1	0.091	1

VOLTAGE MONITORING RELAYS MMR-U3, MMR-X3

Description of MMR-U3

Terminals L1, L2, L3 and N for connection of the monitored voltage

- U_c : AC 230/400 V.
- In 1-phase application, connect the terminals L1, L2 and L3.

Indication of presence of supply voltage

- Supply voltage presence is indicated by continuously lighting green LED.

Error indication

- Red LED.
- 1 blink... error in phase 1.
- 2 blink... error in phase 2.
- 3 blinks... error in phase 3.

Overtension level setting

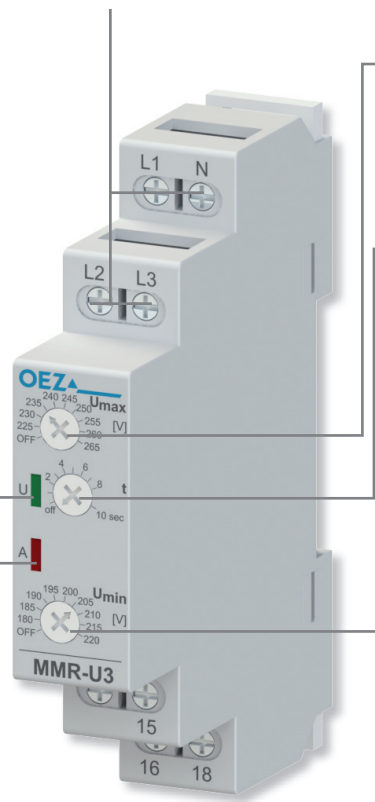
- Range AC 225 ÷ 265 V, step 5 V.
- It can be switched off.

Setting of delay of reaction to error

- Range 0 ÷ 10 s, step 1 s.
- It can be switched off.

Undervoltage level setting

- Range AC 180 ÷ 220 V, step 5 V.
- It can be switched off.



Description of MMR-X3

Terminals L1, L2, L3 and N for connection of the monitored voltage

- U_c : AC 230/400 V.

Indication of presence of supply voltage

- Supply voltage presence is indicated by continuously lighting green LED.

Error indication

- Red LED.
- 1 blink... error in phase 1.
- 2 blink... error in phase 2.
- 3 blinks... error in phase 3.

Undervoltage level setting

- Range AC 180 ÷ 220 V, step 5 V.
- It can be switched off.

Overtension level setting

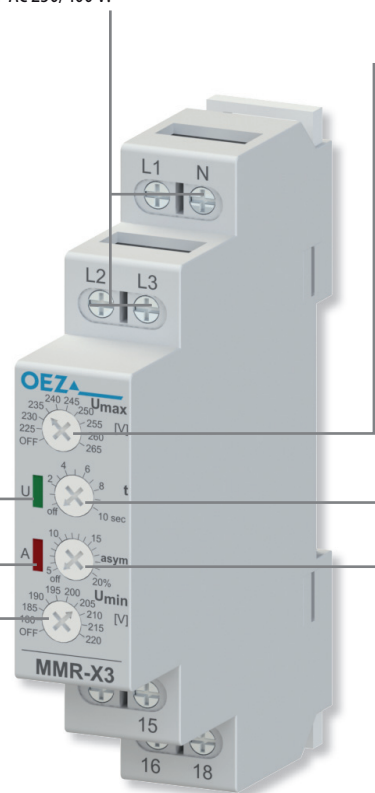
- Range AC 225 ÷ 265 V, step 5 V.
- It can be switched off.

Setting of delay of reaction to error

- Range 0 ÷ 10 s, step 1 s.
- It can be switched off.

Asymmetry size setting

- Range 5 ÷ 20 %, step 1 %.
- It can be switched off.



VOLTAGE MONITORING RELAYS MMR-U3, MMR-X3

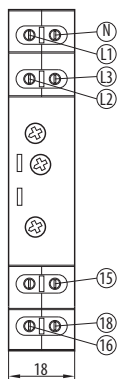
Specifications

Type		MMR-U3	MMR-X3
Standards		EN 60255-1 IEC 60255-1	EN 60255-1 IEC 60255-1
Approval marks		CE EAC	CE EAC
Main circuit (contact)			
Arrangement of contacts ¹⁾		001	001
Rated operating voltage/current	U_e/I_e	AC-1 250 V / 8 A	250 V / 8 A
Max. switched power		AC-1 2 000 VA	2 000 VA
		AC-3 200 W	200 W
		AC-5b 200 W	200 W
Max. switched voltage		AC 400 V	AC 400 V
Connection – Cu conductor rigid and flexible		0.2 ÷ 2.5 mm ²	0.2 ÷ 2.5 mm ²
Torque		0.5 Nm	0.5 Nm
Mechanical endurance		3 000 000 operating cycles	3 000 000 operating cycles
Electrical endurance		10 000 operating cycles	10 000 operating cycles
Supply circuit			
Rated voltage	U_c	AC 230 V	AC 230 V
Input power		max. 1.5 VA	max. 1.5 VA
Supply voltage indication		green LED	green LED
Rated frequency	f_n	50 Hz	50 Hz
Connection – Cu conductor rigid and flexible		0.2 ÷ 2.5 mm ²	0.2 ÷ 2.5 mm ²
Torque		0.5 Nm	0.5 Nm
Measuring circuit			
Monitored voltage		AC 230/400 V	AC 230/400 V
Error indication		red LED	red LED
Adjustable delay		0 s ÷ 10 s	0 s ÷ 10 s
Adjustable undervoltage level		180 ÷ 220 V	180 ÷ 220 V
Adjustable overvoltage level		225 ÷ 265 V	225 ÷ 265 V
Adjustable value of asymmetry		-	5 ÷ 20 %
Method of setting		control knobs on the front panel	control knobs on the front panel
Connection – Cu conductor rigid and flexible		0.2 ÷ 2.5 mm ²	0.2 ÷ 2.5 mm ²
Torque		0.5 Nm	0.5 Nm
Other data			
Galvanic isolation	input/output	4 kV	4 kV
Mounting on "U" rail according to EN 60715 – type		TH35	TH35
Degree of protection		IP20	IP20
Ambient temperature		-20 ÷ +55 °C	-20 ÷ +55 °C
Working position		arbitrary	arbitrary

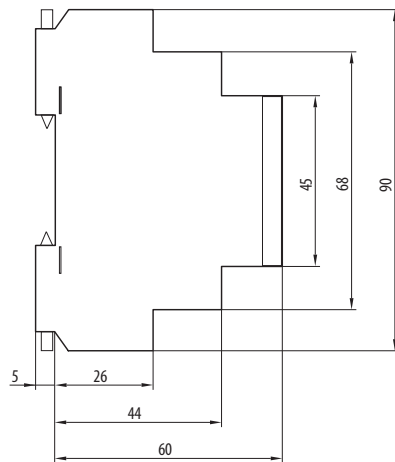
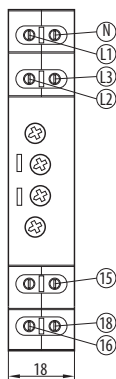
¹⁾ Each digit indicates successively the number of make and break contacts.

Dimensions

MMR-U3-...



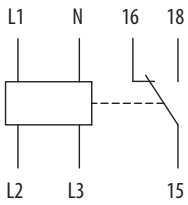
MMR-X3-...



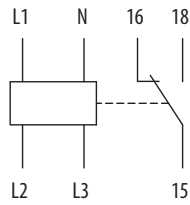
VOLTAGE MONITORING RELAYS MMR-U3, MMR-X3

Diagram

MMR-U3-...

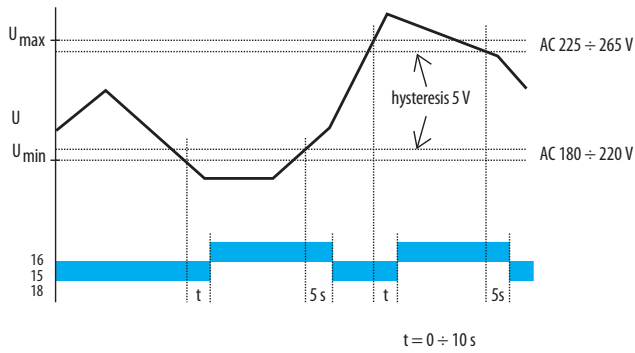


MMR-X3-...

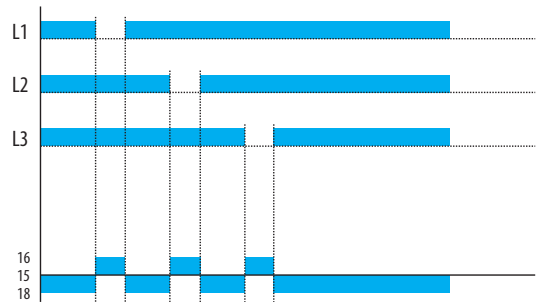


Graph

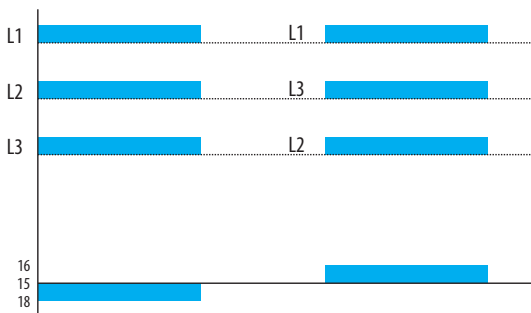
Monitoring of overvoltage and undervoltage MMR-U3, MMR-X3



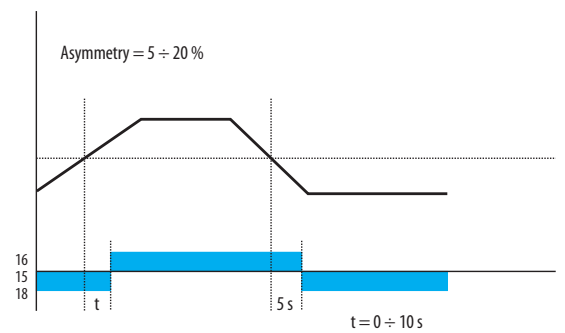
Phases failure monitoring MMR-U3, MMR-X3



Monitoring of phase sequence MMR-X3



Asymmetry monitoring MMR-X3



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