

## PCB relays

Safety relay according to DIN EN 50 578  
(signal relay for railway applications)  
OA 5611.48/31 \_\_L1, OA 5611.52/31 \_\_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
- Low rated power consumption
- High mechanical service life
- High continuous thermal current  $I_{th} = 8 \text{ A}$
- Compact size

### Applications

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

### Approvals and Markings



### Technical Data

Relay type	OA 5611	
<b>1.0 Relay coil</b>		
1.1 Nominal voltage	DC 6, 12, 24, 48, 60, 110 V (others on request)	
1.2 Nominal consumption	0.7 W	
1.11 Voltage range	0.75 ... 1.4 $U_N$	
1.13 Holding power (at 0.5 $U_N$ )	0.18 W	
1.14 Airgap in magnetic circuit	> 0.1 mm	
<b>2.0 Contacts</b>		
2.1 Contact arrangement (Type A)	2 NO / 2 NC 3 NO / 1 NC	
2.2 Contact material	AgSnO <sub>2</sub> + 0.2 $\mu\text{m}$ Au; AgNi + 0.2 $\mu\text{m}$ Au, AgNi + 5 $\mu\text{m}$ 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) <sup>1)</sup>	
2.4 Limiting continuous current $I_{th}$	3 x 8 A (see operating voltage limit curve)	
Switching current min./max.	> 10 mA <sup>3)</sup> / 8 A (2 mA / 0.3 A) <sup>1)</sup>	
2.5 Switching power min./max.	0.1 VA / 2000 VA (10 mA / 12 VA) <sup>1)</sup>	
Switching power min./max	0.1 W <sup>3)</sup> / 200 W (10 mW / 12 W) <sup>1)</sup> (see limit curve for arc-free operation)	
2.6 Switching capacity to IEC/EN 60947-5-1		
AC 15 <sup>4)</sup>	NO: AC 250 V / 2 A	NC: AC 250 V / 1 A
AC 15 <sup>5)</sup>	NO: AC 250 V / 3 A	NC: AC 250 V / 2 A
DC 13 <sup>4)</sup>	NO: DC 24 V / 1 A	NC: DC 24 V / 1 A
DC 13 <sup>4)</sup> at 0.1 Hz	NO: DC 24 V / 4 A	NC: DC 24 V / 4 A
to UL 508	B300	
2.7 Electrical life	At 1 s On, 1 s Off (see contacts service life)	
at AC 230 V, 5 A, $\cos\phi = 1$	> 3 x 10 <sup>5</sup> switching cycles AgSnO <sub>2</sub>	> 2 x 10 <sup>5</sup> switching cycles AgNi 10
at AC 230 V, 8 A, $\cos\phi = 1$	> 1.5 x 10 <sup>5</sup> switching cycles AgSnO <sub>2</sub>	> 10 <sup>5</sup> switching cycles AgNi 10
2.8 Switching frequency max	10 switching cycles/s	
2.9 Response time / Release time	Typically 20 ms / Typically 6 ms	
2.10 Contact force	≥ 15 cN	
2.14 Contact gap	> 0.5 mm <sup>2)</sup>	
<b>3.0 Other</b>		
3.1 Mechanical life	≥ 10 <sup>7</sup> switching cycles	
3.2 Temperature range	- 40 ... + 70 °C	
3.3 Degree of protection, housing	Solder line proof RT II	
3.4 Test procedure	A (group mounting)	
3.5 Vibration resistance	10 ... < 60 Hz; 0.35 mm Amplitude IEC/EN 60068-2-6 60 ... 200 Hz, ≤ 5g (all contacts) IEC/EN 60068-2-6	
3.6 Climate resistance	40 / 070 / 04; A / B / D IEC/EN 60068-1	
3.7 Short circuit strength 1 kA / AC 250 V	AgSnO <sub>2</sub> NO: 10 A gG/gL / NC: 10 A gG/gL IEC/EN 60947-5-1 AgNi NO: 6 A gG/gL / NC: 6 A gG/gL IEC/EN 60947-5-1	

<sup>1)</sup> Values for AgNi-contacts + 5  $\mu\text{m}$  Au

<sup>3)</sup> Typical values for AgSnO<sub>2</sub> and AgNi

<sup>2)</sup> Over entire service life, even when under fault and at 1.4 x  $U_N$

<sup>4)</sup> Values for AgNi-Contacts

<sup>5)</sup> Values for AgSnO<sub>2</sub>-contacts

## Technical Data

3.8	Insulation acc. to IEC 60664-1, EN 50178	
	Rated insulation voltage	AC 250 V
	Pollution degree	3
	Overtoltage category	III
	Test voltage	
	Contact-coil (1 min)	≥ AC 4 kV eff.
	Contact-contact (1 min)	≥ AC 2.5 kV eff.
	Open contact acc. to DIN EN 61810-1	AC 1.5 kV eff.
	Transient voltage	
	Contact-coil (1,2 - 50 μs)	≥ 6 kV
	Clearance and creepage distances	
	Contact - Coil	≥ 8 mm
	Contact side-Contact side	≥ 4.5 mm
	Contact - Contact	≥ 4.5 mm
3.9	Weight	Approx. 35 g
<b>4.0 Packing</b>		
4.1	On cardboard	30 pieces
4.2	In case package	150 pieces
<b>5.0 Solder method</b>		
5.1	Solder method /-temperature /-duration	Wave soldering / 260 °C / 5 s

## Design versions

		OA 5611		
U <sub>N</sub> (DC V)	Voltage range (DC V)	R <sub>Coil</sub> Ω±10%	.48	.52
			3NO / 1NC	2NO / 2NC

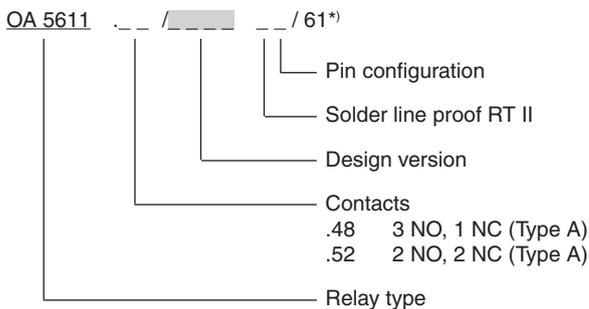
AgNi-contacts + 0.2 μm Au

6	4.5 ... 8.4	51	3121	3101
12	9.0 ... 16.8	205	3122	3102
24	18.0 ... 33.6	805	3123	3103
48	36.0 ... 67.2	3290	3124	3104
60	45.0 ... 84.0	5150	3125	3105
110	82.5 ... 154.0	17300	3126	3106

AgNi-contacts + 5 μm Au

6	4.5 ... 8.4	51	3131	3111
12	9.0 ... 16.8	205	3132	3112
24	18.0 ... 33.6	805	3133	3113
48	36.0 ... 67.2	3290	3134	3114
60	45.0 ... 84.0	5150	3135	3115
110	82.5 ... 154.0	17300	3136	3116

## Ordering Example

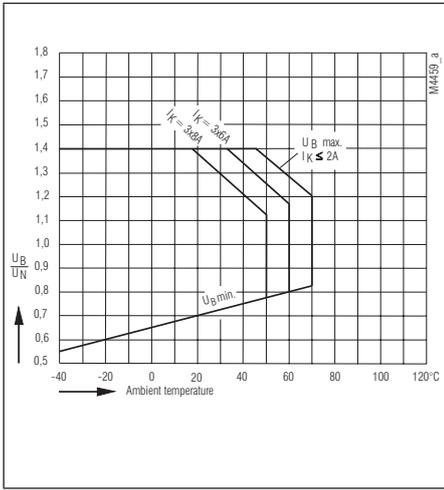


\*) / 61 cURus approval

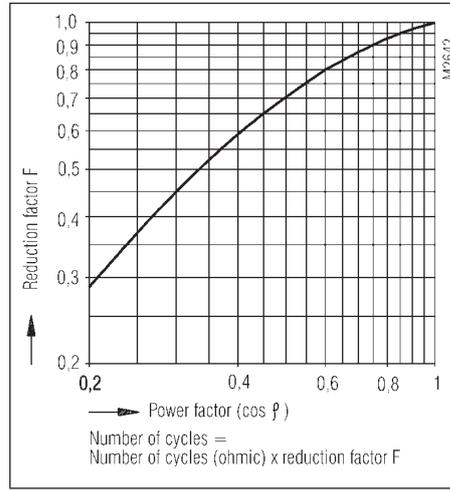
## Notes

For the use and processing of our PCB relays, please refer to the **application and processing instructions** at [www.dold.com](http://www.dold.com)

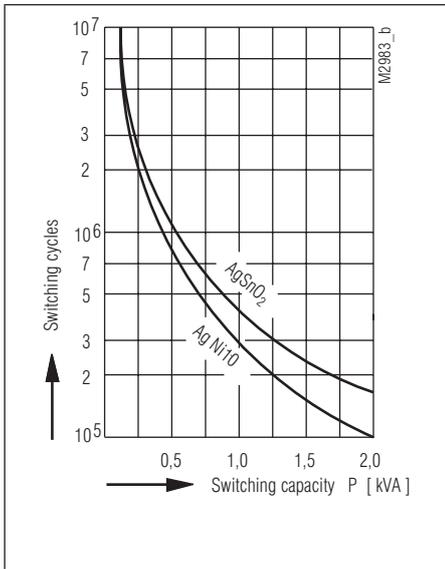
**Characteristics**



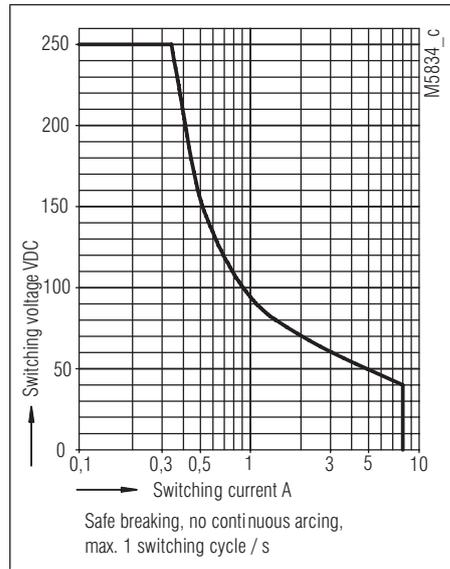
Operating voltage limit curve OA 5611



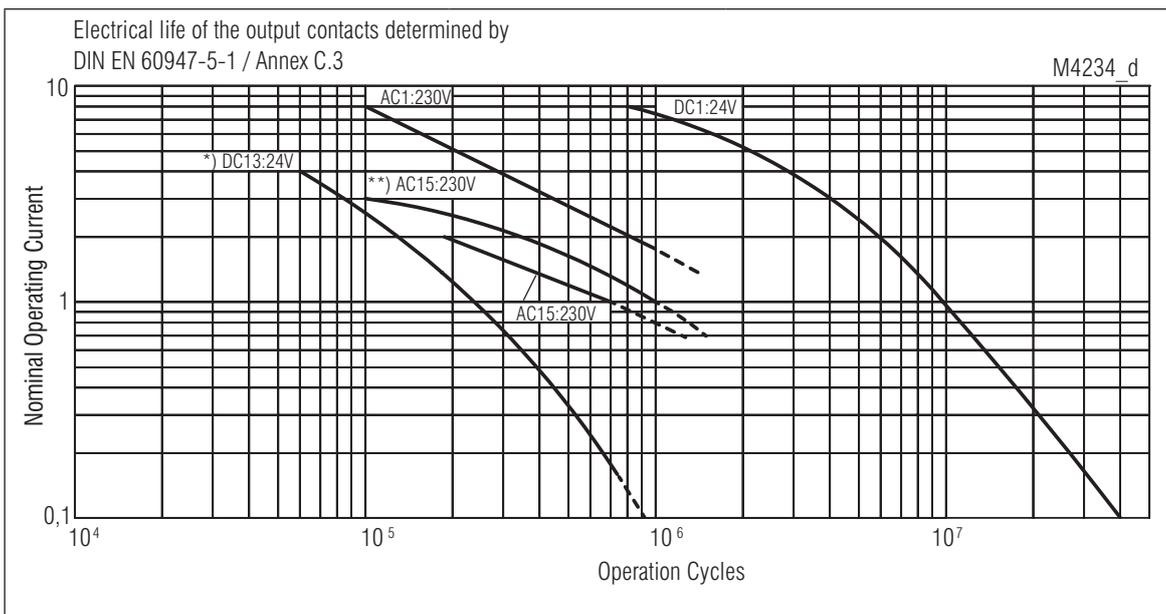
Reduction factor for inductive loads



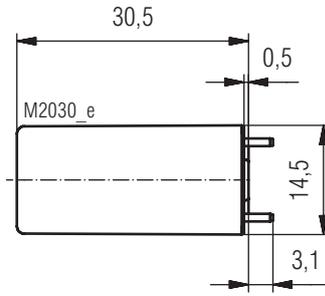
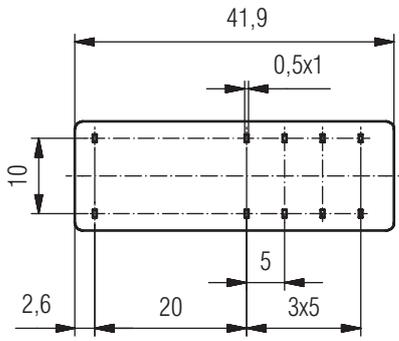
Contact service life



Arc limit curve  
(load limit curve)

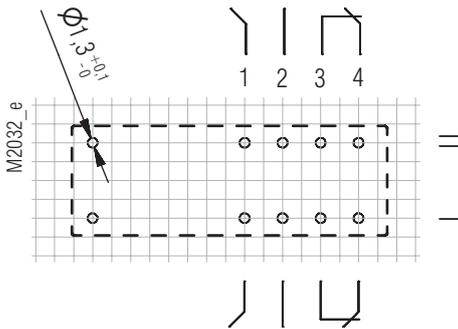


Electrical life for contact material AgNi  
 \*) ≤ 1 A with 1 Hz  
 > 1 A ... 4 A with 0.1 Hz  
 \*\*) for AgSnO<sub>2</sub>

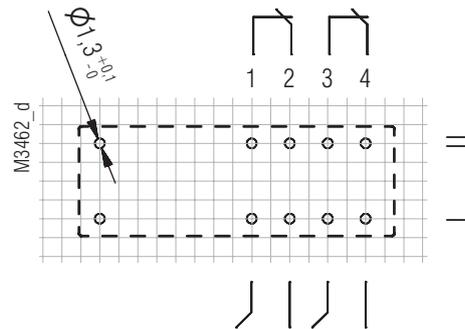


Drilling plan (solder side)

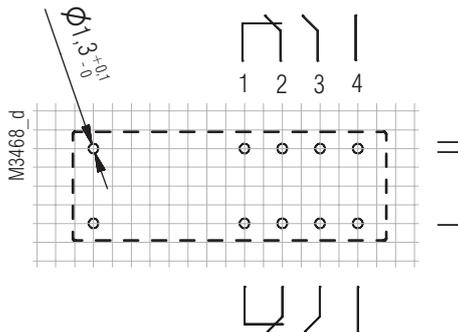
Pin arrangement OA 5611.52/...L1 2NO / 2NC



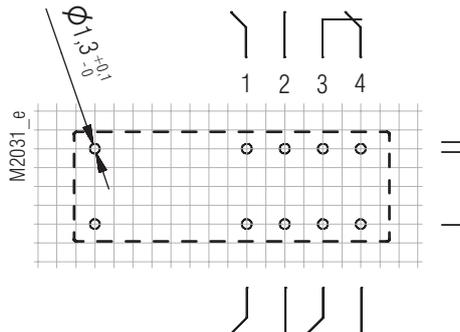
Pin arrangement OA 5611.52/...L4 2NO / 2NC



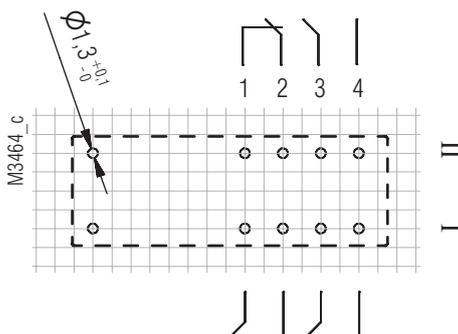
Pin arrangement OA 5611.52/...L5 2NO / 2NC



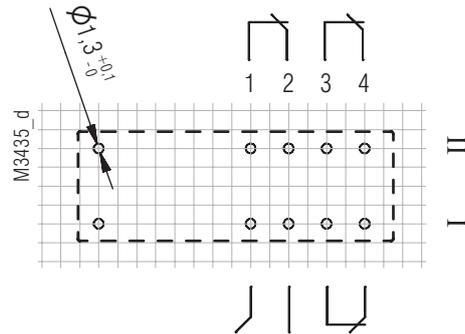
Pin arrangement OA 5611.48/...L1 3NO / 1NC



Pin arrangement OA 5611.48/...L4 3NO / 1NC



Pin arrangement OA 5611.28 1NO / 3NC



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

Relay socket ET 1415.031/61 for OA 5611

Article number: 0049512

