



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

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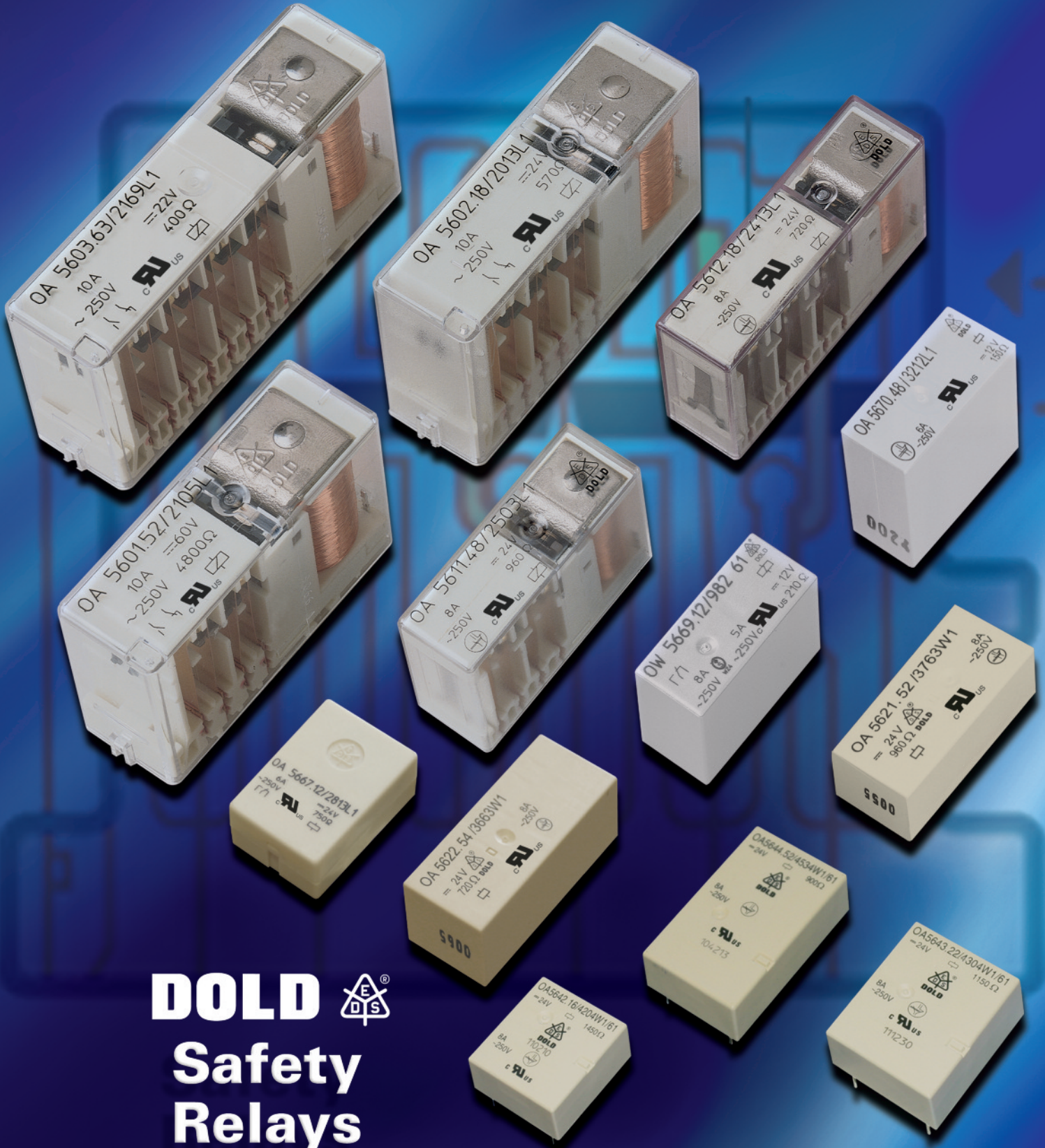


Altech Corp.®



ISO 9001
OMI-SAI Global

Serving the Automation & Control Industry since 1984



DOLD 
**Safety
Relays**

Altech Corp.®

Since 1984, Altech Corporation has grown to become a leading supplier of automation and industrial control components. Headquartered in Flemington, NJ, Altech has an experienced staff of engineering, manufacturing and sales personnel to provide the highest quality products with superior service. This is the Altech Commitment!

Altech's line of safety relays are manufactured by **DOLD** ⚡, a company well known in Europe for its quality safety relays. The products presented in this catalog will help you meet requirements of Machinery Directive 2006/42/EC, important international safety standards, CE-marking demand, and more, when exporting your machinery or equipment.

What is a Safety Relay?

A safety relay contains force guided contacts; they are also known as captive, locked or positive guided contacts. Force guidance in a relay means that the contacts in a contact set must be mechanically linked together so that it is impossible for the NO (normally open) and NC (normally closed) contacts to be closed at the same time. The contacts are linked so that no one contact in a relay can change state without changing all the contacts in that relay. There must be a 0.5 mm minimum air gap between the open contacts for the entire service life of the relay, even in the case of a failure. The force guidance of the relay contacts must always be preserved even when a relay part fails to function correctly.

Our technical experts welcome the opportunity to answer your technical questions and provide solutions to your automation and control problems. Give us a call or visit www.altechcorp.com.



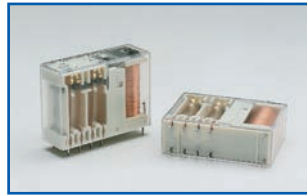
Quality Commitment

Altech's control components meet diverse national and international standards such as UL, NEC, CSA, IEC, VDE and more. Altech provides superior customer service and delivery through Total Quality Management and Continuous Process Improvement. Altech is ISO 9001 approved. We perform these services with honesty and integrity and are committed to achieve these goals.

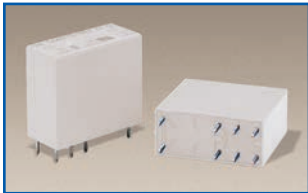




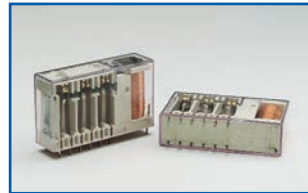
OA 5642/43/44
1 NO/1 NC, 2NO/1NC,
2NO/2NC, 3NO/1NC
Page 4-5



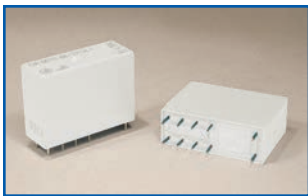
OA 5611
2 NO/2 NC, 3 NO/1 NC
Page 16-17



OA/OW 5669
1 NO/1 NC, 2 CO, 2 NO, 2 NC
Page 6-7



OA 5612
2 NO/4 NC, 3 NO/3 NC, 4 NO/2 NC
Page 18-19



OA/OW 5670
2 NO/2 NC, 3 NO/1 NC
Page 8-9



OA 5601
2 NO/2 NC, 3 NO/1 NC
Page 20-21



OA 5621 / OA 5621S
3 NO/1 NC, 2 NO/2 NC
Page 10-11



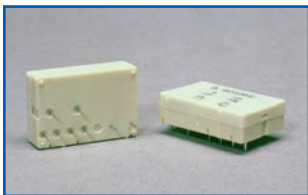
OA 5602
2 NO/4 NC, 3 NO/3 NC, 4 NO/2 NC
Page 22-23



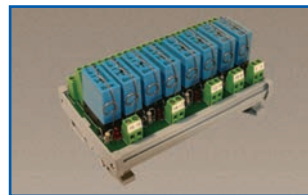
OA 5622 / OA 5622S
2 NO/4 NC, 3 NO/3 NC,
4 NO/2 NC, 5 NO/1 NC
Page 12-13



OA 5603
7 NO/1 NC, 6 NO/2 NC, 5 NO/3 NC,
4 NO/4 NC, 3 NO/5 NC, 2 NO/6 NC
Page 24-25



OA 5667 / OA 5667S
1 NO/1 NC, 2 CO
Page 14-15



Safety Relay Modules
Busse Channel
Isolated Channel
Page 26-31



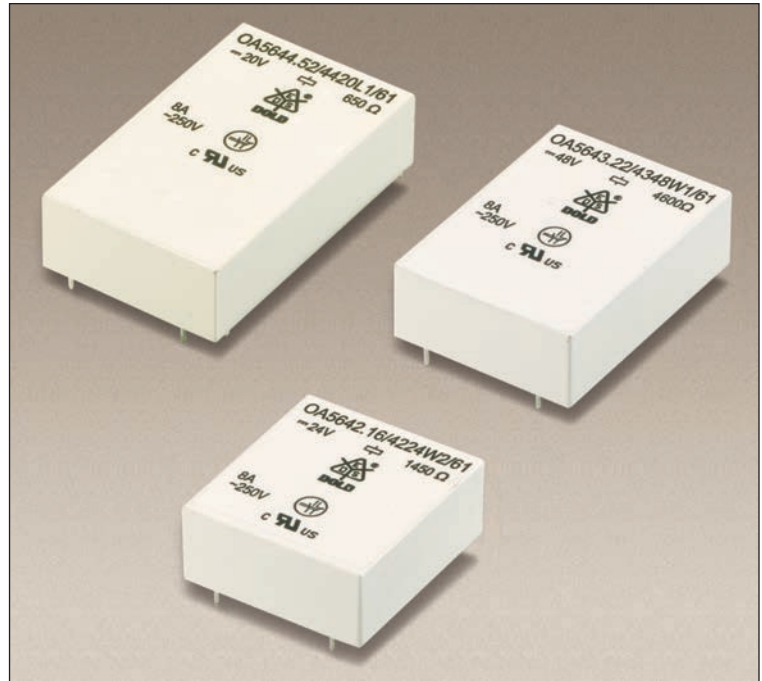
Accessories Page 32
Applications Page 33
Terminology Page 34-36
Index..... Page 37
Terms & Conditions Page 38

Safety Relay

OA 5642/43/44

Features

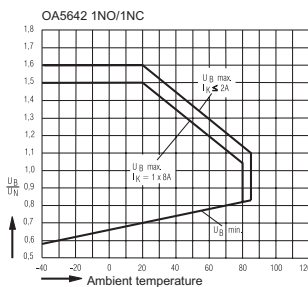
- 2-4 output contacts
- International approvals: TÜV, UL, cUL
- Quality control check for each safety relay
- Forced-guided contacts, all gold flash plated
- Contact Gap > 0.5 mm throughout life of relay
- Various contact materials, mixed contact material optional
- High coil voltage range
- High switching voltage
- High breakdown voltage: contact/coil \geq 4 KV
contact/contact \geq 4KV
- High creeping distance: contact/coil \geq 5.5 mm
contact/contact \geq 5.5 mm
- Protection Rating IP67, washable
- Compact size- only 10.3 mm height
- SMD component can be mounted under relay
- Custom design available,
 - coil voltage
 - operate/release time
 - contact pressure
 - coil resistance



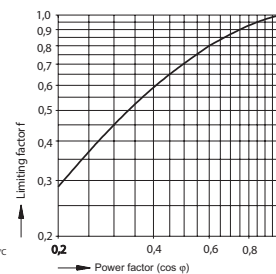
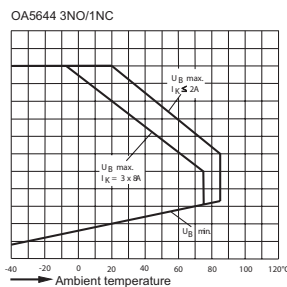
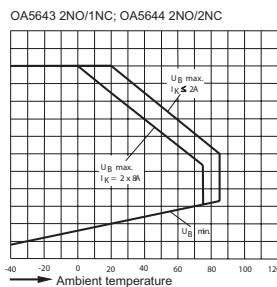
Technical Data

- **Nominal Coil Voltage**6, 12, 21, 24, 48, 60, 110, DC
- **Coil Power Dissipation**0.4/0.5/0.65 W
- **Max. Switching Voltage**250V DC, 400 V AC
- **Max. Switching Current**8 A
- **Max. Switching Power — DC**.....240W
- **Max. Switching Power — AC**.....2000VA
- **Contact Switching Rate**20 operations per second
- **Relay Operate Time** \leq 15 ms
- **Relay Release Time** \leq 5 ms
- **Operation Vibration**0.5 mm Ampl. max
.....@ 10...100Hz, 3g max
- **Protection Rating**IP 67
- **Contact Arrangements**.....1NO/1NC, 2NO/1NC, 2NO/2NC, 3NO/1NC,
- **Contact Material**.....AgNi10+0.2 μ mAu, AgSnO₂+0.2 μ mAu, AgNi10+5 μ mAu
- **Mechanical Life**>40x10⁶ operation cycles
- **Electrical Life**>50,000
.....operation cycles @ 230V AC, 8A, cos φ =1
- **Ambient Temperature**.....-40...+85°C
- **Cover Material**.....Thermoplast
- **Weight**.....14/15/16 g
- More detailed data upon request

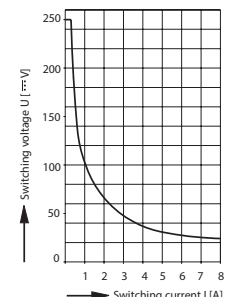
Diagrams



Relay operation voltage vs. ambient temperature



Operations =
Operations (ohmic) x
limitation factor F



Maximum switching power curve

Limitation factor for inductive loads

Safety Relay OA 5642/43/44 Data

Relay Data

Ordering Information

Rated Voltage	Voltage Range	Coil Resistance (10%)	1 NO/1 NC Type	Coil Resistance (10%)	2NO/1NC Type	Coil Resistance (10%)	3NO/1NC Type	2NO/2NC Type
6V	4.2 - 7.8V	90 Ω	56.OA42.0611□	70 Ω	56.OA43.0621□	55 Ω	56.OA44.0631□	56.OA44.0622□
12V	8.4 - 15.2V	370 Ω	56.OA42.1211□	290 Ω	56.OA43.1221□	230 Ω	56.OA44.1231□	56.OA44.1222□
21V	15.0 - 27.3V	1050 Ω	56.OA42.2111□	840 Ω	56.OA43.2121□	680 Ω	56.OA44.2131□	56.OA44.2122□
24V	16.8 - 31.2V	1450 Ω	56.OA42.2411□	1150 Ω	56.OA43.2421□	900 Ω	56.OA44.2431□	56.OA44.2422□
48V	33.6 - 62.4V	6000 Ω	56.OA42.4811□	4600 Ω	56.OA43.4821□	3600 Ω	56.OA44.4831□	56.OA44.4822□
60V	42.0 - 78.0V	9250 Ω	56.OA42.6011□	7100 Ω	56.OA43.6021□	5600 Ω	56.OA44.6031□	56.OA44.6022□
110V	77.0 - 143.0V	31000 Ω	56.OA42.1111□	24000 Ω	56.OA43.1121□	18500 Ω	56.OA44.1131□	56.OA44.1122□

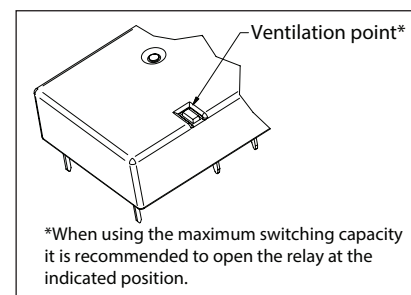
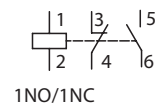
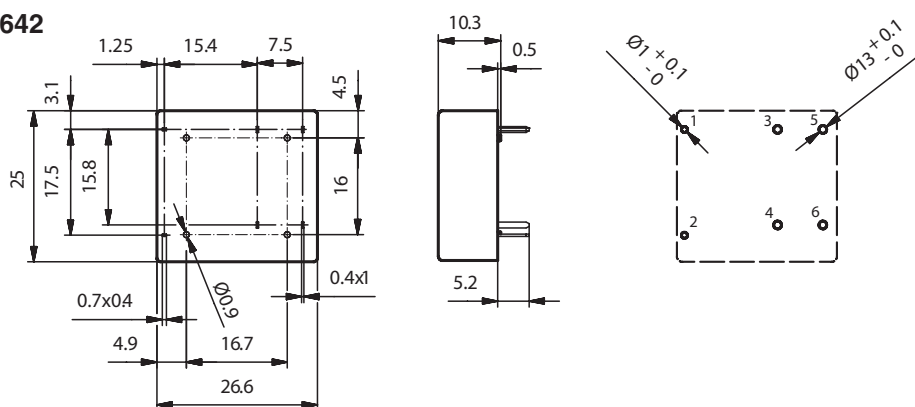
Contact Material, Example: □ AgSnO₂+2μmAu

□ AgNi10+.2μmAu

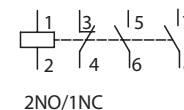
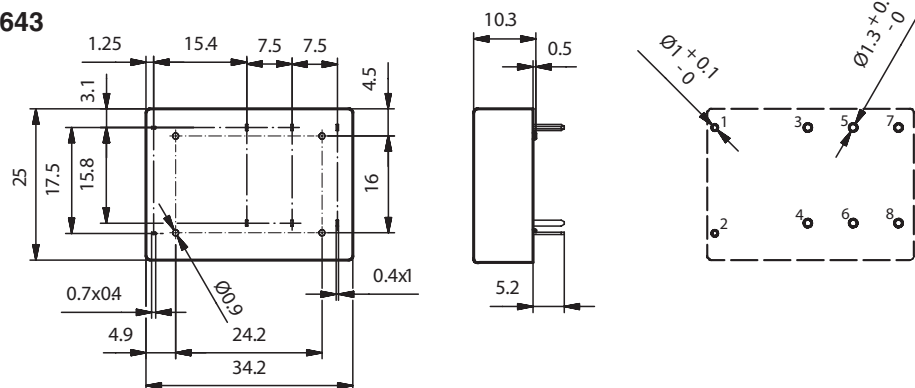
□ AgNi10+5μmAu

Dimensions & Pin Configurations

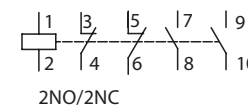
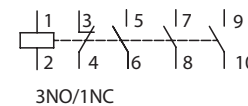
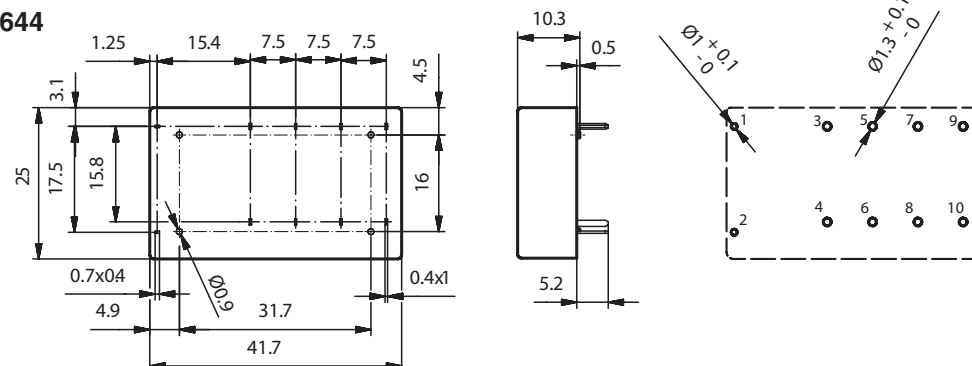
5642



5643



5644



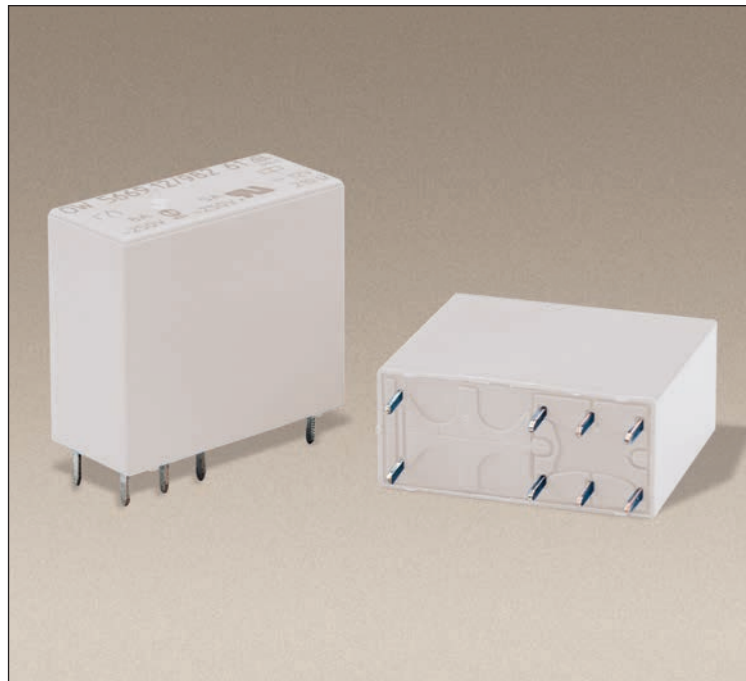
Note: All dimensions are shown in millimeters. To convert to inches, divide by 25.4.

Safety Relay

OA/OW 5669

Features

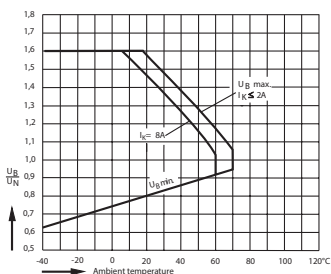
- 2 output contacts
- International approvals: TÜV, UL, cUL
- Quality control check for each safety relay
- Forced-guided contacts, all gold flash plated
- Contact Gap > 0.5 mm throughout life of relay
- Various contact materials, mixed contact material optional
- High coil voltage range
- High breakdown voltage: contact/coil \geq 4 KV
contact/contact \geq 4KV
- High creeping distance: contact/coil \geq 8 mm
contact/contact \geq 5.5 mm
- Protection Rating
OA Version: IP 40, flow solder proof
OW Version: IP 67, washable
- Custom design available,
-coil voltage -coil resistance,
-contact pressure -operate/release time



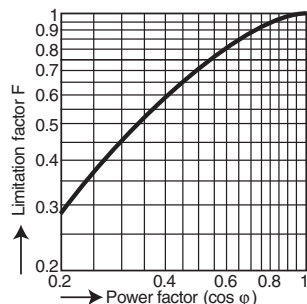
Technical Data

- **Nominal Coil Voltage** 6, 12, 20, 24, 48, 60, 110, DC
- **Coil Power Dissipation** 0.7 W
- **Max. Switching Voltage** 250V DC, 400V AC
- **Max. Switching Current** 8 A (2 x 5A simultaneous)
- **Max. Switching Power — DC** 200W (2 x 160W simultaneous)
- **Max. Switching Power — AC** 2000VA (2 x 1250VA simultaneous)
- **Contact Switching Rate** 10 operations per second
- **Relay Operate Time** \leq 15 ms
- **Relay Release Time** \leq 12 ms
- **Operation Vibration** 0.35 mm Ampl. max
@ 10...55Hz, 5g max
- **Contact Arrangements** 1NO/1NC, 2CO, 2NO*, 2NC*
- **Contact Material** AgNi10+0.2 μ mAu Standard
AgSnO₂+0.2 μ mAu, AgNi10+5 μ mAu Optional
- **Mechanical Life** \geq 50x10⁶ operation cycles
- **Electrical Life** AgSnO₂ >2x10⁵, AgNi10 >10⁵
operation cycles @ 230V AC, 6A, cos φ =1
- **Ambient Temperature** -40...+70°C
- **Cover Material** Polyamide 6
- **Weight** 15 g
- More detailed data upon request

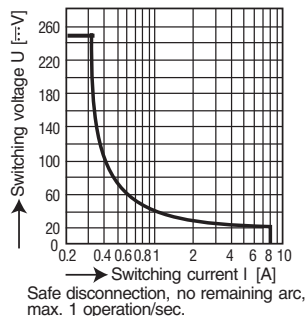
Diagrams



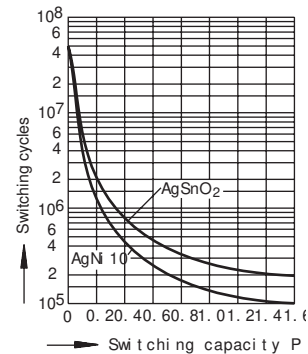
Relay operation voltage vs. ambient temperature



Limitation factor for inductive loads
Operations =
Operations (ohmic) x limitation factor F



Maximum switching power curve



Mechanical life

*Special order.

Safety Relay OA/OW 5669 Data

Relay Data

Ordering Information

Rated Voltage	Voltage Range	Coil Resistance (10%)	1 NO/1 NC Type	2 CO Type	2 NO* Type	2 NC* Type
6V	4.8 - 9.6V	50 Ω	56.O□69.0611□	56.O□69.0600□	56.O□69.0620□	56.O□69.0602□
10V	8.0 - 16.0V	150 Ω	56.O□69.1011□	56.O□69.1000□	56.O□69.1020□	56.O□69.1002□
12V	9.6 - 19.2V	210 Ω	56.O□69.1211□	56.O□69.1200□	56.O□69.1220□	56.O□69.1202□
20V	16.0 - 32.0V	580 Ω	56.O□69.2011□	56.O□69.2000□	56.O□69.2020□	56.O□69.2002□
24V	19.2 - 38.4V	820 Ω	56.O□69.2411□	56.O□69.2400□	56.O□69.2420□	56.O□69.2402□
48V	38.4 - 76.8V	3200 Ω	56.O□69.4811□	56.O□69.4800□	56.O□69.4820□	56.O□69.4802□
60V	48.0 - 96.0V	5200 Ω	56.O□69.6011□	56.O□69.6000□	56.O□69.6020□	56.O□69.6002□
110V	88.0 - 176.0V	18000 Ω	56.O□69.1111□	56.O□69.1100□	56.O□69.1120□	56.O□69.1102□

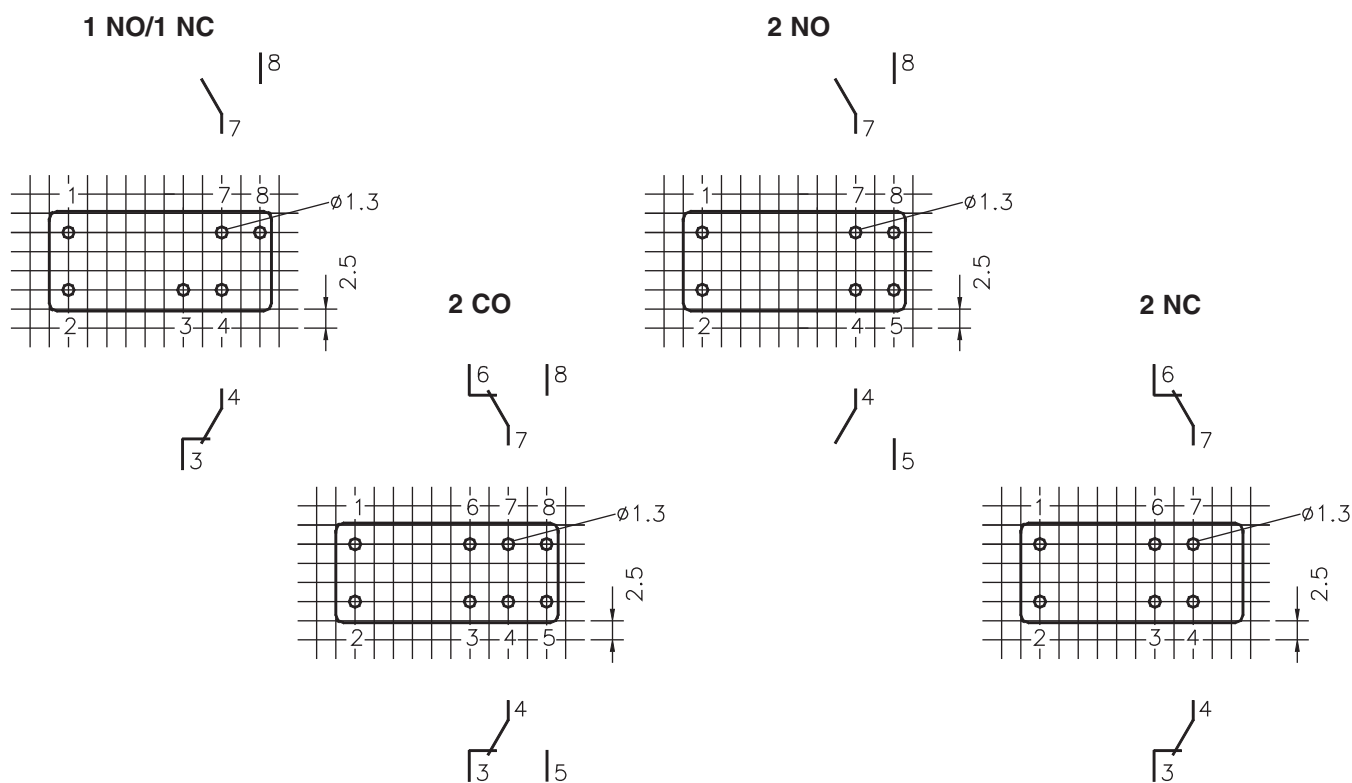
Protection Class, Example:

- A** IP 40, Flow Solder Proof
- W** IP 67, Washable

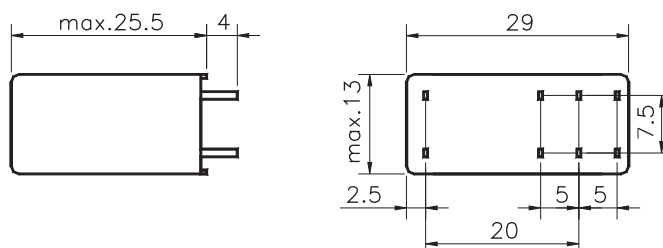
Contact Material, Example:

- C** AgSnO₂+2μmAu
- N** AgNi10+2μmAu
- S** AgNi0.15+5μmAu

Footprints (solder side)



Dimensions



Note: All dimensions are shown in millimeters. To convert to inches, divide by 25.4.

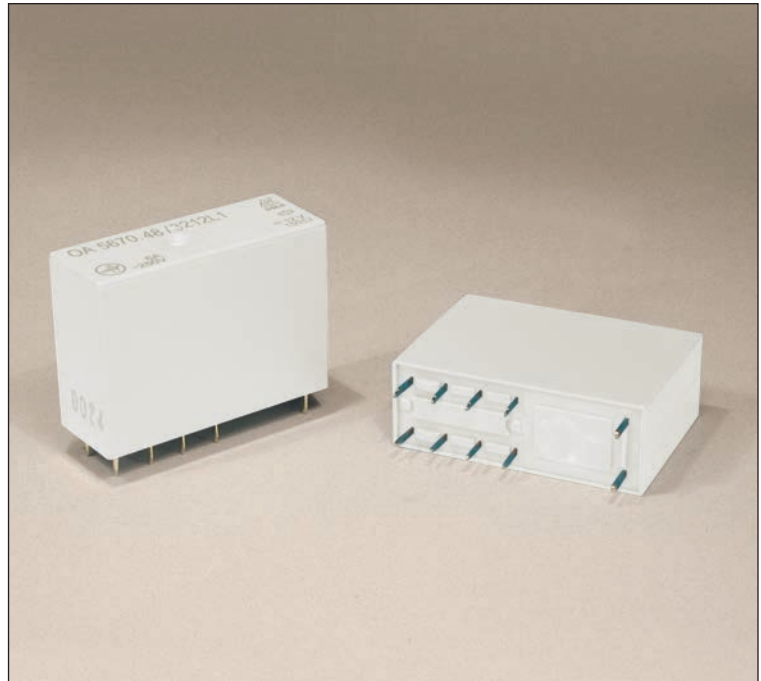
*Special order.

Safety Relay

OA/OW 5670

Features

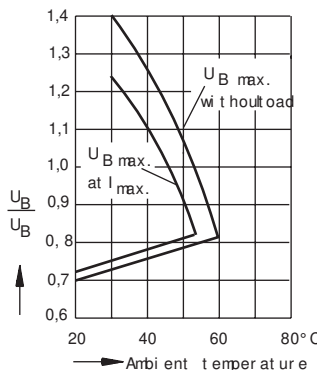
- 4 output contacts
- International approvals: TÜV, UL, cUL
- Quality control check for each safety relay
- Forced-guided contacts, all gold flash plated
- Contact Gap > 0.5 mm throughout life of relay
- Various contact materials, mixed contact material optional
- High coil voltage range
- High breakdown voltage: contact/coil \geq 4 KV
contact/contact \geq 3KV
- High creeping distance: contact/coil \geq 8 mm
contact/contact \geq 4.5 mm
- Protection Rating
OA Version: IP 40, flow solder proof
OW Version: IP 67, washable
- Custom design available,
-coil voltage -coil resistance,
-contact pressure -operate/release time



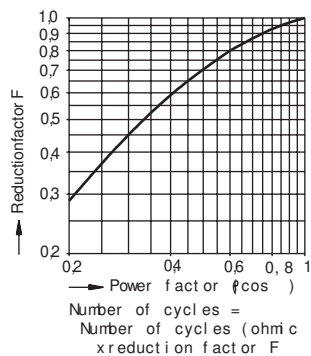
Technical Data

- **Nominal Coil Voltage**6, 12, 20, 24, 48, 60, 110, DC
- **Coil Power Dissipation**1.0 W
- **Max. Switching Voltage**250V DC, 400V AC
- **Max. Switching Current**6 A (3 x 6A simultaneous)
- **Max. Switching Power — DC**.....160W
- **Max. Switching Power — AC**.....1500VA
- **Contact Switching Rate**10 operations per second
- **Relay Operate Time**11 ms
- **Relay Release Time**6 ms
- **Operation Vibration**0.35 mm Ampl. max
.....@ 10...200Hz, 5g max
- **Contact Arrangements**.....2NO/2NC, 3NO/1NC
- **Contact Material**.....AgNi10+0.2 μ mAu Standard
.....AgSnO₂+0.2 μ mAu, AgNi10+5 μ mAu Optional
- **Mechanical Life**..... \geq 50x10⁶ operation cycles
- **Electrical Life**AgSnO₂ >2x10⁵, AgNi10 >1.2x10⁵
.....operation cycles @ 230V AC, 6A, cos φ =1
- **Ambient Temperature**.....-40...+75°C
- **Cover Material**Polyamide 6
- **Weight**.....20 g
- More detailed data upon request

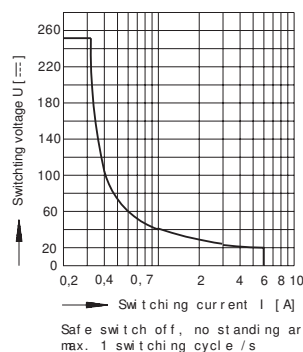
Diagrams



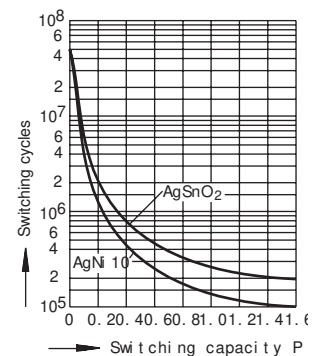
Relay operation voltage vs. ambient temperature



Limitation factor for inductive loads



Maximum switching power curve



Mechanical life

Safety Relay OA/OW 5670 Data

Relay Data			Ordering Information	
Rated Voltage	Voltage Range	Coil Resistance (10%)	2 NO/2 NC Type	3 NO/1 NC Type
6V	4.2 - 8.4V	36 Ω	56.O□70.0622□	56.O□70.0631□
12V	8.4 - 16.8V	150 Ω	56.O□70.1222□	56.O□70.1231□
20V	14.0 - 28.0V	400 Ω	56.O□70.2022□	56.O□70.2031□
24V	16.8 - 33.6V	580 Ω	56.O□70.2422□	56.O□70.2431□
48V	33.6 - 67.2V	2300 Ω	56.O□70.4822□	56.O□70.4831□
60V	42.0 - 84.0V	3600 Ω	56.O□70.6022□	56.O□70.6031□
110V	77.0 - 154.0V	12100 Ω	56.O□70.1122□	56.O□70.1131□

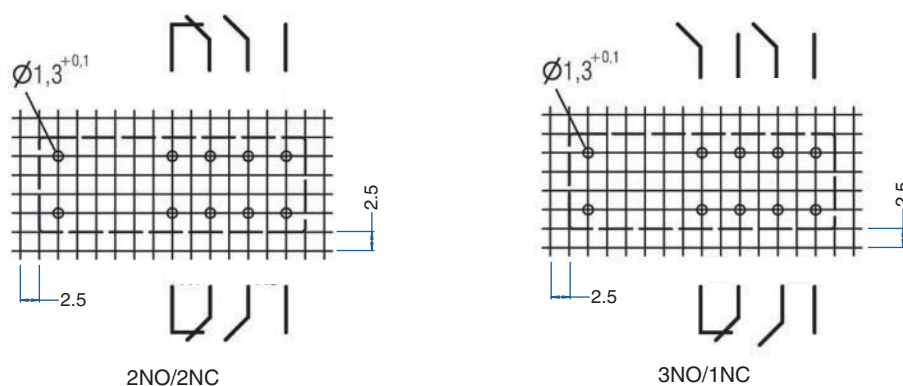
Protection Class, Example:

- A IP 40, Flow Solder Proof
- W IP 67, Washable

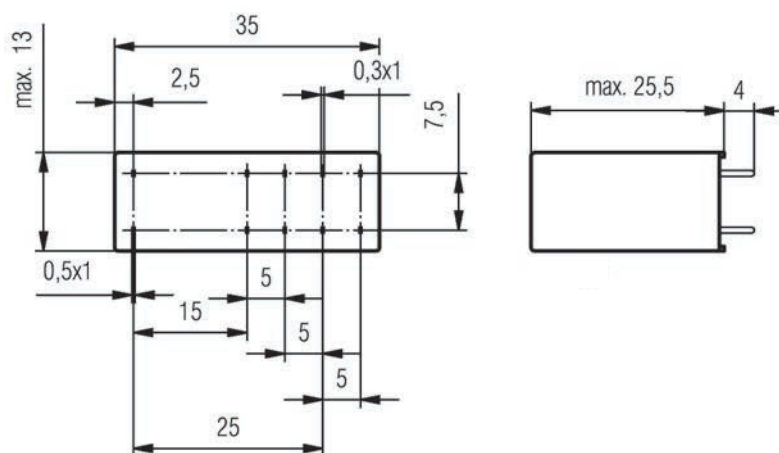
Contact Material, Example:

- C AgSnO₂+2μmAu
- N AgNi10+.2μmAu
- S AgNi0.15+5μmAu

Footprints (solder side)



Dimensions



Note: All dimensions are shown in millimeters. To convert to inches, divide by 25.4.

Safety Relay

OA 5621 / OA 5621S

Features

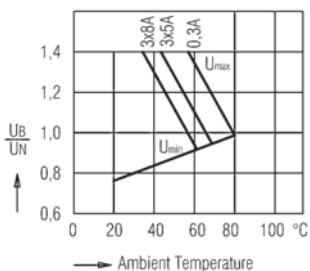
- 4 output contacts
- International approvals: TÜV, UL, cUL
- Quality control check for each safety relay
- Forced-guided contacts, all gold flash plated
- Contact Gap > 0.5 mm throughout life of relay
- Various contact materials, mixed contact material optional
- High coil voltage range
- High breakdown voltage: contact/coil \geq 4 KV
contact/contact \geq 4KV
- High creeping distance: contact/coil \geq 5.5 mm
contact/contact \geq 5.5 mm
- Protection Rating IP 67, washable
- Custom design available,
 - coil voltage
 - coil resistance,
 - contact pressure
 - operate/release time
 - gold plated double contacts
- S-Type
higher external clearance and creeping distance:
contact/contact \geq 7.5 mm



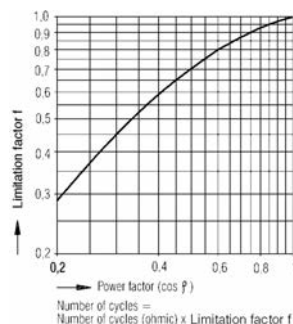
Technical Data

- **Nominal Coil Voltage**6, 12, 24, 48, 60, 110, DC
- **Coil Power Dissipation**0.6 W
- **Max. Switching Voltage**250V DC, 400V AC
- **Max. Switching Current**8 A (3 x 8A simultaneous)
- **Max. Switching Power — DC**200W
- **Max. Switching Power — AC**2000VA
- **Contact Switching Rate**10 operations per second
- **Relay Operate Time**12 ms
- **Relay Release Time**8 ms
- **Operation Vibration**0.35 mm Ampl. max
.....@ 10...200Hz, 5g max
- **Contact Arrangements**3NO/1NC, 2NO/2NC
- **Contact Material**AgNi10+0.2 μ mAu Standard
.....AgSnO₂+0.2 μ mAu, AgNi10+5 μ mAu Optional
- **Mechanical Life**>20x10⁶ operation cycles
- **Electrical Life**AgSnO₂ >1.5x10⁵, AgNi10 >1.0x10⁵
.....operation cycles @ 230V AC, 8A, cos φ =1
- **Ambient Temperature**-40...+80°C
- **Cover Material**Polyamide 6
- **Weight**35 g
- More detailed data upon request

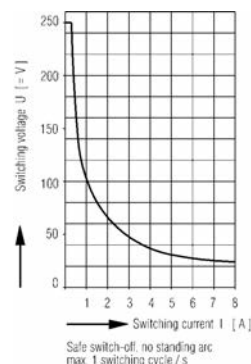
Diagrams



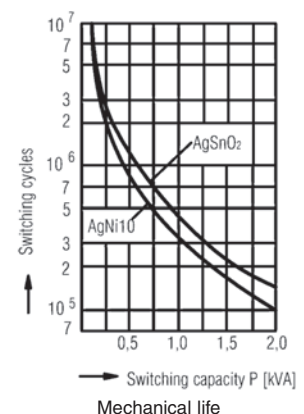
Relay operation voltage vs. ambient temperature



Limitation factor for inductive loads



Maximum switching power curve



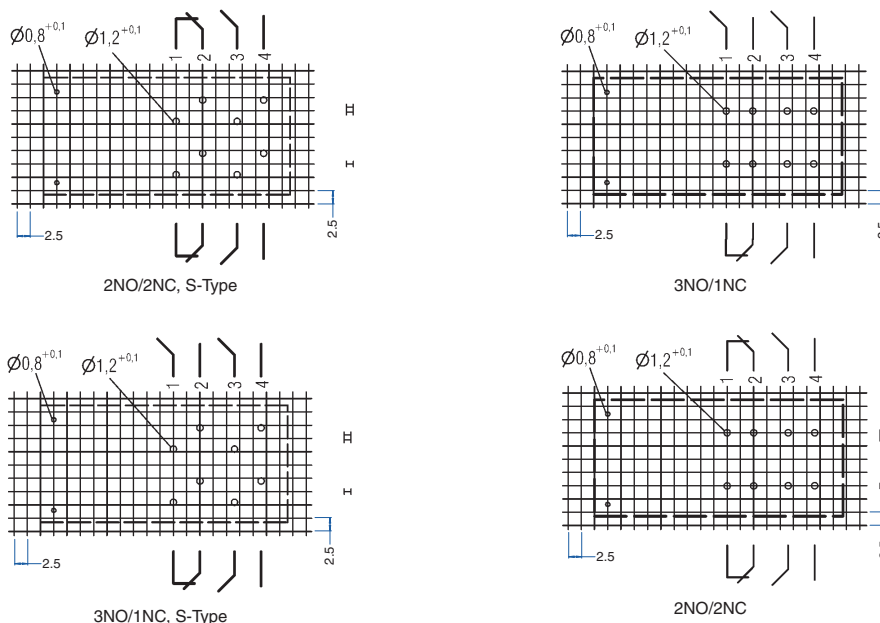
Mechanical life

Safety Relay OA 5621 / OA 5621S Data

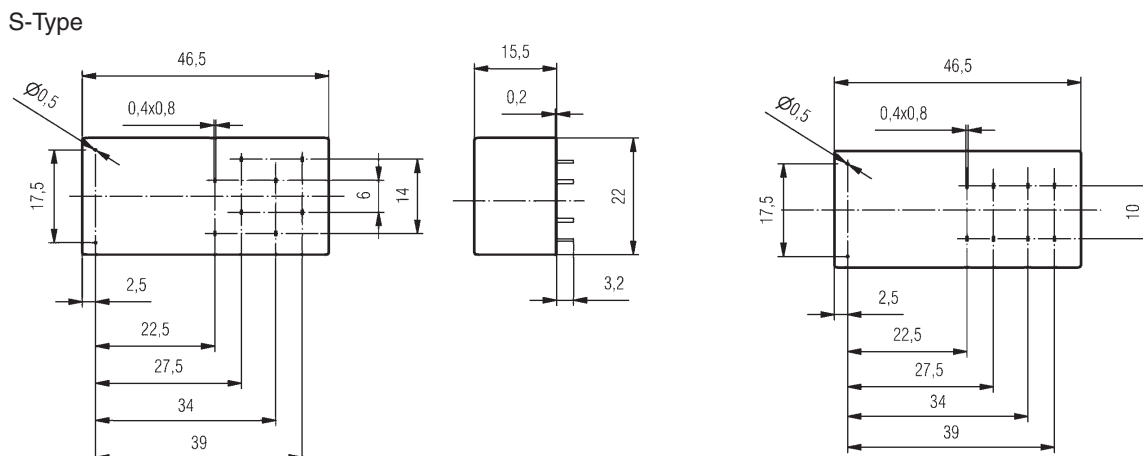
Relay Data			Ordering Information			
Rated Voltage	Voltage Range	Coil Resistance (10%)	3 NO/1 NC Type	2 NO/2 NC Type	3 NO/1 NC S-Type	2 NO/2 NC S-Type
6V	4.5 - 8.4V	60 Ω	56.OA21.0631□	56.OA21.0622□	56.OA21S.0631□	56.OA21S.0622□
12V	9.0 - 16.8V	240 Ω	56.OA21.1231□	56.OA21.1222□	56.OA21S.1231□	56.OA21S.1222□
24V	18.0 - 33.6V	960 Ω	56.OA21.2431□	56.OA21.2422□	56.OA21S.2431□	56.OA21S.2422□
48V	36.0 - 67.2V	3840 Ω	56.OA21.4831□	56.OA21.4822□	56.OA21S.4831□	56.OA21S.4822□
60V	45.0 - 84.0V	6000 Ω	56.OA21.6031□	56.OA21.6022□	56.OA21S.6031□	56.OA21S.6022□
110V	82.5 - 154.0V	20000 Ω	56.OA21.1131□	56.OA21.1122□	56.OA21S.1131□	56.OA21S.1122□

Contact Material, Example: CAgSnO₂+2μmAu
NAgNi10+.2μmAu
SAgNi10+5μmAu

Footprints (solder side)



Dimensions



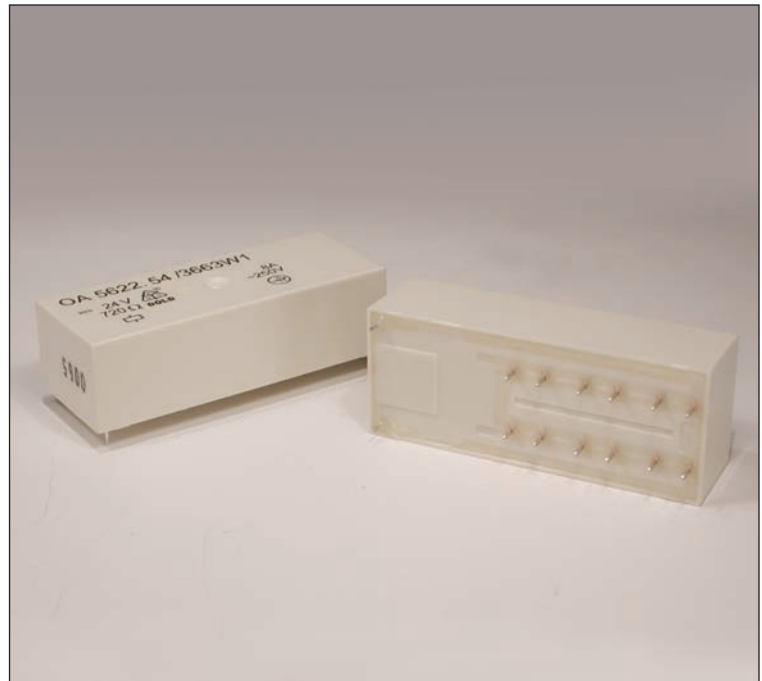
Note: All dimensions are shown in millimeters. To convert to inches, divide by 25.4.

Safety Relay

OA 5622 / OA 5622S

Features

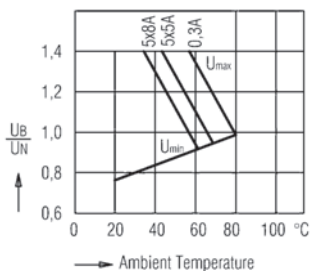
- 6 output contacts
- International approvals: TÜV, UL, cUL
- Quality control check for each safety relay
- Forced-guided contacts, all gold flash plated
- Contact Gap > 0.5 mm throughout life of relay
- Various contact materials, mixed contact material optional
- High coil voltage range
- High breakdown voltage: contact/coil \geq 4 KV
contact/contact \geq 4KV
- High creeping distance: contact/coil \geq 5.5 mm
contact/contact \geq 5.5 mm
- Protection Rating IP 67, washable
- Custom design available,
 - coil voltage
 - coil resistance,
 - contact pressure
 - operate/release time
 - gold plated double contacts
- S-Type
higher external clearance and creeping distance:
contact/contact \geq 7.5 mm



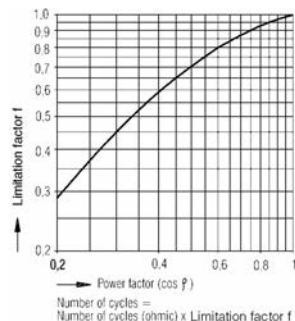
Technical Data

- **Nominal Coil Voltage**6, 12, 24, 48, 60, 110, DC
- **Coil Power Dissipation**0.8 W
- **Max. Switching Voltage**250V DC, 400V AC
- **Max. Switching Current**8 A (5 x 8A simultaneous)
- **Max. Switching Power — DC**200W
- **Max. Switching Power — AC**2000VA
- **Contact Switching Rate**10 operations per second
- **Relay Operate Time**12 ms
- **Relay Release Time**8 ms
- **Operation Vibration**0.35 mm Ampl. max
@ 10...200Hz, 5g max
- **Contact Arrangements**2NO/4NC, 3NO/3NC, 4NO/2NC, 5NO/1NC
- **Contact Material**AgNi10+0.2 μ mAu Standard
.....AgSnO₂+0.2 μ mAu, AgNi10+5 μ mAu Optional
- **Mechanical Life**>20x10⁶ operation cycles
- **Electrical Life**AgSnO₂ >10⁵, AgNi10 >0.75x10⁵
.....operation cycles @ 230V AC, 8A, cos φ =1
- **Ambient Temperature**-40...+80°C
- **Cover Material**Polyamide 6
- **Weight**38 g
- More detailed data upon request

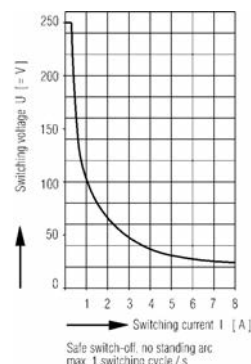
Diagrams



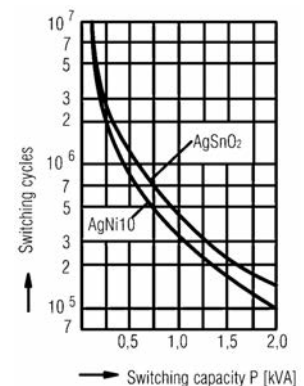
Relay operation voltage vs. ambient temperature



Limitation factor for inductive loads



Maximum switching power curve



Mechanical life

Safety Relay OA 5622 / OA 5622S Data

Relay Data

Ordering Information

Rated Voltage	Voltage Range	Coil Resistance (10%)	2 NO/4 NC Type	Coil Resistance (10%)	3 NO/3 NC Type	4 NO/2 NC Type	5 NO/1 NC Type
6V	4.5 - 8.4V	38 Ω	56.OA22.0624□	45 Ω	56.OA22.0633□	56.OA22.0642□	56.OA22.0651□
12V	9.0 - 16.8V	150 Ω	56.OA22.1224□	180 Ω	56.OA22.1233□	56.OA22.1242□	56.OA22.1251□
24V	18.0 - 33.6V	600 Ω	56.OA22.2424□	720 Ω	56.OA22.2433□	56.OA22.2442□	56.OA22.2451□
48V	36.0 - 67.2V	2400 Ω	56.OA22.4824□	2880 Ω	56.OA22.4833□	56.OA22.4842□	56.OA22.4851□
60V	45.0 - 84.0V	3800 Ω	56.OA22.6024□	4500 Ω	56.OA22.6033□	56.OA22.6042□	56.OA22.6051□
110V	82.5 -154.0V	12700 Ω	56.OA22.1124□	15125 Ω	56.OA22.1133□	56.OA22.1142□	56.OA22.1151□

For S-Type:

Please specify **S** when ordering:

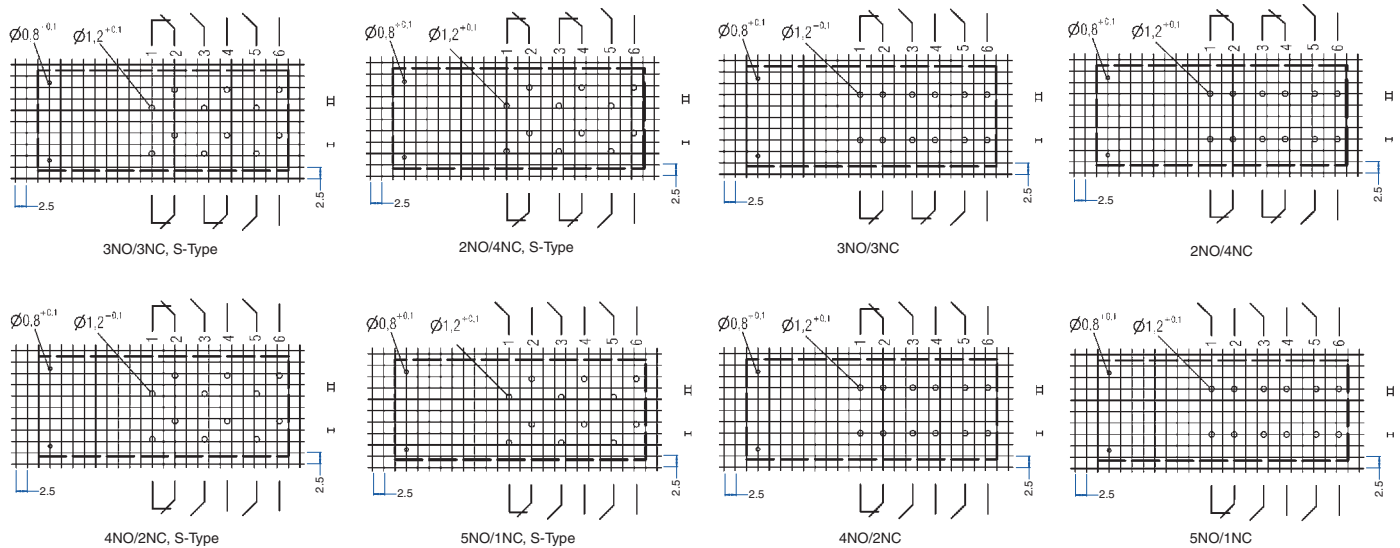
Example: 56.OA22S. _ _ _ □

Contact Material, Example: □ AgSnO₂+2μmAu

□ AgNi10+2μmAu

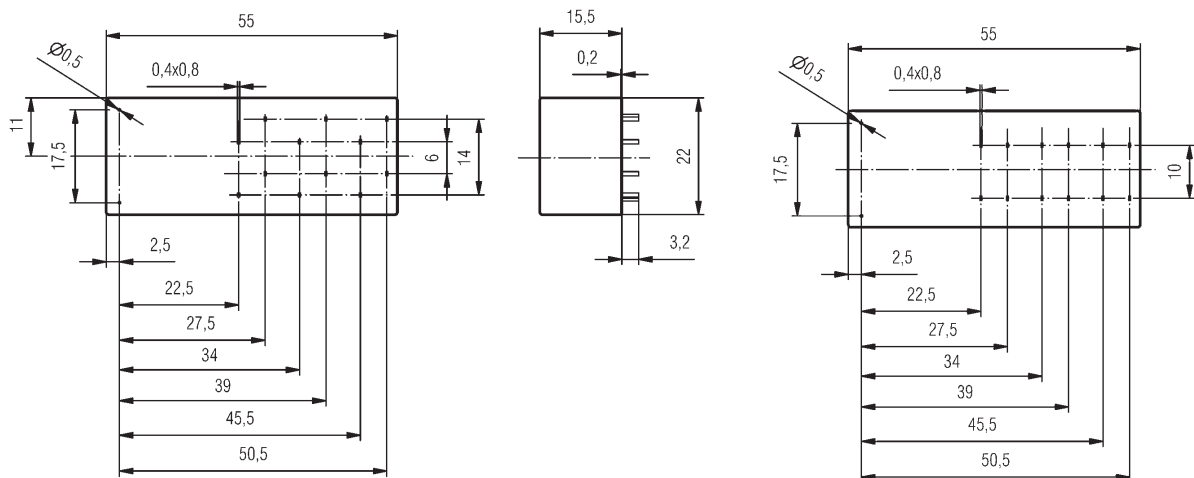
□ AgNi10+5μmAu

Footprints (solder side)



Dimensions

S-Type



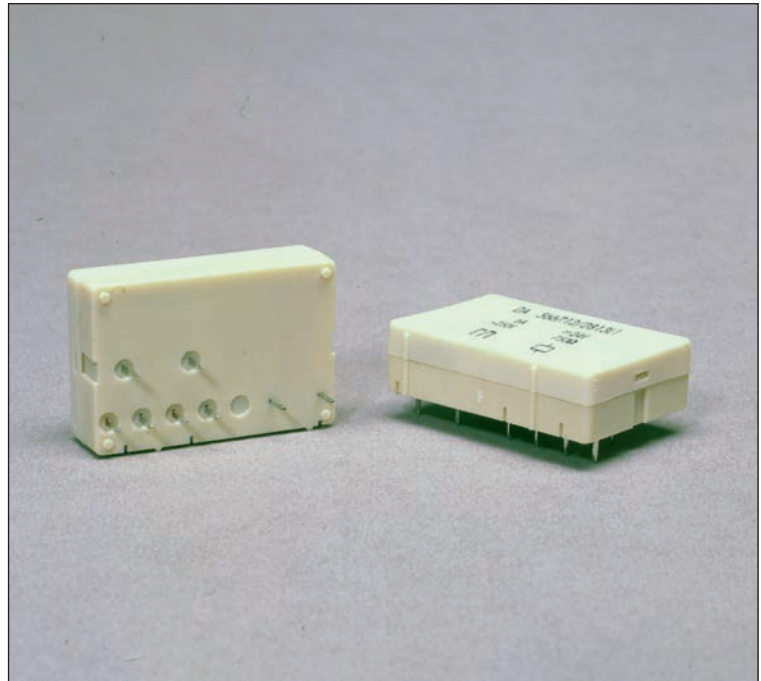
Note: All dimensions are shown in millimeters. To convert to inches, divide by 25.4.

Safety Relay

OA 5667 / OA 5667S

Features

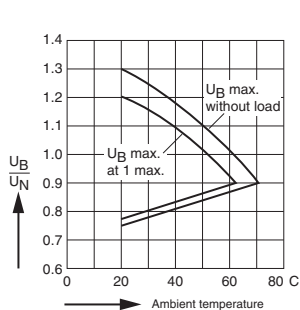
- 2 output contacts
- International approvals: TÜV, UL, cUL
- Quality control check for each safety relay
- Forced-guided contacts, all gold flash plated
- Contact Gap > 0.5 mm throughout life of relay
- Various contact materials, mixed contact material optional
- High coil voltage range
- High breakdown Voltage:
 - contact/coil \geq 4 KV
 - contact/contact \geq 2.5 KV
 - contact/contact \geq 4 KV; S-Type
- High Creeping Distance:
 - contact/coil > 8 mm
 - contact/contact > 4.5 mm; S-Type 8.5 mm
- Custom design available,
 - coil voltage
 - coil resistance,
 - contact pressure
 - operate/release time



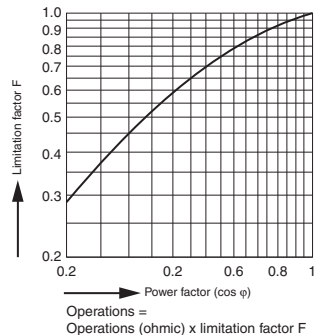
Technical Data

- **Nominal Coil Voltage**6, 12, 24, 48, 60, 110 DC
- **Coil Power Dissipation**0.75 W
- **Max. Switching Voltage**250V DC, 400V AC
- **Max. Switching Current**6A (2 x 6A simultaneous)
- **Max. Switching Power — DC**200W (2 x 160W simultaneous)
- **Max. Switching Power — AC**1500VA (2 x 1500VA simultaneous)
- **Contact Switching Rate**10 operations per second
- **Relay Operate Time**10 ms
- **Relay Release Time**6 ms
- **Operation Vibration**0.35 mm Ampl. max @ 10...100Hz, 4g max
- **Contact Arrangements**.....1 NO/1 NC, 2CO
- **Contact Material**.....AgNi10+0.2 μ mAu Standard
.....AgSnO₂+0.2 μ mAu, AgNi10+5 μ mAu Optional
- **Mechanical Life** $\geq 10^7$ operation cycles
- **Electrical Life**AgSnO₂ >1.25x10⁵, AgNi10 >10⁵
.....operation cycles @ 230V AC, 5A, cos φ =1
- **Ambient Temperature**.....-40...+75°C
- **Protection Rating**IP40
- **Cover Material**.....Thermoplast
- **Weight**.....16 g
- More detailed data upon request

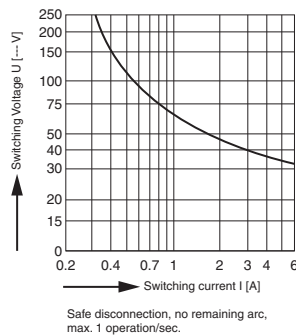
Diagrams



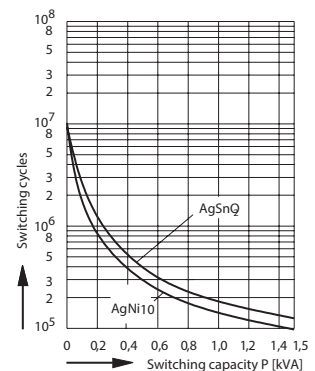
Relay operation voltage vs. ambient temperature



Limitation factor for inductive loads



Maximum switching power curve



Mechanical life

Safety Relay OA 5667/ OA 5667S Data

Relay Data

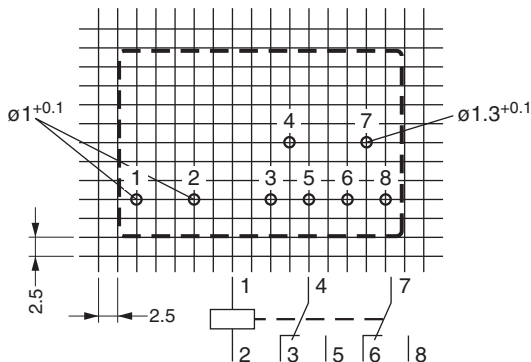
Ordering Information

Rated Voltage	Voltage Range	Coil Resistance (10%)	1 NO/1 NC Type	2 CO Type	1 NO/1 NC S-Type	2 CO S-Type
6V	4.5 - 7.8V	48 Ω	56.OA67.0611□	56.OA67.0600□	56.OA67S.0611□	56.OA67S.0600□
12V	9.0 - 15.6V	183 Ω	56.OA67.1211□	56.OA67.1200□	56.OA67S.1211□	56.OA67S.1200□
24V	18.0 - 31.2V	750 Ω	56.OA67.2411□	56.OA67.2400□	56.OA67S.2411□	56.OA67S.2400□
48V	36.0 - 62.4V	3200 Ω	56.OA67.4811□	56.OA67.4800□	56.OA67S.4811□	56.OA67S.4800□
60V	45.0 - 78.0V	4700 Ω	56.OA67.6011□	56.OA67.6000□	56.OA67S.6011□	56.OA67S.6000□
110V	82.5 - 143.5V	15300 Ω	56.OA67.1111□	56.OA67.1100□	56.OA67S.1111□	56.OA67S.1100□

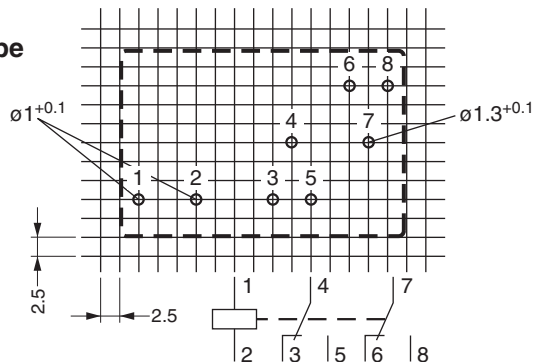
Contact Material, Example: CAgSnO₂+2μmAu
NAgNi10+.2μmAu
SAgNi10+5μmAu

Footprints (solder side)

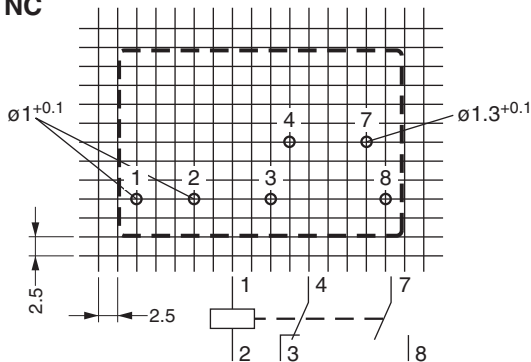
2 CO



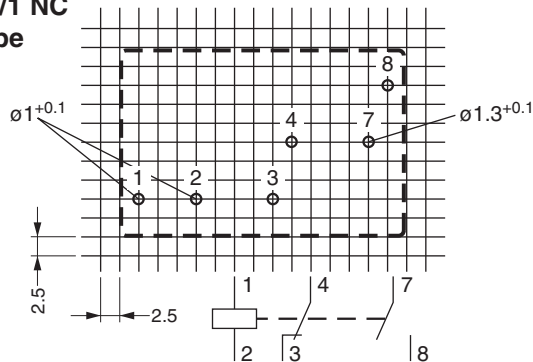
2 CO S-Type



1 NO/1 NC

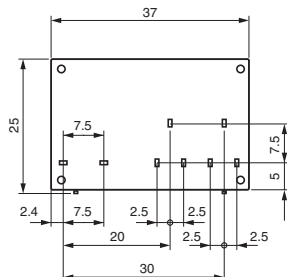


1 NO/1 NC S-Type

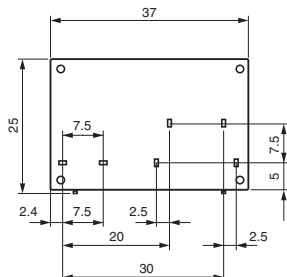


Dimensions

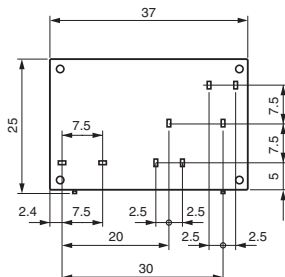
2 CO



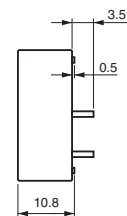
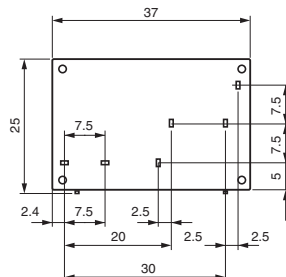
1 NO/1 NC



2 CO, S-Type



1 NO/1 NC, S-Type



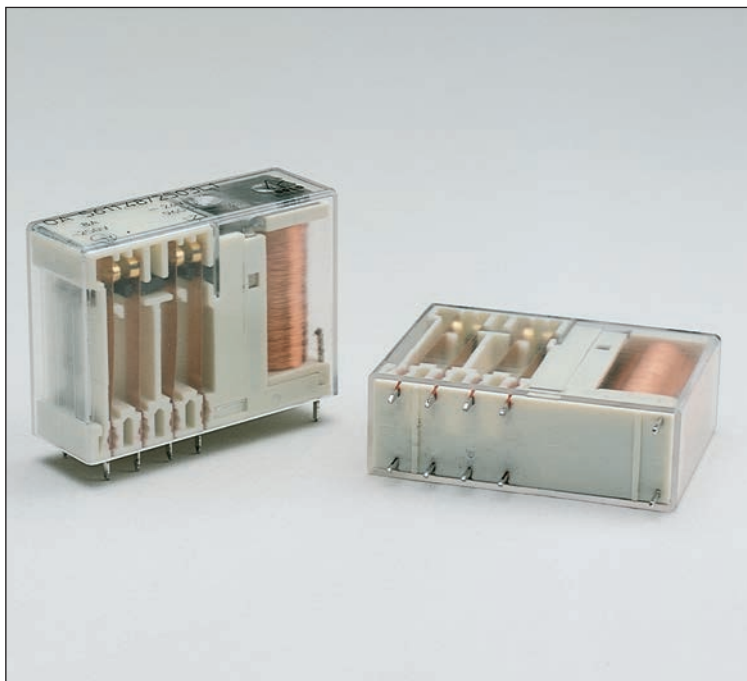
Note: All dimensions are shown in millimeters. To convert to inches, divide by 25.4.

Safety Relay

OA 5611

Features

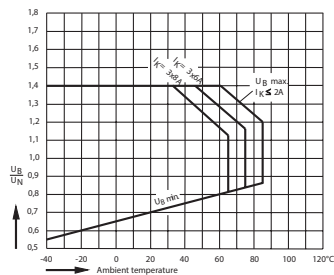
- 4 output contacts
- International approvals: TÜV, UL, cUL
- Quality control check for each safety relay
- Forced-guided contacts, all gold flash plated
- Contact Gap > 0.5 mm throughout life of relay
- Various contact materials, mixed contact material optional
- High coil voltage range
- High switching voltage
- High breakdown voltage: contact/coil \geq 4 KV
contact/contact \geq 2.5KV
- High creeping distance: contact/coil \geq 8 mm
contact/contact \geq 4.5 mm
- Crown contacts
- Solid connection between coil and contact housing
- Compact size
- Custom design available,
 - coil voltage -IP67 washable
 - contact pressure -coil resistance
 - operate/release time
 - low power dissipation models
 - Manual test relay (slide activated)



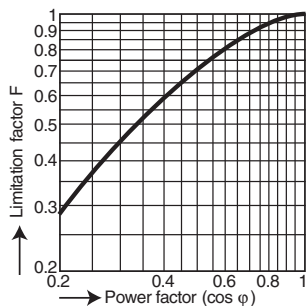
Technical Data

- **Nominal Coil Voltage**6, 12, 24, 48, 60, 110, DC
- **Coil Power Dissipation**0.6 W
- **Max. Switching Voltage**250V DC, 400 V AC
- **Max. Switching Current**8 A
- **Max. Switching Power — DC**.....200W
- **Max. Switching Power — AC**.....2000VA
- **Contact Switching Rate**10 operations per second
- **Relay Operate Time**20 ms
- **Relay Release Time**6 ms
- **Operation Vibration**0.35 mm Ampl. max
.....@ 10...200Hz, 3g max
- **Protection Rating**IP 40
- **Contact Arrangements**.....2NO/2NC, 3NO/1NC
- **Contact Material**.....AgNi10+0.2 μ mAu, AgSnO₂+0.2 μ mAu, AgNi10+5 μ mAu
- **Mechanical Life**..... \geq 50x10⁶ operation cycles
- **Electrical Life**AgSnO₂ >1.5x10⁵, AgNi10 >10⁵
.....operation cycles @ 230V AC, 8A, cos φ =1
- **Ambient Temperature**.....-40...+85°C
- **Cover Material**.....Thermoplast
- **Weight**.....35 g
- More detailed data upon request

Diagrams

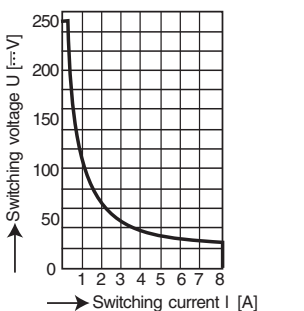


Relay operation voltage vs. ambient temperature



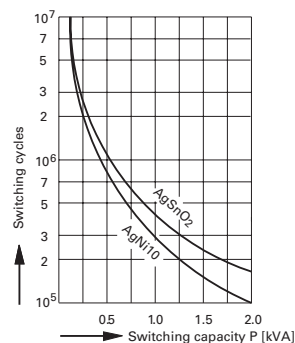
Operations =
Operations (ohmic) x limitation factor F

Limitation factor for inductive loads



Safe disconnection, no remaining arc,
max. 1 operation/sec.

Maximum switching power curve



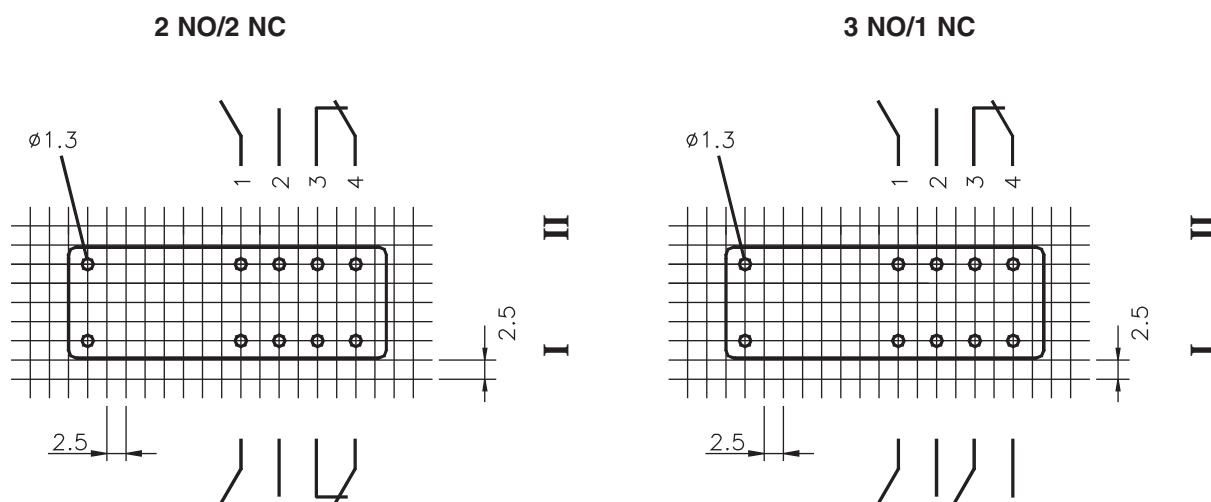
Mechanical life

Safety Relay OA 5611 Data

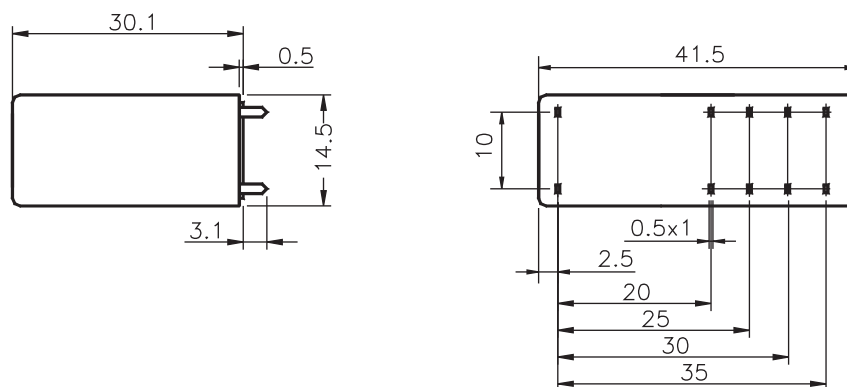
Relay Data			Ordering Information	
Rated Voltage	Voltage Range	Coil Resistance (10%)	2 NO/2 NC Type	3 NO/1 NC Type
6V	4.2 - 8.4V	56 Ω	56.OA11.0622□	56.OA11.0631□
12V	8.4 - 16.8V	240 Ω	56.OA11.1222□	56.OA11.1231□
24V	16.8 - 33.6V	960 Ω	56.OA11.2422□	56.OA11.2431□
48V	33.6 - 67.2V	3840 Ω	56.OA11.4822□	56.OA11.4831□
60V	42.0 - 84.0V	6000 Ω	56.OA11.6022□	56.OA11.6031□
110V	77.0 - 154.0V	20150 Ω	56.OA11.1122□	56.OA11.1131□

Contact Material, Example: CAgSnO₂+2μmAu
NAgNi10+.2μmAu
SAgNi10+5μmAu

Footprints (solder side)



Dimensions



Note: All dimensions are shown in millimeters. To convert to inches, divide by 25.4.

Safety Relay

OA 5612

Features

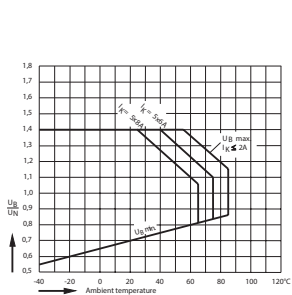
- 6 output contacts
- International approvals: TÜV, UL, cUL
- Quality control check for each safety relay
- Forced-guided contacts, all gold flash plated
- Contact Gap > 0.5 mm throughout life of relay
- Various contact materials, mixed contact material optional
- High coil voltage range
- Very high switching voltage
- High breakdown voltage: contact/coil \geq 4 KV
contact/contact \geq 2.5KV
- High creeping distance: contact/coil \geq 8 mm
contact/contact \geq 4.5 mm
- Crown contacts
- Solid connection between coil and contact housing
- Compact size
- Custom design available,
 - coil voltage -IP67 washable
 - contact pressure -coil resistance
 - operate/release time
 - low power dissipation models



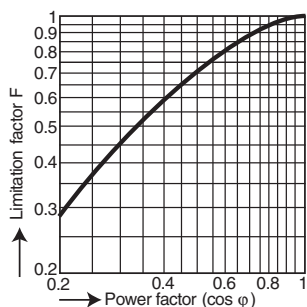
Technical Data

- **Nominal Coil Voltage**6, 12, 24, 48, 60, 110, DC
- **Coil Power Dissipation**0.8 - 1.0 W
- **Max. Switching Voltage**250V DC, 400V AC
- **Max. Switching Current**8 A
- **Max. Switching Power—DC**200W
- **Max. Switching Power—AC**2000VA
- **Contact Switching Rate**10 operations per second
- **Relay Operate Time**20 ms
- **Relay Release Time**6 ms
- **Operation Vibration**0.35 mm Ampl. max
..... @ 10...200Hz, 3g max
- **Protection Rating**IP 40
- **Contact Arrangements**2NO/4NC, 3NO/3NC, 4NO/2NC
- **Contact Material**AgNi10+0.2 μ mAu, AgSnO₂ +0.2 μ mAu, AgNi10+5 μ mAu
- **Mechanical Life** \geq 50x10⁶ operation cycles
- **Electrical Life**AgSnO₂ >1.5x10⁵, AgNi10 >10⁵
.....operation cycles @ 230V AC, 8A, cos φ =1
- **Ambient Temperature**-40...+85°C
- **Cover Material**Thermoplast
- **Weight**38 g
- More detailed data upon request

Diagrams

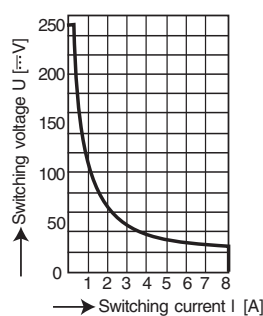


Relay operation voltage vs. ambient temperature



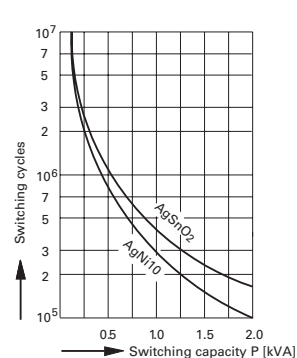
Operations =
Operations (ohmic) x limitation factor F

Limitation factor for inductive loads



Safe disconnection, no remaining arc, max. 1 operation/sec.

Maximum switching power curve



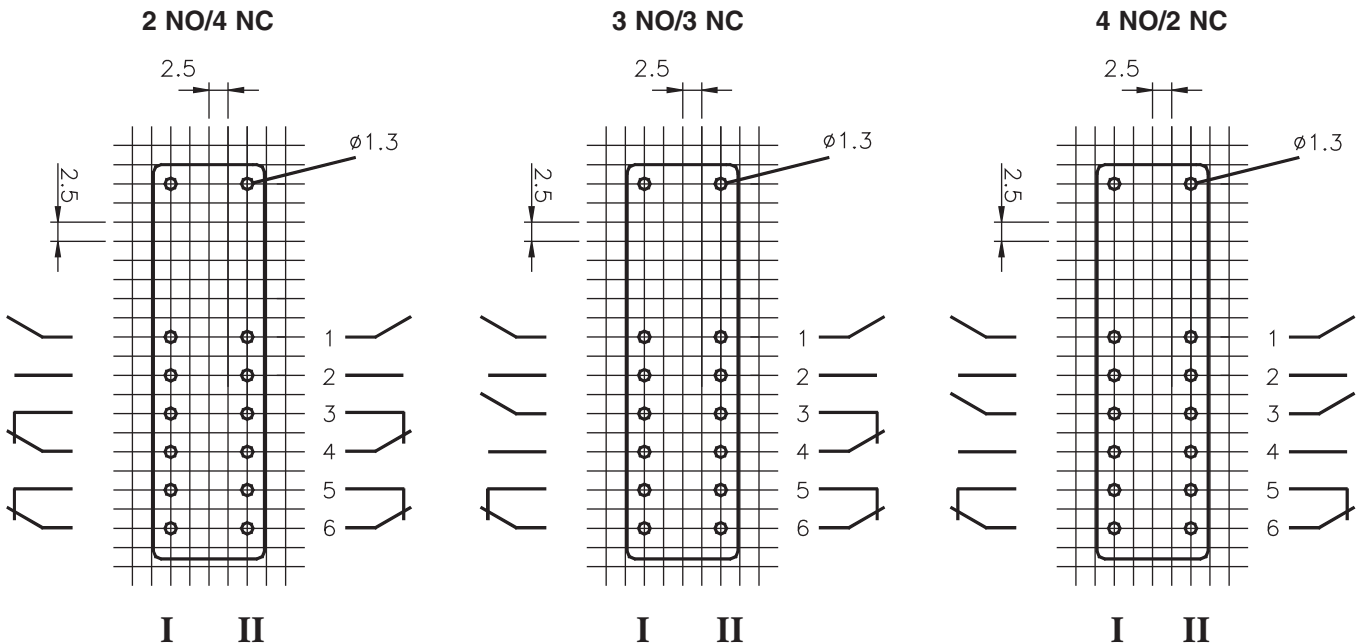
Mechanical life

Safety Relay OA 5612 Data

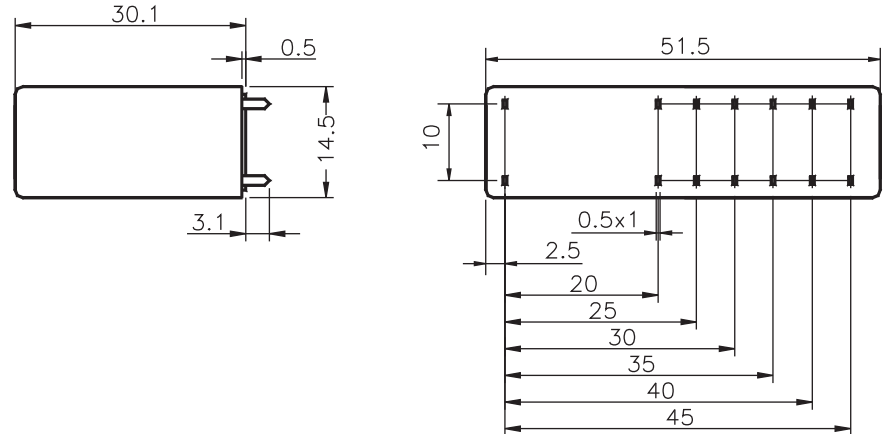
Relay Data				Ordering Information			
Rated Voltage	Voltage Range	Coil Resistance (10%)	2 NO/4 NC Type	Coil Resistance (10%)	3 NO/3 NC Type	4 NO/2 NC Type	
6V	4.2 - 8.4V	36 Ω	56.OA12.0624□	45 Ω	56.OA12.0633□	56.OA12.0642□	
12V	8.4 - 16.8V	145 Ω	56.OA12.1224□	180 Ω	56.OA12.1233□	56.OA12.1242□	
24V	16.8 - 33.6V	600 Ω	56.OA12.2424□	720 Ω	56.OA12.2433□	56.OA12.2442□	
48V	33.6 - 67.2V	2300 Ω	56.OA12.4824□	2880 Ω	56.OA12.4833□	56.OA12.4842□	
60V	42.0 - 84.0V	3600 Ω	56.OA12.6024□	4500 Ω	56.OA12.6033□	56.OA12.6042□	
110V	77.0 - 154.0V	12100 Ω	56.OA12.1124□	15125 Ω	56.OA12.1133□	56.OA12.1142□	

Contact Material, Example: □ AgSnO₂+2μmAu
 □ AgNi10+2μmAu
 □ AgNi10+5μmAu

Footprints (solder side)



Dimensions



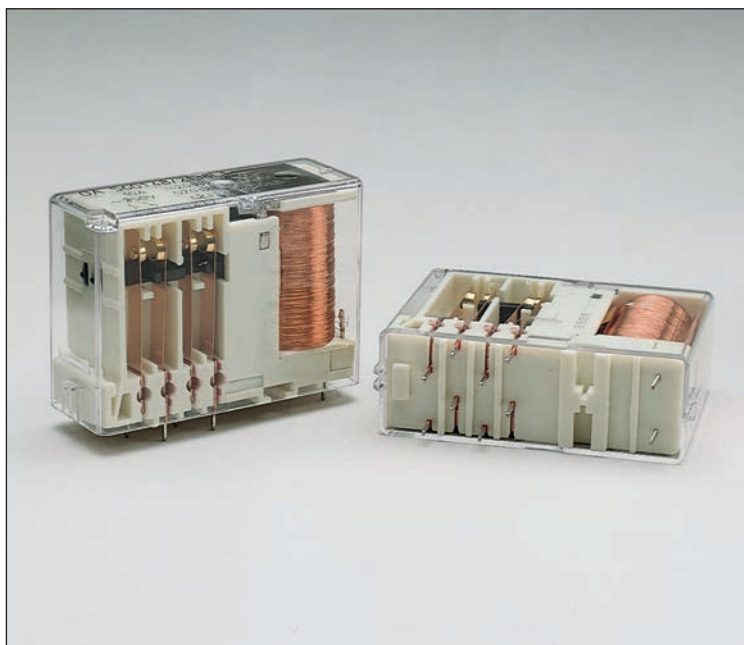
Note: All dimensions are shown in millimeters. To convert to inches, divide by 25.4.

Safety Relay

OA 5601

Features

- 4 output contacts
- International approvals: TÜV, UL, cUL
- Quality control check for each safety relay
- Forced-guided contacts, all gold flash plated
- Contact gap > 0.5 mm throughout life of relay
- Various contact materials, mixed contact material optional
- High coil voltage range
- High switching voltage
- High breakdown voltage: contact/coil \geq 4 KV
contact/contact \geq 4KV
- High creeping distance: contact/coil \geq 8 mm
contact/contact \geq 5.5 mm
- Crown contacts
- Solid connection between coil and contact housing
- Custom design available,
 - coil voltage
 - coil resistance,
 - contact pressure
 - operate/release time
 - IP67 washable



GERMANY

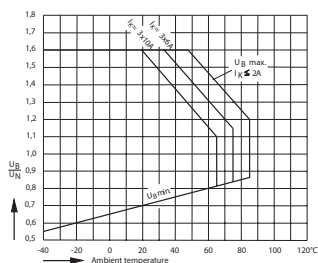


USA/CANADA
E146415

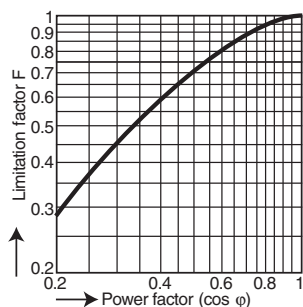
Technical Data

- **Nominal Coil Voltage**6,12 ,24, 48, 60, 110, DC
- **Coil Power Dissipation**0.75 W
- **Max. Switching Voltage**250V DC, 400V AC
- **Max. Switching Current**10 A
- **Max. Switching Power—DC**240W
- **Max. Switching Power—AC**2500VA
- **Contact Switching Rate**10 operations per second
- **Relay Operate Time**27 ms
- **Relay Release Time**5 ms
- **Operation Vibration**0.35 mm Ampl. max
..... @ 10...55Hz
- **Contact Arrangements**.....2NO/2NC, 3NO/1NC
- **Contact Material**.....AgSnO₂+0.2μmAu, AgNi10+0.2μmAu, AgNi10+5μmAu
- **Mechanical Life**>30x10⁶ operation cycles
- **Electrical Life**AgSnO₂ >3x10⁵, AgNi10 >2x10⁵
.....operation cycles @ 230V AC, 10A, cos φ=1
- **Ambient Temperature**.....-40...+85°C
- **Protection Rating**IP 40
- **Cover Material**.....Thermoplast
- **Weight**.....78 g
- More detailed data upon request

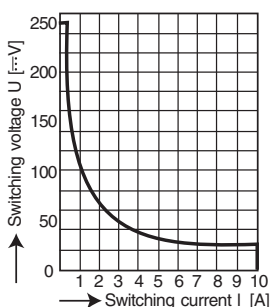
Diagrams



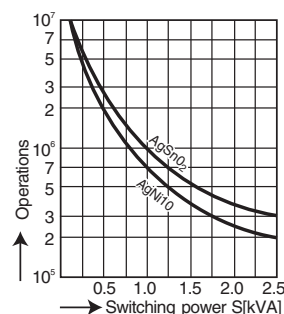
Relay operation voltage vs. ambient temperature



Limitation factor for inductive loads
Operations =
Operations (ohmic) x limitation factor F



Maximum switching power curve
Safe disconnection, no remaining arc,
max. 1 operation/sec.



Mechanical life

Safety Relay OA 5601 Data

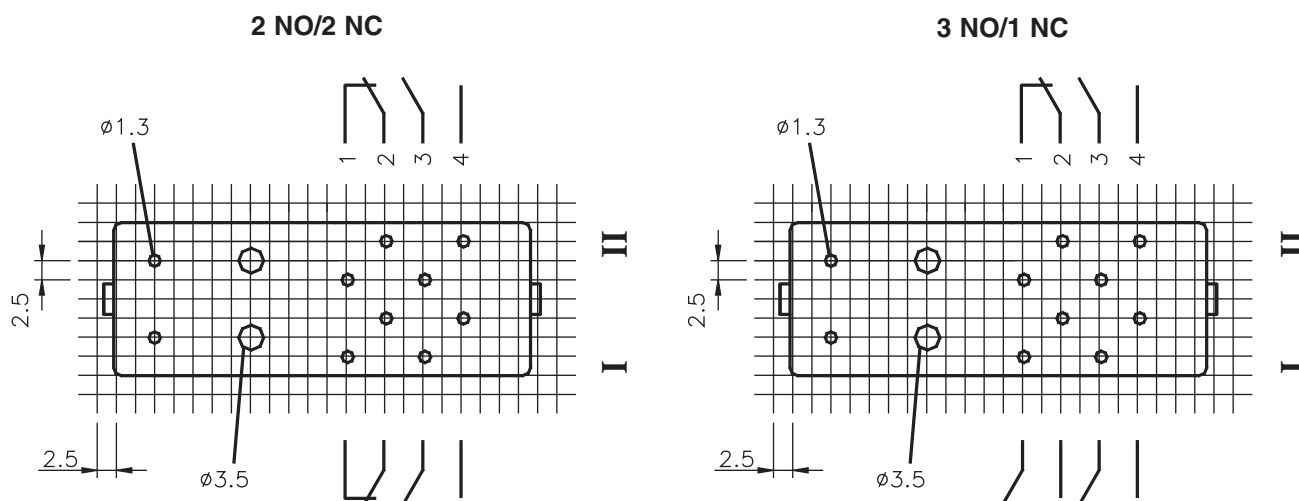
Relay Data

Ordering Information

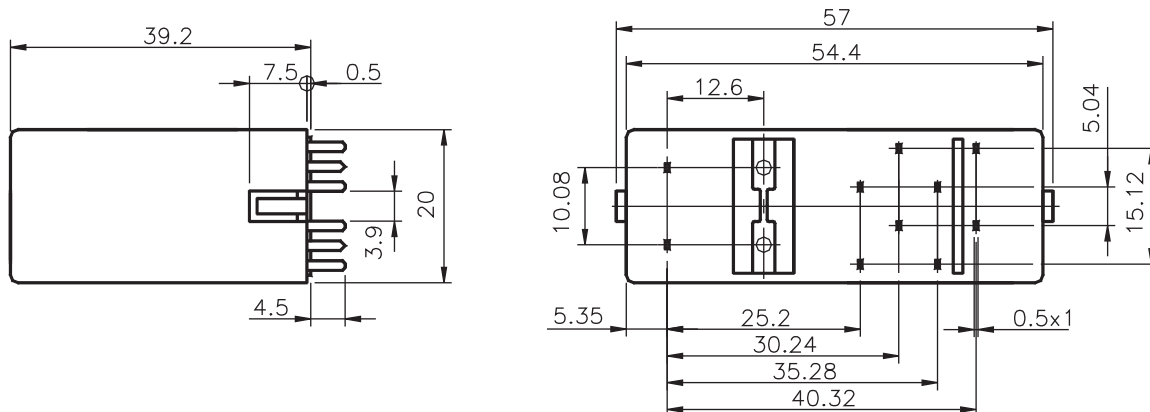
Rated Voltage	Voltage Range	Coil Resistance (10%)	2 NO/2 NC Type	3 NO/1 NC Type
6V	4.2 - 9.6V	48 Ω	56.OA01.0622□	56.OA01.0631□
12V	8.4 - 19.2V	192 Ω	56.OA01.1222□	56.OA01.1231□
24V	16.8 - 38.4V	770 Ω	56.OA01.2422□	56.OA01.2431□
48V	33.6 - 76.8V	2880 Ω	56.OA01.4822□	56.OA01.4831□
60V	42.0 - 96.0V	4800 Ω	56.OA01.6022□	56.OA01.6031□
110V	77.0 - 176.0V	16000 Ω	56.OA01.1122□	56.OA01.1131□

Contact Material, Example: □ AgSnO₂+2μmAu
 □ AgNi10+2μmAu
 □ AgNi10+5μmAu

Footprints (solder side)



Dimensions



Note: All dimensions are shown in millimeters. To convert to inches, divide by 25.4.

Safety Relay

OA 5602

Features

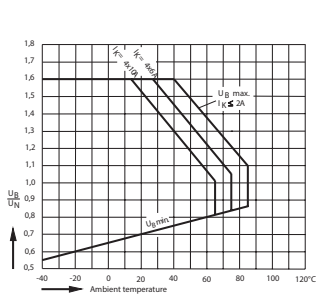
- 6 output contacts
- International approvals: TÜV, UL, cUL
- Quality control check for each safety relay
- Forced-guided contacts, all gold flash plated
- Contact gap > 0.5 mm throughout life of relay
- Various contact materials, mixed contact material optional
- High coil voltage range
- High switching voltage
- High breakdown voltage: contact/coil ≥ 4 KV
contact/contact ≥ 4 KV
- High creeping distance: contact/coil ≥ 8 mm
contact/contact ≥ 5.5 mm
- Crown contacts
- Solid connection between coil and contact housing
- Custom coil voltage available
- Custom design available,
 - coil voltage
 - coil resistance,
 - contact pressure
 - operate/release time
 - IP67 washable



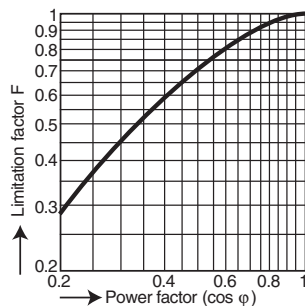
Technical Data

- **Nominal Coil Voltage**6, 12, 24, 48, 60, 110, DC
- **Coil Power Dissipation**1.0 W
- **Max. Switching Voltage**250V DC, 400V AC
- **Max. Switching Current**10 A
- **Max. Switching Power—DC**240W
- **Max. Switching Power—AC**2500VA
- **Contact Switching Rate**10 operations per second
- **Relay Operate Time**27 ms
- **Relay Release Time**5 ms
- **Operation Vibration**0.35 mm Ampl. max
.....@ 10...55Hz
- **Protection Rating**IP 40
- **Contact Arrangements**2NO/4NC, 3NO/3NC, 4NO/2NC
- **Contact Material**AgSnO₂+0.2µmAu, AgNi10+0.2µmAu, AgNi10+5µmAu
- **Mechanical Life**>30x10⁶ Operation cycles
- **Electrical Life**AgSnO₂ >3x10⁵, AgNi10 >2x10⁵
.....operation cycles @ 230V AC, 10A, cos φ=1
- **Ambient Temperature**-40...+85°C
- **Cover Material**Thermoplast
- **Weight**85 g
- More detailed data upon request

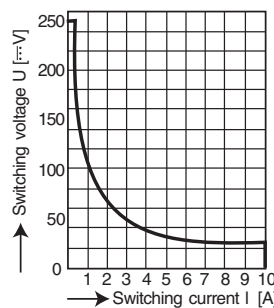
Diagrams



Relay operation voltage vs. ambient temperature

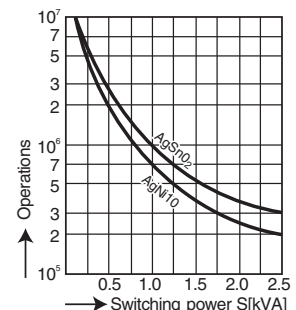


Limitation factor for inductive loads
Operations = Operations (ohmic) x limitation factor F



Safe disconnection, no remaining arc,
max. 1 operation/sec.

Maximum switching power curve



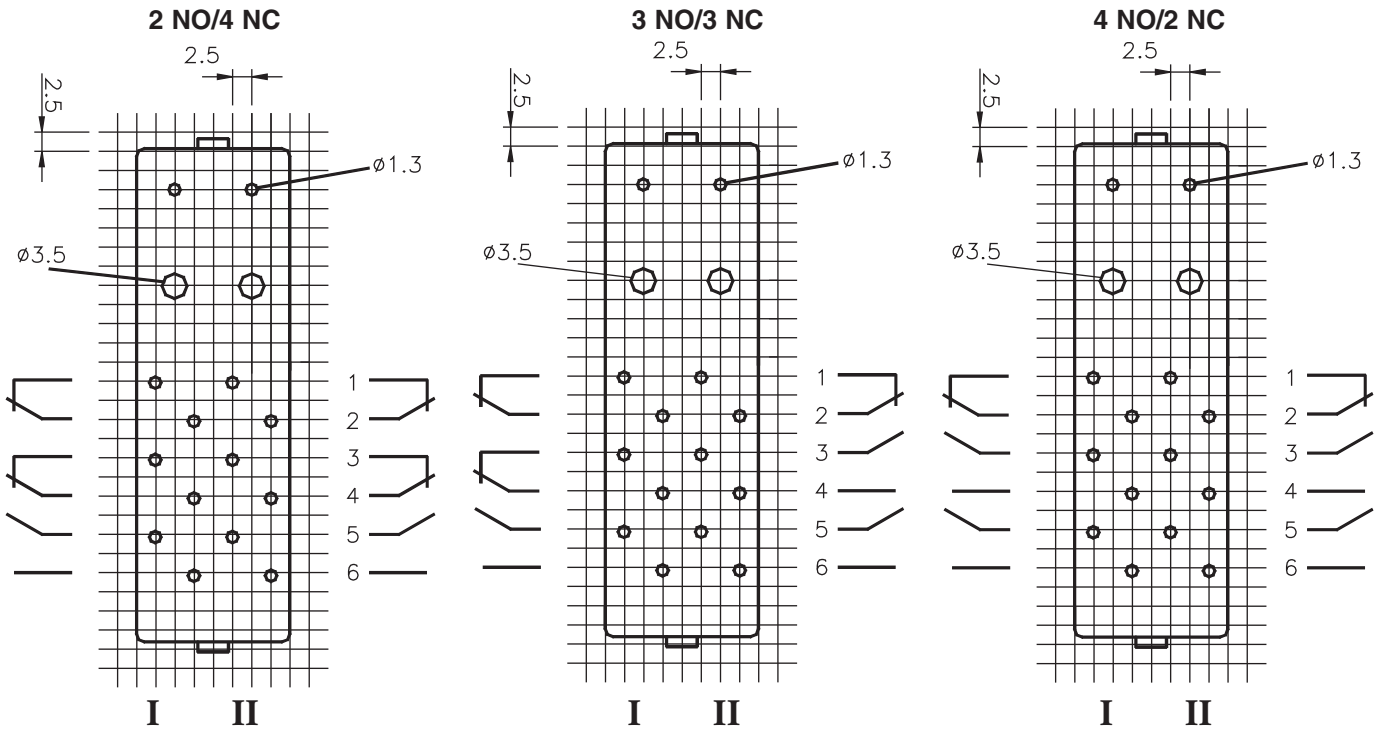
Mechanical life

Safety Relay OA 5602 Data

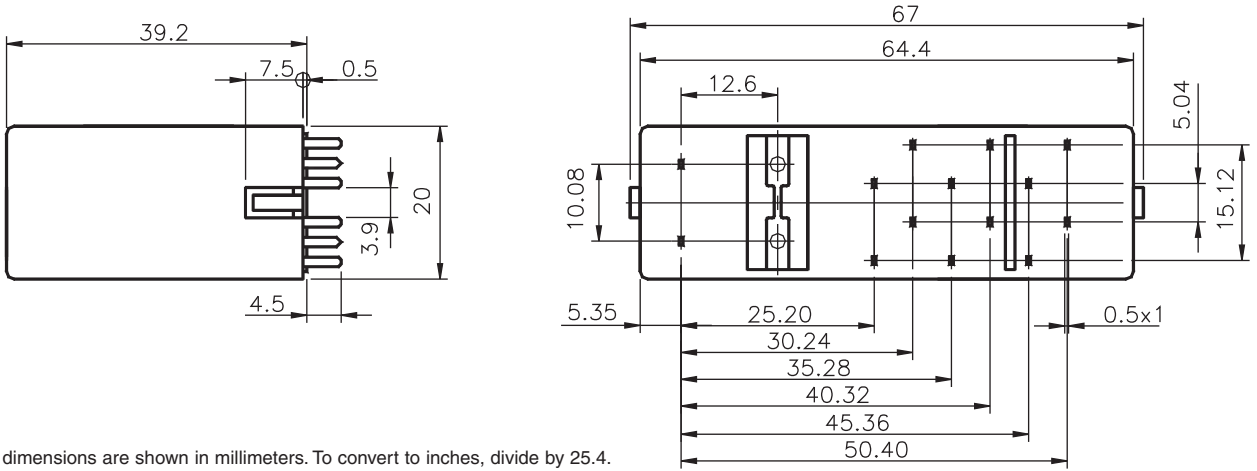
Relay Data			Ordering Information		
Rated Voltage	Voltage Range	Coil Resistance (10%)	2 NO/4 NC Type	3 NO/3 NC Type	4 NO/2 NC Type
6V	4.2 - 9.6V	35 Ω	56.OA02.0624□	56.OA02.0633□	56.OA02.0642□
12V	8.4 - 19.2V	140 Ω	56.OA02.1224□	56.OA02.1233□	56.OA02.1242□
24V	16.8 - 38.4V	570 Ω	56.OA02.2424□	56.OA02.2433□	56.OA02.2442□
48V	33.6 - 76.8V	2300 Ω	56.OA02.4824□	56.OA02.4833□	56.OA02.4842□
60V	42.0 - 96.0V	3600 Ω	56.OA02.6024□	56.OA02.6033□	56.OA02.6042□
110V	77.0 - 176.0V	12100 Ω	56.OA02.1124□	56.OA02.1133□	56.OA02.1142□

Contact Material, Example: C AgSnO₂+2μmAu
N AgNi10+.2μmAu
S AgNi10+5μmAu

Footprints (solder side)



Dimensions



Note: All dimensions are shown in millimeters. To convert to inches, divide by 25.4.

Safety Relay

OA 5603

Features

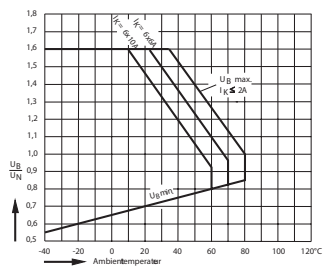
- 8 output contacts
- International approvals: TÜV, UL, cUL
- Quality control check for each safety relay
- Forced-guided contacts, all gold flash plated
- Contact gap > 0.5 mm throughout life of relay
- Various contact materials, mixed contact material optional
- High coil voltage range
- High switching voltage
- High breakdown voltage: contact/coil \geq 4 KV
contact/contact \geq 4KV
- High creeping distance: contact/coil \geq 8 mm
contact/contact \geq 5.5 mm
- Crown contacts
- Solid connection between coil and contact housing
- Custom design available,
 - coil voltage -coil resistance,
 - contact pressure -operate/release time
- IP67 washable



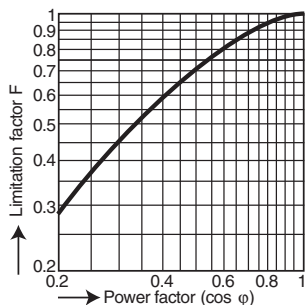
Technical Data

- **Nominal Coil Voltage** 6, 12, 24, 48, 60, 110, DC
- **Coil Power Dissipation**1.25 - 1.65 W
- **Max. Switching Voltage**250V DC, 400V AC
- **Max. Switching Current**10 A
- **Max. Switching Power—DC**240W
- **Max. Switching Power—AC**2500VA
- **Contact Switching Rate**10 operations per second
- **Relay Operate Time**27 ms
- **Relay Release Time**5 ms
- **Operation Vibration**0.35 mm Ampl. max
.....@ 10...55Hz
- **Protection Rating**IP 40
- **Contact Arrangements**.....
.....2NO/6NC, 3NO/5NC, 4NO/4NC, 5NO/3NC,
.....6NO/2NC, 7NO/1NC
- **Contact Material**.....
AgSnO₂+0.2μmAu , AgNi10+0.2μmAu , AgNi10+5μmAu
- **Mechanical Life**>30x10⁶ Operation cycles
- **Electrical Life**AgSnO₂ >3x10⁵, AgNi10 >2x10⁵
.....operation cycles @ 230V AC, 10A, cos φ=1
- **Ambient Temperature**.....-40...+75°C
- **Cover Material**.....Thermoplast
- **Weight**.....95 g
- More detailed data upon request

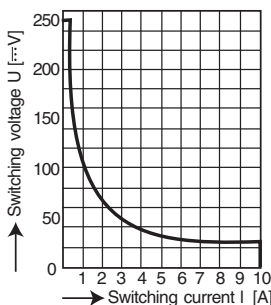
Diagrams



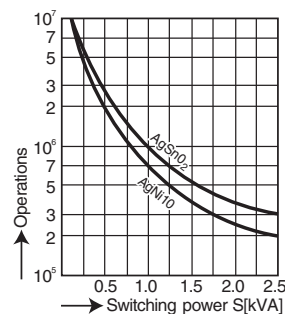
Relay operation voltage vs. ambient temperature



Limitation factor for inductive loads
Operations =
Operations (ohmic) x limitation factor F



Safe disconnection, no remaining arc,
max. 1 operation/sec.
Maximum switching power curve



Mechanical life

Safety Relay OA 5603 Data

Relay Data

Ordering Information

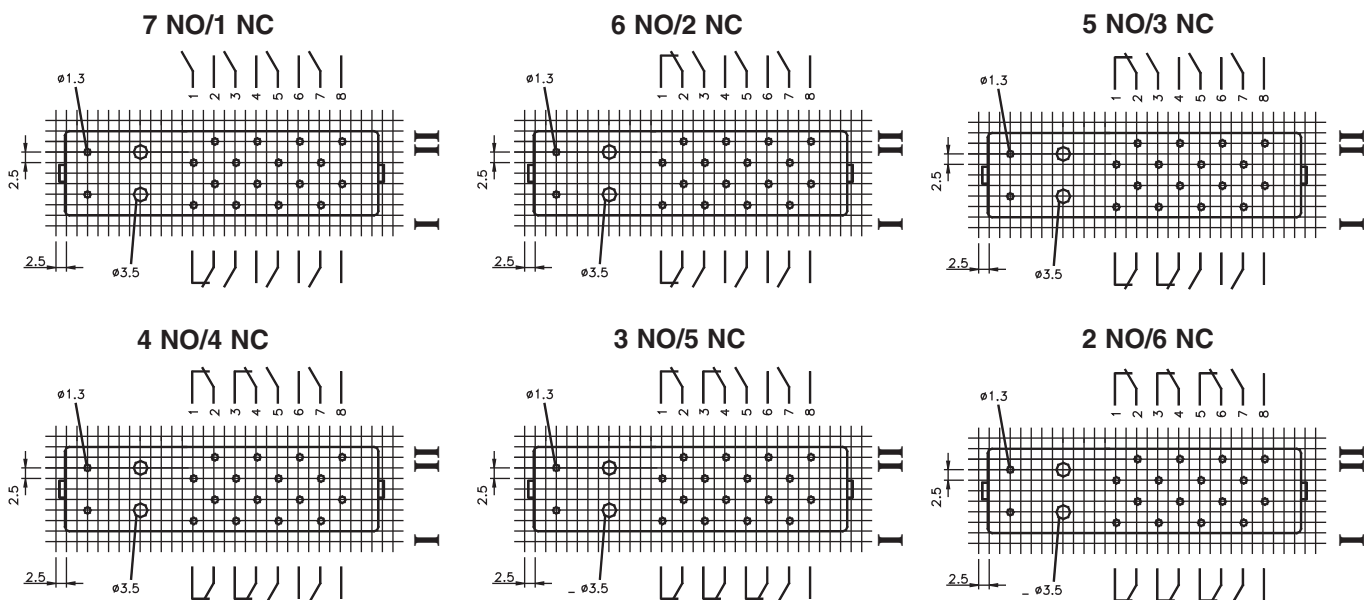
Rated Voltage	Voltage Range	Coil Resistance (10%)	2 NO/6 NC Type	3 NO / 5 NC Type	Coil Resistance (10%)	4 NO / 4 NC Type	5 NO / 3 NC Type	6 NO / 2 NC Type	7 NO / 1 NC Type
6V	4.2 - 9.6V	21 Ω	56.OA03.0626□	56.OA03.0635□	29 Ω	56.OA03.0644□	56.OA03.0653□	56.OA03.0662□	56.OA03.0671□
12V	8.4 - 19.2V	88 Ω	56.OA03.1226□	56.OA03.1235□	112 Ω	56.OA03.1244□	56.OA03.1253□	56.OA03.1262□	56.OA03.1271□
24V	16.8 - 38.4V	370 Ω	56.OA03.2426□	56.OA03.2435□	460 Ω	56.OA03.2444□	56.OA03.2453□	56.OA03.2462□	56.OA03.2471□
48V	33.6 - 76.8V	1400 Ω	56.OA03.4826□	56.OA03.4835□	1800 Ω	56.OA03.4844□	56.OA03.4853□	56.OA03.4862□	56.OA03.4871□
60V	42.0 - 96.0V	2230 Ω	56.OA03.6026□	56.OA03.6035□	2880 Ω	56.OA03.6044□	56.OA03.6053□	56.OA03.6062□	56.OA03.6071□
110V	77.0 - 176.0V	7150 Ω	56.OA03.1126□	56.OA03.1135□	9500 Ω	56.OA03.1144□	56.OA03.1153□	56.OA03.1162□	56.OA03.1171□

Contact Material, Example: □ AgSnO₂+2μmAu

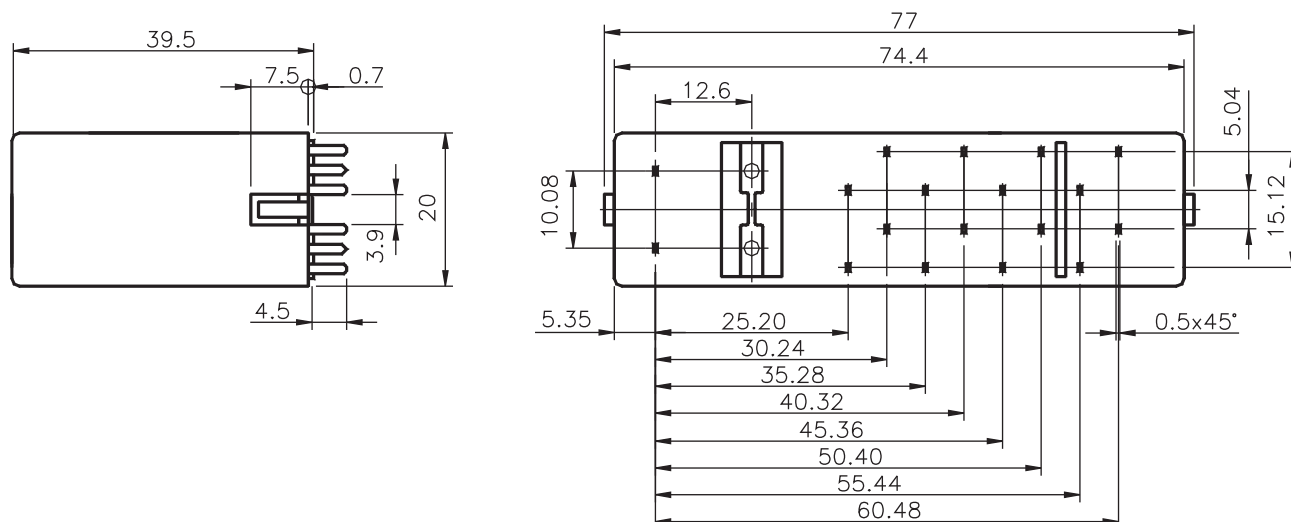
▢ AgNi10+2μmAu

▣ AgNi10+5μmAu

Footprints (solder side)



Dimensions



Note: All dimensions are shown in millimeters. To convert to inches, divide by 25.4.