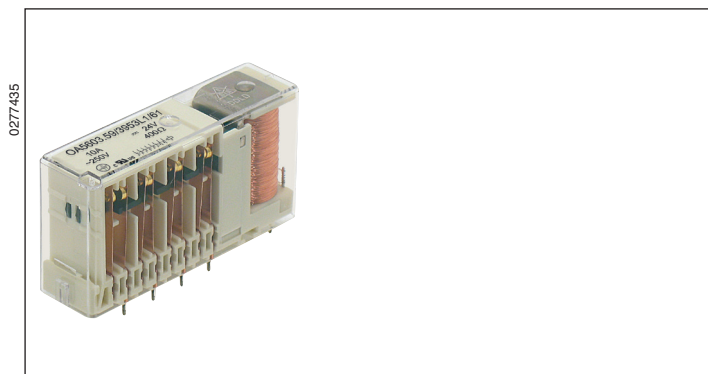


PCB relays

Safety relay according to DIN EN 50 578
(signal relay for railway applications)
OA 5603.59/39 __ L1, OA 5603.46/39 __ L1

Translation
of the original instructions



- Acc. to DIN EN 61810-1, DIN EN 61810-3 (Type A), 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: $-40 \dots +75$ °C
- High continuous thermal current $I_{th} = 10$ A

Applications

- 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 6; 12; 24; 48; 60; 110 V (others on request)
1.2	Nominal consumption	1.45 W (.59, .63) 1.65 W (.58) 1.8 W (.46)
1.11	Voltage range	0.75 ... 1.4 U _N
1.13	Holding power (at 0.5 U _N)	0.36 W (.59, .63) 0.41 W (.58) 0.45 W (.46, .56, .57)
1.14	Airgap in magnetic circuit	> 0.1 mm
2.0 Contacts		
2.1	Contact arrangement (Type A)	7 NO / 1 NC 6 NO / 2 NC 5 NO / 3 NC 4 NO / 4 NC 3 NO / 5 NC 2 NO / 6 NC
2.2	Contact material	AgSnO ₂ + 0.2 μm Au; AgNi + 0.2 μm Au, AgNi + 5 μm Au
2.3	Rated insulation voltage	AC 250 V
	Switching voltage min./max.	AC/DC 10 V / DC 250 V, AC 400 V (AC/DC 2 V / 60 V) ¹⁾
2.4	Limiting continuous current I _{th}	6 x 10 A (see operating voltage limit curve)
	Switching current min./max.	> 10 mA ³⁾ / 10 A (2 mA / 0.3 A) ¹⁾
2.5	Switching power min./max.	0.1 VA / 2500 VA (10 mVA / 12 VA) ¹⁾
	Switching power min./max	0.1 W ³⁾ / 240 W (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⁾	NO: AC 250 V / 3 A NC: AC 250 V / 2 A
	AC 15 ⁵⁾	NO: AC 250 V / 5 A NC: AC 250 V / 2 A
	DC 13 ⁴⁾	NO: DC 24 V / 2 A NC: DC 24 V / 2 A
	DC 13 ⁴⁾ at 0.1 Hz	NO: DC 24 V / 6 A NC: DC 24 V / 6 A
	to UL 508	B300
2.7	Electrical life	At 1 s On, 1 s Off (see contacts service life)
	at AC 230 V, 6 A, cosφ = 1	> 7 x 10 ⁵ switching cycles AgSnO ₂ > 5 x 10 ⁵ switching cycles AgNi
	at AC 230 V, 8 A, cosφ = 1	> 5 x 10 ⁵ switching cycles AgSnO ₂ > 4 x 10 ⁵ switching cycles AgNi
2.8	Switching frequency max	10 switching cycles/s
2.9	Response time / Release time	Typically 27 ms / Typically 5 ms
2.10	Contact force	≥ 17 cN
2.14	Contact gap	> 1.2 mm ²⁾
3.0 Other		
3.1	Mechanical life	≥ 30 x 10 ⁶ switching cycles
3.2	Temperatue range	- 40 ... + 75 °C
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 NO: 10 A gG/gL / NC: 10 A gG/gL IEC/EN 60947-5-1 AgNi NO: 10 A aG/qL / NC: 6 A aG/qL IEC/EN 60947-5-1

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

²⁾ Over entire service life

³⁾ Typical values

⁴⁾ Values for AgNi-Contacts

⁵⁾ Values for AgSnO₂-contacts

Technical Data	
3.8	Insulation acc. to IEC 60664-1, EN 50178
	Rated insulation voltage
	Pollution degree
	Overvoltage category
	Test voltage
	Contact-coil (1 min)
	Contact-contact (1 min)
	Open contact acc. to DIN EN 61810-1
	Transient voltage
	Contact-coil (1,2 - 50 µs)
	Clearance and creepage distances
	Contact- Coil
	Contact- Contact
3.9	Weight
4.0	Packing
4.1	On cardboard
4.2	In case package
5.0	Solder method
5.1	Solder method /-temperature /-duration

Design versions

OA 5603										
U _N (DC V)	Voltage range (DC V)	R _{Coil} Ω ± 10%	.63	.59	R _{Spule} Ω ± 10%	.58	R _{Coil} Ω ± 10%	.57	.56	.46
			7NO, 1NC	6NO, 2NC		5NO, 3NC		4NO, 4NC	3NO, 5NC	2NO, 6NC
AgNi-Kontakte + 5 µm Au										
6	4.5 ... 8.4	25	3941	3951	21	3931	20	3911	3921	3961
12	9.0 ... 16.8	100	3942	3952	88	3932	80	3912	3922	3962
24	18.0 ... 33.6	400	3943	3953	370	3933	320	3913	3923	3963
48	36.0 ... 67.2	1 590	3944	3954	1 400	3934	1 280	3914	3924	3964
60	45.0 ... 84.0	2 480	3945	3955	2 230	3935	2 000	3915	3925	3965
110	82.5 ... 154.0	8 350	3946	3956	7 150	3936	6 720	3916	3926	3966

Ordering Example

OA 5603 . . . / 61*)

Pin configuration

L = Solder line proof RT II

W = Wash proof

Design version

Contacts (Type A)

.63 7 NO, 1 NC

.59 6 NO, 2 NC

.58 5 NO, 3 NC

.57 4 NO, 4 NC

.56 3 NO, 5 NC

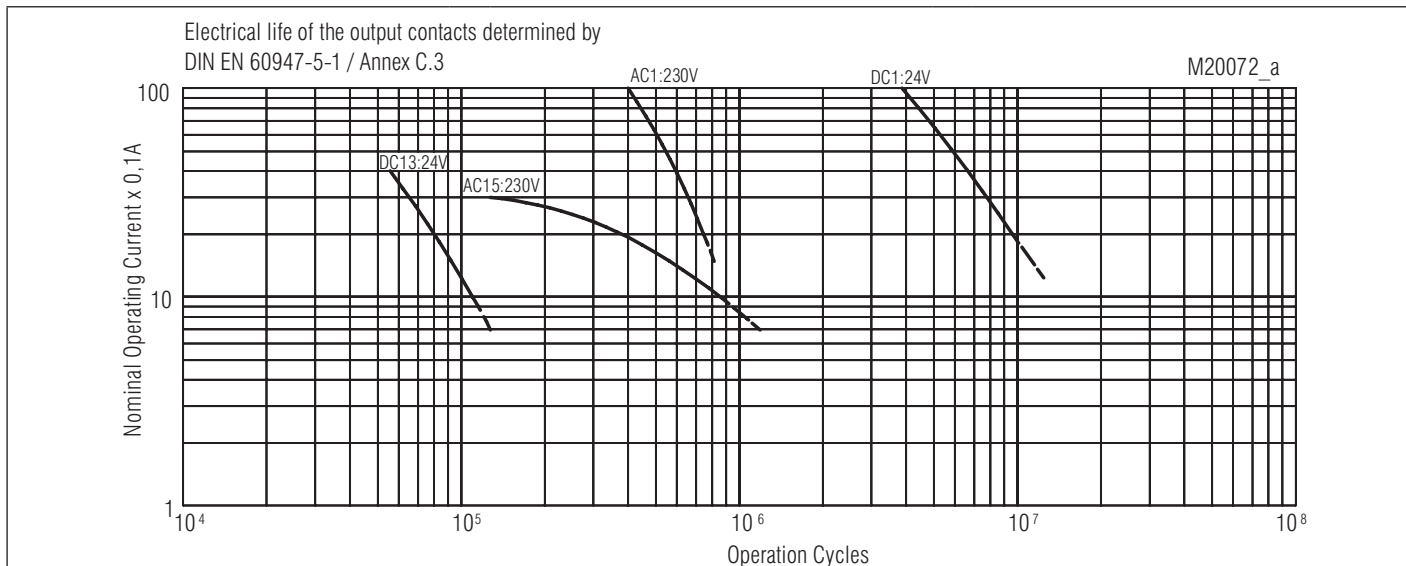
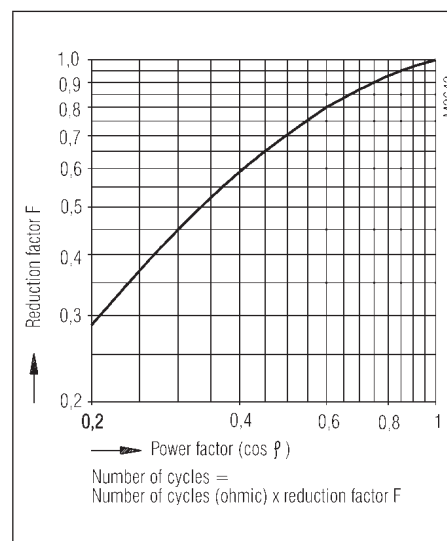
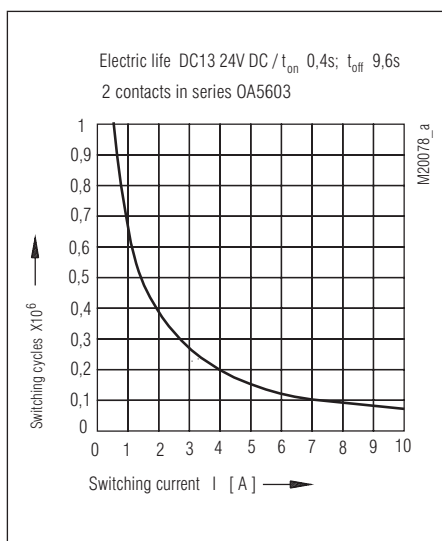
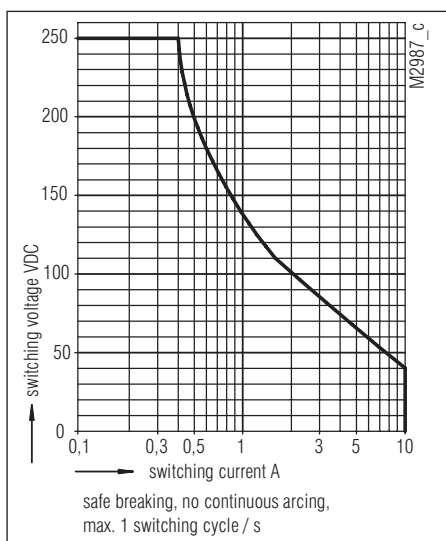
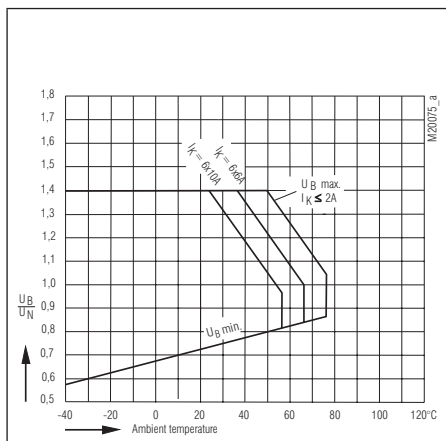
.46 2 NO, 6 NC

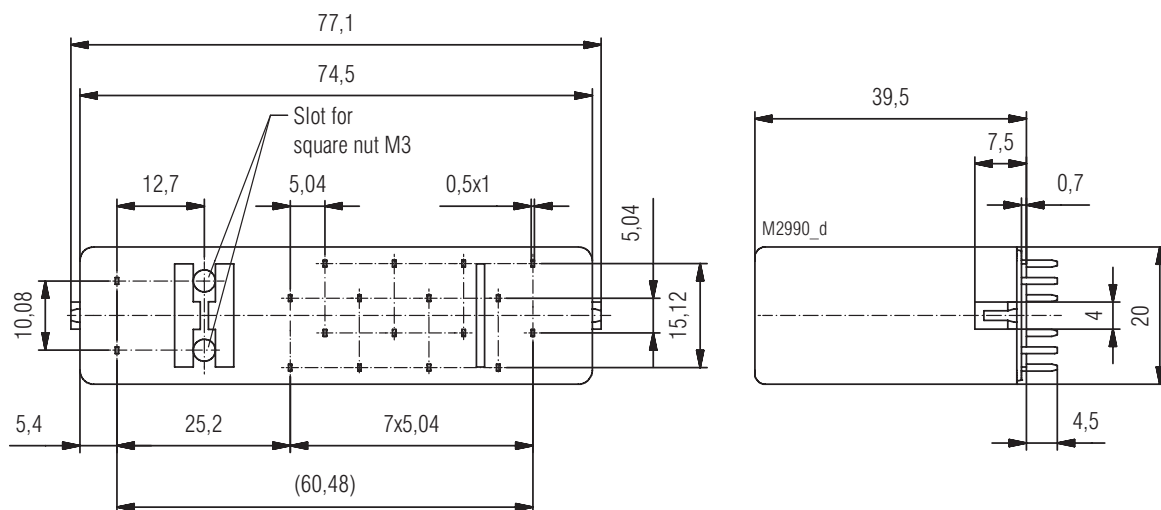
Relay type

*) / 61 cURus approval

Notes

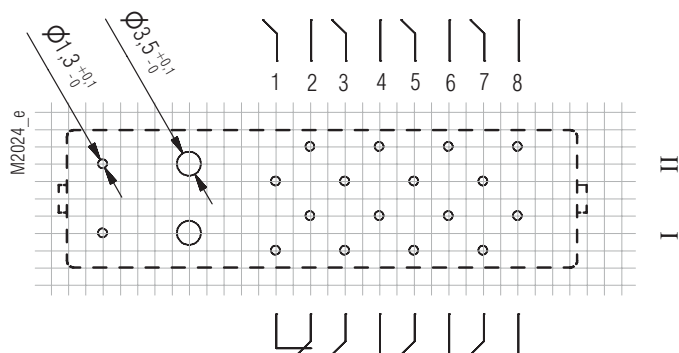
For the use and processing of our PCB relays, please refer to the **application and processing instructions** at www.dold.com



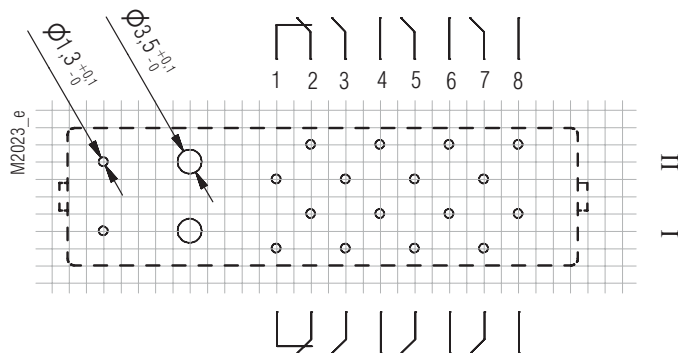


Drilling plan (solder side)

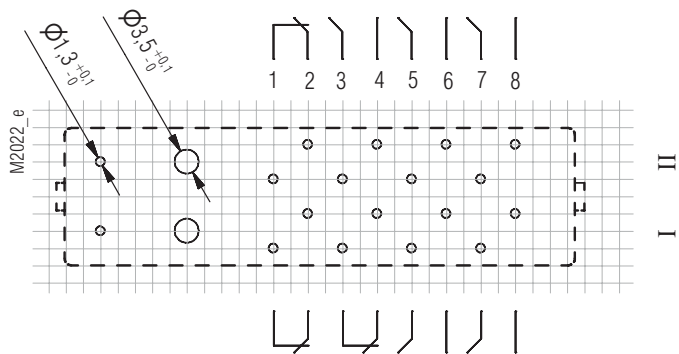
Pin arrangement OA5603.63 7S/1Ö



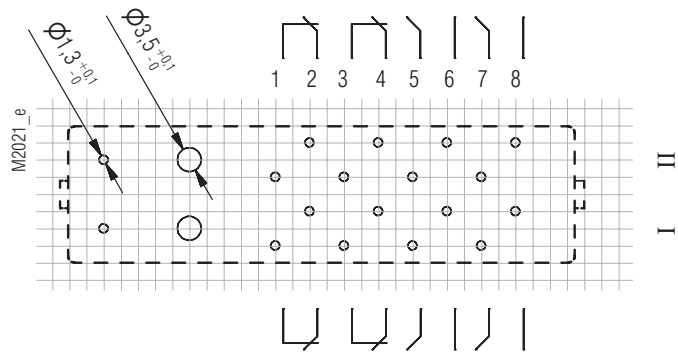
Pin arrangement OA5603.59 6S/2Ö



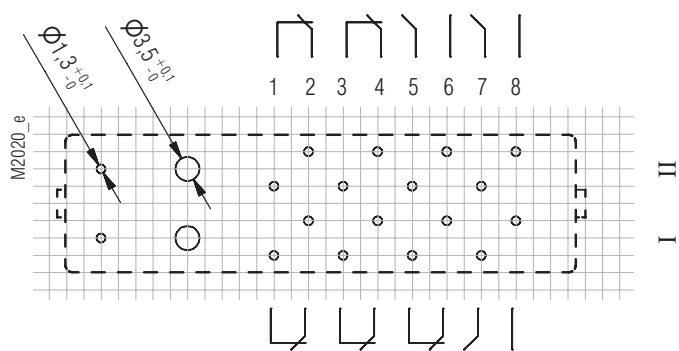
Pin arrangement OA5603.58 5S/3Ö



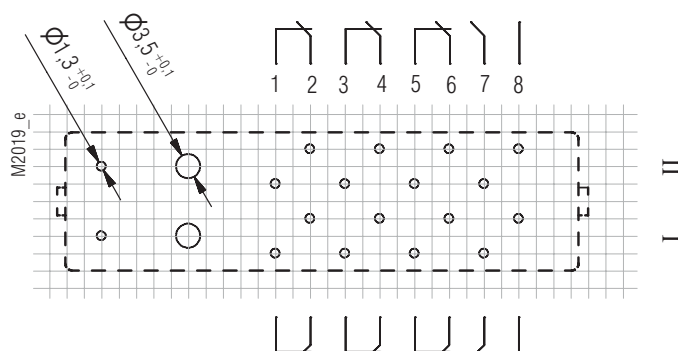
Pin arrangement OA5603.57 4S/4Ö



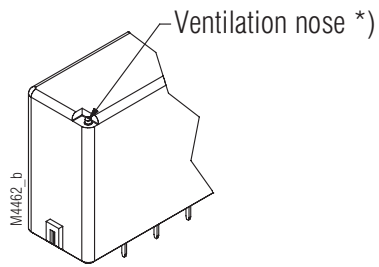
Pin arrangement OA5603.56 3S/5Ö



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

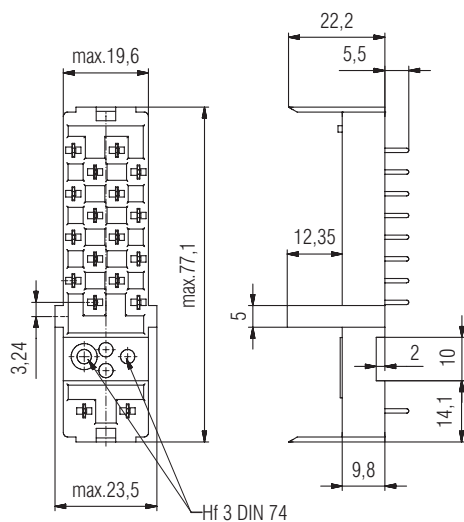


*) When using the maximum switching capacity it is recommended to open the wash proof relay at the indicated position.

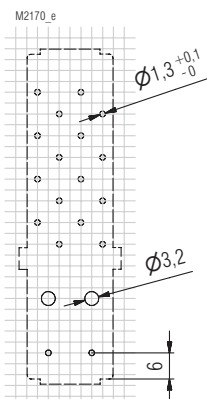
Accessories

Relay socket ET 1415.013/61 for OA 5603

Article number: 0041070

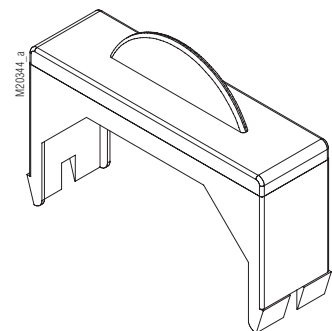


solder side



Removal tool ET 1415.943 for relay OA 5603

Article number: 0063096



This image shows a full page of blank graph paper. The grid consists of thin, light gray horizontal and vertical lines that intersect to form small squares across the entire surface. There are no margins, text, or other markings on the paper.

A full-page sheet of white graph paper. The grid consists of light gray horizontal and vertical lines forming small squares. There are 20 columns and 20 rows of squares. On the right side of the page, there is a margin containing ten horizontal lines, each aligned with one row of the grid. These lines are slightly darker than the grid lines and extend across the width of the margin area.

