

## Description

The combination of mechanical relay or fully electronic contact system and customer-specific software extends E-T-A's relay portfolio by the MFR multifunctional relay product group.

Unlike MFR10 and MFR20, the MFR30 does not have a mechanical, but a fully electronic contact system as well as a custom designed software.

The MFR30 solid state relay is suitable for standard automotive relay sockets to ISO 7588 (ISO MINI).

This data sheet concentrates on the description of the hardware. Software and requirement specifications are set up in direct co-operation with our customers.

## Applications

Depending on the version, the MFR30 is suitable for 12 V and 24 V applications.

### Scope of applications:

- passenger cars
- trucks
- buses
- construction machinery and emergency cars

### Typical applications:

- Monitoring frequencies or voltages and the corresponding switching of loads, which need to be switched especially frequently.
- Co-ordinated, sequential switch-on of loads to avoid load peaks (e.g. with fans).
- Applications with a high number of operating cycles
- In addition, these relays can include functions which otherwise would have to be implemented by controlgear.

## Benefits

- Due to the customer-specific software, the MFR30 offers quick and reliable resolution of many problems that can occur during design, retrofit or adjustment of vehicles.
- Relay functions that have been tailored to the customer's application allow the remaining system to be planned less complex and less costly.
- The MFR30 is delivered in a programmed condition and ready for installation and allows immediate mounting during vehicle production.
- Life span of the MFR30 multifunctional relay is extremely increased as it has no moveable mechanical parts so that contact wear is eliminated. This helps avoid costly product rejects.

## Qualifications

<b>Degree of protection</b>	IP52
<b>Noise immunity</b>	95 / 54 G & DIN 40839
<b>E1 number</b>	upon request



## Technical data

Voltage ratings	12 V / 24 V
Operating voltage	9 V ... 30 V
Closed current	< 10 mA
Test voltage	24 V
Tolerance	5 %
Input	9 V ... 30 V
Switching time ON	30 µs
Switching time OFF	30 µs
Inputs	4 channels
Outputs	2 channels, 4 A each (high side switch)
Total wattage	2 x 96 W
Operating temperature	-40 °C ... +85 °C
Endurance, electrical	> 1,000,000 cycles
Mass	30 g
Dimensions (lxwxh)	30 mm x 30mm x 40 mm
<b>Materials</b>	
Blade terminals	A6.3 x 0.8 DIN 46 244 CuZn 37 F37 A2.8 x 0.8 DIN 46244 CuZn 37 F 37
Housing material	PA66 -GF30
<b>Power output at 12 V / 25 °C</b>	2 x 48 W (4 A)

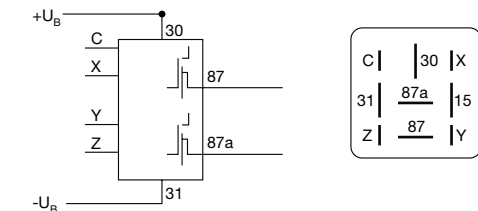
## Order numbering code

Type No.	MFR30	multifunctional relay
Operating voltage	3	12 V / 24 V
Control	5	E type (positive and negative control possible)
Option 1	0	without
Project number - part 1	049	project index number according to region (international area code), e.g. Germany +49 = 049 France +33 = 033 Portugal +351 = 351 USA +1 = 001
Project number - part 2	001	serial number
Current ratings	2x4 A	

MFR30 - 3 5 0-049-001-2x4 A ordering example

## Schematic diagram / pin assignment

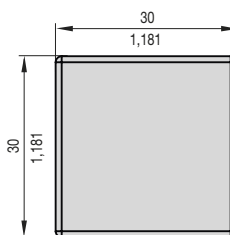
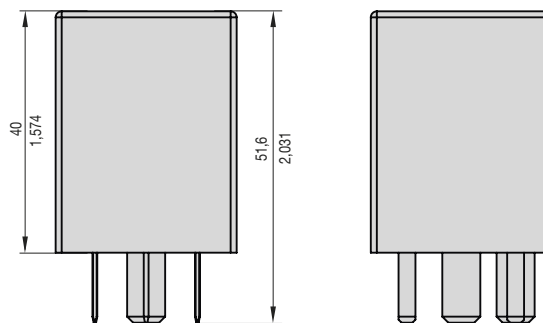
### Type E



15, 30, 31, 87, 87a: 6.3 x 0.8 mm  
C, X, Z, Y: 2.8 x 0.6 mm

## Dimensions

### 9 PIN

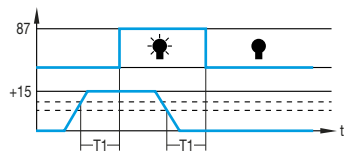


footprint to ISO 7588

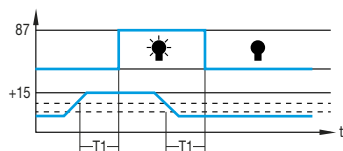
## Examples for customer-specific software functionalities

### Voltage monitoring

Higher than threshold

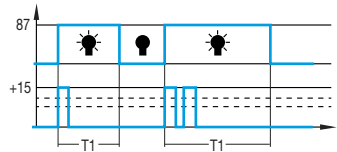


Lower than threshold



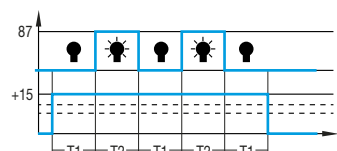
### Special pulse output

Impulse (activated) delay with self holding and reset



### Flasher functionality

Negative flip-flop



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