

Datasheet



Features

- Two force guided changeover contacts
- Suitable for safety applications up to PL c / SIL 1
- Switching power 6 A at 250 VAC
- Status LED green
- Integrated freewheeling diode
- Push-In connectors

Ordering

Type	ZSCoupling F C2
Order No. Kit	456040
Order No. Relay	456043
Order No. Marking plate	456042
Order No. Jumper	456041
PU	1 piece

ZSCoupling F C2 is a coupling relay with forcibly guided contacts according to EN 61810-3, which can be used in safety-related applications according to EN ISO 13849-1 and EN 62061 / EN 61508 up to PL c or SIL 1.

Application

The safe coupling relay ZSCoupling F C2 is used for the galvanically isolated coupling of signals, such as PLC outputs, to the periphery. The relay coil is controlled via terminals A1/A2, which switches both force guided changeover contacts. The integrated freewheeling diode provides optimal protection for connected input elements, such as PLC outputs. An integrated green LED indicates the switching status of the coupling relay.

Technical data

Contact data			
Contact type	2 changeover contacts	Contact assembly	Force guided according to EN 61810-3 type B
Contact gap	≥ 0,8 mm	Contact material	AgNi 90/10
Rated switching voltage	250 VAC	Max. switching voltage	400 VAC
Max. Breaking capacity	1500 VA	Min. contact load	15 V / 3 mA / 45 mW
Min. contact load	5 V / 10 mA / 50mW	Max. continuous current at 85°C ambient temp.	2 A 55% Unom for UL 508 (10 mm spacing)
Max. continuous current at 70°C ambient temp.	1 contact loaded 6 A, all other 1 A	Limiting making current	15 A for 4 s max.
Overload capacity – Non switching	1682 A²s I²t up to 290 A for 20 ms	Utilization category DC	DC-13 3 A / 24 VDC
Rated fuse link current	6 A	Switching cycles UL B300	1xNO DC-13: 6000x
Utilization category AC	AC-15 3 A / 250 VAC	UL 508 general purpose	10.000 cycles 277 VAC / 2 A 85°C
Switching cycles UL B300	1xNO AC-15: 6000x	Contact resistance	≤20 Ω (200 mV) Last ≥10 mA / 5 V
Electrical endurance +70°C, 6A / 250 VAC	100.000 cycles	Contact resistance	≤100 mΩ (100 mV) Last ≥1 A / 24 V
Contact resistance	≤66.7 Ω (200 mV) Last ≥3 mA / 15 V		

B10d-Values**AC-1 250 VAC**

6 A 1NO	600.000 cycles
3 A 1NO	900.000 cycles
1,5 A 1NO	1.800.000 cycles

DC-13 24 VDC

3 A 1NO	360.000 cycles
1,5 A 1NO	740.000 cycles
0,75 A 1NO	4.200.000 cycles

AC-15 250 VAC

3 A 1NO	180.000 cycles
2 A 1NO	560.000 cycles
0,75 A 1NO	4.600.000 cycles

B10d values based on estimated B10 values of the Weibull distribution of type tests with RTIII tight relays

Coil data

Magnet system type	DC, neutral, monostable
Nominal coil voltage	24 VDC
Min. operate voltage +23°C ambient temp.	18 VDC
Min. release voltage +23°C ambient temp.	2,4 VDC
Max. non release voltage +70°C ambient temp.	11,3 VDC
Max. coil voltage +70°C ambient temp.	26,4 VDC at max. current
Recommended coil voltage range	21,6 – 24 VDC

Nominal coil power	700 mW
Min. operate voltage +70°C ambient temp.	20,4 VDC
Min. release voltage -40°C ambient temp.	1,2 VDC
Holding current after pre- energizing with 24 VDC	15,2 mA
Max. coil voltage +70°C ambient temp.	30 VDC at ≤ 0,5 A load

Operate times

Switch on time, 24 VDC +23°C ambient temp.	≤ 25 ms
Max. switching rate at min. load	18.000h ⁻¹

Switch off time, 24 VDC -40°C ambient temp.	≤ 50 ms
Max. switching rate at rated load	360 h ⁻¹

General and environment data

Ambient temperature	-40°C – +70°C*
Mechanical endurance	10.000.000 cycles
Vibration resistance 10μs criterion according to IEC 60068-2-6	≥ 10 g 15 ... 200 Hz

Protection class according to IEC 61810-1	RT II
Weight	75 g
Shock 10μs criterion according to IEC 60068-2-27	≥ 20 g half sinus, 11 ms

Flammability

Socket	UL94-V0
Relay actuator	UL94-V0
Relay bobbin	UL94-HB

Relay base	UL94-V0
Relay cover	UL94-V2

* For use at – 40°C ... –25°C do not exceed the max. operating voltage of 120 % Unom; 28,8 VDC.

Insulation data according to IEC 61810-1			
Rated voltage system	230 / 400 V	Rated insulation voltage	250 V
Pollution degree	2	Overvoltage category	III
Rated surge test voltage	6.000 V	Rated surge test voltage	6.000 V
Coil - Contact		Contact - Contact	
Type of insulation		Open contacts	Functional
Coil - Contact	Reinforced	Dielectric test voltage	3000 V RMS
Adjacent contacts	Reinforced	adjacent contacts	
Dielectric test voltage	4000 V RMS	Tracking resistance of the	CTI 250
Coil - Contact		relay base according to	IEC 60112
Dielectric test voltage	1500 V RMS	adjacent contacts	≥ 5.5 mm
Open contacts			
Insulation resistance	≥ 100 M Ω		
EN 61810-1,	at 500 VDC		
Coil - Contact			
Clearance / creepage distances			
Coil - Contact	≥ 8.0 mm		

Dimensions and connection

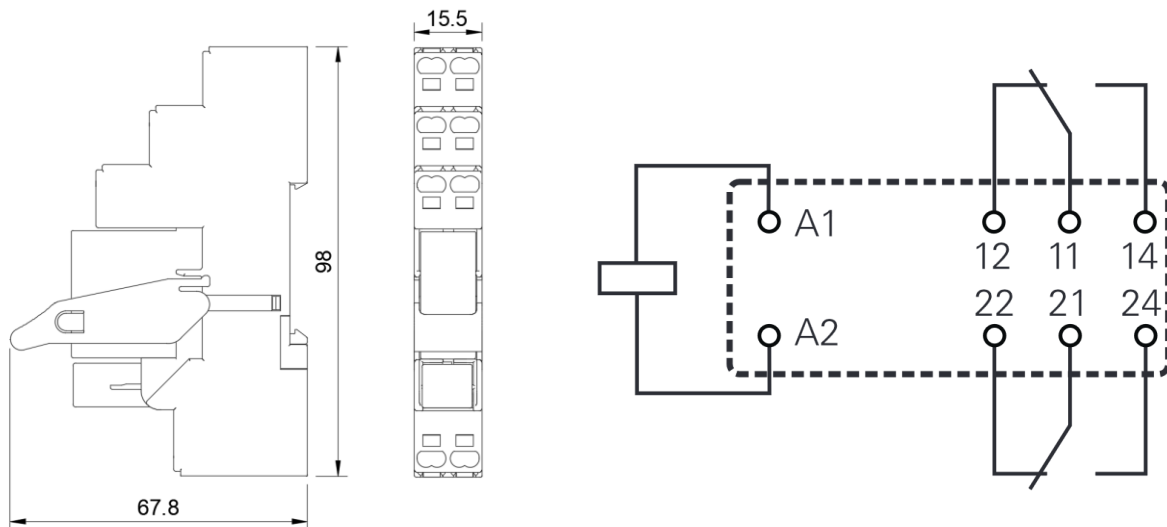


Figure 1: Dimensions and connection

Diagrams

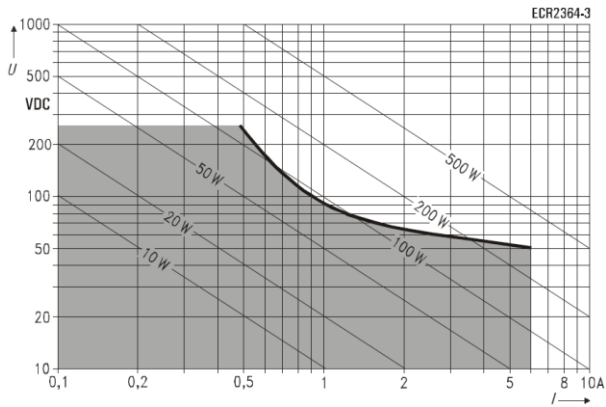


Figure 2: Maximum DC switching power, resistive load

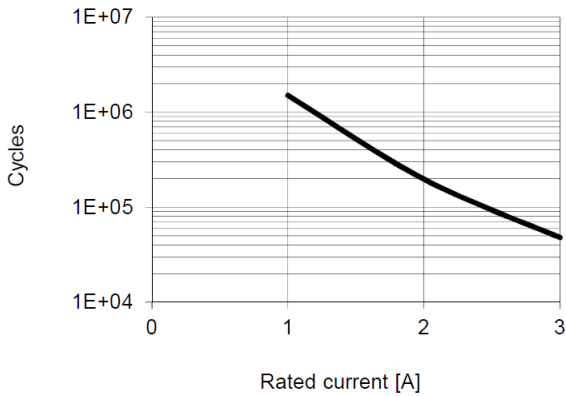


Figure 3: Electrical endurance, AC-15, 250 VAC

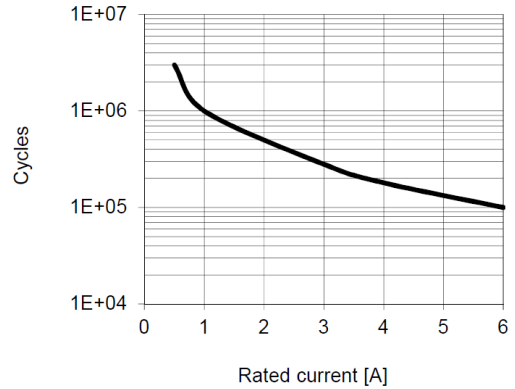


Figure 4: Electrical endurance, AC-1, 250 VAC

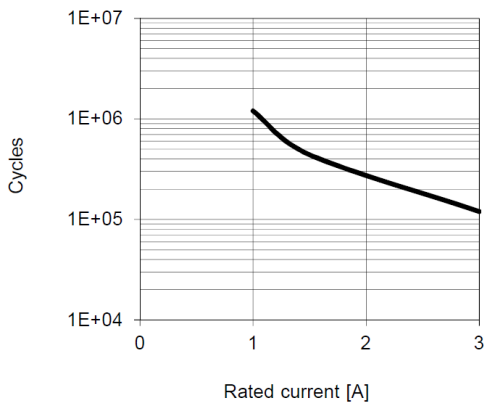


Figure 5: Electrical endurance, DC-13, 24 VDC

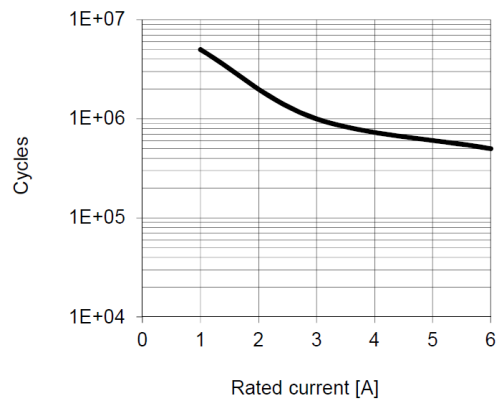


Figure 6: Electrical endurance, DC-1, 24 VDC