

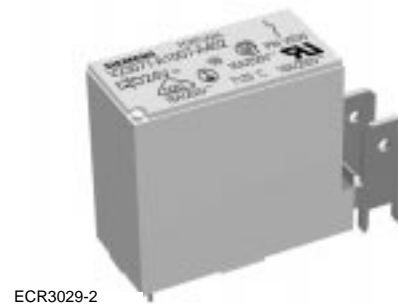
**PCB/plug-in relay for DC voltage, neutral, monostable**

**Features**

- High-temperature relay with contact-side Faston terminals
- Switching capacity 4000 VA at 125 °C ambient temperature
- Nominal coil power 360 mW
- Mechanical and electrical characteristics comply with the “Rules for electrical relays in power installations” (VDE 0435/9.72)
- Clearance/creepage distances > 8 mm between coil and contact
- Tracking resistance of the plastics to PTI 250
- Used for safe electrical insulation in the following applications
  - open and closed-loop control equipment for domestic use (VDE 0631)
  - electrical equipment for domestic use (EN 60 335-1/VDE 0700)

**Typical applications**

- Oven timers
- Electric heaters
- Microwave ovens
- Air-conditioning equipment
- Power supply equipment











ECR3029-2

Approx. original size

**Design**

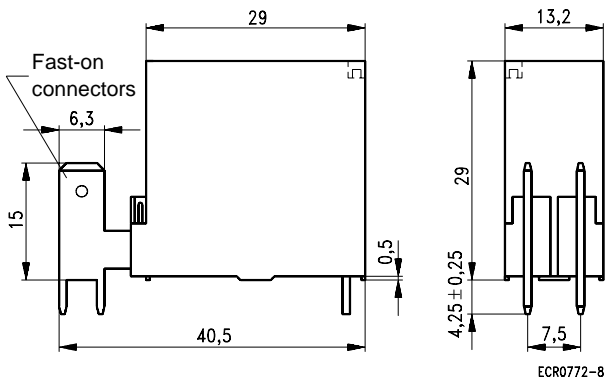
- With 1 make contact or with 1 break contact (changeover contact on request)
- For printed circuit assembling
- With PCB terminals (coil) and flat terminals (contacts) for 6.35 mm fast-on connectors
- Dust-protected

**Approvals**

	VDE	Mark of conformity 
	SEV	91.1 11672.01
	CSA	LR 89731-12
	UL	File E 48393
	SEMKO	9330076
	ÖVE	22905/E
	BEAB	C 0573

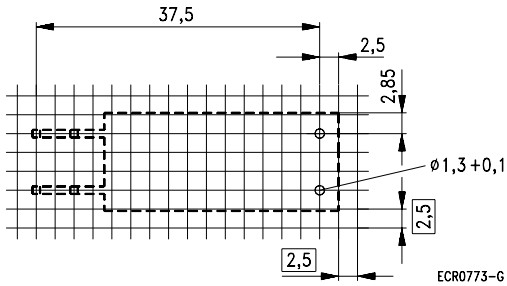
# Miniature Power Relay IF - Faston

## Dimensional drawing (in mm)



## Mounting hole layout

View on the terminals



2.5 mm basic grid to EN 60097 and DIN 40803, fine

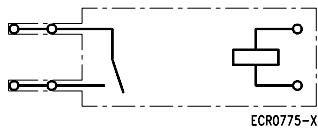
## Note

The dust-protected version must be checked to ensure that the clearances and creepage distances required by VDE are not compromised by conductor paths running between the relay and the board.

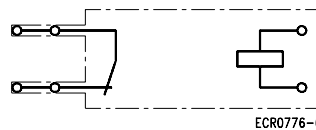
## Terminal assignment

View on the terminals

1 make contact



1 break contact



# Miniature Power Relay IF - Faston

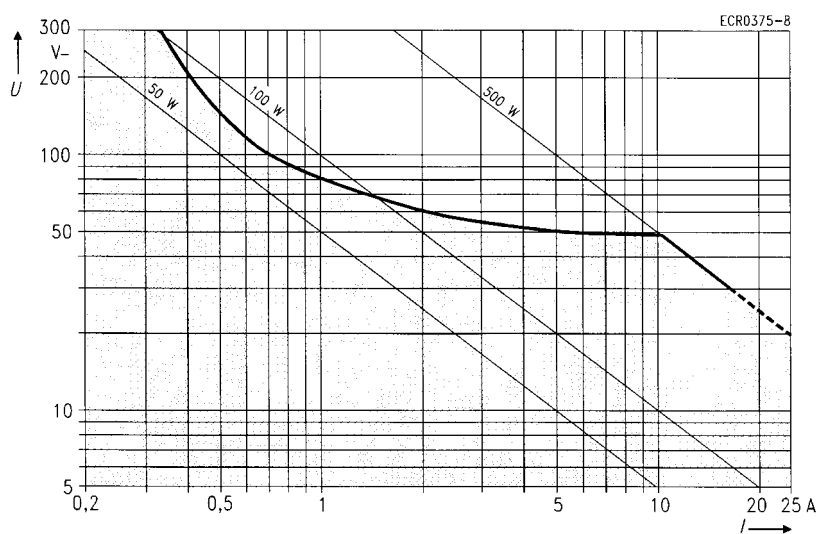
## Contact data

Contact category III according to VDE 0435 Part 120/10.81, Appendix B

Ordering code, block 3	A402	A403
Number of contacts and type	1 make contact	1 break contact
Contact assembly	Single contacts	
Contact material	AgCdO (AgSnO <sub>2</sub> on request)	
Max. continuous current at max. ambient temperature	16 A	16 A
Inrush current (max. 4 s for 10% duty cycle)	25 A	25 A
Maximum switching voltage	440 V~ 300 V-	
Maximum switching capacity AC voltage DC voltage	4000 VA See load limit curve	
Recommended for loads greater than	500 mA, 12 V~	
Contact resistance (initial value)/ measuring current/driver voltage	≤ 100 mΩ/1 A/24 V	

**Note:** Inrush currents up to 150 A available on request.

## Load limit curve



$I$  = switching current

$U$  = switching voltage

■ = recommended application field

Load limit curve: Safe switch-off, no stationary arc > 10 ms

# Miniature Power Relay IF - Faston

Coil data	
Nominal voltages	From 3 V– to 110 V–
Nominal power consumption, typ., at 20 °C	360 mW
Pull-in power, typ., at 20 °C	140 mW
Operating range/pickup class according to IEC 255-1-00 and VDE 0435 Part 201	2/b
Minimum release voltage	10 % of nominal voltage

Coil versions					
Nominal voltage $U_{nom}$ V–	Operate voltage at 20 °C $U_{op\ cold}$ V–	Operating voltage range at 20 °C		Resistance at 20 °C $\Omega$	Coil number Ordering code block 2
		Min. voltage $U_I$ V–	Max. voltage $U_{II}$ V–		
3	1.9	2.1	8.5	25 ± 2.5	001
6	3.8	4.2	16.9	100 ± 10	003
12	7.5	8.4	33.8	400 ± 40	005
24	14.9	16.8	67.7	1600 ± 160	007
48	30.0	33.6	135.3	6400 ± 640	009
60	37.2	42.0	169.1	10000 ± 1000	010
110	68.2	77.0	310.1	33610 ± 3360	012

Other coil versions available on request

$U_{op\ cold}$  = Operate voltage at 20 °C without pre-energizing the coil

$U_I$  = Minimum voltage at 20 °C after pre-energizing with  $U_{nom}$  without contact current

$U_{II}$  = Maximum continuous voltage at 20 °C for  $T_{c\ max} = 115\ ^\circ\text{C}$  without contact loading

$U_{nom}$  = Nominal voltage

Operating voltage limits  $U_I$  and  $U_{II}$  depend on temperature and can be calculated by:

$$U_{I\ t_{amb}} = k_I \cdot U_{I\ 20\ ^\circ\text{C}} \text{ and } U_{II\ t_{amb}} = k_{II} \cdot U_{II\ 20\ ^\circ\text{C}}$$

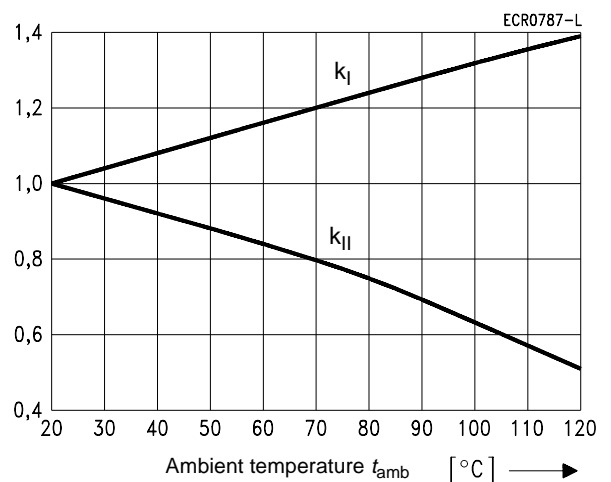
$t_{amb}$  = Ambient temperature

$U_{I\ t_{amb}}$  = Minimum voltage at ambient temperature  $t_{amb}$

$U_{II\ t_{amb}}$  = Maximum voltage at ambient temperature  $t_{amb}$

$k_I$  a.  $k_{II}$  = Factors (dependent on temperature), see diagram

$T_{c\ max}$  = Maximum coil temperature



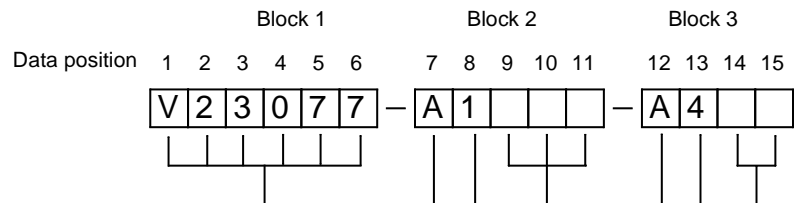
# Miniature Power Relay IF - Faston

<b>General data</b>	
Operate time at $U_{nom}$ and 20 °C, typ.	10 ms
Release time without/with diode in parallel, typ.	2 ms / 14 ms
Bounce time, make/break contact, typ.	1/2 ms
Maximum switching rate without load	1200 min <sup>-1</sup>
Maximum switching rate with rated load	10 min <sup>-1</sup>
Ambient temperature range according to IEC 255 Part 1-00 or VDE 0435 Part 201	-40 °C ... +125 °C
Thermal resistance	65 K/W
Maximum permissible coil temperature	155 °C
Degree of protection according to IEC 529/ VDE 0470 Part 1	dust-protected IP 54
Electrical endurance	1 x 10 <sup>5</sup> operations
Mechanical endurance	3 x 10 <sup>7</sup> operations
Flammability according to UL 94	V-0
Solder bath temperature/max. duration	260 °C / 5 s
Mounting position	any
Weight (mass)	approx. 26 g

<b>Insulation</b>	
According to IEC 664/VDE 110 (1/89): rated voltage pollution severity overvoltage category	250 V 3 III
According to VDE 0110 (2/79): insulation group/rated voltage	C/250 B/380
Dielectric test voltage (1 min): contact/coil between open contacts	4000 V <sub>rms</sub> 1000 V <sub>rms</sub>
Clearances/creepage distances	8 mm / 8 mm
Tracking resistance of the fundamental frame according to IEC 112	PTI 250

# Miniature Power Relay IF - Faston

## Ordering code



Identifier for  
Miniature Power Relay IF - Faston

Design  
A = dust-protected; PCB terminals (coil)  
and flat terminals (contacts)

Version  
1 = Standard

Coil number  
001 = 3 V– nominal voltage  
003 = 6 V–  
005 = 12 V–  
007 = 24 V–  
009 = 48 V–  
010 = 60 V–  
012 = 110 V–

Type of contact  
A = Single contact

Contact material  
4 = AgCdO

Contact arrangement  
02 = 1 make contact  
03 = 1 break contact

Ordering example: V23077-A1005-A402  
Miniature Power Relay IF, with 1 make contact, coil 12 V nominal voltage,  
contact material silver cadmium oxide (AgCdO)

### Note:

Special designs can be carried out to customer specifications. Please contact your local representative.  
The addresses are given below.