



- Cadmium - free contacts
- Height 15.7 mm
- 5000 V / 10mm Reinforced insulation
- For PCB and plug-in sockets
- 80A High inrush version
- Accessories: sockets and modules
- AC and DC Coils
- Recyclable packing



RoHS Compliant ✓

Contacts

Contact arrangement	SPDT (1C/O), SPST-NO (1NO)
Contact material	AgNi, AgSnO ₂
Max. switching voltage	AC 440V
Min. switching voltage	5V AgNi, 10V AgSnO ₂
Rated load	AC1 16A / 250VAC
	DC1 16A / 24VDC
Min. switching current	5mA AgNi, 10mA AgSnO ₂
Max. inrush current	30A AgSnO ₂ (Code 30), 80A AgSnO ₂ , (Code 50)
Rated current	16A
Max. breaking capacity	AC1 4000VA
Min. breaking capacity	0.3W AgNi, 1W AgSnO ₂
Contact resistance	≤ 100 m Ω
Max. operating frequency	at rated load AC1 600 cycles/hour
	no load 72,000 cycles/hour

Coil

Rated voltage	AC / DC 12...240VAC 50/60Hz / 3...110V
Must release voltage	AC / DC ≥ 0.15 U _n / ≥ 0.1 U _n
Operating range	See tables 1, 2 and figures 4, 5
Rated power consumption	AC / DC 0.75VA / 0.4...0.48W

Insulation EN60664-1

Insulation category	C250 / B400
Insulation rated voltage	400 VAC
Rated surge voltage	4,000 VAC 1.2/50µs
Overvoltage category	III IEC 61810-5 (PN-IEC 664-1)
Insulation pollution degree	3
Dielectric strength	coil to contact 5,000VAC
	contact to contact 1,000 VAC / 2,000VAC SPST-NO type
Contact - coil distance	clearance & creepage ≥ 10mm

General Data

Operating / Release time	typ. 7ms / 3ms
Electrical life	Resistive AC1 > 0.7 x 10 ⁵ 16A, 250VAC
	cosφ See figure 2
	DC L/R=40 ms > 10 ⁵ 0.15 A, 220VDC
Mechanical life	ops. > 3 x 10 ⁷

Environmental

Environmental protection	RTII IEC 61810-7
Cover protection	IP40 or IP67
Solder bath temperature / time	max. 270°C / 5s
Ambient temperature	operating AC -40 to +70°C, DC -40 to +85°C
	storage -40 to +85°C
Shock resistance	30g
Vibration resistance	10g 10...150 Hz
Dimensions	L x W x H 29 x 12.7 x 15.7mm
Weight	approx. 14g

Ordering Code

D M 8 5 - 2 0 1 1 - 3 5 - 1 0 2 4

Series

Coil code:

See table

1 & 2

Contact material

20: AgNi

30: AgSnO₂

50: Solid AgSnO₂*

* SPST-NO only

Contact arrangement

11: SPDT (1C/O)

21: SPST-NO (1NO)

Environmental protection

2: In cover, IP40

3: In cover, IP67 (waterproof)

Mounting & terminations

5: For PCB and sockets

Notes:

For AC loads this relay is designed for 50-60Hz standard industrial power and was tested according to AC1 category as defined by the IEC 60947-1 standard, covering low-frequency switchgear (typically 50-60 Hz). Operating at higher frequencies, places the component outside its certified utilisation category, invalidating all safety certifications (CE, UL, etc.) and manufacturer performance guarantees.

DC Coil Data

Table 1

Coil code	Rated voltage (VDC)	Coil resistance $\Omega \pm 10\%$ (at 20°C)	Coil operating voltage range (VDC@ 20°C)	
			min.	max.
1003	3	22	2.1	7.6
1005	5	60	3.5	12.7
1006	6	90	4.2	15.3
1009	9	200	6.3	22.9
1012	12	360	8.4	30.6
1018	18	710	12.6	45.9
1024	24	1440	16.8	61.2
1036	36	3140	25.2	91.8
1048	48	5700	33.6	122.4
1060	60	7500	42.0	153.0
1110	110	25200	77.0	280.0

Standard coil rated voltages marked with bold type

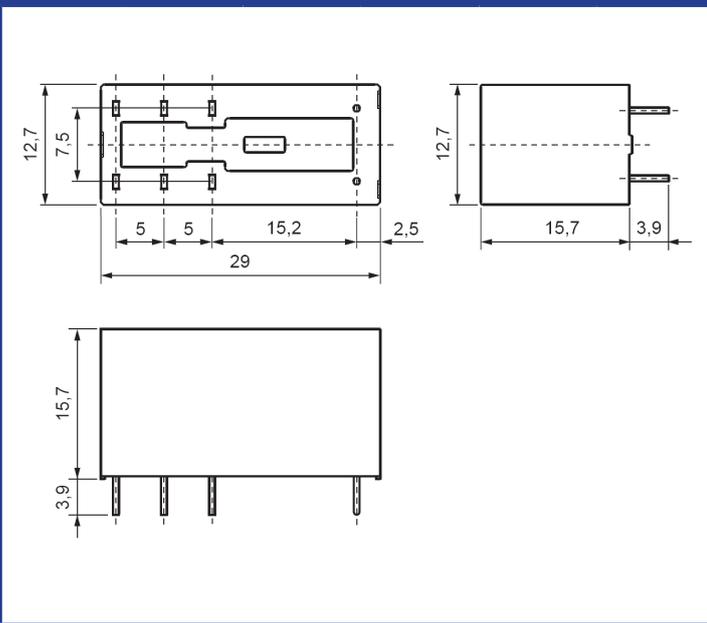
AC Coil Data - 50/60Hz

Table 2

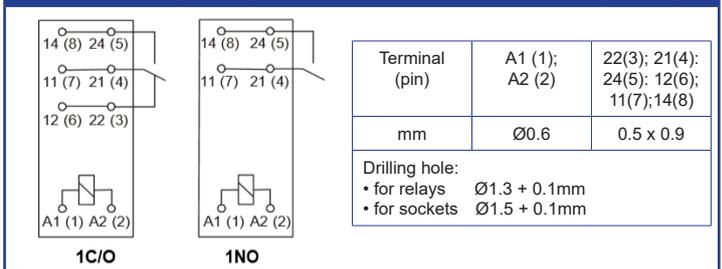
Coil code	Rated voltage (VAC)	Coil resistance $\Omega \pm 10\%$ (at 0°C)	Coil operating voltage range (VAC@ 20°C)	
			min.	max.
5012	12	100	9.6	13.2
5024	24	400	19.2	28.8
5048	48	1550	38.4	57.6
5060	60	2600	48.0	72.0
5110	110	8900	88.0	132.0
5115	115	9600	92.0	138.0
5120	120	10200	96.0	144.0
5220	220	35500	176.0	264.0
5230	230	38500	184.0	276.0
5240	240	42500 $\pm 15\%$	192.0	288.0

Standard coil rated voltages marked with bold type

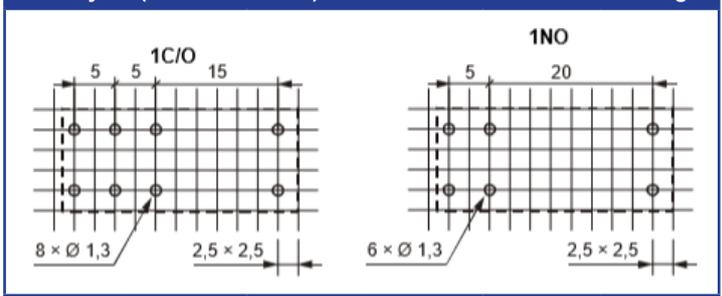
Dimensions mm

Fig. 1


Connection Diagrams (pin side view)

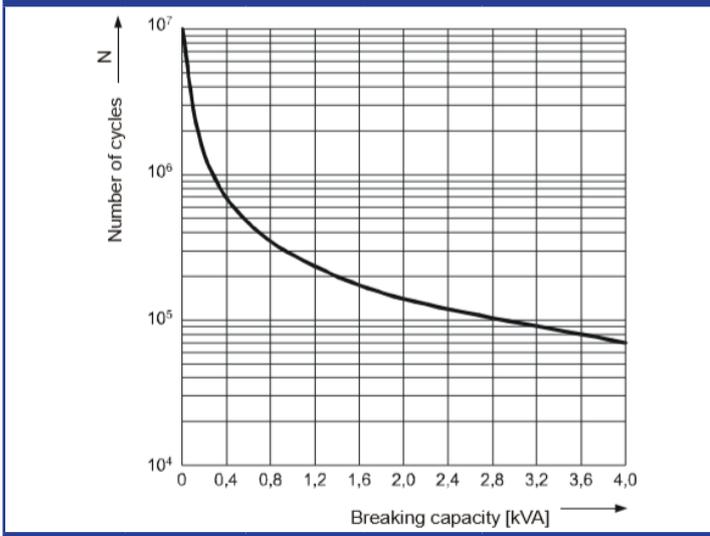
Fig. 2


PCB Layout (solder side view)

Fig. 3


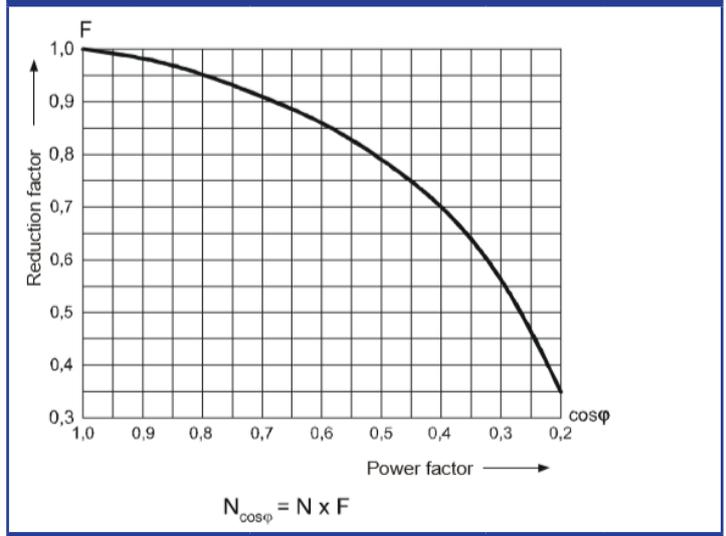
Electrical life at AC resistive load.
Switching frequency: 600 Cycles per hour

Fig. 4



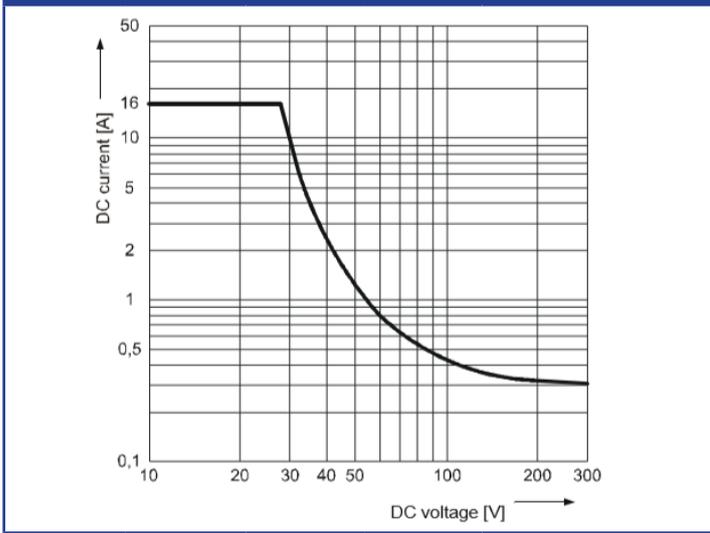
Electrical life reduction factor at AC inductive load

Fig. 5



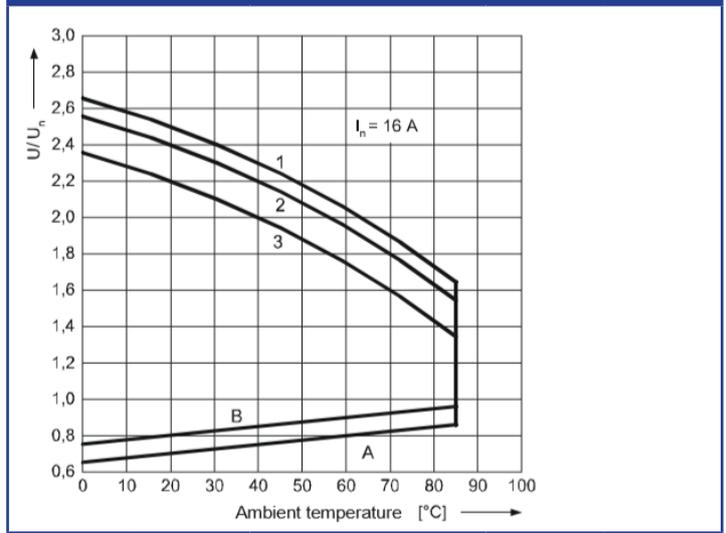
Max. DC resistive load breaking capacity

Fig. 6



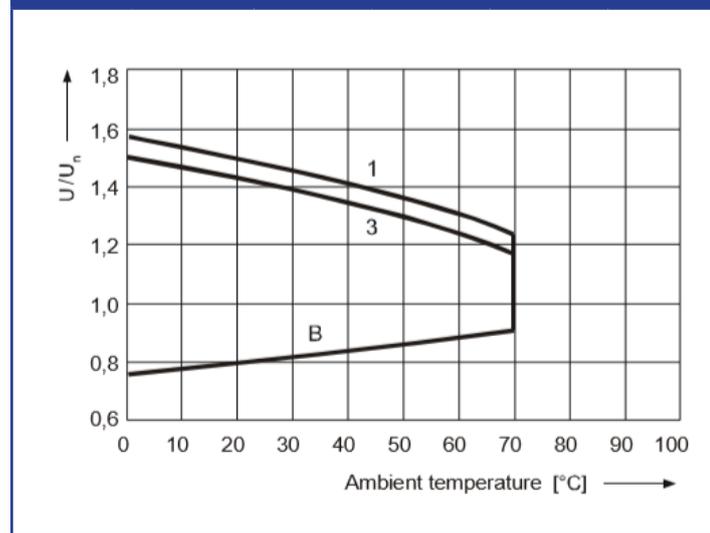
Coil operating range DC

Fig. 7



Coil operating range AC 50Hz

Fig. 8



Relay mounting

Relays DM85 are designed for:

- Direct PCB mounting by soldering
- DIN Rail, or panel mounting, screw terminal plug-in sockets, D14F-2Z-C* with clip JH-15PS. LED indicator & protecting modules DM***-BK are available for D14F-2Z-C* sockets
- Plug-in sockets for PCB mounting D14F-2Z-A1 or D14F-2Z-A2 with clip JH-15PS

When using the DM85 in a socket, with a load current above 8A, the socket terminals must be connected in parallel. Refer to Connection Diagram (Fig.2).

Description of Fig. 7 and 8

A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).

B - relations between make voltage and ambient temperature after initial coil heating up with 1.1 Un, at continuous load of I on contacts. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).

1, 2, 3 - values on Y axis represent allowed overvoltage on coil at certain ambient temperature and contact load:

- 1 - no load
- 2 - 50% of rated load
- 3 - rated load