DM85
industrial relays

- Cadmium - free contacts
- Height 15,7 mm
- 5000 V / 10 mm reinforced insulation
- For PCB and plug-in sockets
- Accessories: sockets and modules
- AC and DC coils
- Recyclable packing
- Recognitions, certificates, directives: RoHS,

Contacts		
Contact number & arrangement		1C/O, 1NO
Contact material		**AgNi**, $AgSnO_2$
Max. switching voltage	AC/DC	400 V / 300 V
Min. switching voltage		5 V AgNi, 10 V $AgSnO_2$
Rated load	AC1	16 A / 250 V AC
	DC1	16 A / 24 V DC
Min. switching current		5 mA AgNi, 10 mA $AgSnO_2$
Max. inrush current		30 A $AgSnO_2$
Rated current		16 A
Max. breaking capacity	AC1	4 000 VA
Min. breaking capacity		0,3 W AgNi, 1 W $AgSnO_2$
Resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour
Coil		
Rated voltage	50/60 Hz AC	12...240 V
	DC	3...110 V
Must release voltage		AC: ≥ 0,15 Un DC: ≥ 0,1 Un
Operating range of supply voltage		see Tables 1, 2 and Fig. 4, 5
Rated power consumption	AC	0,75 VA
	DC	0,4...0,48 W
Insulation		
Insulation category		C250 / B400
Insulation rated voltage		400 V AC
Rated surge voltage		4 000 V AC
Overvoltage category		III IEC 61810-5 (PN-IEC 664-1)
Insulation pollution degree		3
Dielectric strength		
• coil - contact		5 000 V AC
• contact - contact		1 000 V AC
Contact - coil distance		
• clearance		≥ 10 mm
• creepage		≥ 10 mm
General data		
Operating time (typical value)		7 ms
Release time (typical value)		3 ms
Electrical life		
• resistive AC1		> 0,7 x 10^5 16 A, 250 V AC
• cosϕ		see Fig. 2
• L/R=40 ms		> 10^5 0,15 A, 220 V DC
Mechanical life (cycles)		> 3 x 10^7
Dimensions (L x W x H)		29 x 12,7 x 15,7 mm
Weight		14 g
Ambient temperature		
• storage		-40...+85 ^oC
• operating		AC: -40...+70 ^oC DC: -40...+85 ^oC
Cover protection category		IP 40 or IP 67
Environmental protection		RTII IEC 61810-7
Shock resistance		30 g
Vibration resistance		10 g 10...150 Hz
Solder bath temperature		max. 270 ^oC
Soldering time		max. 5 s

Standard contact materials are marked with bold type.

Coil data - DC voltage version — Table 1

Coil code	Rated voltage V DC	Coil resistance ±10% at 20 °C Ω	Coil operating range at 20 °C V DC	
			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**	**1 440**	**16,8**	**61,2**
1036	36	3 140	25,2	91,8
1048	48	5 700	33,6	122,4
1060	60	7 500	42,0	153,0
1110	110	25 200	77,0	280,0

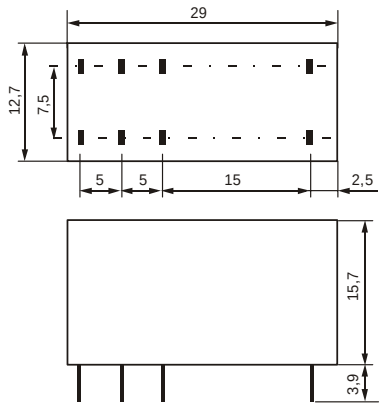
Standard coil rated voltages marked with bold type.

Coil data - AC 50/60 Hz voltage version — Table 2

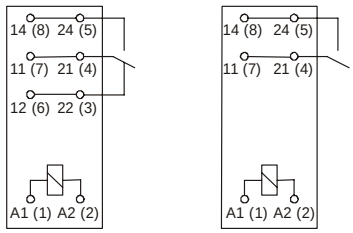
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range at 20 °C V AC - 50 Hz	
				min.	max.
5012	12	100	±10%	9,6	13,2
5024	**24**	**400**	**±10%**	**19,2**	**28,8**
5048	48	1 550	±10%	38,4	57,6
5060	60	2 600	±10%	48,0	72,0
5110	110	8 900	±10%	88,0	132,0
5115	115	9 600	±10%	92,0	138,0
5120	120	10 200	±10%	96,0	144,0
5220	220	35 500	±10%	176,0	264,0
5230	**230**	**38 500**	**±10%**	**184,0**	**276,0**
5240	240	42 500	±15%	192,0	288,0

Standard coil rated voltages marked with bold type.

Dimensions



Connections diagrams (pin side view)

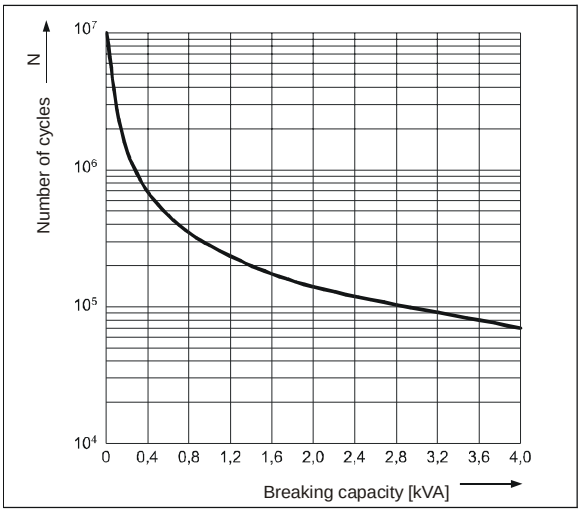


1C/O **1NO**

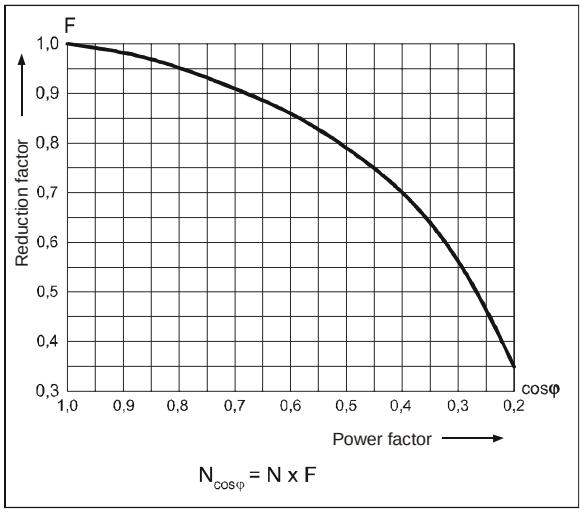
Terminal (pin)	A1(1); A2(2)	22(3); 21(4); 24(5); 12(6); 11(7); 14(8)
[mm]	Ø 0,6	0,5 x 0,9
Drilling hole: • for relays • for sockets	Ø 1,3 + 0,1 mm Ø 1,5 + 0,1 mm	

DM85 terminals are doubled for each contact.
Both terminals are to be used while connecting to load.

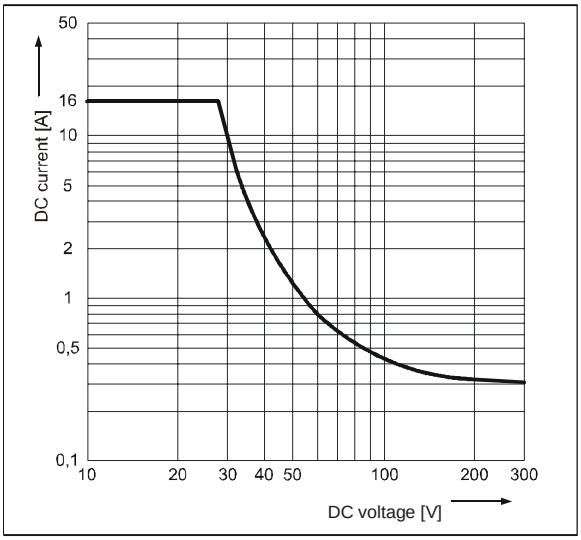
Electrical life at AC resistive load. Maximum switching frequency at rated load Fig. 1



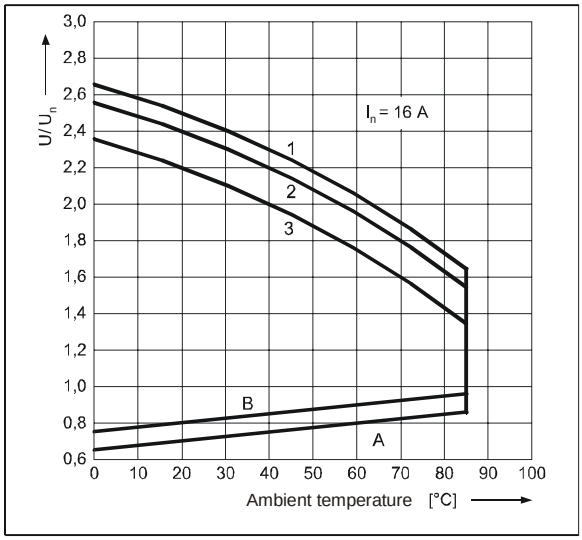
Electrical life reduction factor at AC inductive load Fig. 2



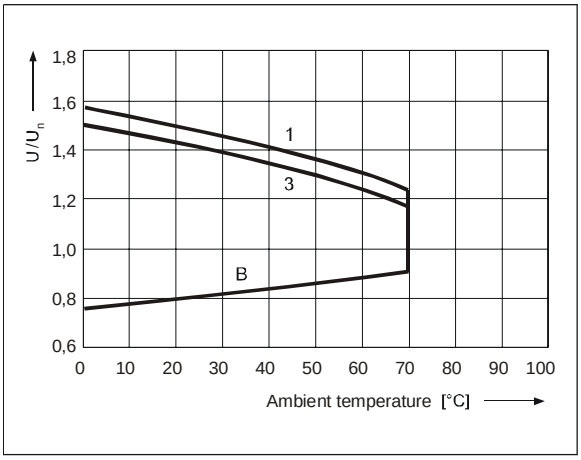
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



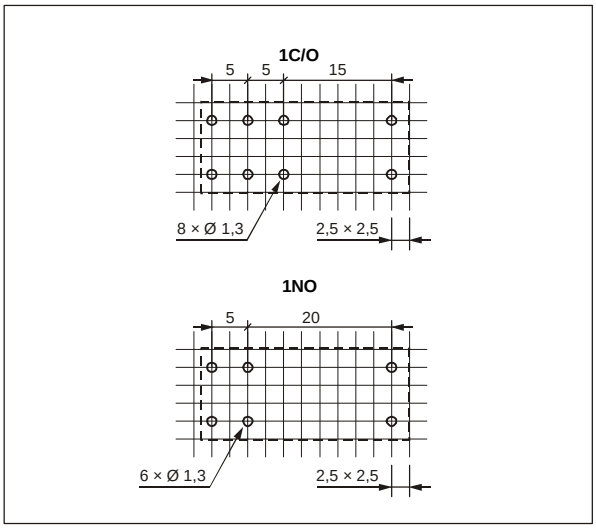
Coil operating range - AC 50 Hz Fig. 5



Description of Fig. 4 and 5

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 U_n, at continues load of I_n 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

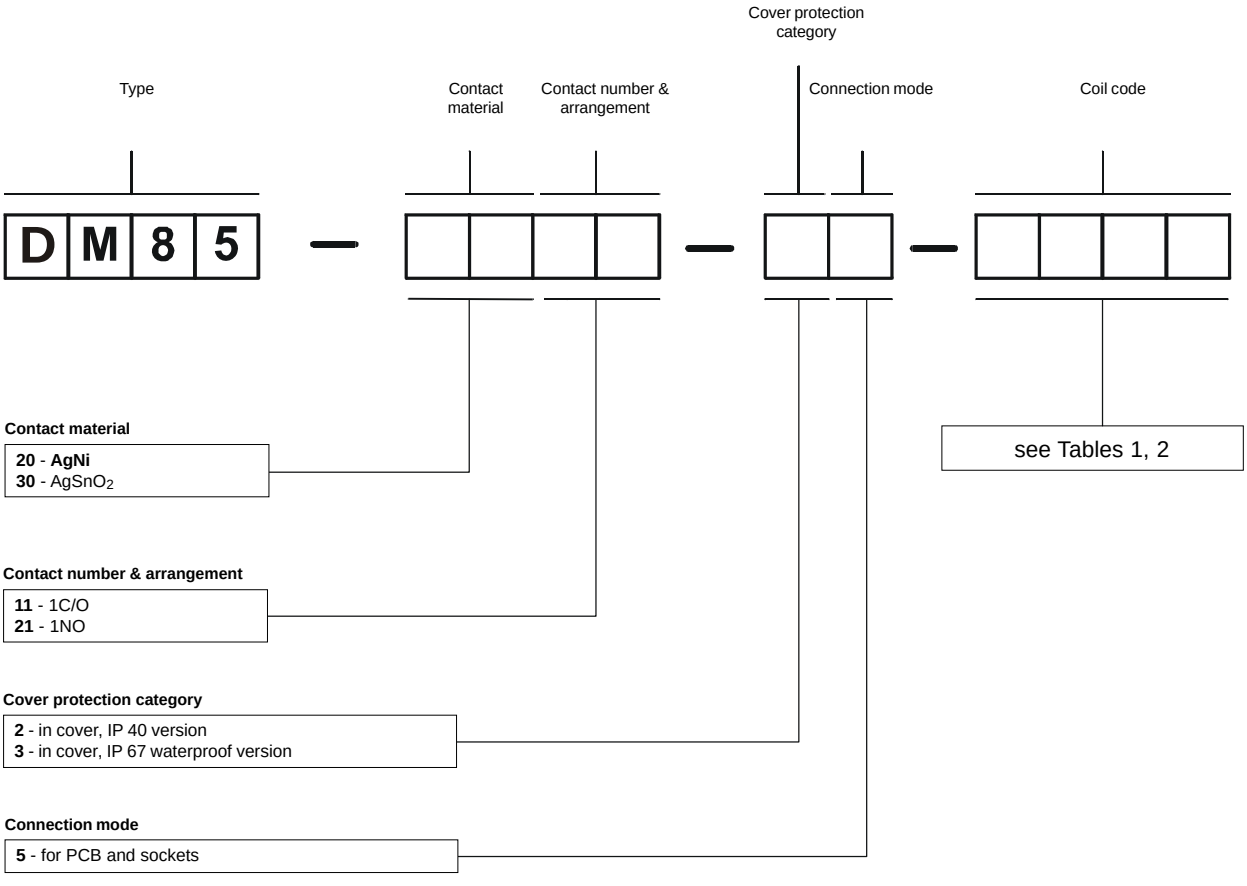
Mounting openings raster
(solder side view)



Mounting

Relays **DM85** are designed for: • direct PCB mounting • screw terminals plug-in sockets **DZT80** and **DZM80** with clip **DZT80-0040**, 35 mm DIN rail mount, EN 50022 or on panel mounting. Signalling / protecting modules **type DM...** are available with sockets • plug-in sockets for PCB mounting **DW80** and **DC50** with clip **DH16-2**.

Ordering codes



Examples of ordering codes:

DM85 - 2011 - 25 - 1012 relay **DM85**, contact material AgNi, with one changeover contact, in cover IP 40, for PCB and sockets, voltage version 12 V DC