

- Acc. to DIN EN 61810-1, DIN EN 61810-3, DIN EN 50578 (UIC 736)
- With forcibly guided contacts
- High switching reliability due to crown contacts
- Clearance and creepage distances:
contact - coil ≥ 8 mm
contact - contact ≥ 5.5 mm
- **Double and reinforced insulation with pollution degree 2**
Overvoltage category: III
- High voltage resistance ≥ 4 kV
- High mechanical service life
- High temperature range: - 40 ... + 75°C
- High continuous thermal current $I_{th} = 10$ A

Application

- To be used in electrical circuits for safety applications.
- For railway signalling circuits according to DIN EN 50578 (UIC 736 R: 2004 Typ C)

Approvals and Markings



Technical Data

Relay type		OA 5603
1.0 Relay coil		
1.1 Nominal voltage	DC V	6; 12; 24; 48; 60; 110 (others on request)
1.2 Nominal consumption	W	1.45 (.59) 1.8 (.46)
1.11 Voltage range	U_N	0.75 ... 1.4
1.13 Holding power (at 0.5 U_N)	W	0.36 (.59) 0.45 (.46)
1.14 Airgap in magnetic circuit	mm	> 0.1
2.0 Contacts		
2.1 Contact arrangement		6 NO / 2 NC 2 NO / 6 NC
2.2 Contact material		AgSnO ₂ + 0.2 μ m Au; AgNi + 0.2 μ m Au, AgNi + 5 μ m Au
2.3 Rated insulation voltage	AC V	250
Switching voltage min./max.	V	AC/DC 10 / DC 250, AC 400 (AC/DC 2 V / 60 V) ¹⁾
2.4 Limiting continuous current I_{th}	A	6 x 10 (see operating voltage limit curve)
Switching current min./max.	A	> 10 mA ³⁾ / 10 (2 mA / 0.3 A) ¹⁾
2.5 Switching power min./max.	VA	0.1 / 2500 (10 mVA / 12 VA) ¹⁾
Switching power min./max	W	0.1 ³⁾ / 240 (10 mW / 12 W) ¹⁾ (see limit curve for arc-free operation)
2.6 Switching capacity to IEC/EN 60947-5-1		
AC 15 ⁴⁾	AC V/A	NO: 250 / 3 NC: 250 / 2
AC 15 ⁵⁾	AC V/A	NO: 250 / 5 NC: 250 / 2
DC 13 ⁴⁾	DC V/A	NO: 24 / 2 NC: 24 / 2
DC 13 ⁴⁾ at 0.1 Hz to UL 508	DC V/A	NO: 24 / 6 NC: 24 / 6
2.7 Electrical life		B300
at AC 230 V, 6 A, $\cos\phi = 1$	switching cycles	at 1 s On, 1 s Off (see contacts service life)
at AC 230 V, 8 A, $\cos\phi = 1$	switching cycles	> 7 x 10 ⁵ AgSnO ₂ > 5 x 10 ⁵ AgNi
2.8 Switching frequency max	switching cycles / s	> 5 x 10 ⁵ AgSnO ₂ > 4 x 10 ⁵ AgNi
2.9 Response time / Release time	ms	10
2.10 Contact force	cN	typically 27 / typically 5
2.14 Contact gap	mm	≥ 17
		> 1.2 ²⁾
3.0 Other		
3.1 Mechanical life	switching cycles	$\geq 30 \times 10^6$
3.2 Temperature range	°C	- 40 ... + 75
3.3 Degree of protection, housing		Solder line proof RT II, as option wash proof RT III
3.4 Test procedure		A (group mounting)
3.5 Vibration resistance		5 ... 50 Hz; amplitude; 2 g max. UIC736E / EN 50578
3.6 Climate resistance		40 / 075 / 04; A / B / D IEC/EN 60068-1
3.7 Short circuit strength 1 kA / AC 250 V	AgSnO ₂ AgNi	NO: 10 A gL / NC: 10 A gL IEC/EN 60947-5-1 NO: 10 A gL / NC: 6 A gL IEC/EN 60947-5-1

¹⁾ Values for AgNi-contacts + 5 μ m Au

⁴⁾ Values for AgNi-Contacts

²⁾ over entire service life

⁵⁾ Values for AgSnO₂-contacts

³⁾ Typical values

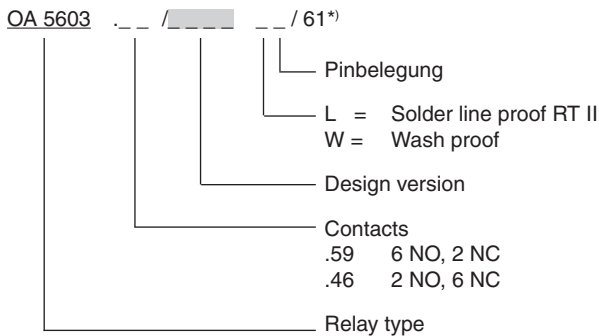
Technical Data

3.8	Insulation acc. to IEC 60664-1, EN 50178		
	Rated insulation voltage	AC V	250
	Pollution degree		3 / 2 (double and reinforced insulation)
	Overvoltage category		III
	Test voltage		
	Contact-coil (1 min)	AC kV eff.	≥ 4
	Contact-contact (1min)	AC kV eff.	≥ 4
	Open contact acc. to DIN EN 61810-1	AC kV eff.	1,5
	Transient voltage		
	Contact-coil (1,2 - 50 μs)	kV	≥ 6
	Clearance and creepage distances		
	Contact- Coil	mm	≥ 8
	Contact- Contact	mm	≥ 5,5
3.9	Weight	g	95
4.0 Packing			
4.1	on cardboard	piece	15
4.2	in case package	piece	75
5.0 Solder method			
5.1	Solder method /-temperature /-duration	°C / s	Wafer soldering / 260 / 5

Design Versions

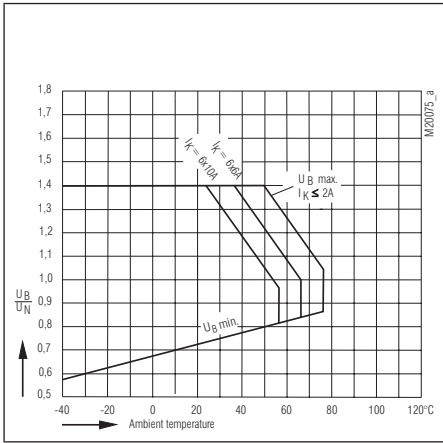
OA 5603					
U _N (DC V)	Voltage range (DC V)	R _{Coil} Ω ± 10%	.59	R _{Coil} Ω ± 10%	.46
			6NO, 2NC		2NO, 6NC
AgNi-Kontakte + 5 μm Au					
6	4.5 ... 8.4	25	3951	20	3961
12	9.0 ... 16.8	100	3952	80	3962
24	18.0 ... 33.6	400	3953	320	3963
48	36.0 ... 67.2	1 590	3954	1 280	3964
60	45.0 ... 84.0	2 480	3955	2 000	3965
110	82.5 ... 154.0	8 350	3956	6 720	3966

Ordering Example

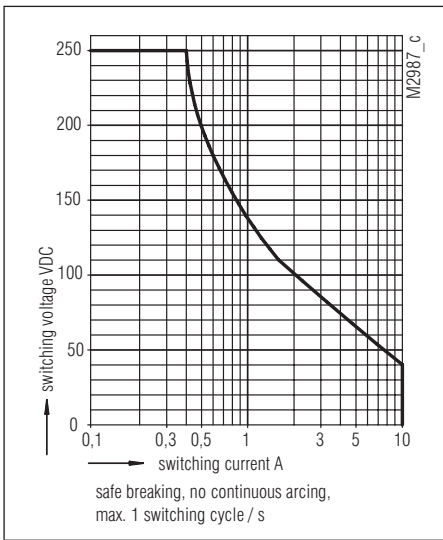


*) / 61 cURus approval

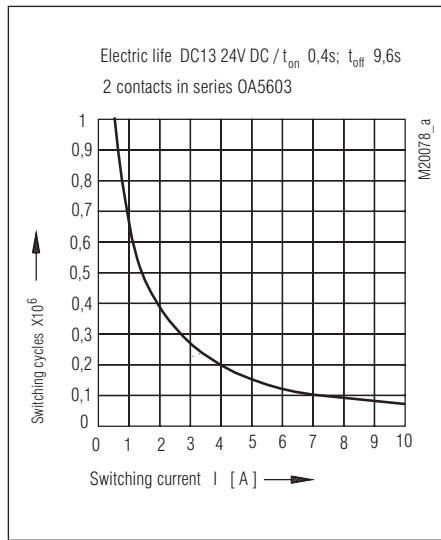
Characteristics



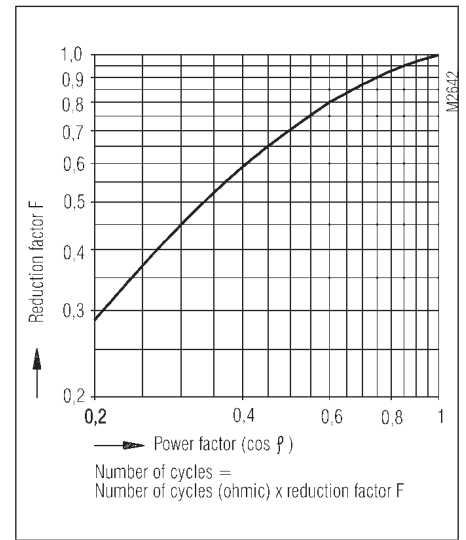
Operating voltage limit curve



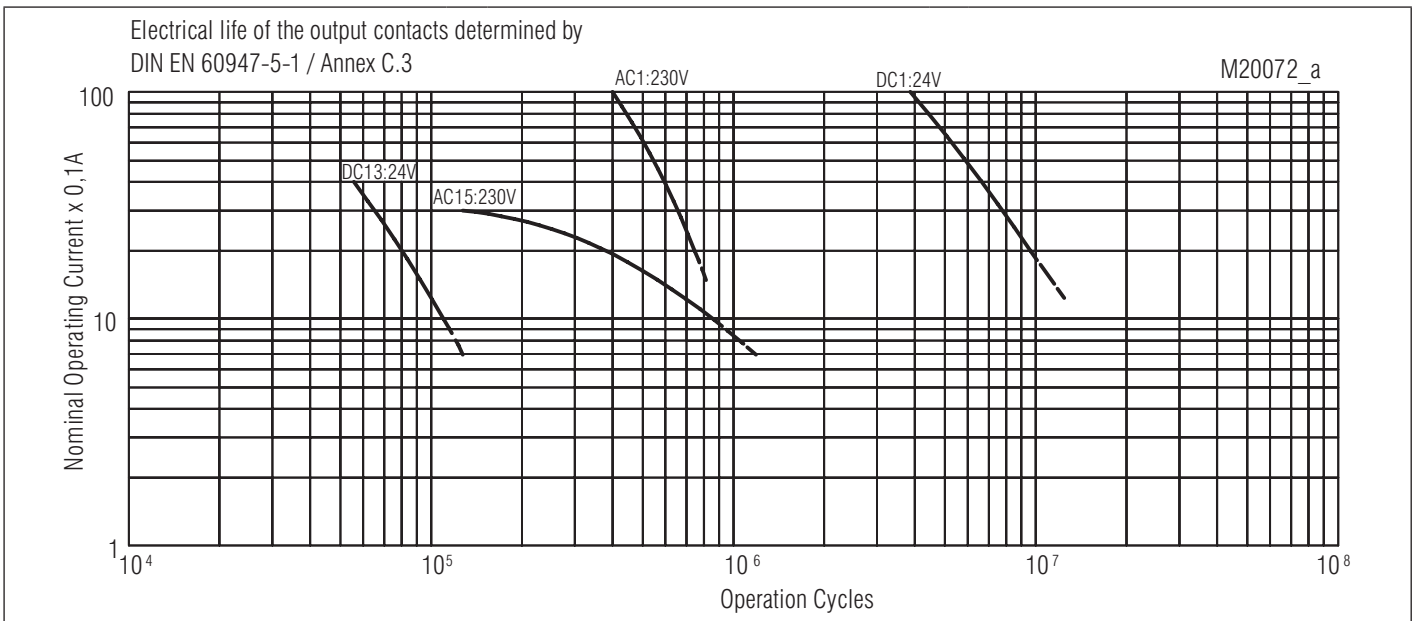
Limit curve for arc-free operation (load limit curve)



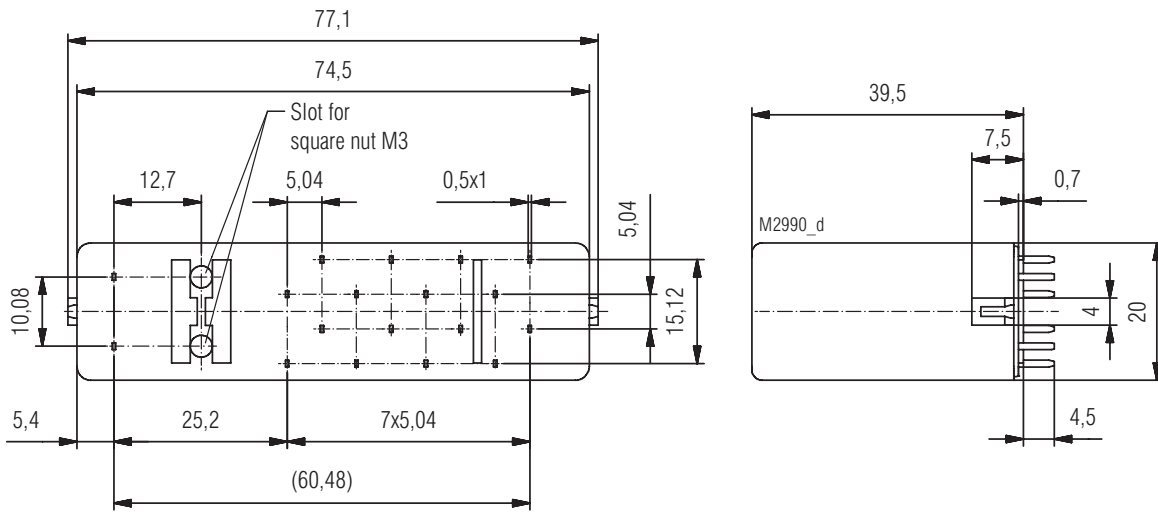
Reduction factor for inductive loads



Reduction factor for inductive loads

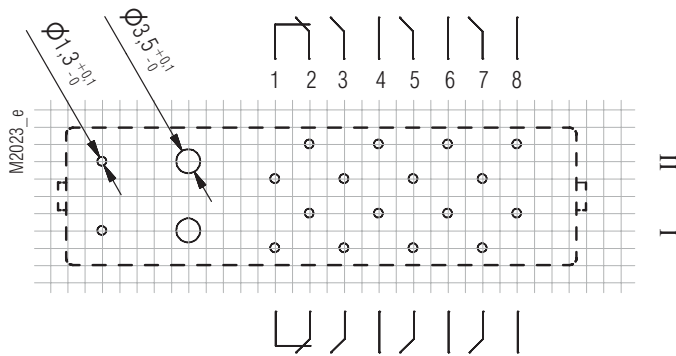


Electrical life for contact material AgNi

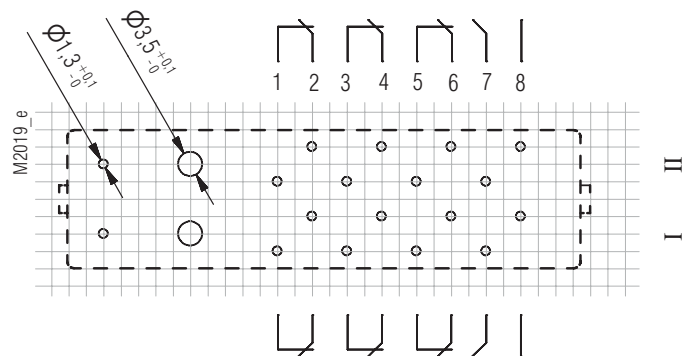


Drilling plan (solder side)

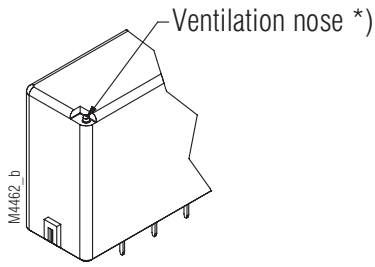
Pin arrangement OA5603.59 6S/2Ö



Pin arrangement OA5603.46 2S/6Ö



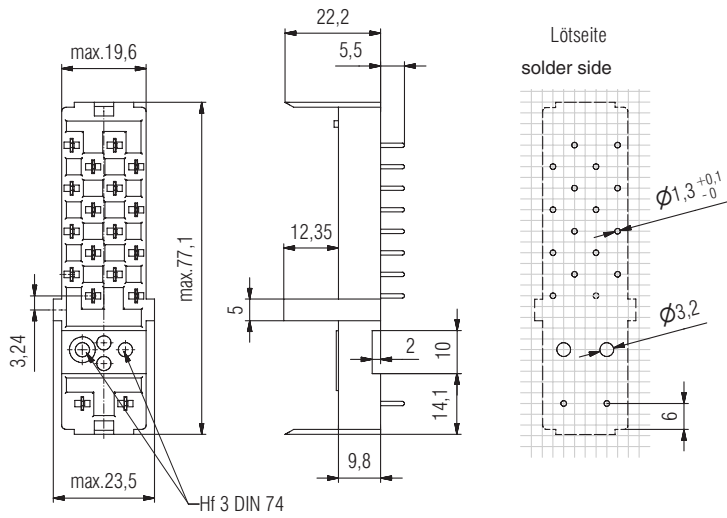
Connection for basic grid dimensions 2.5 mm as well as 2.54 mm according to IEC/EN 60097 and IEC 60326 average



*) When using the maximum switching capacity it is recommended to open the wash proof relay at the indicated position.

Accessories

Socket ET 1415.013



Article number: 0041070

