

MCR TIME RELAYS



MCR-MA-001-UNI

MCR-MB-001-UNI

Multi-function time relays

- Designed for domestic and similar fixed electrical installations.
- For switching electrical circuits up to 8 A according to set time, function and connection.
- Time range: 0.1 s ÷ 100 hours.
- A great number of functions with various control options: delayed pull-in, impulse after switching on, cycling device starting with pause/impulse, response to rising/falling edge, response to supply voltage connection/disconnection, response to control pulse edge only,... Refer to the function diagrams for specific function assignments for each time relay design.
- Universal power supply voltage:
AC 12 ÷ 230 V / DC 12 ÷ 220 V (MCR-...-001-UNI),
AC 24 ÷ 230 V / DC 24 ÷ 220 V (MCR-...-003-UNI).

- Time and function adjustment by control dials from the front of the device.
- TEST function allowing permanent switching of output contacts (checking the functionality of the electrical circuit).
- Light signalling at switching on the contacts (yellow LED).
- Light indication of the presence of power supply voltage (green LED).
- Each impulse applied to the TL input restarts timing depending on the set function.
- In the DC circuits, the (+) conductor must be connected to the terminal A1 and the (-) conductor to the terminal A2.
- In the applications where the switching time exceeds 1 hour or the switching duty cycle is higher than 25 %, a gap of at least 2 mm (0.5 of a module recommended) must be created between the devices to ensure the specified service life.

Number of functions	Arrangement of contacts ¹⁾	Type	Ordering code	Number of modules	Weight [kg]	Packaging [pcs]
9	001	MCR-MA-001-UNI	OEZ:43239	1	0.105	1
	003	MCR-MA-003-UNI	OEZ:43240	1	0.105	1
18	001	MCR-MB-001-UNI	OEZ:43241	1	0.105	1
	003	MCR-MB-003-UNI	OEZ:43242	1	0.105	1

¹⁾ Each digit sequentially indicates the number of make, break and change-over switch contacts.



MCR-TK-001-UNI

Timing relays

- Designed for domestic and similar fixed electrical installations.
- For periodic switching of electrical circuits up to 8 A according to two mutually independent set times.
- Time range: 0,1 s ÷ 10 days.
- Universal power supply voltage:
AC 12 ÷ 230 V / DC 12 ÷ 220 V.
- Selectable start of timing – delayed pull-in / impulse for turning on.
- Light signalling at switching on the contacts (yellow LED).

- Light indication of the presence of power supply voltage (green LED).
- In the DC circuits, the (+) conductor must be connected to the terminal A1 and the (-) conductor to the terminal A2.
- In the applications where the switching time exceeds 1 hour or the switching duty cycle is higher than 25 %, a gap of at least 2 mm (0.5 of a module recommended) must be created between the devices to ensure the specified service life.

Arrangement of contacts ¹⁾	Type	Ordering code	Number of modules	Weight [kg]	Packaging [pcs]
001	MCR-TK-001-UNI	OEZ:43243	1	0.105	1

¹⁾ Each digit sequentially indicates the number of make, break and change-over switch contacts.

Description of MCR-MA, MCR-MB

A1-A2 terminals for power supply voltage connection

- Rated voltage U_n : AC/DC 12 ÷ 230 V or AC/DC 24 ÷ 220 V.
- In the AC circuits, the conductors L and N can be connected arbitrarily to the A1, A2 terminals.
- In the DC circuits, the (+) conductor must be connected to the terminal A1 and the (-) conductor to the terminal A2.

F1-F9 function selection dials

- The rotary dials can be used to set the desired function of the time relay F1 ÷ F8 and TEST (F9).
- When selecting the functions F10 ÷ F18, switch to OFF.

Supply voltage presence indication

- The presence of power supply voltage is indicated by a green continuously lit LED.

Output relay contact closing indication

- Continuously lit up yellow LED indicates activation of contact 15-18.

F10-F18 function selection dials

- The rotary dials can be used to set the desired function of the time relay F10 ÷ F18.
- When selecting the functions F1 ÷ F9, it is necessary to switch to the OFF position.
- The MCR-MA version does not include this dial.

TL terminal for relay control

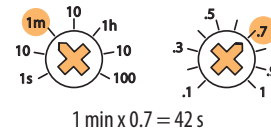
- The control impulse can be excited by A1-TL connection.
- Minimum/maximum excitation time: 15 ms / unlimited.

Control dials

- To set the switching time
- the upper dial defines the time range: 1 s, 10 s, 1 min, 10 min, 1 h, 10 h, 100 h
- the lower dial – for setting the time range multiple (0.1 ÷ 1).

minimum adjustable time: 0.1 s
maximum adjustable time: 100 h

Example of time setting ¹⁾:



A1-A2 terminals for power supply voltage connection

- Rated voltage U_n : AC/DC 12 ÷ 230 V.
- In the AC circuits, the conductors L and N can be connected arbitrarily to the A1, A2 terminals.
- In the DC circuits, the (+) conductor must be connected to the terminal A1 and the (-) conductor to the terminal A2.

Control dials t1, t2

- Minimum adjustable time t_1 or t_2 : 0.1 s.
- Maximum adjustable time t_1 or t_2 : 10 days.
- Stability of set t_1 , t_2 at permanent power supply - max. 2% of t_1 or t_2 .

Supply voltage presence indication

- The presence of power supply voltage is indicated by a green continuously lit LED.

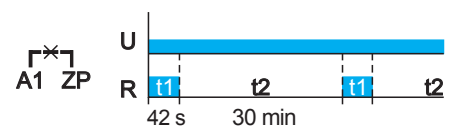
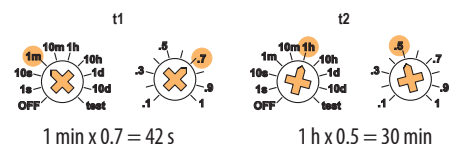
Output relay contact closing indication

- The yellow LED is still flashing. When the contact 15-18 is closed, light prevails over extinguishing, when it is open, on the contrary applies.

ZP terminal




- To set the relay start.
- If the terminal is not connected, the relay is started in the impulse after turning on mode.
- If the terminal is connected to the A1 terminal, the relay is started in the delayed pull-up mode.

Example of time setting ¹⁾:



¹⁾ Setting values using the trimmers may give the impression of incorrect settings. Both trimmers and controls work within a certain tolerance. The trimmer path is notionally divided into several sections and the read value of the trimmer resistance then determines the respective section, i.e. the set value. Thus even if the control is set to the desired value, the time may actually be set differently. This can especially occur with settings at the beginning of the range. In these cases, the desired value must be found by adjusting the control counterclockwise or clockwise. When the time is set below 1 s, the deviation from the preset value may be up to 5% due to the running switching processes.

Parameters

Type		MCR-MA	MCR-MB	MCR-TK
Standards		EN 61812-1	EN 61812-1	EN 61812-1
Certification marks				
Main circuit (contact)				
Arrangement of contacts ¹⁾		001; 003	001; 003	001
Rated operating voltage/current	U _e /I _e	AC-1	250 V / 8 A	250 V / 8 A
		DC-1	24 V / 8 A	24 V / 8 A
Max. switched power output	For resistance load	AC-1	2,000 W	2,000 W
		DC-1	192 W	192 W
	For inductive load		200 W	200 W
		For lamp load	200 W	200 W
Max. switched voltage		AC 250 V	AC 250 V	AC 250 V
		DC 150 V (0.3 A)	DC 150 V (0.3 A)	DC 150 V (0.3 A)
Min. voltage/current		AC/DC 5 V / 100 mA	AC/DC 5 V / 100 mA	AC/DC 5 V / 100 mA
Contact closing indication		yellow LED	yellow LED	yellow LED
Mechanical endurance		3,000,000 cycles	3,000,000 cycles	3,000,000 cycles
Electrical endurance		50,000 cycles	50,000 cycles	50,000 cycles
Max. switching frequency		2 / s	2 / s	2 / s
Material of contacts		AgSnO ₂	AgSnO ₂	AgSnO ₂
Connection – rigid and flexible Cu conductor		0.2 ÷ 2.5 mm ² / 2x 1.5 mm ²	0.2 ÷ 2.5 mm ² / 2x 1.5 mm ²	0.2 ÷ 2.5 mm ² / 2x 1.5 mm ²
Tightening torque		0.5 Nm	0.5 Nm	0.5 Nm
Control circuit (coil)				
Rated voltage	U _c	MCR-...1-... type	AC 12 ÷ 230 V / DC 12 ÷ 220 V	AC 12 ÷ 230 V / DC 12 ÷ 220 V
		MCR-...3-... type	AC 24 ÷ 230 V / DC 24 ÷ 220 V	AC 24 ÷ 230 V / DC 24 ÷ 220 V
Return value of input voltage		4 V	4 V	4 V
Dwell between applied U _c ²⁾		0.1 s	0.1 s	0.1 s
Consumption		at AC 12/230 V	0.7 VA / 2.1 VA	0.7 VA / 2.1 VA
		at DC 12/220 V	0.9 W / 1.2 W	0.9 W / 1.2 W
Power supply voltage indication		green LED	green LED	green LED
Rated frequency	f _n	50/60 Hz	50/60 Hz	50/60 Hz
Connection – rigid and flexible Cu conductor		0.2 ÷ 2.5 mm ² / 2x 1.5 mm ²	0.2 ÷ 2.5 mm ² / 2x 1.5 mm ²	0.2 ÷ 2.5 mm ² / 2x 1.5 mm ²
Tightening torque		0.5 Nm	0.5 Nm	0.5 Nm
Control impulse				
Excitation		by the A1-TL connection	by the A1-TL connection	-
Min. excitation time		15 ms	15 ms	-
Max. excitation time		unlimited	unlimited	-
Consumption		at AC 12/230 V	0.5 VA / 0.5 VA	-
		at DC 12/220 V	1 W / 1W	-
Time circuit				
Range		0.1 s ÷ 100 h	0.1 s ÷ 100 h	0.1 s ÷ 10 days
Method of setting t		control dials from the face	control dials from the face	control dials from the face
Stability of the set value at permanent power supply ³⁾		max. 2 % t	max. 2 % t	max. 2 % t
Other data				
Rated impulse withstand voltage		4 kV ⁴⁾	4 kV ⁴⁾	4 kV
Test voltage for dielectrics		AC 1,640 V	AC 1,640 V	AC 1,640 V
Overvoltage category		III (250 V)	III (250 V)	III (250 V)
Test level of electromagnetic compatibility		Industrial and residential	Industrial and residential	Industrial and residential
Conditional short-circuit current	with 8 A gG fuse	1 kA	1 kA	1 kA
	with 8 A circuit breaker	400 A	400 A	400 A
DIN rail mounting according to EN 60715 – type		TH35	TH35	TH35
Coverage		IP20	IP20	IP20
Insulation type	Without cover	Basic	Basic	Basic
	Under cover	Double	Double	Double
Ambient temperature		-20 ÷ +55 °C	-20 ÷ +55 °C	-20 ÷ +55 °C
Relative humidity		25 ÷ 75 %	25 ÷ 75 %	25 ÷ 75 %
Above sea level		Up to 2,000 m above sea level	Up to 2,000 m above sea level	Up to 2,000 m above sea level
Working position		any	any	any

¹⁾ Each digit sequentially indicates the number of make, break and change-over switch contacts.

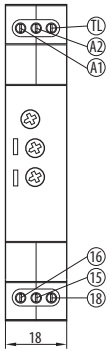
²⁾ Applies for both excitation by power voltage and excitation of TL input. The relay may even react earlier. The value of 0.1 is the guaranteed maximum relay reaction time.

³⁾ In the ČSN EN 61812-1 standard under the heading "Repeatable Accuracy".

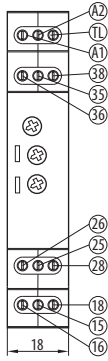
⁴⁾ There is no galvanic separation between the contacts 25, 26, 28 and 35, 36, 38.

Dimensions

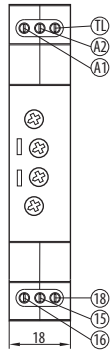
MCR-MA-001-UNI



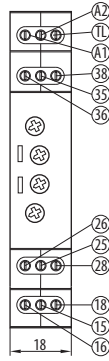
MCR-MA-003-UNI



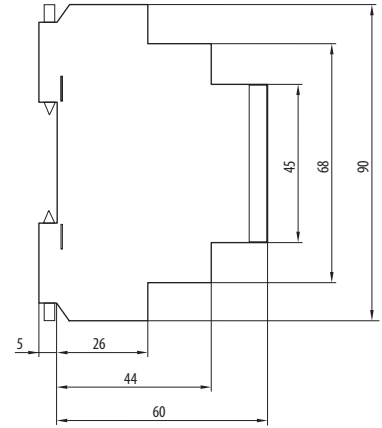
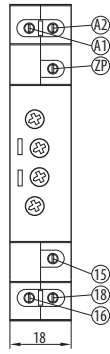
MCR-MB-001-UNI



MCR-MB-003-UNI

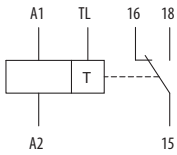


MCR-TK-001-UNI

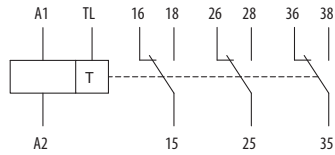


Diagram

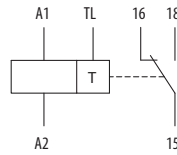
MCR-MA-001-UNI



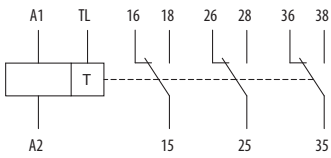
MCR-MA-003-UNI



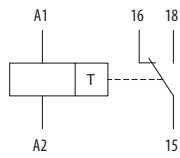
MCR-MB-001-UNI



MCR-MB-003-UNI



MCR-TK-001-UNI



Function flow-charts

MCR-MA...

F1		F4		F7	
F2		F5		F8	
F3		F6		F9	TEST = ON

MCR-MB...

F1		F7		F13	
F2		F8		F14	
F3		F9	TEST = ON	F15	
F4		F10		F16	
F5		F11		F17	
F6		F12		F18	

MCR-TK...

				TEST = ON
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Note: The letter "R" in the graphs represents closing of the contact 15-18 or 25-28 and 35-38.