

## New products

**IMO**

**4-32V Panel mount solid state relays with LEDs SSR02**

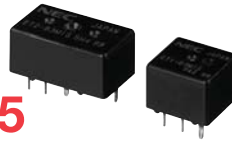
From **£15.95** Page 645



**12V DC Twin automotive relay - ET2**

See page 641

From **£2.55**



**IMO**

**IMO**

**2A SPCO Subminiature signal relays**

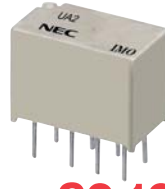
From **£0.95** See page 628



**IMO**

**1A DPCO New generation subminiature signal relays**

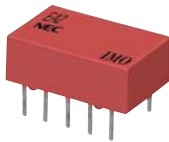
See page 626 From **£2.19**



**IMO**

**1A DPCO Signal relays EA2**

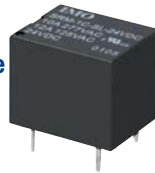
From **£1.35** See page 624



**IMO**

**10A Subminiature high power SPCO relays**

From **£0.65** See page 635



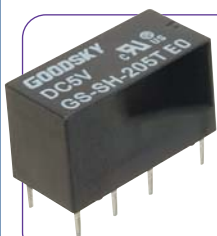
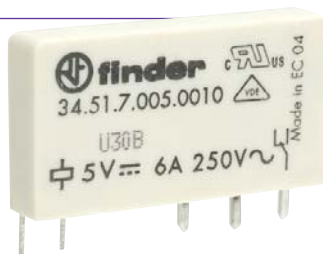
## Best sellers

**fINDER**

**Ultra-slim relay SPDT 6A**

See page 630

From **£1.92**



**Good Sky**  
**Subminiature DPDT 2A relay**

From **£0.7488**

See page 627

**OMRON**

**High sensitivity relay SPDT 1A**

From **£1.21**

See page 626



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PCB relay sockets	640
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Surface mount	623

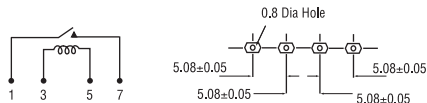
## Reed relays

### ECE

#### SIL Reed relays

A range of single pole reed relays sealed in a compact single in-line epoxy package.

- Suitable for a wide range of applications
- Completely washable
- Suitable for auto insertion
- Suitable for direct interfacing with TTL logic
- UL approved



Technical specification	
Dimensions	19 x 5 x 7mm
Contacts	NO
Switching current	0.5A DC max.
Carry current	1A DC max.
Switching power	10VA max.
Contact resistance	150mΩ
Operate time	1ms max. (including bounce time)
Release time	10ms max.
Maximum voltage	100V DC
Insulation resistance	1010Ω min.
Coil voltage range	5V 3.75-16V 12V 9-20V 24V 18-32V
Coil resistance	5V 500Ω±1% 12V 1000Ω±10% 24V 2150Ω±10%
Operating temperature	-40°C to +85°C

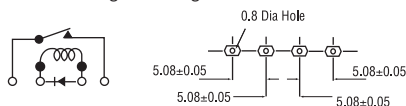
Type	Resistance	Order code	1+	25+	100+	500+
5V Coil	500Ω	60-0670	1.18	0.936	0.8216	0.7488
12V Coil	1000Ω	60-0672	1.18	0.936	0.8216	0.7488
24V Coil	2150Ω	60-0674	1.29	1.03	0.8965	0.8185

### Meder

#### SIL Reed relays

A range of single pole normally open diode protected reed relays, housed in a compact single in-line epoxy moulded package.

- The ultra-slim package permits relays to be mounted on 5.08mm centres
- Completely washable and suited to auto insertion
- Suitable for direct interfacing with TTL logic



Technical specification	
Dimensions	19 x 5 x 7.4mm
Switching voltage (max.)	200V DC
Switching current (max.)	0.5A
Carry current (max.)	1A
Switching power	10W max.
Hold off voltage (min.)	250V
Contact resistance	100mΩ max.
Operate time	0.5ms max.
Release time	0.2ms max.
Insulation resistance	1 x 1011 min.
Life expectancy	1 x 108 min.
Operating temperature	-40°C to +85°C

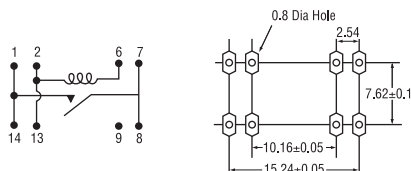
Type	Resistance	Order code	1+	25+	100+	500+
5V Coil	500Ω	60-0650	2.03	1.66	1.35	1.28
12V Coil	1000Ω	60-0655	2.07	1.72	1.38	1.33

### ECE

#### DIL Reed relays

A range of dry reed relays.

- 14-pin IC package
- Fully moulded construction
- Compatible with automatic board processing
- Completely washable
- Single pole normally open contacts



Technical specification	
Switch voltage max.	100V DC
Switch current max.	0.5A DC
Switch power max.	10VA
Contact resistance max.	200mΩ
Operate/release time	0.5ms max.
Insulation resistance	1010Ω
Electrical life	100 x 106 (10V DC 10mA)
Operating temperature	-40°C to +85°C

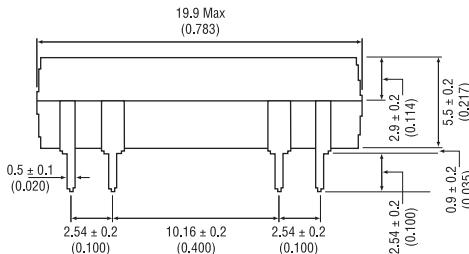
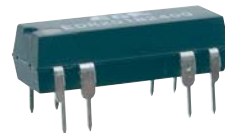
V DC	Coil Resist.	Order code	1+	25+	100+	500+
3.75-16	500Ω	60-2400	0.90	0.6448	0.572	0.5096
9-20	1000Ω	60-2410	1.01	0.7488	0.6552	0.5824
24	2150Ω	60-2412	1.08	0.832	0.7488	0.6656

### ECE

#### SPNC DIL Reed relay

A reed relay range that is suitable for applications where small signals are being switched.

- Miniature and cost effective
- Ideal for automatic board processing
- Fully moulded construction
- Completely washable
- High sensitivity allows direct driving by TTL
- DIP type construction
- Very long life



Contact form	Nominal voltage VDC	Maximum voltage VDC	Pull-in voltage VDC	Dropout voltage VDC	Coil resistance Ω	Nominal input power (mW)
2A	5	11	3.75	0.8	140 ±10%	179
2A	12	20	9	1	500 ±10%	288
2A	24	32	18	2	2150 ±10%	268

Switching current	0.5A DC max.
Carry current	1.0A DC max.
Switching power	10VA max.
Electrical life	1 x 10 <sup>8</sup> (10V DC, 10mA)
Contact resistance	150mΩ max.
Operate time	1.0ms max.
Release time	0.5ms max.
Maximum voltage	100V DC max.
Insulation resistance	10 <sup>10</sup> Ω min.
Dielectric strength	coil to contact 14V DC min. across contacts 250V DC min. operating -40°C to +85°C storage -55°C to +125°C
Shock resistance	30Lg min.

Type	Order code	1+	25+	100+	500+
5V Reed relay	60-2415	1.03	0.8528	0.7665	0.702
12V Reed relay	60-2416	1.16	0.9256	0.832	0.7665
24V Reed relay	60-2417	0.6059			

### ECE

#### SPNO Magnetic shield reed relay

A high quality magnetic reed switch that uses a gas tube sealed switch.

- Prevents dust and humidity influence
- 2.54mm IC terminal arrangement
- High switching speed
- Low bounce time
- Wide operating temperature
- Low power consumption
- Suitable for cordless telephones, modems and burglar alarms etc.



Technical specification						
Part No.	Nominal voltage VDC	Coil resistance Ω ± 10%	Nominal input mW	Operating voltage VDC	Release voltage VDC	Maximum voltage VDC

EMR021A05	5	500	50	3.2	0.8	11
EMR021A12	12	1050	138	8	0.8	22
Switching current	0.5A DC max.					
Carry current	1.0A DC max.					
Switching power	10VA max.					
Electrical life	10 <sup>6</sup>					
Contact resistance	150mΩ max.					
Contact material	Rhodium					
Operate time	1.0ms max.					
Release time	0.5ms max.					
Maximum voltage	100V DC max.					
Insulation resistance	100 x 10 <sup>6</sup> Ω					
Package type	Metal					
Dielectric strength	coil to contact 500V DC min. across contacts 200V DC min. operating -40°C to +85°C storage -55°C to +125°C					
Shock resistance	30Lg min.					
Pitch	20.32 + 2.54mm					

Type	Order code	1+	25+	100+	500+
5V Reed relay	60-2418	0.98	0.676	0.598	0.5325
12V Reed relay	60-2419	0.98	0.676	0.598	0.5325

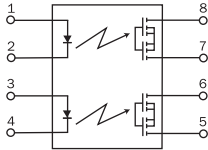
## PhotoMOS relays



### PhotoMOS signal relays

Dual PhotoMOS relays in an 8-pin 9.78 x 6.4 x 3.9mm DIP package.

- LED and optoelectronic inputs
- MOSFET output stages
- High isolation
- Low ON resistance
- Long operational life
- Applications include high-speed inspection machines, telecommunications equipment and computers
- **UL and CSA approved**
- **Matsushita AQW series**



**Technical specification**  
**Output characteristics**  
 Type AQW210EH  
 Load voltage 350V  
 Load current 120mA  
 LED leakage current  
 Turn on time N/O (typ) 0.25ms 0.28ms  
 Turn on time N/C (typ) 0.43ms 0.46ms  
 Turn off time N/O (typ) 0.05ms 0.04ms  
 Turn off time N/C (typ) 0.3ms 0.4ms  
 I/O capacitance (max)  
 I/O insulation resistance  
**Package**  
 Operating temperature  
**Input characteristics**  
 LED on current N/O (typ) 0.9mA 0.7mA  
 LED on current N/C (typ) 0.9mA 0.7mA  
 LED off current N/O (typ) 0.8mA 0.7mA  
 LED off current N/C (typ) 0.8mA 0.64mA  
 LED dropout voltage (typ) 1.14V  
 Dissipated power 75mW

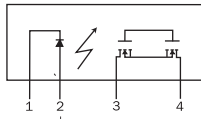
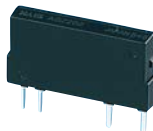
Type	Order code	1+	20+	40+	80+
Dual N/O 350V, 120mA	<b>60-4312</b>	4.99	4.58	4.26	4.00



### PhotoMOS relays - power

PhotoMOS relays in a compact and slim 4-pin SIL package.

- LED and optoelectronic inputs
- MOSFET output stages
- Provides extremely high isolation (2,500kV)
- Long operational life
- Applications include high speed inspection machines, office machines, telecommunication, automotive and industrial control
- Dimensions 21.0 x 3.5 x 12.5mm
- **UL and CSA approved**
- **Matsushita type AQZ202 and AQZ204**



**Technical specification**  
**Output characteristics**  
 Load voltage **AQZ202** 60V **AQZ204** 400V  
 Load current 3.0A 0.5A  
 LED leakage current 10µA 10µA  
 Turn on time (typ) 2.46ms 1.65ms  
 Turn off time (typ) 0.22ms 0.08ms  
 I/O capacitance (typ) 0.8pF 0.8pF  
 I/O insulation resistance 1,000MΩ 1,000MΩ  
**Package** 4-pin SIL 4-pin SIL  
 Operating temperature -20°C to +85°C -20°C to +85°C  
**Input characteristics**  
 LED on current 1mA (typ) 1mA (typ)  
 LED off current 0.9mA (typ) 0.9mA (typ)  
 LED dropout voltage 1.25V (typ) 1.25V (typ)  
 Dissipated power 75mW 75mW

Type	Order code	1+	25+	50+	100+
60V, 3A PhotoMOS relay	<b>60-4318</b>	7.07	6.55	6.03	5.67
400V, 0.5A PhotoMOS relay	<b>60-4320</b>	7.07	6.55	6.03	5.67

Downloadable datasheets  
[www.rapidonline.com](http://www.rapidonline.com)

## NEW TO RAPID

# IMO Relays



## Surface mount



### 24V DC SPCO subminiature automotive relay - SRMA

This subminiature relay is designed for automotive use and features a high current contact capacity and SPCO contacts in a sealed construction body.

- 20A Switching capacity
- SPCO contacts
- Sealed construction
- 24V DC coil voltage
- Silver tin oxide contacts
- Improved heat resistance
- Extended operation range
- High resistance to vibration and shock
- **IMO type SRMA**



**Technical specification**  
 Voltage drop max. 250mV @ 10A  
 Switching current max. 20A  
 Switching voltage max. 60V DC  
 Switching power max. 210W  
 Contact rating max. 20A  
 Minimum contact load 1A 6V DC  
 Insulation resistance 100MΩ @ 500V DC  
 Dielectric strength 500V AC 1 min.  
 Operate time max. 10ms  
 Release time max. 5ms  
 Operating temperature -40°C to +85°C  
 Mechanical life 1 x 10<sup>7</sup> operations  
 Electrical life 2 x 10<sup>6</sup> operations  
 Dimensions (body) 12.5 x 14 x 15.7mm  
 Weight 6g

Type	Order code	1+	25+	50+	100+
24VDC SPCO sub auto relay	<b>60-1926</b>	1.39	1.29	1.19	0.99



### 1A DPCO New generation SMD signal relays

These new generation subminiature signal relays are surface mount devices that feature a compact and light weight **UL** recognised construction that also meets **Bell-Core** standard requirements.

- Compact and light weight
- 2 Form C (DPCO) contacts
- Choice of nominal coil voltages
- Low power consumption (140mW)
- Super high density mounted
- Meets **Bell-Core** standard requirements
- Meets **IEC950/UL1950/EN60950** insulation distance
- **UL recognised, CSA certified**



**Technical specification**  
 Switching current max. 1A  
 Switching voltage max. 220V DC/250V AC  
 Switching power max. 37.5VA/30W  
 Operating power nom. 140mW  
 Contact resistance max. 100mΩ  
 Insulation resistance 1000MΩ @ 500V DC  
 Breakdown voltage (coil to contact) 1500V AC 1 min.  
 Operate time 4ms  
 Release time 4ms  
 Operating temperature -40°C to +85°C  
 Life (nonload) 5 x 10<sup>7</sup> ops.  
 Life (load) 1 x 10<sup>6</sup> ops.  
 Dimensions (body) 10.6 x 6.5 x 5.5mm  
 Weight 1g

Type	Order code	1+	25+	50+	100+
5V DPCO SMD relay	<b>S 60-1940</b>	2.69	2.59	2.45	2.19
12V DPCO SMD relay	<b>S 60-1938</b>	2.69	2.59	2.45	2.19



### 1A DPCO New generation SMD subminiature signal relays

These new generation subminiature SMD signal relays feature a compact and light weight **UL** recognised construction that also meets **Bell-Core** standard requirements.

- Compact and light weight
- 2 Form C (DPCO) contacts
- Choice of nominal coil voltages
- Low power consumption (140mW)
- Super high density mounted
- Meets **Bell-Core** standard requirements
- Meets **IEC950/UL1950/EN60950** insulation distance
- **UL** recognised, **CSA** certified



Technical specification	
Switching current max.	1A
Switching voltage max.	220V DC/250V AC
Switching power max.	37.5VA/30W
Operating power nom.	140mW
Contact resistance max.	100mΩ
Insulation resistance	1000MΩ @ 500V DC
Breakdown voltage (coil to contact)	1500V AC 1 min.
Operate time	4ms
Release time	4ms
Operating temperature	-40°C to +85°C
Life (nonload)	5 x 10 <sup>6</sup> ops.
Life (load)	1 x 10 <sup>6</sup> ops.
Dimensions (body)	10.6 x 8.0 x 5.7mm
Weight	1g

	<b>60-1948</b>	<b>60-1950</b>			
Coil voltage nom.	5V DC	12V DC			
Coil resistance	178Ω	1028Ω			
Operate voltage	75% of nom. voltage	75% of nom. voltage			
Release voltage	10% of nom. voltage	10% of nom. voltage			

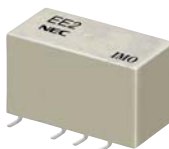
Type	Order code	1+	25+	50+	100+
5V DPCO SMD signal relay	<b>S 60-1948</b>	2.69	2.59	2.45	2.19
12V DPCO SMD signal relay	<b>S 60-1950</b>	2.69	2.59	2.45	2.19



### 2A DPCO SMT Signal relays EE2

A range of DPCO signal relays that feature a surface mountable L-lead package that has a reduced mounting footprint.

- Surface mount
- Compact and lightweight
- 2 Form C contact arrangement
- High breakdown voltage
- Capable of high power switching
- Reduced mounting space
- Fully sealed for immersion cleaning
- Low power consumption
- **UL** recognised, **CSA Certified**



Technical specification	
Switching current max.	2A
Switching voltage max.	220V DC/250V AC
Switching power max.	125VA/30W
Carrying current max.	2A
Contact resistance	50mΩ
Insulation resistance	1000MΩ @ 500V DC
Breakdown voltage	1500V AC 1 min.
Operate time	2ms
Release time	1ms
Operating temperature	-40°C to +85°C
Life (load)	1 x 10 <sup>6</sup> ops.
Dimensions	15 x 10 x 7.5mm

	<b>60-1968</b>	<b>60-1970</b>	<b>60-1972</b>		
Coil voltage nom.	5V DC	12V DC	24V DC		
Coil resistance	178Ω	1028Ω	2880Ω		
Operate voltage	3.75V DC	9V DC	18V DC		
Release voltage	0.5V DC	1.2V DC	2.4V DC		

Type	Order code	1+	25+	50+	100+
5V DPCO SMT Relay EE2	<b>S 60-1968</b>	2.30	2.20	1.90	1.60
12V DPCO SMT Relay EE2	<b>S 60-1970</b>	2.30	2.20	1.90	1.60
24V DPCO SMT Relay EE2	<b>S 60-1972</b>	2.30	2.20	1.90	1.60



### 1A DPCO SMT Signal relays EF2

A range of DPCO signal relays that feature a compact and lightweight surface mountable L-lead package, low power consumption and high breakdown voltage.

- Surface mount
- Compact and lightweight
- 2 Form C contact arrangement
- High breakdown voltage
- Low power consumption
- **UL** recognised, **CSA Certified**



Technical specification	
Switching current max.	1A
Switching voltage max.	220V DC/250V AC
Switching power max.	62.5VA/30W
Carrying current max.	2A
Contact resistance	50mΩ



Insulation resistance	1000MΩ @ 500V DC
Breakdown voltage	1500V AC 1 min.
Operate time	3ms
Release time	2ms
Operating temperature	-40°C to +70°C
Life (load)	1 x 10 <sup>6</sup> ops.
Dimensions	15 x 10 x 7.5mm

	<b>60-1974</b>	<b>60-1976</b>	<b>60-1978</b>
Coil voltage nom.	5V DC	12V DC	24V DC
Coil resistance	500Ω	2400Ω	8229Ω
Operate voltage	4V DC	9.6V DC	19.2V DC
Release voltage	0.5V DC	1.2V DC	2.4V DC

Type	Order code	1+	25+	50+	100+
5V DPCO SMT Relay EF2	<b>S 60-1974</b>	2.95	2.50	2.30	2.15
12V DPCO SMT Relay EF2	<b>S 60-1976</b>	2.95	2.50	2.30	2.15
24V DPCO SMT Relay EF2	<b>S 60-1978</b>	2.95	2.50	2.30	2.15

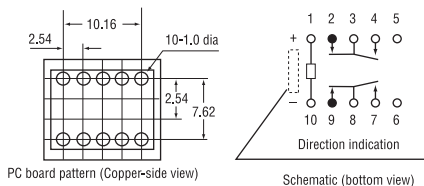
## PCB Relays



### Low profile relay DPCO 1A

Ultra-small size, high sensitivity double-pole change-over relays, sealed to allow automatic washing.

- Relay coil is polarised, therefore polarity must be observed
- **UL** and **CSA** approved
- **Matsushita TQ2** series



Technical specification	
Dimensions	14 x 9 x 5mm
Contact rating	1A at 30V DC, 0.5A at 125V AC
Contact arrangement	Double pole, change over
Contact material	Gold-clad silver
Coil consumption	5V and 12V: 140mW, 24V: 200mW
Operate/release time	3ms max.
Pick-up/drop out voltage	75%/10%
Operating life	- mechanical 1 <sup>st</sup> operations - electrical 2 x 10 <sup>6</sup> (1A 30V DC resistive)

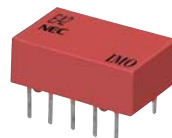
Coil	Resistance	Order code	1+	25+	50+	100+
5V DC	178Ω	<b>60-4245</b>	2.81	2.55	2.39	2.18
12V DC	1028Ω	<b>60-4250</b>	2.81	2.55	2.39	2.18
24V DC	2880Ω	<b>60-4255</b>	2.91	2.60	2.50	2.39



### 1A DPCO Signal relays EA2

A range of DPCO signal relays that feature a low profile DIL package that is fully sealed for immersion cleaning.

- DIL Package
- High sensitivity coil
- Ultra low profile, minimal board footprint
- Fully sealed for immersion cleaning
- Low magnetic interference
- **FCC Part 68** compliant
- **UL** recognised, **CSA Certified**



Technical specification	
Switching current max.	1A
Switching voltage max.	220V DC/250V AC
Switching power max.	62.5VA/30W
Carrying current max.	2A @ 20°C
contact resistance	50mΩ
Insulation resistance	1000MΩ @ 500V DC
Breakdown voltage	1000V AC 1 min.
Operate time	2ms
Release time	1ms
Operating temperature	-40°C to +85°C
Mechanical life	100 x 10 <sup>6</sup> ops.
Electrical life max.	200 x 10 <sup>3</sup> ops.
Dimensions	14 x 9 x 5.4mm

	<b>60-1956</b>	<b>60-1958</b>	<b>60-1960</b>
Coil voltage nom.	5V DC	12V DC	24V DC
Coil resistance	178Ω	1028Ω	2880Ω
Operate voltage	3.75V DC	9V DC	18V DC
Release voltage	0.5V DC	1.2V DC	2.4V DC

Type	Order code	1+	25+	50+	100+
5V DPCO Signal relay EA2	<b>60-1956</b>	1.95	1.75	1.55	1.35
12V DPCO Signal relay EA2	<b>60-1958</b>	1.95	1.75	1.55	1.35
24V DPCO Signal relay EA2	<b>60-1960</b>	1.95	1.75	1.55	1.35

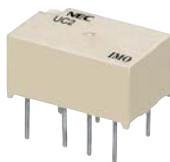


IMO

1A DPCO New generation signal relays

These new generation signal relays feature a compact and light weight **UL** recognised construction that also meets **Bell-Core** standard requirements.

- Compact and light weight
- 2 Form C (DPCO) contacts
- Choice of nominal coil voltages
- Low power consumption (140mW)
- Super high density mounted
- Meets **Bell-Core** standard requirements
- Meets **IEC950/UL1950/EN60950** insulation distance
- **UL** recognised, **CSA** certified



Technical specification

Switching current max.	1A
Switching voltage max.	220V DC/250V AC
Switching power max.	37.5VA/30W
Operating power nom.	140mW
Contact resistance max.	100mΩ
Insulation resistance	1000MΩ @ 500V DC
Breakdown voltage (coil to contact)	1500V AC 1 min.
Operate time	4ms
Release time	4ms
Operating temperature	-40°C to +85°C
Life (nonload)	5 x 10 <sup>7</sup> ops.
Life (load)	1 x 10 <sup>6</sup> ops.
Dimensions (body)	10.6 x 6.5 x 5.5mm
Weight	1g

	60-1952	60-1954
Coil voltage nom.	5V DC	12V DC
Coil resistance	178Ω	1028Ω
Operate voltage	75% of nom. voltage	75% of nom. voltage
Release voltage	10% of nom. voltage	10% of nom. voltage

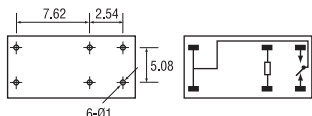
Type	Order code	1+	25+	50+	100+
5V DPCO Signal relay	<b>60-1952</b>	2.69	2.59	2.45	2.19
12V DPCO Signal relay	<b>60-1954</b>	2.69	2.59	2.45	2.19

Tianbo

Subminiature relay SPCO 1A

A range of subminiature, economically priced single pole changeover relays.

- Typical applications include computer equipment and security systems
- This compact relay is ideal for high density designs where low power consumption is required
- **UL** approved



Technical specification

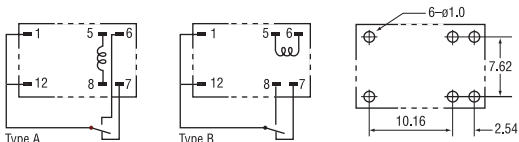
Dimensions	12.4 x 7.4 x 9.9mm
Contact rating	1A 24V DC 0.5A 125V AC
Contact arrangement	Single pole changeover
Contact material	Ag+Au
Operate/release time	4ms
Coil consumption	360mW
Resistance	5V 69Ω
	12V 400Ω
	24V 1600Ω
Temperature range	-30°C to +70°C
Approvals	<b>UL</b>

Type	Order code	1+	25+	100+	250+
5V DC	<b>60-0680</b>	0.74	0.6656	0.6032	0.572
12V DC	<b>60-0685</b>	0.74	0.6656	0.6032	0.572
24V DC	<b>60-0690</b>	0.74	0.6656	0.6032	0.572

Fujitsu

Subminiature relay SPCO 1A

- A miniature single pole changeover relay.
- Features flux contamination immunity
- DIL pins arranged on a 2.54mm pitch
- Ideally suited to low level switching or dry circuit switching
- Nominal coil power 450mW
- **Fujitsu types FBR211SA** and **FBR211SB** series



Technical specification

Dimensions	15 x 10 x 10.5mm
Contact rating	1A at 24V DC, 0.5A at 100V AC
Max. switching power	24W
Contact arrangement	Single pole changeover
Contact material	Gold overlay silver palladium
Operate/release time	5ms/5ms

Coil operating range	80-110% of coil voltage
Mechanical life	>5 x 10 <sup>6</sup> operations
Electrical life	>3 x 10 <sup>6</sup> operations
Operating temperature range	-25°C to +50°C

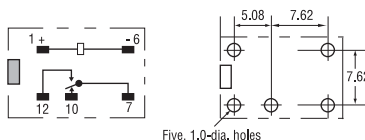
Coil	Resistance	Order code	1+	25+	100+	250+
<b>Fujitsu FBR211SA series</b>						
5V DC	56Ω	<b>60-0710</b>	1.25	1.144	0.988	0.884
12V DC	320Ω	<b>60-0712</b>	1.25	1.144	0.988	0.884
<b>Fujitsu FBR211SB series</b>						
5V DC	56Ω	<b>60-0785</b>	1.25	1.144	0.988	0.884
24V DC	1280Ω	<b>60-0795</b>	1.25	1.144	0.988	0.884

OMRON

Miniature signal relay SPDT 1A

A range of subminiature sensitive signal switching relays.

- Fully sealed construction
- 98mW coil pick up power
- **UL** and **CSA** approved
- **Omron G6E-134P** series



Technical specification

Dimensions	16 x 10 x 8mm
Contact rating	2A 30V DC
	0.4A 125V AC
Contact arrangement	SPCO
Contact material	Gold overlay, silver palladium
Operate/release time	5ms/5ms
Coil consumption	200mW
Temperature range	-40°C to +70°C

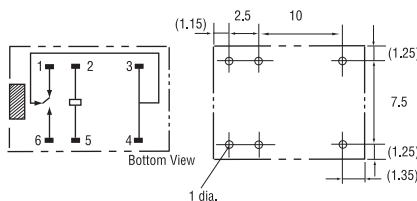
Coil	Resistance	Order code	1+	10+	25+	100+
5V DC	125Ω	<b>60-4450</b>	2.50	2.29	2.18	1.98
12V DC	720Ω	<b>60-4452</b>	2.50	2.29	2.18	1.98

OMRON

Subminiature relay SPDT 1A

Miniature, low-cost, 1A single pole PCB relay.

- Low power consumption
- Standard or high sensitivity versions
- Bifurcated crossbar contacts
- Fully sealed
- Ideal for telecommunications and security systems
- **Omron G2E** series



Technical specification

Dimensions	15 x 10 x 11mm
Contact rating	1A
Contact arrangement	Single pole changeover
Contact material	Silver, gold-clad
Operate/release time	General purpose 5ms/3ms
	High sensitivity 7ms/3ms
Resistance	General purpose 12V DC 320Ω
	High sensitivity 24V DC 1280Ω
	5V DC 120Ω
	12V DC 700Ω
	24V DC 2800Ω
Coil consumption	General purpose 450mW
	High sensitivity 200mW
Temperature range	-25°C to +60°C
Approvals	<b>UL, CSA</b>

Type	Order code	1+	25+	100+	250+
<b>General purpose</b>					
12V DC	<b>60-4352</b>	2.60	2.34	2.24	2.13
24V DC	<b>60-4354</b>	2.50	2.25	2.15	2.05
24V DC	<b>60-4348</b>	2.79	2.48	2.19	2.00

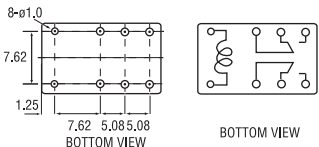
TruConnect turned pin DIL sockets



**GS**  
**Subminiature relay DPCO 1A - GS**

A range of compact, lightweight double pole changeover relays to give high density PCB mounting.

- Coil consumption is 360mW
- 92/8 gold silver alloy on silver palladium contacts allows low level switching (1V DC 1mA)
- Casing is epoxy resin sealed for washing
- **BT47** style relays
- **UL** and **CSA** approved
- **GS-D** series



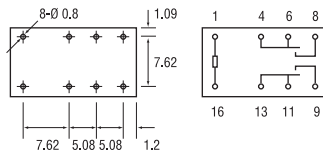
Technical specification	
Dimensions	20.3 x 10.1 x 15.6mm
Contact rating	1A 24V DC/120V AC
Max. switching power	30W
Contact arrangement	Double pole changeover
Contact material	Ag Alloy
Operate/release time	6ms/4ms max.
Pull in voltage	75% max.
Drop out voltage	10% min.
Life expectancy	10 <sup>7</sup> operations
	mechanical 10 <sup>6</sup> operations
	electrical 10 <sup>6</sup> operations

Coil	Resistance	Order code	1+	25+	100+	250+
5V DC	70Ω	<b>60-4690</b>	0.82	0.676	0.572	0.5096
12V DC	400Ω	<b>60-4692</b>	0.82	0.676	0.572	0.5096
24V DC	1600Ω	<b>60-4694</b>	1.03	0.8528	0.7145	0.6365

**Tianbo**  
**Subminiature relay DPCO 1A**

A range of subminiature double pole changeover relays.

- Typical applications include security systems and telecommunication equipment
- High sensitivity
- Equivalent to **BT47** relays
- **UL** and **TUV** approved



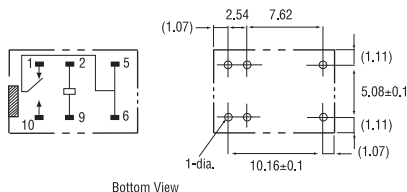
Technical specification	
Dimensions	21 x 11 x 12.2mm
Contact rating	1A 24VDC/0.5A 120VAC TUV 2A 24VDC/1A 120VAC UL
Contact arrangement	Double pole changeover
Contact material	Ag+Au
Operate/release time	6ms/4ms
Coil consumption	360mW
Resistance	70Ω
	5V 400Ω
	12V 1600Ω
Temperature range	-30°C to +70°C
Approvals	<b>UL, TUV</b>

Type	Order code	1+	25+	100+	250+
5V DC	<b>60-4460</b>	1.45	1.24	0.8944	0.7904
12V DC	<b>60-4465</b>	1.45	1.24	0.8944	0.7904
24V DC	<b>60-4470</b>	1.45	1.24	0.8944	0.7904

**OMRON**  
**High sensitivity relay SPDT 1A**

Ultra-miniature, high sensitivity SPDT relay.

- Dimensions 12.5 x 7.5 x 10mm
- Wide switching capacity of 1mA to 1A
- High sensitivity, 150mW
- Conforms to FCC part 68 for coil to contact
- **Omron G5V-1** series



Technical specification	
Dimensions	12.5 x 7.5 x 10mm
Contact rating	1A
Contact arrangement	Single pole changeover
Contact material	Silver, gold-clad
Operate/release time	5ms/5ms
Resistance	12V DC 960Ω 24V DC 3840Ω
Coil consumption	150mW
Temperature range	-40°C to +70°C
Approvals	<b>UL, CSA</b>

Type	Order code	1+	25+	100+	250+
12V DC	<b>60-4456</b>	1.47	1.34	1.26	1.21
24V DC	<b>60-4458</b>	1.47	1.34	1.26	1.21

**IMO** **NEW**  
**1A DPCO New generation subminiature signal relays**

These new generation subminiature signal relays feature a compact and light weight **UL** recognised construction that also meets **Bell-Core** standard requirements.



- Compact and light weight
- 2 Form C (DPCO) contacts
- Choice of nominal coil voltages
- Low power consumption (140mW)
- Super high density mounted
- Meets **Bell-Core** standard requirements
- Meets **IEC950/UL1950/EN60950** insulation distance
- **UL** recognised, **CSA** certified

Technical specification	
Switching current max.	1A
Switching voltage max.	220V DC/250V AC
Switching power max.	37.5VA/30W
Operating power nom.	140mW
Contact resistance max.	100mΩ
Insulation resistance	1000MΩ @ 500V DC
Breakdown voltage (coil to contact)	1500V AC 1 min.
Operate time	4ms
Release time	4ms
Operating temperature	-40°C to +85°C
Life (nonload)	5 x 10 <sup>7</sup> ops.
Life (load)	1 x 10 <sup>6</sup> ops.
Dimensions (body)	10.6 x 8.0 x 5.7mm
Weight	1g

Coil voltage nom.	60-1942	60-1944	60-1946
5V DC	12V DC	24V DC	
Coil resistance	178Ω	1028Ω	2504Ω
Operate voltage	75% of nom. voltage	75% of nom. voltage	75% of nom. voltage
Release voltage	10% of nom. voltage	10% of nom. voltage	10% of nom. voltage

Type	Order code	1+	25+	50+	100+
5V DC DCPO submin relay	<b>60-1942</b>	2.69	2.59	2.45	2.19
12V DC DCPO submin relay	<b>60-1944</b>	2.69	2.59	2.45	2.19
24V DC DCPO submin relay	<b>60-1946</b>	2.69	2.59	2.45	2.19

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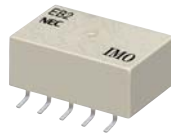
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**1A DPCO SMT Signal relays EB2**

A range of DPCO signal relays that feature a surface mountable L-lead package that can utilise vapour phase and infrared reflow techniques.

- Surface mount
- High sensitivity coil
- Ultra low profile, minimal board footprint
- Fully sealed for immersion cleaning
- Low magnetic interference
- FCC Part 68 compliant
- UL recognised, CSA Certified



Technical specification

Switching current max.	1A
Switching voltage max.	220V DC/250V AC
Switching power max.	62.5VA/30W
Carrying current max.	2A @ 20°C
Contact resistance	50mΩ
Insulation resistance	1000MΩ @ 500V DC
Breakdown voltage	1000V AC 1 min.
Operate time	2ms
Release time	1ms
Operating temperature	-40°C to +85°C
Mechanical life	100 x 10 <sup>6</sup> ops.
Electrical life max.	200 x 10 <sup>3</sup> ops.
Dimensions	14.3 x 9.3 x 6.15mm

	<b>60-1962</b>	<b>60-1964</b>	<b>60-1966</b>
Coil voltage nom.	5V DC	12V DC	24V DC
Coil resistance	178Ω	1028Ω	2880Ω
Operate voltage	3.75V DC	9V DC	18V DC
Release voltage	0.5V DC	1.2V DC	2.4V DC

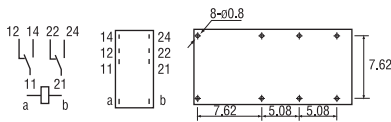
Type	Order code	1+	25+	50+	100+
5V DPCO SMT Relay EB2	<b>S 60-1962</b>	2.20	2.05	1.80	1.50
12V DPCO SMT Relay EB2	<b>S 60-1964</b>	2.20	2.05	1.80	1.50
24V DPCO SMT Relay EB2	<b>S 60-1966</b>	2.30	2.20	1.90	1.60



**Subminiature relay DPCO 1.25A**

Double pole changeover industry standard sealed relays.

- Equivalent to **BT Type 47W**, indicating acceptance for use on private or public telecommunications equipment
- Hermetically sealed and housed in a flame retardant case
- DIL pins on a 2.54mm pitch grid
- UL and CSA approved



Technical specification

Dimensions	20.3 x 10.4 x 11.4mm
Contact rating	1.25A @ 250V AC
Contact arrangement	Double pole changeover
Contact material	Gold overlay silver contacts
Operate/release time	15ms/10ms
Coil operating range	70-150% of coil voltage
Mechanical life	>10 x 10 <sup>6</sup> cycles
British Telecom codes	5V BT47W/5, 12V BT47W/6, 24V BT47/7
Finder part Nos	<b>3022-005</b> <b>60-0100</b> <b>3022-9012</b> <b>60-0105</b> <b>3022-9024</b> <b>60-0110</b>

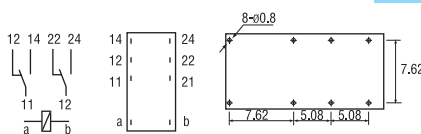
Coil	Resistance	Order code	1+	25+	100+	500+
5V DC	62Ω	<b>60-0100</b>	1.72	1.46	1.35	1.25
12V DC	360Ω	<b>60-0105</b>	1.72	1.46	1.35	1.25
24V DC	1440Ω	<b>60-0110</b>	1.72	1.46	1.35	1.25



**High sensitivity subminiature DPDT 1.25A relay**

The **30** series from **Finder** is identical to the **BT51W** series but supplied with a more sensitive coil (200mW).

- The relays are fully sealed, telecoms standard
- DIL pins are arranged on a 2.54mm grid
- UL and CSA approved
- **Finder 30** series



Technical specification

Dimensions	20.3 x 10.4 x 11.4mm
Contact rating	1.25A at 30V DC, 0.3A at 150V AC
Contact arrangement	Double pole changeover
Contact material	Gold plated silver nickel
Operate/release time	10ms
Coil operating temperature	70-150°C
Coil consumption	200mW
Temperature range	-40°C to +70°C

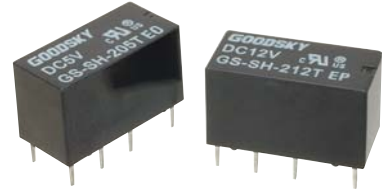


Finder Part Nos	<b>3022-7005</b> <b>3022-7012</b> <b>3022-7024</b>	<b>60-0140</b> <b>60-0145</b> <b>60-0150</b>	1+	25+	100+	250+
Type		Order code				
5V DC	125Ω	<b>60-0140</b>	1.73	1.45	1.34	1.24
12V DC	720Ω	<b>60-0145</b>	1.73	1.45	1.34	1.24
24V DC	720Ω	<b>60-0150</b>	1.77	1.61	1.51	1.35

**GS Subminiature DPDT 2A relay**

A compact lightweight relay for high density PCB mounting.

- Low coil power consumption
- Available in 5V, 12V and 24V versions
- Fully sealed construction
- Applications include telecommunications and audio equipment
- **C-UL** approved



Technical specification

	<b>GS-SH-205T</b>	<b>GS-SH-212T</b>	<b>GS-SH-224T</b>
Nominal voltage	5V DC	12V DC	24V DC
Max. allowable voltage	150%	150%	150%
Coil resistance	125Ω ±10%	720Ω ±10%	2880Ω ±10%
Contact arrangement	DPDT	DPDT	DPDT
Contact material	Ag alloy	Ag alloy	Ag alloy
Operate time	8ms max.	8ms max.	8ms max.
Release time	4ms max.	4ms max.	4ms max.
Nominal current	40mA	16.7mA	8.3mA
Coil operating range	150% max.	150% max.	150% max.
Temperature range	-30°C to +80°C	-30°C to +80°C	-30°C to +80°C
Mechanical life	10 <sup>7</sup> operations at no load condition	10 <sup>7</sup> operations at no load condition	10 <sup>7</sup> operations at no load condition
Electrical life	10 <sup>6</sup> operations at rated resistive load	10 <sup>6</sup> operations at rated resistive load	10 <sup>6</sup> operations at rated resistive load
Dimensions	21 x 12 x 10mm	21 x 12 x 10mm	21 x 12 x 10mm

Mfrs. pt. no.	Coil	Order code	1+	25+	100+	250+
GS-SH-205T	5V DC	<b>60-4754</b>	1.35	1.07	0.8736	0.7488
GS-SH-212T	12V DC	<b>60-4756</b>	1.35	1.07	0.8736	0.7488
GS-SH-224T	24V DC	<b>60-4758</b>	1.35	1.07	0.8736	0.7488



**2A Subminiature intermediate power SPCO relays SRF**

These low cost, SPCO subminiature relays feature intermediate power handling capability and sealed and flux-tight construction.

- Low cost
- SPCO Configuration
- Subminiature package for PCB layout
- Sealed and flux-tight construction
- UL and VDE approved



Technical specification

Switching current max.	2A
Switching voltage max.	30V DC/240V AC
Switching power max.	240VA/30W
Contact rating	1A
Contact resistance	100mΩ
Insulation resistance	1000MΩ @ 500V DC
Dielectric strength	1000V AC 1 min.
Operate time	10ms
Release time	5ms
Operating temperature	-25°C to +70°C
Mechanical life	1 x 10 <sup>7</sup> ops.
Electrical life	1 x 10 <sup>6</sup> ops.
Dimensions	15.7 x 12 x 11mm

	<b>60-1990</b>	<b>60-1992</b>	<b>60-1994</b>
Coil voltage nom.	5V	12V DC	24V DC
Coil resistance	120Ω	700Ω	2800Ω
Pickup voltage	3.8V DC	9V DC	6.5V DC
Dropout voltage	0.5V DC	1.2V DC	15.6V DC
Allowable voltage	6.5V DC	15.6V DC	31.2V DC

Type	Order code	1+	25+	50+	100+
5V Int. power SPCO relay	<b>60-1990</b>	1.20	1.04	0.90	0.80
12V Int. power SPCO relay	<b>60-1992</b>	1.20	1.04	0.90	0.80
24V Int. power SPCO relay	<b>60-1994</b>	1.20	1.04	0.90	0.80

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**Takamisawa**

**Microminiature 2A DPDT relay**

A range of very low profile, high sensitivity, 2-pole changeover relays, in a compact fully sealed package.

- Dual in line pins arranged on a 2.54mm pitch
- Conforms to **FCC Part 68** withstanding surges of 1500V
- **UL** and **CSA** approved



Technical specification	
Dimensions	14 x 9 x 4.75mm
Contact rating:	2A 30V DC, 0.5 A 125V AC
Maximum switching:	Power 30W DC, 220V DC, 250V AC
Current	2A
Contact arrangement	Double pole changeover
Contact material	Gold overlay silver alloy
Operate/release time	6ms/4ms
Coil consumption	140mW
Operating temperature	-40°C to +85°C
Takamisawa part nos.	<b>A5-WK (60-4030)</b> <b>A12-WK (60-4032)</b>

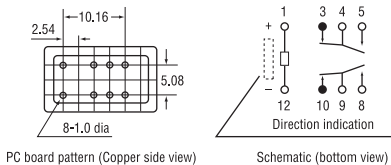
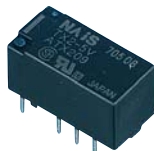
Coil	Resistance	Order code	1+	25+	100+	500+
5V DC	178Ω	<b>60-4030</b>	1.77	1.51	1.36	1.21
12V DC	1028Ω	<b>60-4032</b>	1.77	1.51	1.36	1.21

**Matsushita**  
Automation Controls

**Compact footprint relay DPCO 2A**

A subminiature relay with high contact capacity for its size and high breakdown voltage between contacts and coil.

- **UL** and **CSA** approved
- **Matsushita TX2** series



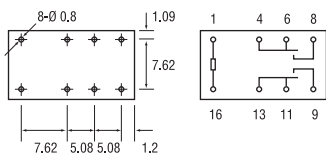
Technical specification	
Dimensions	15 x 17.4 x 8.2mm
Contact rating	2A at 30V DC
Max. switching power	60W
Contact arrangement	Double pole change over
Contact material	Gold clad silver alloy
Coil consumption	140mW
Operate/release time	4ms
Pick-up/drop-out voltage	75%/10%
Operating life	- mechanical 10 <sup>8</sup> operations - electrical 10 <sup>5</sup> operations min.

Coil	Resistance	Order code	1+	20+	40+	80+
5V DC	178Ω	<b>60-4260</b>	3.38	2.86	2.55	2.29

**OMRON**  
**Subminiature relay DPDT 2A**

Low signal 2A double pole PCB relay.

- Fully sealed construction
- Suitable for handling low signals
- Applications include computer, telecommunications and security equipment
- Reliable bifurcated crossbar contacts
- Conforms to **FCC 68** 1500V surge withstand
- **Omron G5V-2** series



Technical specification	
Dimensions	20.5 x 10 x 11.5mm
Contact rating	2A
Contact arrangement	Double pole changeover
Contact material	Silver, gold-clad
Operate/release time	7ms/3ms
Resistance	12V DC 288Ω 24V DC 1152Ω 48V DC 4000Ω
Coil consumption	500mW
Temperature range	-25°C to +70°C
Approvals	<b>UL, CSA</b>

Type	Order code	1+	25+	100+	250+
12V DC	<b>60-4446</b>	1.58	1.50	1.35	1.26
24V DC	<b>60-4448</b>	1.58	1.50	1.35	1.26
48V DC	<b>60-4449</b>	1.52	1.44	1.30	1.21

**IMO**

**2A DPCO Subminiature signal relays EM2**

A range of DPCO signal relays in a DIL package that features a high switching capacity.

- **DIL** package
- High switching capacity
- Fully sealed for immersion cleaning
- **UL/cUL** approved



Technical specification	
Switching current max.	2A
Switching voltage max.	120V DC/240V AC
Switching power max.	125W/60W
Contact rating (res. load)	2A 30V DC/1A 125V DC
Coil power	200mW
Contact resistance	50mΩ
Insulation resistance	1000MΩ @ 500V DC
Dielectric strength	1500V AC 1 min.
Operate time	6ms
Release time	4ms
Operating temperature	-40°C to +85°C
Mechanical life	1 x 10 <sup>8</sup> ops.
Electrical life	1 x 10 <sup>5</sup> ops. @ 2A 30V DC
Dimensions	20.2 x 11.5 x 10mm

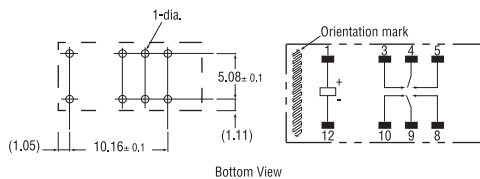
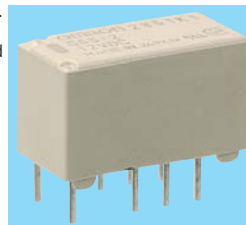
	60-1980	60-1982	60-1984
Coil voltage nom.	5V DC	12V DC	24V DC
Coil resistance	125Ω	720Ω	2880Ω
Pickup voltage	3.75V DC	9V DC	18V DC
Dropout voltage	0.5V DC	1.2V DC	2.4V DC
Allow voltage	10V DC	24V DC	48V DC

Type	Order code	1+	25+	50+	100+
5V DPCO Submin relay EM2S	<b>60-1980</b>	1.19	1.15	1.09	0.95
12V DPCO Submin relay EM2S	<b>60-1982</b>	1.19	1.15	1.09	0.95
24V DPCO Submin relay EM2S	<b>60-1984</b>	1.19	1.15	1.09	0.95

**OMRON**  
**Subminiature high sensitivity 12V relay DPDT 2A**

Subminiature, high sensitivity double pole 2A relay.

- Low power consumption
- High impulse withstand voltage between coil and contacts
- High dielectric strength of 2KV between coil and contacts
- Bifurcated crossbar contacts
- Fully sealed
- **Omron G6S-2** series



Technical specification	
Dimensions	14.8 x 7.3 x 9.2mm
Contact rating	2A
Contact arrangement	Double pole changeover
Contact material	Silver, gold-clad
Operate/release time	4ms/4ms
Resistance	1028Ω
Coil consumption	140mW
Temperature range	-40°C to +85°C
Approvals	<b>UL, CSA</b>

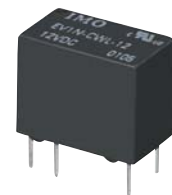
Type	Order code	1+	25+	100+	250+
12V DC	<b>60-4436</b>	2.86	2.60	2.29	2.03

**IMO**

**2A SPCO Subminiature signal relays**

These SPCO relays are fully sealed for immersion cleaning, are ultra small in size and have a high coil sensitivity.

- 1 Form C (SPCO) contacts
- Choice of Nominal coil voltages
- Fully sealed for immersion cleaning
- Ultra small size
- High coil sensitivity 150mW
- Sealed to **IP67**
- **UL/CUR** recognised



Technical specification	
Switching current max.	2A
Switching voltage max.	125V AC/60V DC
Switching power max.	62.5VA/30W
Permissible load min.	5V 1mA
Initial resistance	100mΩ @ 1A 6V DC
Insulation resistance	1000MΩ @ 500V DC
Dielectric strength (coil/contact)	1000V AC 1 min.
Dielectric strength (open contacts)	400V AC 1 min.

Operate time max.	5ms
Release time max.	5ms
Operating temperature	-30°C to +70°C
Mechanical life	1 x 10 <sup>7</sup> ops (300 ops/min)
Electrical life	1 x 10 <sup>5</sup> ops (300 ops/min)
Dimensions (body)	10 x 12.5 x 7.5mm
Weight	2.2g
Nominal voltage	<b>60-1936</b> 60-1934 5V DC 12V DC
Pickup voltage	4V DC 9.6V DC
Drop-out voltage	0.5V DC 1.2V DC
Coil current (@20°C)	29.9mA 12.5mA
Coil resistance (@20°C)	167Ω ±10% 960Ω ±10%

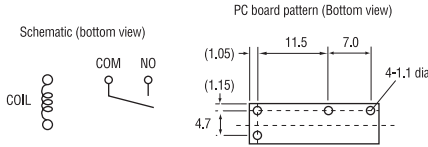
Type	Order code	1+	25+	50+	100+
5V DC SPCO signal relay	<b>60-1936</b>	1.19	1.15	1.09	0.95
12V DC SPCO signal relay	<b>60-1934</b>	1.19	1.15	1.09	0.95



**Slim PCB 3A power relay**

A slim and compact, PCB mounting, 3A switching relay requiring low operating power (200mW).

- Designed for small load switching of domestic appliances and similar applications
- The contacts are silver alloy and configured as normally open
- The relay offers high shock and insulation resistance
- Available in various coil voltages
- **UL and CSA** approved



Technical specification	
Dimensions	20.5 x 7.2 x 15.3mm
Nominal switching capacity	3A 125V/250V AC, 3A 30V DC
Max switching power	AC 831VA DC 90W
Operate/release time	10ms
Contact/coil surge voltage	10,000V
Expected life	>10 <sup>5</sup>
ALD105	5V 40Ω <b>60-5042</b>
ALD112	12V 720Ω <b>60-5044</b>
ALD124	24V 2880Ω <b>60-5046</b>

Coil	Order code	1+	25+	50+	100+
5V DC	<b>60-5042</b>	1.56	1.35	1.20	1.09
12V DC	<b>60-5044</b>	1.56	1.35	1.20	1.09
24V DC	<b>60-5046</b>	1.72	1.53	1.33	1.20



**Miniature PCB relay DPDT 3A**

Low-cost direct PCB mounting relays.

- Power consumption approximately 510mW
- Fully sealed design
- Rated 110V AC or 24V DC
- Resistive load of 3A
- Available with a coil voltage of 5, 6, 12 and 24V DC
- Breaks up to 5A loads
- High reliability
- Low coil power consumption



Technical specification	
Rated voltage	110V AC/24V DC
Maximum switching capacity	120W
Dimensions (L x H x W)	21.5 x 17.3 x 17.0mm

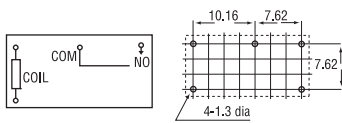
Type	Order code	1+	25+	100+	500+
6V DC	<b>60-0421</b>	0.85	0.6448	0.5845	0.5065
24V DC	<b>60-0423</b>	0.3656			



**Power relay SPST 5A**

A high capacity miniature relay with high electrical noise immunity, high sensitivity (200mW) and high surge voltage (8000V) between coil and contacts.

- **UL, CSA, SEMKO, TUV and VDE** approved
- **Matsushita JQ1AP** series



Bottom View

Technical specification	
Dimensions	20 x 10 x 15.6mm
Contact rating	5A 277V AC/10A 125V AC
Max switching capacity	2500 VA
Contact arrangement	Single pole, single throw
Contact material	Silver alloy
Coil sensitivity	200mW
Operate/release time	6ms/4ms max.
Pick-up/drop-out voltage	80%/5%
Operating life	- Mechanical: 1 x 10 <sup>7</sup> operations min. - Electrical: 5 x 10 <sup>4</sup> operations min.

Coil	Resistance	Order code	1+	25+	50+	100+
12V DC	720Ω	<b>60-4235</b>	2.41	2.18	1.89	1.61



**Sugar cube-sized PCB relay SPST 5A**

Single pole relay for direct mounting to printed circuit boards.

- Very low power consumption typically 360mW
- 24V DC or 110V AC
- Flux tight construction
- Small size, less than 0.53 cubic inches
- Capable of switching 5A loads
- Low profile
- Low coil power consumption
- All sealed and resistant to wave soldering and cleaning
- **Kam Ling KL2P** series



Technical specification	
Dimensions	16.2 x 21.3 x 22.7
Contact rating	5A at 24V DC or 240V AC (AgCdO)
Contact arrangement	SPST
Coil voltages	3V, 6V, 12V, 24V available
Pickup voltage	80% of rated voltage
Contact resistance	100mΩ Max.
Operate time	15ms max. (at rated voltage)
Release time	10ms max.
Insulation resistance	100Ω min.
Dielectric strength	750 V AC (1 Min.)
Ambient temperature	Operating: -10°C to +50°C
Humidity	45% to 85% RH
Operating life	Mechanical: 1x 10 <sup>7</sup> Operations min. Electrical: 1x 10 <sup>5</sup> Operations min. (at contact ratings)

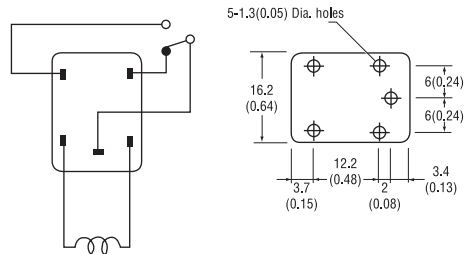
Coil	Resistance	Order code	1+	25+	100+	500+
3V DC	25Ω	<b>60-0362</b>	0.70	0.5096	0.4545	0.416
6V DC	95Ω	<b>60-0364</b>	0.67	0.49	0.437	0.40
24VDC	1500Ω	<b>60-0368</b>	0.34			



**Miniature relay SPDT 5A**

Single pole relay for direct mounting to printed circuit boards.

- Very low power consumption typically 360mW
- Flux tight construction
- Equivalent to Fujitsu FBR111 and Omron LC1N
- **Kam Ling KU1T-F** series



Technical specification	
Dimensions	21.3 x 16.2 x 18.5mm
Contact rating	5A at 24V DC or 110V AC (80W)
Contact arrangement	Single pole change-over
Coil voltages	3V, 6V, 12V, 24V DC
Pickup voltage	80% of rated voltage
Operating life	Mechanical: 1 x 10 <sup>7</sup> operations min. Electrical: 1 x 10 <sup>5</sup> operations min.

Coil	Resistance	Order code	1+	25+	100+	500+
3V DC	25Ω	<b>60-0352</b>	0.98	0.7696	0.624	0.546
24V DC	1440Ω	<b>60-0354</b>	0.98	0.7696	0.624	0.546



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**IMO**

**NEW**

**5A Subminiature intermediate power SPCO relays SRB**

These subminiature relays are intermediate power handling devices that feature a **IP67** sealed construction and **UL/TUV** approval.

- SPCO Configuration
- Subminiature package for PCB layout
- Sealed construction to **IP67**
- **UL** and **TUV** approved



Technical specification

Switching current max.	5A
Switching voltage max.	30V DC/250V AC
Switching power max.	1250VA/150W
Contact rating	5A 250V AC/30V DC (NO) 3A 250V AC/30V DC (NC)
Contact resistance	100mΩ
Insulation resistance	1000MΩ @ 500V DC
Dielectric strength	2000V AC 1 min.
Operate time	10ms
Release time	5ms
Operating temperature	-40°C to +85°C
Mechanical life	1 x 10 <sup>7</sup> ops.
Electrical life	1 x 10 <sup>5</sup> ops.
Dimensions	20.5 x 20.5 x 10.5mm
Coil power	0.36W

Coil voltage nom.	12V	24V DC
Coil resistance	400Ω	1600Ω
Pickup voltage	8.4V DC	16.8V DC
Dropout voltage	0.6V DC	1.2V DC
Allowable voltage	15.6V DC	31.2V DC

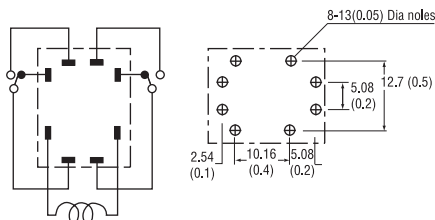
Type	Order code	1+	25+	50+	100+
12V Int. power SPCO relay	<b>60-2030</b>	1.30	1.235	1.17	1.04
24V Int. power SPCO relay	<b>60-2032</b>	1.30	1.235	1.17	1.04

**KAM LING**

**Miniature relay DPDT 5A**

Double pole changeover relay in a low profile package for mounting to printed circuit boards.

- Low power consumption typically 510mW
- Flux tight construction
- **Kam Ling KL2P** series



Technical specification

Dimensions	21.5 x 17 x 16.2mm
Contact rating	5A at 24V DC or 110V AC (120W) (AgCdO)
Contact arrangement	Double pole changeover
Coil voltages	5V, 6V, 12V, 24V DC
Pickup voltage	75% of rated voltage
Operating life	Mechanical: 1 x 10 <sup>7</sup> operations

Type	Order code	1+	25+	100+	500+	
6V DC	70Ω	<b>60-0400</b>	1.28	1.04	0.8965	0.806
24V DC	1030Ω	<b>60-0402</b>	1.28	1.04	0.8965	0.806

**RVFM**

**Miniature 5A DPDT relay**

A low cost double pole changeover relay in a low profile package, for mounting on printed circuit boards.

- Low power consumption typically 500mW
- Washable construction



Technical specification

Dimensions	21.6 x 16.0 x 16.5mm
Contact rating	5A at 28V DC or 110V AC
Contact material	Silver alloy
Contact arrangement	Double pole changeover
Coil voltages	6V and 12V DC
Pickup voltage	80% of rated voltage
Operating life	Mechanical: 10 x 10 <sup>6</sup> operations Electrical: 10 x 10 <sup>4</sup> operations

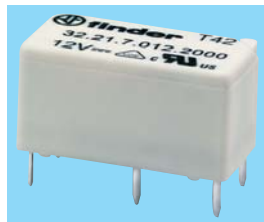
Coil	Resistance	Order code	1+	25+	100+	500+
6V DC	80Ω	<b>60-0405</b>	1.28	1.04	0.8965	0.806
12V DC	320Ω	<b>60-0415</b>	1.02	0.832	0.7176	0.6448

**finder**

**DC miniature SPDT 6A relay**

A range of slim solid state 6A single pole relays.

- PCB mounting
- 1 CO (SPDT), 6A
- 240V AC switching capacity
- Ideal for industrial and commercial applications
- High capacity
- Low power consumption
- Ambient temperature -40°C to +85°C
- 5kV (1.2/50μs) insulation between coil and contacts
- **Finder 32.21** series



Technical specification

Dimensions	20.3mm (L) x 10.2mm (W) x 10.7mm (H)
Contact arrangement	1 CO (SPDT)
Contact rating	6A at 240V AC
Contact arrangement	Single pole
Contact material	Standard AgCdO (Silver Cadmium Oxide)
Mechanical life	>10 x 10 <sup>2</sup> cycles
Operate/release time	6ms
Finder part Nois.	<b>32.21.7.005.2000</b> 60-4086 <b>32.21.7.012.2000</b> 60-4087 <b>32.21.7.024.2000</b> 60-4088 <b>32.21.7.048.2000</b> 60-4089

Type	Order code	1+	25+	100+	250+
5V DC	<b>60-4086</b>	1.82	1.53	1.38	1.28
12V DC	<b>60-4087</b>	1.82	1.53	1.38	1.28
24V DC	<b>60-4088</b>	1.82	1.53	1.38	1.28
48V DC	<b>60-4089</b>	1.92	1.62	1.48	1.35

**finder**

**DC miniature SPST 6A relay**

A range of slim solid state 6A single pole relays.

- PCB mounting
- 1 NO (SPST), 6A
- 240V AC switching capacity
- Ideal for industrial and commercial applications
- High capacity
- Low power consumption
- Dielectric strength between contacts of 1kV
- 5kV (1.2/50μs) insulation between coil and contacts
- Ambient temperature -40°C to +85°C
- **Finder 32.21** series



Technical specification

Dimensions	20.3mm (L) x 10.2mm (W) x 10.7mm (H)
Contact arrangement	1 NO (SPST)
Contact rating	6A at 240V AC
Contact arrangement	Single pole
Contact material	Standard AgCdO (Silver Cadmium Oxide)
Mechanical life	>10 x 10 <sup>2</sup> cycles
Operate/release time	6ms
Finder part Nois.	<b>32.21.7.005.2300</b> 60-4090 <b>32.21.7.012.2300</b> 60-4091 <b>32.21.7.024.2300</b> 60-4092 <b>32.21.7.048.2300</b> 60-4093

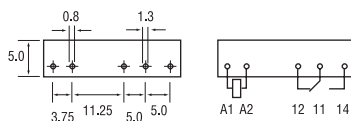
Type	Order code	1+	25+	100+	250+
5V DC	<b>60-4090</b>	1.92	1.62	1.48	1.35
12V DC	<b>60-4091</b>	1.82	1.53	1.38	1.28
24V DC	<b>60-4092</b>	1.82	1.53	1.38	1.28
48V DC	<b>60-4093</b>	1.92	1.62	1.48	1.35

**finder**

**Ultra-slim relay SPDT 6A**

A range of compact, slim single pole changeover relays.

- Housed in a SIL package
- Ideally suited to high density PCB mounting
- Contacts are rated at 6A with 6kV isolation between coil and contacts
- Sealed to **IP50**, 8mm creepage and 6mm clearance
- **Finder 34.51** series



Technical specification

Dimensions	28 x 5 x 15mm
Contact rating	6A 250V DC
Contact arrangement	single pole changeover
Contact material	silver nickel
Operate/release time	5ms/3ms
Coil consumption	500mW

Resistance	5V 12V 24V	130Ω 840Ω 3350Ω
Temperature range	-40°C to +85°C	
Approvals	VDE, UL	
Finder part nos.	5V Flat version 12V Flat version 24V Flat version	34.51.7.005.0010 34.51.7.012.0010 34.51.7.024.0010

Type	Order code	1+	25+	100+	250+
5V DC	<b>60-4164</b>	2.60	2.44	2.13	1.92
5V DC Flat version	<b>60-4081</b>	2.76	2.60	2.24	1.98
12V	<b>60-4166</b>	2.60	2.44	2.13	1.92
24V DC	<b>60-4168</b>	2.60	2.44	2.13	1.92
24V DC Flat version	<b>60-4083</b>	2.76	2.60	2.24	1.98
PCB Socket	<b>60-4176</b>	0.93	0.8528	0.7176	0.6448



**6A Subminiature power relay ETS**

These subminiature power relays come in a slim, sealed package that features high breakdown and high surge voltages.

- Slim size - width 5mm
- SPCO 1 Form C contact arrangement
- High breakdown voltage
- High surge voltage
- High sensitivity 170mW
- Clearance/creepage distance 8mm
- **UL** and **CUR** approval



Technical specification

**Contact data**

Contact rating	6A 250V AC/30V DC
Switching current max.	6A
Switching voltage max.	400V DC/125V AC
Switching power max.	1500VA/180W
Contact resistance	100mΩ

**Characteristics**

Insulation resistance	1000MΩ @ 500V DC
Dielectric strength	4000V AC 1 min.
Operate time	8ms
Release time	4ms
Operating temperature	-40°C to +85°C
Mechanical life	1 x 10 <sup>7</sup> ops.
Electrical life max.	1 x 10 <sup>4</sup> ops.
Dimensions	28 x 15 x 5mm

**Coil data**

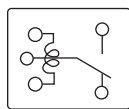
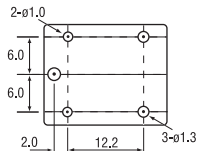
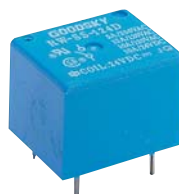
Order code	60-2068	60-2070	60-2072	60-2074
Coil voltage nom.	12V DC	24V DC	48V DC	60V DC
Coil resistance	848Ω	3390Ω	10,600Ω	16,600Ω
Pick-up voltage	9V DC	18V DC	36V DC	45V DC
Drop-out voltage	0.6V DC	1.2V DC	2.4V DC	3V DC
Allowable voltage max.	18V DC	36V DC	72V DC	90V DC

Type	Order code	1+	25+	50+	100+
12V Submin. power relay	<b>60-2068</b>	1.64	1.558	1.476	1.312
24V Submin. power relay	<b>60-2070</b>	1.64	1.558	1.476	1.312
48V Submin. power relay	<b>60-2072</b>	2.15	2.0425	1.935	1.72
60V Submin. power relay	<b>60-2074</b>	3.05	2.8975	2.745	2.44

**GS Miniature PCB power relay 12A SPCO**

Power relay with a very low power consumption, 360mW coil for PCB mounting.

- Offered in two switching capacities with either 6A or 12A contacts
- Sealed construction suitable for flow soldering
- **UL** and **CSA** approved (12A type is also **C-UL** and **TUV** approved)



BOTTOM VIEW

BOTTOM VIEW

Technical specification

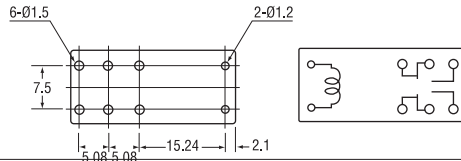
Dimensions	19 x 15.4 x 15.5mm
Contact rating:	RW series 6A 230V AC, 10A 24V DC RWH series 12A 230V AC, 15A 24V DC
Contact arrangement:	Single pole change over
Contact material:	Ag Alloy RW series AgSnO <sub>2</sub> RWH series AgSnO <sub>2</sub>
Operate/release time	10ms/5ms max.
Pull in voltage:	75% coil voltage max.
Drop out voltage:	5% min.
Life expectancy:	Mechanical 10 <sup>7</sup> operations Electrical 10 <sup>6</sup> operations

Coil	Resistance	Order code	1+	25+	100+	250+
<b>RW Series 6A contacts</b>						
6V DC	100Ω	<b>60-4660</b>	0.61	0.572	0.5325	0.468
12V DC	400Ω	<b>60-4662</b>	0.49	0.4576	0.4264	0.3744
24V DC	1600Ω	<b>60-4664</b>	0.61	0.572	0.5325	0.468
Type		Order code	1+	25+	39+	100+
<b>RWH Series 12A contacts</b>						
6V DC	100Ω	<b>60-4666</b>	0.67	0.5585	0.6032	0.4805
Type		Order code	1+	25+	100+	250+
12V DC	400Ω	<b>60-4668</b>	0.53	0.4784	0.4472	0.4056
24V DC	1600Ω	<b>60-4670</b>	0.53	0.4784	0.4472	0.4056

**GS Miniature relay DPCO 5A**

Vertical PCB or socket mounting general purpose DC relays.

- DPCO contacts rated 5A 250V AC
- 5kV insulation
- 8mm creepage and clearance
- Industry standard 5.08mm pitch pinning
- Silver cadmium contacts
- **UL, CSA** and **VDE** approved



Technical specification

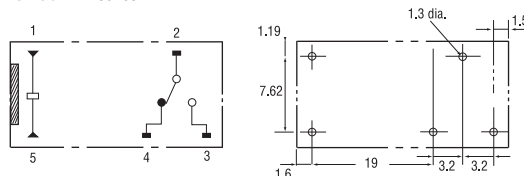
Dimensions	29.1 x 12.8 x 20.6mm
Contact rating	5A @ 250V DC
Contact arrangement	Double pole changeover
Contact material	AgCdO
Operate/release time	15ms/8ms
Coil consumption	540mW
Temperature range	-30°C to +55°C
GS part nos.	M1-SS-212L M1-SS-224L
	60-4610 60-4612

Type	Order code	1+	50+	250+	1000+
12V	270Ω	<b>60-4610</b>	1.51	1.25	1.09
24V	110Ω	<b>60-4612</b>	1.51	1.25	1.09

**OMRON Miniature relay SPDT 8A**

Miniature 8A SPDT PCB mounting power relays.

- Environmentally-friendly cadmium-free contacts
- 4kV dielectric strength
- 8mm creepage and clearance
- Fully sealed package
- Low power consumption 220mW
- **Omron G6RN-1** series



Bottom View

Technical specification

Dimensions	28.5 x 15 x 10mm
Contact rating	8A
Contact arrangement	Single pole changeover
Contact material	0.35μ gold plated silver nickel
Operate/release time	6ms/3ms
Resistance	12V DC 655Ω 24V DC 2620Ω
Coil consumption	220mW
Temperature range	-40°C to +85°C
Approvals	<b>UL, CSA, VDE</b>

Type	Order code	1+	25+	100+	250+
12V DC	<b>60-4134</b>	2.66	2.40	2.26	2.18
24V DC	<b>60-4136</b>	2.66	2.40	2.26	2.18



**Main global distributor of TruConnect high quality connectors and cables**

The TruConnect brand offers high quality cable and connector solutions at significantly cheaper prices than more well known brands. A range of over 1200 lines include terminal blocks, leads, sockets, plugs, jacks, adaptors and cables for industrial, home, audio, video and networking applications.

What is the difference between TruConnect and big name brands?

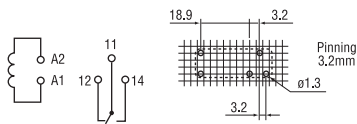
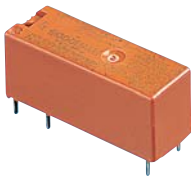
**The only difference is the price.**

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**Schrack**  
**Low profile SPC0 8A**

A miniature low profile relay; height of just 12.3mm, with a continuous current rating of 8A/250V AC.

- Protection class II to **DIN0106** between coil and contacts (includes 4kV/8mm requirements to **IEC65, VDE0631, VDE00700**)
- Sensitive coil rated at 220mW nominal
- Sealed to **IP67**
- **Schrack RY2** series



**Technical specification**  
 Dimensions 28.5 x 10.1 x 12mm  
 Contact rating 8A @ 250V AC/30VDC  
 Contact arrangement SPC0  
 Contact material Silver cadmium oxide  
 Operate/release time 7ms/2ms  
 Temperature range -40°C to +0°C (85°C @ 6A)  
 Schrack part Nos. **RY610012** **60-4130**  
**RY610024** **60-4132**

Type		Order code	1+	10+	25+	100+
12V DC	620Ω	<b>60-4130</b>	2.13			
24V DC	2350Ω	<b>60-4132</b>	2.55	2.41	2.34	2.13

**Tyco**  
**Power PCB relays**

A range of PCB mounting power relays that are ideally suited to a wide range of applications such as: domestic appliances, heating control, emergency lighting, modems, timer, POS automation, and interface modules

- Immersion cleanable, sealed package
- Available in various voltages
- Choice of 2 CO or 1 CO contact configurations
- 3.5mm or 5mm pinning
- Complementary DIN rail sockets, plastic retaining clip and marking tag also available



Order code	Contact configuration	Coil voltage	Rated current	Pinning	Mfrs. pt. no.
<b>60-1250</b>	2 CO	12V DC	8A	5mm	<b>RTE24012</b>
<b>60-1251</b>	2 CO	24V DC	8A	5mm	<b>RTE24024</b>
<b>60-1252</b>	2 CO	24V AC	8A	5mm	<b>RTE24524</b>
<b>60-1253</b>	2 CO	115V AC	8A	5mm	<b>RTE24615</b>
<b>60-1254</b>	2 CO	230V AC	8A	5mm	<b>RTE24730</b>
<b>60-1240</b>	1 CO	12V DC	12A	3.5mm	<b>RTB14012</b>
<b>60-1241</b>	1 CO	24V DC	12A	3.5mm	<b>RTB14024</b>
<b>60-1242</b>	1 CO	24V AC	12A	3.5mm	<b>RTB14524</b>
<b>60-1244</b>	1 CO	230V AC	12A	3.5mm	<b>RTB14730</b>
<b>60-1246</b>	1 CO	24V DC	12A	5mm	<b>RTD14024</b>
<b>60-1247</b>	1 CO	24V AC	12A	5mm	<b>RTD14524</b>
<b>60-1248</b>	1 CO	115V AC	12A	5mm	<b>RTD14615</b>
<b>60-1249</b>	1 CO	230V AC	12A	5mm	<b>RTD14730</b>

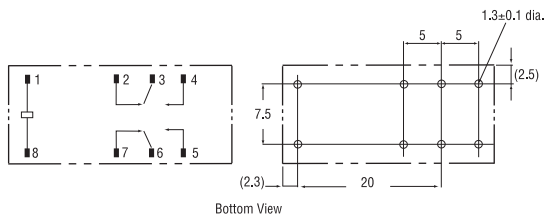
Rated voltage 250V AC  
 Switching voltage max. 400V AC  
 Operate time 7ms  
 Release time max. 3ms  
 Mechanical life DC coil 30 x 10<sup>6</sup> cycles  
 Temperature range 40°C to +70°C  
 Height (body) 15.7mm  
 Width 29mm  
 Depth 12.7mm  
 Weight max. 14g

Type	Voltage	Order code	1+	25+	100+	250+
<b>8A 5mm</b>						
Relay 2CO	12V DC	<b>60-1250</b>	2.45	2.25	1.95	1.75
Relay 2CO	24V DC	<b>60-1251</b>	2.45	2.25	1.95	1.75
Relay 2CO	24V AC	<b>60-1252</b>	3.02	2.86	2.60	2.44
Relay 2CO	115V AC	<b>60-1253</b>	3.02	2.86	2.60	2.44
Relay 2CO	230V AC	<b>60-1254</b>	3.02	2.86	2.60	2.44
<b>12A 3.5mm</b>						
Relay 1CO	12V DC	<b>60-1240</b>	2.24	2.13	2.03	1.72
Relay 1CO	24V DC	<b>60-1241</b>	2.24	2.13	2.03	1.72
Relay 1CO	24V AC	<b>60-1242</b>	2.24	2.13	2.03	1.72
Relay 1CO	230V AC	<b>60-1244</b>	2.45	2.25	1.95	1.75
<b>12A 5mm</b>						
Relay 1CO	24V DC	<b>60-1246</b>	1.92	1.82	1.72	1.56
Relay 1CO	24V AC	<b>60-1247</b>	2.55	2.44	2.34	2.18
Relay 1CO	115V AC	<b>60-1248</b>	4.42	4.21	4.00	3.90
Relay 1CO	230V AC	<b>60-1249</b>	4.94	4.63	4.42	4.11
<b>Misc</b>						
DIN rail socket 3.5mm		<b>60-1238</b>	3.07	2.86	2.55	2.34
DIN rail socket 5mm		<b>60-1239</b>	3.07	2.86	2.55	2.34
Plastic retaining clip		<b>60-1236</b>	0.20	0.1768	0.1456	0.1248
Marking tag		<b>60-1237</b>	0.16	0.1248	0.104	0.0832

**OMRON**  
**Miniature power relay DPDT 8A**

Low profile 8A DPDT lead and cadmium-free PCB mounting power relays.

- Maximum height 15.7mm
- Lead-free with cadmium-free contacts
- Creepage and clearance 10mm
- High sensitivity 400mW
- **Omron G2RL-2** series



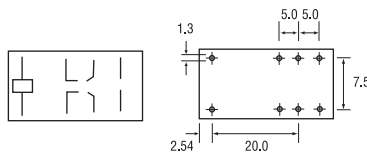
**Technical specification**  
 Dimensions 28.8 x 15.5 x 12.5mm  
 Contact rating 8A  
 Contact arrangement Double pole changeover  
 Contact material silver-nickel  
 Operate/release time 7ms/2ms  
 Resistance 12V DC 360Ω  
 24 DC 1440Ω  
 Coil consumption 400mW  
 Temperature range -40°C to +85°C  
 Approvals **UL, CSA, VDE**

Type	Order code	1+	25+	100+	250+
12V DC	<b>60-1090</b>	2.71	2.44	2.32	2.19
24V DC	<b>60-1092</b>	2.71	2.44	2.32	2.19

**finder**  
**Low profile relay DPDT 8A**

Low profile PCB mounting relays with double-pole changeover contacts rated at 8A at 250V AC.

- Height just 15.7mm
- 6kV isolation between coil and contacts
- Sealed to IP50
- 5mm industry standard footprint
- **UL, VDE** and **CSA** approved



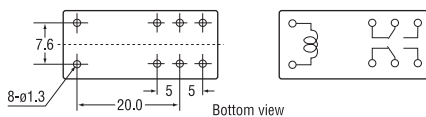
**Technical specification**  
 Dimensions 29 x 12.7 15.7mm  
 Contact rating 8A at 250V AC  
 Contact arrangement Double pole changeover  
 Contact material AgNi  
 Operate/release time 7ms/8ms  
 Coil consumption 400mW  
 Resistance 12V 360Ω  
 24V 1440Ω  
 48V 5520Ω  
 Temperature range -40°C to +85°C  
 Finder part Nos. 12V **4152.9012.0010**  
 24V **4152.9024.0010**  
 48V **4152.9048.0010**

Type	Order code	1+	25+	100+	250+
12V DC	<b>60-4850</b>	2.24	2.03	1.77	1.61
24V DC	<b>60-4852</b>	2.24	2.03	1.77	1.61
48VDC	<b>60-4854</b>	2.96	2.81	2.70	2.55

**GS**  
**Miniature low profile relay DPDT 8A**

PCB mounting relays with a low 15.0mm height.

- Industry standard 5mm pinning
- Silver alloy contacts
- Rated 8A
- 5kV coil-contact insulation
- Very low power consumption



**Downloadable datasheets**  
[www.rapidonline.com](http://www.rapidonline.com)

Technical specification  
 Dimensions 29 x 12.6 x 15.6mm  
 Contact rating 8A 250V AC/30V DC  
 Contact arrangement DPDT  
 Contact material Ag Alloy  
 Operate/release time 12ms/8ms  
 Coil consumption 400mW (DC) 1.65W (AC)  
 Temperature range -40°C to +85°C  
 GS part Nos. **EMI-SS-212D** 60-4640  
**EMI-SS-224D** 60-4642  
**EMI-SS-2230A** 60-4644

Coil	Resistance	Order code	1+	25+	100+	500+
12V DC	360Ω	<b>60-4640</b>	1.03	0.884	0.78	0.728
24V DC	1440Ω	<b>60-4642</b>	1.03	0.884	0.78	0.728
230VAC	3250Ω	<b>60-4644</b>	1.92	1.61	1.51	1.40



**Power relay PCB mount DPDT**

A range of PCB mounting DPDT relays.

- 2 CO (DPDT-CO)
- Suitable for heavy duty load switching
- Dielectric strength between contacts of 1.5kV
- Double insulation between coil and contacts
- Safe high capacity switching
- AC or DC version available
- 6kV (1.2/50µs) insulation between coil and contacts
- Ambient temperature -40°C to +70°C
- **Finder 66.22** series



Technical specification  
 Dimensions L x W x H 51.5 x 33.5 x 31mm  
 Contact arrangement 2 CO (DPDT-CO)  
 Contact rating NO contacts 30A at 250V AC  
 NC contacts 10A at 250V AC  
 Contact arrangement 2-pole  
 Contact material Standard AgCdO (Silver Cadmium Oxide)  
 Mechanical life >10 x 10<sup>2</sup> cycles  
 Operate/release time 8/15ms  
 Finder part No./s. **66.22.9.012.0000** 60-4380  
**66.22.8.024.0000** 60-4382

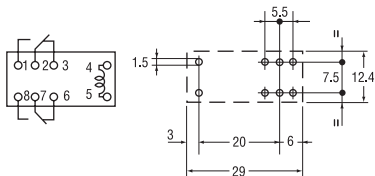
Type	Order code	1+	10+	50+	100+
12V DC	<b>60-4380</b>	6.71	6.19	5.67	5.46
24V AC	<b>60-4382</b>	6.71	6.19	5.67	5.46



**Miniature relay DPCO 8A**

A range of industry standard vertical PCB or socket mounted relays.

- The **Finder 40.52** series incorporate 8mm isolation gap between coil and contacts as required by **VDE0700**
- Housed in a dustproof **IP40** tinted case (AC versions have an orange tint)
- Widely approved including **VDE, BEAB, UL, CSA, SEV, NF-USE, SETI, IMQ, SEMKO** and **DEMKO**
- **Finder 40.52** series



Technical specification  
 Dimensions 29 x 12.4 x 25mm  
 Contact rating 8A at 240V AC/30V DC  
 Contact arrangement Double pole changeover  
 Contact material Silver nickel  
 Operate/release time 10ms/7ms  
 Coil operating range 70-150%  
 Coil consumption 500mW  
 Temperature range -20°C to +70°C  
 Finder part nos. **4052-9006** 60-1110 **4052-802** 60-1170  
**4052-7012** 60-1115 **4052-8110** 60-1175  
**4052-7024** 60-1140 **4052-8240** 60-1180  
**4052-9048** 60-1145

Coil	Resistance	Order code	1+	25+	100+	250+
6V DC	55Ω	<b>60-1110</b>	2.08	1.98	1.82	1.72
12V DC	300Ω	<b>60-1115</b>	1.77	1.56	1.46	1.40
24V DC	1200Ω	<b>60-1140</b>	1.77	1.56	1.46	1.40
48V DC	3500Ω	<b>60-1145</b>	2.29	1.98	1.77	1.56
24V DC	320Ω	<b>60-1170</b>	2.39	2.24	2.03	1.87
110V DC	6900Ω	<b>60-1175</b>	2.40	2.10	1.80	1.65
240V AC	31500Ω	<b>60-1180</b>	3.85	3.43	2.91	2.60

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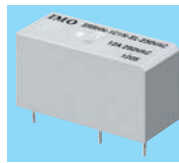
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**8A/12A/16A Miniature high power relays SRRHN**

These miniature, high power relays feature a low height, sealed construction.

- Available in SPCO or DPCO configurations
- Low height 15.7mm
- 5kV Dielectric coil to contacts
- Creepage distance 10mm
- Sealed to **IP67**
- **UL** and **VDE** approved



Technical specification  
 Contact form SPCO DPCO  
 Switching current max. 12A/16A 8A  
 Switching voltage max. 125V DC/440V AC 125V DC/440V AC  
 Switching power max. 3000VA/4000VA 2000VA  
 Contact rating 12A/16A 250V AC/24V DC 8A 250V AC/24V DC

Contact resistance 50mΩ  
 Insulation resistance 1000MΩ @ 500V DC  
 Dielectric strength 5000V AC 1 min.  
 Surge voltage 10,000V 1.2x 50µs  
 Operate time 15ms  
 Release time 8ms  
 Operating temperature -40°C to +85°C  
 Mechanical life 1 x 10<sup>4</sup> ops.  
 Electrical life 1 x 10<sup>5</sup> ops.  
 Dimensions 29 x 15.7 x 12.7mm  
 Coil power 0.4W

Coil voltage	Coil resistance	Pickup voltage	Dropout voltage	Max. allowable voltage
5V DC	62Ω	3.5V DC	0.5V DC	7.5V DC
12V DC	360Ω	8.4V DC	1.2V DC	18V DC
24V DC	1440Ω	16.8V DC	2.4V DC	36V DC
110-115V AC	8100Ω	86.3V DC	17.3V DC	-

Coil voltage	Type	Order code	1+	25+	50+	100+
5V DC	SPCO	<b>60-2014</b>	1.95	1.85	1.70	1.40
12V DC	SPCO	<b>60-2016</b>	1.95	1.85	1.70	1.40
24V DC	SPCO	<b>60-2018</b>	1.95	1.85	1.70	1.40
110-115V AC	SPCO	<b>60-2026</b>	2.88	2.736	2.592	2.304
5V DC	DPCO	<b>60-2020</b>	2.15	1.99	1.85	1.55
12V DC	DPCO	<b>60-2022</b>	2.15	1.99	1.85	1.55
24V DC	DPCO	<b>60-2024</b>	2.15	1.99	1.85	1.55
110-115V AC	DPCO	<b>60-2028</b>	2.88	2.736	2.592	2.304



**50.12 DPDT 8A Safety relay**

A 2-pole, 8A PCB mounting relay that features forcibly guided contacts that comply with **EN50205 type B**.

- 2 CO (DPDT) contacts
- High physical separation between adjacent contacts
- Pinning 5mm
- Coil contacts 8mm with 6kV isolation
- Nickel silver contacts for long operational life
- **Finder 50** series safety relay



Technical specification  
**Contact specification**  
 Rated current 8A  
 Peak current 15A  
 Rated voltage 250V AC  
 Switching voltage max. 400V AC  
 Rated load AC1 2000VA  
**Coil specification**  
 Nominal voltage 5V DC  
 Rated power 0.7W  
**Technical data**  
 Mechanical life 10 x 10<sup>6</sup> operations  
 Electrical life @AC1 100 x 10<sup>3</sup> operations  
 Operate/release time 10ms/4ms  
 Coil/contact isolation 6kV  
 Dielectric strength 1500V AC  
 Temperature range -40°C to +70°C

Type	Voltage	Order code	1+	10+	25+	100+
8A Safety relay	5V	<b>60-4623</b>	5.10	4.42	4.06	3.80



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### Low profile PCB SPDT 10A relay

The Finder 43.41 series is an industry standard range of low profile 10A single pole relays with a rated voltage of 240V.

- 1 CO (SPDT), 10A
- 3.2mm pinning
- Very low coil consumption of 250mW
- 10mm, 6KV (1.2/50µs) between coil and contacts
- Ambient temperature -40°C to +85°C



Technical specification	
Dimensions:	30.2mm (L) x 10.2mm (W) x 15.4mm (H)
Contact rating:	10/15A at 240V AC
Contact arrangement:	Single pole changeover
Contact material:	Standard AgCdO (Silver Cadmium Oxide)
Mechanical life:	>10 x 10 <sup>2</sup> cycles
Operate/release time:	6ms/4ms
Pinning:	3.2mm
Coil consumption:	400mW
Resistance:	6V 150Ω 12V 580Ω 24V 2200Ω 48V 9200Ω
Temperature range:	-40°C to +85°C

Type	Order code	1+	25+	100+	250+
6V DC	<b>60-4070</b>	1.87	1.66	1.51	1.40
12V DC	<b>60-4071</b>	1.87	1.66	1.51	1.40
24V DC	<b>60-4072</b>	1.87	1.66	1.51	1.40
48V DC	<b>60-4073</b>	2.29	1.98	1.77	1.61



### Low profile PCB SPST 10A relay

The Finder 43.41 series is an industry standard range of low profile 10A single pole relays with a contact rating of 240V.

- 1 NO (SPST-NO)
- 10A/ 240V
- 5mm pinning
- Very low coil consumption of 250mW
- 10mm, 6KV (1.2/50µs) between coil and contacts
- Ambient temperature -40°C to +85°C
- PCB mounting



Technical specification	
Dimensions:	30.2mm (L) x 10.2mm (W) x 15.4mm (H)
Contact Rating:	10/15A at 240V AC
Contact Arrangement:	Single pole
Contact Material:	Standard AgCdO (Silver-based composite Material)
Mechanical life:	>10 x 10 <sup>2</sup> cycles
Operate/release time:	6ms/2ms

Type	Order code	1+	25+	100+	250+
6V DC	<b>60-4074</b>	1.87	1.66	1.51	1.40
12V DC	<b>60-4075</b>	1.87	1.66	1.51	1.40
24V DC	<b>60-4076</b>	1.87	1.66	1.51	1.40



### 10A Subminiature intermediate power SPNO relays SRD

These subminiature relays feature intermediate power handling capability in a sealed PCB mountable package.

- 10A Switching capability
- SPNO Configuration
- Subminiature package for PCB layout
- Sealed construction
- UL and VDE approved



Technical specification	
Switching current max.	10A
Switching voltage max.	30V DC/250V AC
Switching power max.	1250VA/150W
Carrying current max.	2A
Contact rating	3A
Contact resistance	100mΩ
Insulation resistance	1000MΩ @ 500V DC
Dielectric strength	2500V AC 1 min.
Operate time	8ms
Release time	5ms
Operating temperature	-40°C to +70°C
Mechanical life	1 x 10 <sup>7</sup> ops.
Electrical life	1 x 10 <sup>6</sup> ops.
Dimensions	18.4 x 15.3 x 10.2mm

	60-1986	60-1988
Coil voltage nom.	12V DC	24V DC
Coil resistance	720Ω	2800Ω
Pickup voltage	9V DC	18V DC
Dropout voltage	0.6V DC	1.2V DC
Allowable voltage	18V DC	36V DC

Type	Order code	1+	25+	50+	100+
12V Int. power SPNO relay	<b>60-1986</b>	1.30	1.20	1.15	0.99
24V Int. power SPNO relay	<b>60-1988</b>	1.30	1.20	1.15	0.99



### Main global distributor of TruOhm resistors and potentiometers

TruOhm is a brand you can trust for quality, price and performance, delivering everything you require from a resistor source: massive product range, high operating temperatures, excellent pulse performance, solderability and RoHS compliancy, as well as industry standard resistance ranges, power ratings and tolerances.

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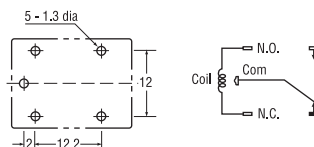
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### Ultra-miniature PCB power relay 10A

An ultra-miniature PCB mounting power relay. Ideal for applications such as air conditioners, heaters, office machinery, fax, vending machines and certain automotive uses e.g. power windows, antenna, central locking etc.

- The relays are of a sealed construction, with universal PCB footprint
- UL, CSA, TUV and VDE approvals
- Matsushita JS series



Technical specification	
Dimensions	22 x 16 x 16mm
Contact rating	10A, 125V AC
Contact arrangement	Single pole, change-over
Contact material	Silver alloy
Operate/release time	Approx. 10ms
Pick-up/drop-out voltage	70%/10% of nominal
Operating life	- mechanical 10 <sup>7</sup> - electrical 10 <sup>5</sup>

Coil	Resistance	Order code	1+	25+	50+	100+
5V DC	69.4Ω	<b>60-4275</b>	1.40	1.25	1.14	1.09
6V DC	100Ω	<b>60-4280</b>	1.40	1.25	1.14	1.09
12V DC	400Ω	<b>60-4285</b>	1.40	1.25	1.14	1.09
24V DC	1600Ω	<b>60-4290</b>	1.40	1.25	1.14	1.09

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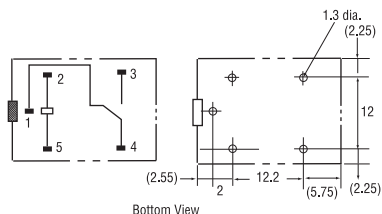
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# OMRON

## Subminiature power relay SPDT 10A

Subminiature, plastic sealed 10A SPDT PCB mounting power relays.

- Subminiature 'sugar cube' relay
- Fully sealed package
- High withstand impulse voltage 4kV
- High sensitivity 400mW
- Omron G5LE series



**Technical specification**

Dimensions	21.6 x 18.5 x 15.6mm
Contact rating	10A
Contact arrangement	Single pole changeover
Contact material	silver-tin-dioxide
Operate/release time	10ms/5ms
Resistance	12V DC 400Ω 24V DC 1600Ω
Coil consumption	400mW
Temperature range	-40°C to +85°C
Approvals	UL, CSA, TUV

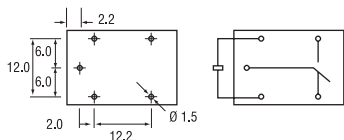
Type	Order code	1+	25+	100+	250+
12V DC	60-4196	1.75	1.59	1.49	1.38
24V DC	60-4198	1.75	1.59	1.49	1.38

# finder®

## Miniature relay SPCO 10A

A range of miniature single pole changeover relays rated at 10A.

- PCB mounting relays housed in a compact 'sugar cube' package
- Sealed to IP67
- 4kV insulation between coil and contacts



**Technical specification**

Dimensions	21.5 x 15.5 x 17mm
Contact rating	10A 250V DC
Contact arrangement	Single pole changeover
Contact material	Silver cadmium oxide
Operate/release time	10ms/5ms
Coil consumption	360mW
Resistance	5V 70Ω 12V 400Ω 24V 1600Ω
Temperature range	-40°C to +85°C
Approvals	VDE, UL
Finder part Nos.	5V 3611.9005.0000 12V 3611.9012.4001 24V 3611.9024.0000

Type	Order code	1+	25+	100+	250+
5V	60-4190	0.78	0.728	0.676	0.6136
12V	60-4192	0.78	0.728	0.676	0.6136
24V	60-4194	0.78	0.728	0.676	0.6136

# IMO

## 10A Subminiature high power SPCO relays

A range of sealed, SPCO relays that are suitable for high power applications.

- SPCO Configuration
- Subminiature package for PCB layout
- Sealed and flux-tight construction
- UL and TUV approved



**Technical specification**

Switching current max.	10A
Switching voltage max.	30V DC/277V AC
Switching power max.	2770VA/210W
Contact rating	7A 250V DC/10A 277V AC
Contact resistance	100mΩ
Insulation resistance	100MΩ @ 500V DC
Dielectric strength	1500V AC 1 min.
Operate time	10ms
Release time	5ms
Operating temperature	-40°C to +85°C

Mechanical life	1 x 10 <sup>7</sup> ops.
Electrical life	1 x 10 <sup>5</sup> ops.
Dimensions	19 x 15.5 x 15.5mm
Coil power	0.36W

	60-2008	60-2010	60-2012
Coil voltage nom.	5V	12V DC	24V DC
Coil resistance	70Ω	400Ω	1600Ω
Pickup voltage	3.8V DC	9V DC	18V DC
Dropout voltage	0.5V DC	1.2V DC	2.4V DC
Allowable voltage	6.5V DC	15.6V DC	31.2V DC

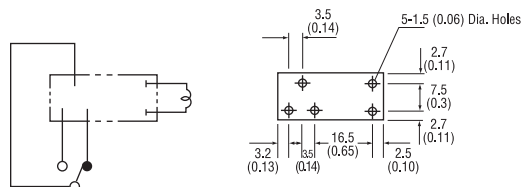
Type	Order code	1+	25+	50+	100+
5V High power SPCO relay	60-2008	0.99	0.90	0.80	0.65
12V High power SPCO relay	60-2010	0.99	0.90	0.80	0.65
24V High power SPCO relay	60-2012	0.99	0.90	0.80	0.65

# KAM LING

## Miniature relay SPCO 10A

Vertical style miniature power relay with one changeover contact for PCB mounting.

- Pin for pin compatible with similar European models
- Flux tight construction
- Conforms to VDE, SEV, UL and CSA
- Kam Ling KJ1P series



**Technical specification**

Dimensions	29.2 x 12.9 x 25mm
Contact rating	10A at 24V DC or 240V AC
Contact arrangement	Single pole changeover (AgCdO)
Coil voltages	5V, 6V, 12V, 24V DC
Pickup voltage	75% of rated voltage
Operating life	Mechanical: 5 x 10 <sup>6</sup> operations min.

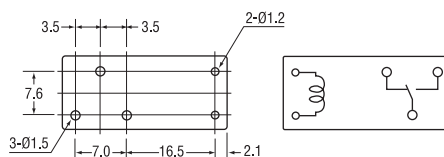
Coil	Resistance	Order code	1+	25+	100+	500+
5V DC	47Ω	60-0162	1.11	0.9776	0.8705	0.806

# GS

## Miniature relay SPDT 10A

Vertical PCB or socket mounting, general purpose DC relays with SPCO contacts, rated at 10A 250V AC with 5kV insulation and 8mm creepage and clearance.

- Industry standard 3.5mm pitch pinning and silver cadmium contacts
- UL, CSA and VDE approved



**Technical specification**

Dimensions	29.1 x 13 x 20.6mm
Contact rating	10A 250V AC
Contact arrangement	Single pole changeover
Contact material	Silver alloy
Operate/release time	20ms/8ms max.
Coil consumption	540mW
Temperature range	-30°C to +55°C
GS part Nos.	MI-SS-106L 60-4598 MI-SS-112L 60-4600 MI-SS-124L 60-4602

Type	Resistance	Order code	1+	25+	100+	500+
6V	68Ω	60-4598	1.11	0.9776	0.8445	0.7665
12V	270Ω	60-4600	0.88	0.78	0.6968	0.6448
24V	1100Ω	60-4602	0.88	0.78	0.6968	0.6448

## Scheduled orders

Rapid will store your order **FREE OF CHARGE** and then deliver the required amount along with an individual invoice on your specified dates.



Fax your scheduled order and required dates to:

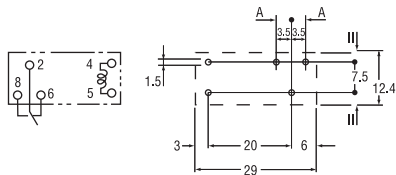
01206 751188



### Miniature relay SPDT 10A

A range of industry standard vertical PCB or socket mounted relays.

- Incorporate 8mm isolation gap between coil and contacts as required by **VDE0700**
- Housed in a dustproof **IP40** tinted case (AC versions have an orange tint)
- Widely approved including **VDE, BEAB, UL, CSA, SEV, NF-USE, SETI, IMQ, SEMKO** and **DEMKO**
- **Finder 40.31** series



Technical specification													
Dimensions	29 x 12.4 x 25mm												
Contact rating	10A at 240V AC												
Contact arrangement	Single pole changeover												
Contact material	Silver nickel												
Operate/release time	10ms/7ms												
Coil operating range	70-150%												
Coil consumption	500mW												
Temperature range	-20°C to +70°C												
Finder Part Nos.	<table border="0"> <tr> <td><b>4031-9006</b></td> <td><b>60-0900</b></td> <td><b>4031-7048</b></td> <td><b>60-0915</b></td> </tr> <tr> <td><b>4031-7012</b></td> <td><b>60-0905</b></td> <td><b>4031-8024</b></td> <td><b>60-0920</b></td> </tr> <tr> <td><b>4031-7024</b></td> <td><b>60-0910</b></td> <td><b>4031-8240</b></td> <td><b>60-0935</b></td> </tr> </table>	<b>4031-9006</b>	<b>60-0900</b>	<b>4031-7048</b>	<b>60-0915</b>	<b>4031-7012</b>	<b>60-0905</b>	<b>4031-8024</b>	<b>60-0920</b>	<b>4031-7024</b>	<b>60-0910</b>	<b>4031-8240</b>	<b>60-0935</b>
<b>4031-9006</b>	<b>60-0900</b>	<b>4031-7048</b>	<b>60-0915</b>										
<b>4031-7012</b>	<b>60-0905</b>	<b>4031-8024</b>	<b>60-0920</b>										
<b>4031-7024</b>	<b>60-0910</b>	<b>4031-8240</b>	<b>60-0935</b>										

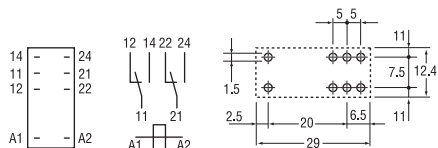
Coil	Resistance	Order code	1+	25+	100+	250+
6V DC	55Ω	<b>60-0900</b>	2.03	1.82	1.61	1.46
12V DC	300Ω	<b>60-0905</b>	1.77	1.46	1.30	1.14
24V DC	1200Ω	<b>60-0910</b>	1.77	1.46	1.30	1.14
48V DC	4800Ω	<b>60-0915</b>	2.29	1.98	1.77	1.56
24V DC	320Ω	<b>60-0920</b>	2.29	1.98	1.77	1.56
240V DC	31500Ω	<b>60-0935</b>	3.85	3.43	3.02	2.81



### Miniature relay DPDT 10A

A compact relay which has the switching capability of 10A 250V AC or 30V DC with double pole contacts.

- Design features include guided contacts, separate arcing chambers, low power consumption and 4kV-8mm isolation between coil and contacts
- Flux-free base
- **VDE, BEAB, UL, CSA, SEV, NF-USE, SETI, IMQ, SEMKO**, and **DEMKO** approved
- **Finder 44.62** series



Technical specification							
Dimensions	29 x 12.4 x 25mm						
Contact rating	10A 240V AC/30V DC						
Contact arrangement	DPDT						
Contact material	Ag3SnO2						
Operate/release time	10ms/7ms						
Coil operating range	70-150%						
Coil consumption	500mW						
Temperature range	-20°C to +70°C						
Finder Part Nos.	<table border="0"> <tr> <td><b>4462-7006-4000</b></td> <td><b>60-4170</b></td> </tr> <tr> <td><b>4462-7012-4000</b></td> <td><b>60-4172</b></td> </tr> <tr> <td><b>4462-7024-0000</b></td> <td><b>60-4174</b></td> </tr> </table>	<b>4462-7006-4000</b>	<b>60-4170</b>	<b>4462-7012-4000</b>	<b>60-4172</b>	<b>4462-7024-0000</b>	<b>60-4174</b>
<b>4462-7006-4000</b>	<b>60-4170</b>						
<b>4462-7012-4000</b>	<b>60-4172</b>						
<b>4462-7024-0000</b>	<b>60-4174</b>						

Coil	Resistance	Order code	1+	25+	100+	250+
6V DC	75Ω	<b>60-4170</b>	3.17	3.07	2.86	2.60
12V DC	300Ω	<b>60-4172</b>	2.86	2.50	2.34	2.24
24V DC	1200Ω	<b>60-4174</b>	2.86	2.50	2.34	2.24



### Power relay flange mount DPDT

A range of flange mounting DPDT relays.

- Top flange mounting
- 2 CO (DPDT-CO)
- Dielectric strength between contacts of 1.5kV
- Suitable for heavy duty load switching
- Double insulation between coil and contacts
- Safe high capacity switching
- AC or DC version available
- 6kV (1.2/50μs) insulation between coil and contacts
- Ambient temperature -40°C to +70°C
- **Finder 66.82** series



Technical specification							
Overall Dimensions	L x W x H 68.5 x 33.5 x 40.75mm inc flanges						
Dimensions	L x W x H 51.5 x 33.5 x 31mm ex. flanges						
Contact arrangement	2 CO (DPDT-CO)						
Contact rating	NO contacts 30A at 250V AC						
	NC contacts 10A at 250V AC						
Contact arrangement	2 pole						
Contact material	Standard AgCdO (Silver Cadmium Oxide)						
Mechanical life	>10 x 10 <sup>6</sup> cycles						
Operate/release time	8/15ms						
Finder part Nos.	<table border="0"> <tr> <td><b>66.82.9.012.0000</b></td> <td><b>60-4384</b></td> </tr> <tr> <td><b>66.82.9.024.0000</b></td> <td><b>60-4385</b></td> </tr> <tr> <td><b>66.82.8.230.0000</b></td> <td><b>60-4387</b></td> </tr> </table>	<b>66.82.9.012.0000</b>	<b>60-4384</b>	<b>66.82.9.024.0000</b>	<b>60-4385</b>	<b>66.82.8.230.0000</b>	<b>60-4387</b>
<b>66.82.9.012.0000</b>	<b>60-4384</b>						
<b>66.82.9.024.0000</b>	<b>60-4385</b>						
<b>66.82.8.230.0000</b>	<b>60-4387</b>						

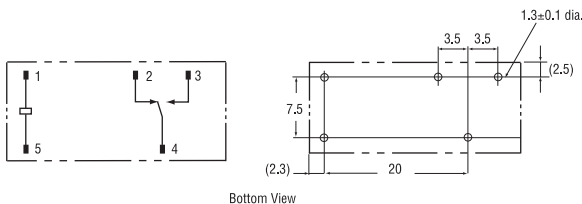
Type	Order code	1+	10+	50+	100+
12V DC	<b>60-4384</b>	7.54	7.23	6.71	6.19
24V DC	<b>60-4385</b>	7.54	7.23	6.71	6.19
230V AC	<b>60-4387</b>	7.54	7.23	6.71	6.19



### Miniature power relay SPDT 12A

Low profile 12A SPDT lead and cadmium-free PCB mounting power relays.

- Maximum height 15.7mm
- Lead-free with cadmium-free contacts
- Creepage and clearance 10mm
- High sensitivity 400mW
- **Omron G2RL-1** series



Technical specification	
Dimensions	28.8 x 15.5 x 12.5mm
Contact rating	12A
Contact arrangement	Single pole changeover
Contact material	silver-tin-dioxide
Operate/release time	7ms/2ms
Resistance	12V DC 60Ω
	24V DC 1440Ω
Coil consumption	400mW
Temperature range	-40°C to +85°C
Approvals	<b>UL, CSA, VDE</b>

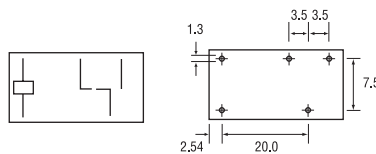
Type	Order code	1+	25+	100+	250+
12V DC	<b>60-1082</b>	2.25	2.03	1.91	1.81
24V DC	<b>60-1084</b>	2.25	2.03	1.91	1.81



### Low profile relay SPCO 12A

A range of low profile, single pole changeover relays with a contact rating of 12A.

- PCB mounting relays on an industry standard 3.5mm pinning
- 6kV isolation between coil and contacts
- Housed in a package sealed to **IP50**



Technical specification							
Dimensions	29 x 12.7 x 15.7mm						
Contact rating	12A 250V						
Contact arrangement	single pole changeover						
Contact material	silver nickel						
Operate/release time	7ms/8ms						
Coil consumption	400mW						
Resistance	12V 360Ω						
	24V 1400Ω						
	48V 5520Ω						
Temperature range	-40°C to +85°C						
Approvals	<b>VDE, UL, CSA</b>						
Finder part Nos.	<table border="0"> <tr> <td>12V</td> <td><b>4131.9012.0010</b></td> </tr> <tr> <td>24V</td> <td><b>4131.9024.0010</b></td> </tr> <tr> <td>48V</td> <td><b>4131.9048.0010</b></td> </tr> </table>	12V	<b>4131.9012.0010</b>	24V	<b>4131.9024.0010</b>	48V	<b>4131.9048.0010</b>
12V	<b>4131.9012.0010</b>						
24V	<b>4131.9024.0010</b>						
48V	<b>4131.9048.0010</b>						

Type	Order code	1+	25+	100+	250+
12V	<b>60-4330</b>	1.87	1.66	1.46	1.35
24V	<b>60-4332</b>	1.92	1.77	1.66	1.56
48V	<b>60-4334</b>	2.39	2.18	1.87	1.77

## Special offers

Find all the latest prices and special offers

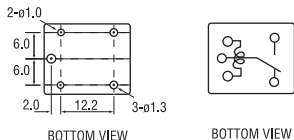
[www.rapidonline.com/offers](http://www.rapidonline.com/offers)



**GS**  
**Miniature PCB power relay 12A SPST**

A range of general purpose single pole changeover PCB mounting relays with sealed casings for washing.

- Contacts are 12A rated and silver alloy construction
- **UL, CSA** and **TUV** approved
- **GS RUDH** series



**Technical specification**

Dimensions	20.5 x 16.7 x 20.3mm			
Contact rating	12A 120V AC/24V DC			
Contact arrangement	Single pole changeover			
Contact material	Ag Alloy			
Operate/release time	15ms/5ms maximum			
Pull in voltage	7% coil voltage max.			
Drop out voltage	5% min.			
Life expectancy	Mechanical	10 <sup>7</sup> operations		
	Electrical	10 <sup>8</sup> operations		

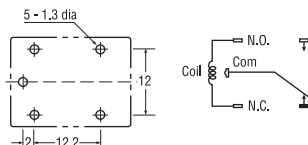
Coil	Resistance	Order code	1+	25+	100+	250+
12V DC	320Ω	<b>60-4680</b>	0.51	0.4576	0.4056	0.3536
24V DC	1280Ω	<b>60-4682</b>	0.64	0.572	0.5065	0.442



**Ultra-miniature automotive power relay 15A**

An ultra-miniature power relay for automotive applications such as power-windows, door locks, intermittent wiper, lighting, power antennae etc.

- The relays are of a sealed construction, with universal footprint and low pick-up voltage for high ambient use
- **Matsushita type JSM1-12-5**



**Technical specification**

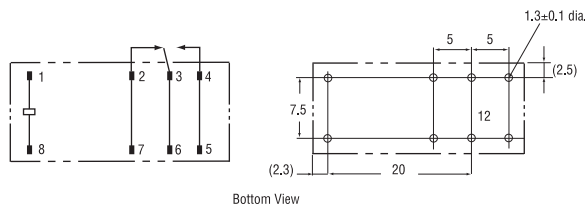
Dimensions	22 x 16 x 16mm			
Operating voltage	12V nominal			
Contact rating	15A resistive, 10A inductive			
Contact arrangement	Single pole, change-over			
Contact material	Silver alloy			
Operate/release time	Approx. 10ms			
Pick-up/drop-out voltage	6.5V/0.9			
Operating life	- mechanical	10 <sup>7</sup> operations		
	- electrical	10 <sup>8</sup> operations		

Coil	Resistance	Order code	1+	25+	50+	100+
12V DC	225Ω	<b>60-4295</b>	1.51	1.40	1.30	1.25

**OMRON**  
**Miniature power relay SPDT 16A**

Low profile 16A SPDT lead and cadmium-free PCB mounting power relays.

- Maximum height 15.7mm
- Lead-free with cadmium-free contacts
- Creepage and clearance 10mm
- High sensitivity 400mW
- **Omron G2RL-1-E** series



**Technical specification**

Dimensions	28.8 x 15.5 x 12.5mm			
Contact rating	16A			
Contact arrangement	Single pole changeover			
Contact material	silver-tin-dioxide			

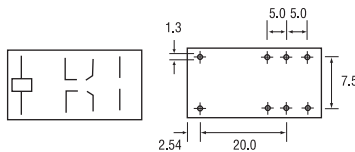
Operate/release time	7ms/2ms
Resistance	12V DC 360Ω
	24V DC 1440Ω
Coil consumption	400mW
Temperature range	-40°C to +85°C
Approvals	<b>UL, CSA, VDE</b>

Type	Order code	1+	25+	100+	250+
12V DC	<b>60-1086</b>	2.03	1.87	1.77	1.61
24V DC	<b>60-1088</b>	2.03	1.87	1.77	1.61

**finder®**  
**Low profile relays SPDT 16A**

A range of single pole changeover relays.

- Low profile
- Contact rating of 16A
- PCB mounting
- Industry standard 5mm pinning
- 6kV isolation between coil and contacts
- Housed in a package sealed to **IP50**
- Approved to **VDE, UL, CSA** standards



**Technical specification**

Dimensions	29 x 12.7 x 15.7mm			
Contact rating	16A 250V			
Contact arrangement	single pole changeover			
Contact material	silver nickel			
Operate/release time	7ms/8ms			
Coil consumption	400mW			
Resistance	12v	360Ω		
	24v	1440Ω		
48v	5520Ω			

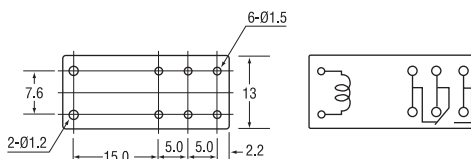
Temperature range	-40°C to +85°C			
Approvals	<b>VDE, UL, CSA</b>			
Finder part Nos.	12V	<b>4161.9012.0010</b>		
	24V	<b>4161.9024.010</b>		

Type	Order code	1+	25+	100+	250+
12V DC	<b>60-0940</b>	1.98	1.77	1.56	1.46
24V DC	<b>60-0942</b>	1.98	1.77	1.56	1.46

**GS**  
**Miniature relay SPCO 16A**

Vertical PCB or socket mounting general purpose DC relays with SPCO contacts.

- Contacts rated at 16A 250V AC
- 5kV insulation
- 8mm creepage and clearance
- Industry standard 5.0mm pitch pinning
- Silver alloy contacts
- **UL, CSA** and **TUV** approved



**Technical specification**

Dimensions	29.1 x 13 x 20.6mm			
Contact rating	16A @ 250V DC			
Contact arrangement	Single pole changeover			
Contact material	Ag alloy			
Operate/release time	15ms/ms			
Coil consumption	540mW			
Temperature range	-30°C to +55°C			
GS part nos.	<b>GZ-SS-112L</b>	<b>60-4620</b>		
	<b>GZ-SS-124L</b>	<b>60-4622</b>		

Coil	Resistance	Order code	1+	50+	250+	1000+
12V DC	270Ω	<b>60-4620</b>	1.87	1.46	1.30	0.988
24V DC	1100Ω	<b>60-4622</b>	1.87	1.46	1.30	0.988



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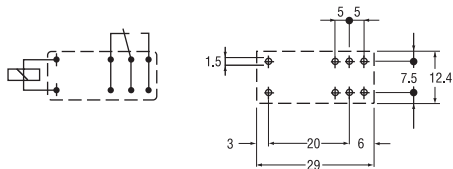
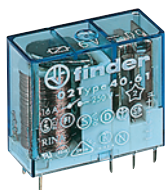
[www.rapidonline.com/clearance](http://www.rapidonline.com/clearance)



### Miniature relay SPDT 16A

A range of industry standard vertical PCB or socket mounted relays.

- Incorporates an 8mm isolation gap between coil and contacts as required by **VDE0700**
- Housed in a dustproof **IP40** tinted case (AC versions have an orange tint)
- **VDE, BEAB, UL, CSA, SEV, NF-USE, SETI, IMQ, SEMKO** and **DEMKO** approved
- **Finder 40.61** series



**Technical specification**

Dimensions 29 x 12.4 x 25mm  
 Contact rating 16A at 240V AC/30V DC  
 Contact arrangement Single pole changeover  
 Contact material Silver cadmium oxide  
 Operate/release time 10ms/7ms  
 Coil operating range 70-150%  
 Coil consumption 500mW  
 Temperature range -20°C to +70°C  
 Finder Part Nos

<b>4061-9006</b>	<b>60-1010</b>	<b>4061-9048</b>	<b>60-1045</b>
<b>4061-7012</b>	<b>60-1015</b>	<b>4061-8240</b>	<b>60-1080</b>
<b>4061-7024</b>	<b>60-1040</b>		

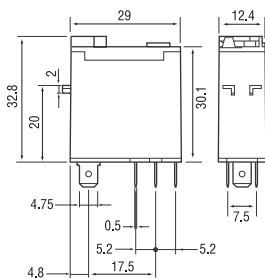
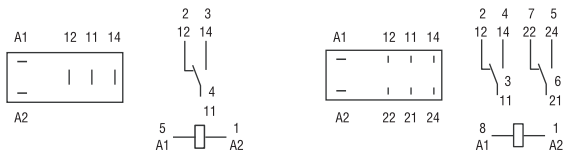
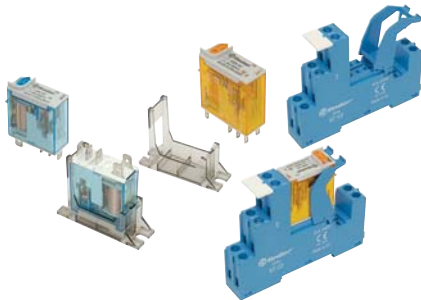
Coil	Resistance	Order code	1+	25+	100+	250+
6V DC	55Ω	<b>60-1010</b>	2.03	1.92	1.72	1.61
12V DC	300Ω	<b>60-1015</b>	1.87	1.61	1.46	1.25
24V DC	1200Ω	<b>60-1040</b>	1.87	1.61	1.46	1.25
48V DC	3500Ω	<b>60-1045</b>	2.03	1.87	1.66	1.46
240V AC	3150Ω	<b>60-1080</b>	3.43	3.02	2.81	2.50



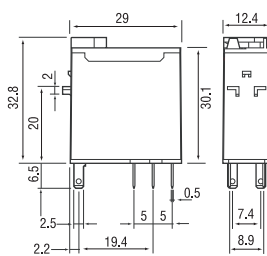
### Miniature relays

A range of SPDT and DPDT relays available in various AC and DC voltages and with or without LED indicators. These relays may be directly mounted or, alternatively, may be mounted using either a flange mount adaptor or 35mm rail mounting screw socket (see below).

- Ideal for use in control panels and control systems
- Faston terminals provide secure and reliable connections
- High current ratings
- Nickel silver contact material
- Changeover type contact circuit
- **CE** approved
- **Finder 46.61** series



SPDT



DPDT

**Technical specification**

Mfrs. part no.	Faston terminal size	Contact config.	Current rating	Coil type	Test/indication	Order code
<b>46.61.8.024.0040</b>	4.8 x 0.5mm	SPDT CO	16A	AC	Lockable test button, mechanical indicator	<b>60-4471</b>
<b>46.61.8.230.0040</b>	4.8 x 0.5mm	SPDT CO	16A	AC	Lockable test button, mechanical indicator	<b>60-4472</b>
<b>46.61.9.012.0040</b>	4.8 x 0.5mm	SPDT CO	16A	DC	Lockable test button, mechanical indicator	<b>60-4473</b>
<b>46.61.9.024.0040</b>	4.8 x 0.5mm	SPDT CO	16A	DC	Lockable test button, mechanical indicator	<b>60-4474</b>
<b>46.61.8.024.0054</b>	4.8 x 0.5mm	SPDT CO	16A	AC	Lockable test button, LED, mechanical indicator	<b>60-4475</b>
<b>46.61.8.230.0054</b>	4.8 x 0.5mm	SPDT CO	16A	AC	Lockable test button, LED, mechanical indicator	<b>60-4476</b>
<b>46.61.9.012.0074</b>	4.8 x 0.5mm	SPDT CO	16A	DC	Lockable test button, double LED, mechanical indicator	<b>60-4477</b>
<b>46.61.9.024.0074</b>	4.8 x 0.5mm	SPDT CO	16A	DC	Lockable test button, double LED, mechanical indicator	<b>60-4478</b>
<b>46.52.8.230.0040</b>	2.5 x 0.5mm	DPDT CO	8A	AC	Lockable test button, mechanical indicator	<b>60-4480</b>
<b>46.52.9.012.0040</b>	2.5 x 0.5mm	DPDT CO	8A	DC	Lockable test button, mechanical indicator	<b>60-4481</b>
<b>46.52.9.024.0040</b>	2.5 x 0.5mm	DPDT CO	8A	DC	Lockable test button, mechanical indicator	<b>60-4482</b>
<b>46.52.8.024.0054</b>	2.5 x 0.5mm	DPDT CO	8A	AC	Lockable test button, LED, mechanical indicator	<b>60-4483</b>
<b>46.52.8.230.0054</b>	2.5 x 0.5mm	DPDT CO	8A	AC	Lockable test button, LED, mechanical indicator	<b>60-4484</b>
<b>46.52.9.012.0074</b>	2.5 x 0.5mm	DPDT CO	8A	DC	Lockable test button, double LED, mechanical indicator	<b>60-4485</b>
<b>46.52.9.024.0074</b>	2.5 x 0.5mm	DPDT CO	8A	DC	Lockable test button, double LED, mechanical indicator	<b>60-4486</b>

Operate/release time (ms) 10/3 (**46.52 series**)  
 15/5 (**46.61 series**)  
 Mechanical life 10 x 10<sup>6</sup> cycles  
 Temperature range -40°C to +70°C

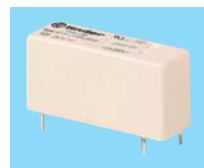
type	Current rating	Order code	1+	25+	100+
<b>SPDT</b>					
24V AC	16A	<b>60-4471</b>	2.44	2.18	2.08
230V AC	16A	<b>60-4472</b>	3.90	3.59	3.38
12V DC	16A	<b>60-4473</b>	2.03	1.82	1.72
24V DC	16A	<b>60-4474</b>	2.08	1.98	1.87
24V AC with LED	16A	<b>60-4475</b>	2.60	2.34	2.24
230V AC with LED	16A	<b>60-4476</b>	3.64	3.28	3.07
12V DC with LED	16A	<b>60-4477</b>	2.50	2.24	2.13
24V DC with LED	16A	<b>60-4478</b>	2.50	2.24	1.98
230V AC	8A	<b>60-4480</b>	5.15	4.78	4.06
12V DC	8A	<b>60-4481</b>	2.76	2.60	2.39
24V DC	8A	<b>60-4482</b>	2.76	2.60	2.39
24V AC with LED	8A	<b>60-4483</b>	3.07	2.65	2.50
230V AC with LED	8A	<b>60-4484</b>	4.06	3.59	3.33
12V DC with LED	8A	<b>60-4485</b>	2.65	2.34	2.18
24V DC with LED	8A	<b>60-4486</b>	2.65	2.34	2.18
<b>Accessories</b>					
Flange mt. adapt.	8A/16A	<b>60-4487</b>	0.73	0.676	0.624
35mm Rail mount	16A	<b>60-4488</b>	1.66	1.51	1.35
35mm Rail mount	8A	<b>60-4489</b>	2.08	1.98	1.82



### Low profile PCB SPST 16A relay

A range of industry standard low profile 16A single pole relays.

- PCB mounting
- 1 NO (SPST-NO), 16A
- 5mm pinning
- 15.4mm high
- Very low coil consumption of 250mW
- 10mm, 6kV (1.2/50µs) between coil and contacts
- Ambient temperature +85°C
- **Finder 43.61** series



**Technical specification**

Dimensions 30.2mm (L) x 10.2mm (W) x 15.4mm (H)  
 Contact Rating 10/15A at 240V AC  
 Contact Arrangement Single pole  
 Contact material Standard AgCdO (Silver Cadmium Oxide)  
 Mechanical life >10 x 10<sup>6</sup> cycles  
 Operate/release time 6ms/2ms  
 Finder part No **43.61.9.006.2300** **60-4078**  
**43.61.9.048.2300** **60-4080**

Type	Order code	1+	25+	100+	250+
12V DC	<b>60-4078</b>	2.39	2.13	1.87	1.66
48V DC	<b>60-4080</b>	2.96	2.65	2.29	1.98

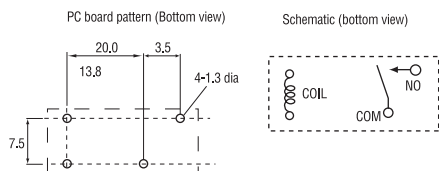


### 16A PCB Power relay SPST

A compact, PCB mounting, 16A switching relay.

- Requires low operating power (400mW)
- Designed for heavy load switching of domestic appliances and similar applications
- Contacts are silver alloy and configured as 1 Form A (normally open)
- High shock and insulation resistance
- Available in various coil voltages
- **UL, CSA TUV** approved, and **VDE, SEMKO** pending





**Technical specification**

Dimensions 28.6 x 12.4 x 24.9mm  
 Nominal switching capacity 16A 277V AC  
 Max switching power 4432VA  
 Operate/release time 20ms  
 Contact/coil surge voltage 10,000V  
 Expected life >10<sup>6</sup>

Manufacturer	Coil voltage	Coil resistance	Order code
ALE1PB05	5V	63Ω	60-5030
ALE1PB12	12V	360Ω	60-5032

Type	Order code	1+	25+	50+	100+
5V DC	60-5030	1.40	1.35	1.30	1.24
12V DC	60-5032	1.40	1.35	1.30	1.24

**Tyco**  
Interface plug-in relays

Interface plug-in relays that are available in either 1 CO or 2 CO contact configurations. Featuring a test button and a mechanical indicator these relays are suitable for a wide range of applications such as panel boards.

- 1 pole 16A or 2 pole 8A contacts
- DC or AC coils
- Reinforced insulation
- 4kV, 8mm coil-contact



**Technical specification**

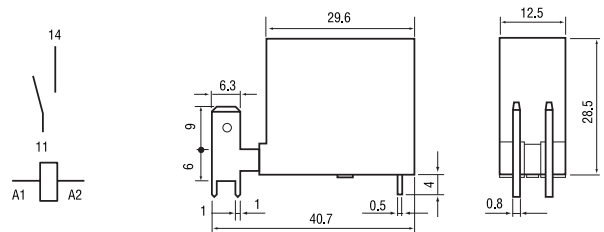
Order code	Contact configuration	Coil voltage	Rated current	Breaking capacity max.	Mfrs. pt. no.
60-1267	2 CO	24V DC	8A	2000VA	XT484LC4
60-1269	2 CO	230V AC	8A	2000VA	XT484T30
60-1264	1 CO	24V DC	16A	4000VA	XT374LC4
60-1265	1 CO	24V AC	16A	4000VA	XT374R24
60-1266	1 CO	230V AC	16A	4000VA	XT374T30

**Rated voltage** 240V AC  
**Switching voltage max.** 400V AC  
**Operate time** 9ms  
**Release time max.** 6ms  
**Mechanical life DC coil** 10 x 10<sup>6</sup> cycles  
**Mechanical life AC coil** 5 x 10<sup>6</sup> cycles  
**Temperature range** 40°C to +70°C

Type	Voltage	Order code	1+	25+	100+	250+
Relay 8A 2 CO	24V DC	60-1267	3.64	3.59	3.38	3.07
Relay 8A 2 CO	230V AC	60-1269	4.32	4.21	4.11	3.95
Relay 16A 1 CO	24V DC	60-1264	3.64	3.59	3.38	3.07
Relay 16A 1 CO	24V AC	60-1265	3.50	3.45	3.25	2.95
Relay 16A 1 CO	230V AC	60-1266	4.21	4.11	3.90	3.64

**finder**  
16A SPNO Miniature relay

- PCB mounting 16A relays.
- Fitted with Faston 250 terminals
  - EN, GOST, IMQ, UL, VDE approved
  - Finder 45.71 series



See Connectors - single pole section for suitable crimp terminals

**Technical specification**

Contact rating 16A 250V AC  
 Contact arrangement SPNO  
 Switching current max. 30A  
 Switching voltage max. 400V AC  
 Dielectric strength Coil to contact 6kV  
 Contact to contact 1kV  
 Contact material Silver cadmium oxide  
 Operating time 10ms  
 Release time 2ms  
 Temperature range -40°C to +125°C  
 Weight 20g

Type	Order code	1+	25+	100+	250+
12V DC	60-4181	2.55	2.29	2.06	1.81
24V DC	60-4183	2.55	2.29	2.06	1.81

**IMO**

20A/40A Miniature high power relays SRGA

A range of both SPNO and SPCO relays offered with a sealed or open construction that are ideal for heavy duty loads.

- Open and sealed types available
- SPNO or SPCO contacts
- Available in 12V or 24V DC coil voltage
- 30A Switching capability (20A SPCO)
- PCB Coil terminals, ideal for heavy duty load
- 4kV Dielectric strength coil to contact
- High switching capacity
- UL and TUV approved



**Technical specification**

Contact arrangement	SPNO	SPCO
Switching current max.	40A	20A
Switching voltage max.	28V DC/277V AC	28V DC/277V AC
Switching power max.	7200VA/560W	4800VA/560W
Contact rating	30A 240V AC/20A 28V DC	20A 240V AC/20A 28V DC

Contact resistance 50mΩ  
 Insulation resistance 1000MΩ @ 500V DC  
 Dielectric strength 2500V AC/4000V AC 1 min.  
 Operate time 15ms  
 Release time 10ms  
 Operating temperature -55°C to +85°C  
 Mechanical life 1 x 10<sup>6</sup> ops.  
 Electrical life 1 x 10<sup>6</sup> ops.  
 Dimensions 30.2 x 24.6 x 19.8mm (open) 32.2 x 27 x 23.4mm (sealed)

Coil voltage	Sealed/Open	Coil resistance	Pickup voltage	Dropout voltage	Max. allowable voltage	Order code
12V DC	Sealed	155Ω	9V DC	1.2V DC	15.6V DC	60-1996
24V DC	Sealed	660Ω	18V DC	2.4V DC	31.2V DC	60-1998
12V DC	Open	155Ω	9V DC	1.2V DC	15.6V DC	60-2004
24V DC	Open	660Ω	18V DC	2.4V DC	31.2V DC	60-2006

**SPCO**

Coil voltage	Type	Order code	1+	25+	50+	100+
12V	Sealed	60-1996	2.13	2.0235	1.917	1.704
24V	Sealed	60-1998	2.13	2.0235	1.917	1.704
12V	Open	60-2004	2.10	2.00	1.90	1.68
24V	Open	60-2006	2.10	2.00	1.90	1.70

**SPCO**

Coil voltage	Type	Order code	1+	25+	50+	100+
12V	Sealed	60-2000	2.40	2.28	2.16	1.92
24V	Sealed	60-2002	2.40	2.28	2.16	1.92

**Matsushita**  
Automation  
Controls

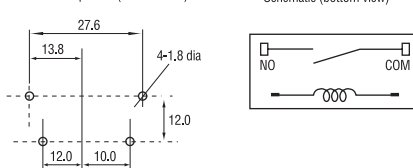
20A PCB Power relay SPST

A PCB mounting high power relay for home appliances.

- Especially suitable for compressor and inverter loads
- High insulation resistance
- Will withstand a 10,000V voltage surge
- Contacts are silver alloy and configured as 1 Form A (normally open)
- Conforms to UL/CSA, TUV and VDE pending



PC board pattern (Bottom view) Schematic (bottom view)



**Technical specification**

Dimensions 30.1 x 15.7 x 23.3mm  
 Contact material silver alloy  
 Nominal switching capacity 20A 250V AC  
 Max switching current 25A  
 Switching power 6.250VA  
 Expected life 10<sup>6</sup>  
 Operating/release time 15ms  
 Initial insulation resistance 1,000MΩ

Manufacturer	Coil voltage	Coil resistance	Order code
ALF1P05	5V	27.8Ω	60-5036
ALF112	12V	160Ω	60-5038
ALF1P24	24V	640Ω	60-5040

Coil	Order code	1+	25+	50+	100+
5V	60-5036	2.07	1.82	1.72	1.62
12V	60-5038	2.07	1.82	1.72	1.62
24V	60-5040	2.07	1.82	1.72	1.62

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**Tyco**  
**Power relay 7500VA PCB or panel mount**

A range of low-cost power relays that are available with either flange mounting, PCB mounting or PCB quick connect terminals. The flange mounting types have a dust protected plastic case and the PCB mounting types have a wash-tight (washable) plastic case.



These relays are ideally suited to a wide range of industrial, commercial, and residential applications.

- Up to 20A switching
- SPDT contact arrangement

Technical specification	Order code	Mounting type	Coil voltage	Breaking capacity max.	Mfrs. pt. no.
<b>60-1258</b>		Flange mount	12V DC	7500VA	<b>T9AP5D52-12</b>
<b>60-1259</b>		Flange mount	24V DC	7500VA	<b>T9AP5D52-24</b>
<b>60-1260</b>		PCB mount	12V DC	7500VA	<b>T9ASSD12-12</b>
<b>60-1261</b>		PCB mount	24V DC	7500VA	<b>T9ASSD12-24</b>
<b>60-1262</b>		PCB quick connect	12V DC	7500VA	<b>T9ASSD22-12</b>
<b>60-1263</b>		PCB quick connect	24V DC	7500VA	<b>T9ASSD22-24</b>

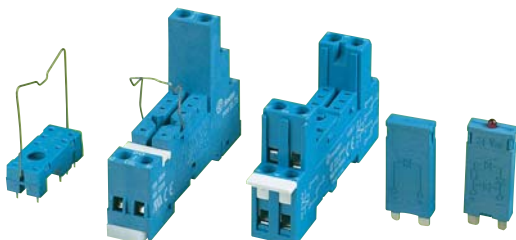
Operate time	15ms
Release time max.	15ms
Mechanical life	10 x 10 <sup>6</sup> cycles
Temperature range	55°C to +85°C

Type	Voltage	Order code	1+	25+	100+	250+
<b>Flange mounting terminals</b>						
Relay	12V	<b>60-1258</b>	1.6125			
Relay	24V	<b>60-1259</b>	1.6125			
<b>PCB mounting terminals</b>						
Relay wash-tight	12V	<b>60-1260</b>	2.03	1.92	1.82	1.72
Relay wash-tight	24V	<b>60-1261</b>	2.03	1.92	1.82	1.72
<b>PCB quick connect terminals</b>						
Relay wash-tight	12V	<b>60-1262</b>	1.2375			
Relay wash-tight	24V	<b>60-1263</b>	2.08	1.98	1.87	1.77

**PCB Relay sockets**



**40 Series relay sockets**



Relay sockets to suit Finder 40 series PCB relays.

- PCB, 3.5mm or 5mm DIN rail versions
- Suitable for 40.31, 40.52 and 40.61 relays
- DIN rail versions with or without clip
- Protection category **IP20**
- Both DIN sockets accept protection diode modules

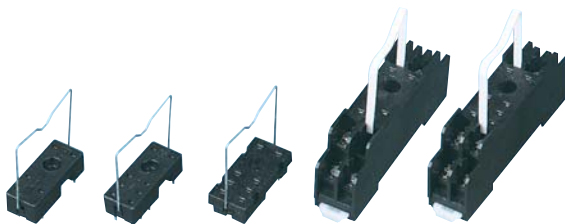
Technical specification	Order code	1+	25+	100+
Contact rating	10A 250V			
Body material	Self extinguishing PPE			
Contact material	Tin plated brass			
Insulation resistance	>1000MΩ			
Dielectric strength	>6kV			
Operating temperature	-40°C to +70°C			
Approvals	CE			

Finder part Nos.	<b>60-1705</b>	<b>9513</b>	<b>60-1440</b>	99013000	<b>60-1446</b>	99803000
	<b>60-1710</b>	<b>9515</b>	<b>60-1445</b>	99013024	<b>60-1448</b>	99809024
	<b>60-1730</b>	<b>9563</b>	<b>60-1742</b>	9583		
	<b>60-1735</b>	<b>9575</b>	<b>60-1745</b>	9585		

Type	Order code	1+	25+	100+
<b>PCB sockets</b>				
40.31 series socket	<b>60-1705</b>	0.44	0.3952	0.3328
40.52, 40.61 series socket	<b>60-1710</b>	0.44	0.3952	0.3328
<b>DIN socket + clip</b>				
40.31 series DIN socket	<b>60-1730</b>	2.13	1.87	1.66
40.52, 40.61 series socket	<b>60-1735</b>	2.13	1.82	1.66
Diode module 6-220V DC	<b>60-1440</b>	0.73	0.6448	0.572
Diode + LED mod. 6-24V DC	<b>60-1445</b>	1.46	1.35	1.14
<b>DIN socket</b>				
40.31 series DIN socket	<b>60-1742</b>	1.90	1.65	1.35
40.52, 40.61 series DIN skt.	<b>60-1745</b>	2.24	2.03	1.82
Diode module 6-220 VDC	<b>60-1446</b>	0.70	0.6136	0.5408
Diode + LED mod. 6-24 VDC	<b>60-1448</b>	1.46	1.35	1.14



**Miniature relay sockets**



60-4100    60-4105    60-4110    60-4115    60-4120

PCB and DIN rail mounting relay sockets.

- The DIN rail mounting relay socket provides improved access to terminals over conventional relay base designs
- Sockets are available in both single and double pole
- Supplied complete with retaining clips
- An economy PCB mount double pole socket is also available representing exceptional value for money
- Gives finger protection to **IP20**
- **UL** approved

Technical specification	Manufacturer's No.	Order code
PCB mount single pole	<b>CR8C35/C</b>	<b>60-4100</b>
PCB mount double pole	<b>CR8C50/C</b>	<b>60-4105</b>
PCB mount double pole (economy)	<b>C25080/C</b>	<b>60-4110</b>
DIN mount single pole	<b>C25203P/C</b>	<b>60-4115</b>
DIN mount double pole	<b>C2508P/C</b>	<b>60-4120</b>
DIN mount single pole 12A	<b>CR8535</b>	<b>60-4116</b>
Rating	10A/380V ( <b>60-4116</b> 12A 300V AC)	
Dielectric strength	>4kV ( <b>60-4116</b> >3kV)	
Moulding	Flame retardant <b>UL94-V1</b>	
Pitch	Single pole 3.5mm, double pole 5.0mm	

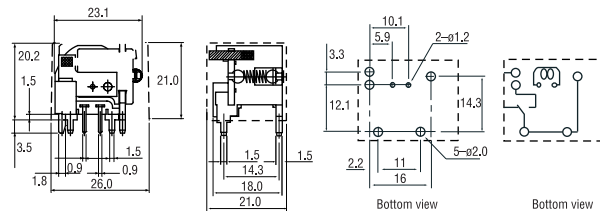
Type	Order code	1+	25+	100+
PCB Single pole	<b>60-4100</b>	0.51	0.468	0.364
PCB Double pole	<b>60-4105</b>	0.51	0.468	0.3952
PCB Double pole (economy)	<b>60-4110</b>	0.47	0.4056	0.3432
DIN Single pole	<b>60-4115</b>	2.40	2.00	1.20
DIN Double pole	<b>60-4120</b>	2.70	2.39	1.66

**Automotive relays**

**GS**  
**30A Automotive relay**

These relays, available with 12V and 24V coils, have been especially designed for automotive use. Their heavy duty construction enables them to switch the heavier loads required in vehicular applications. Suitable for use in the control of car alarms, central locking, indicators and lighting.

- Maximum 30A rated current
- PCB mounting
- Epoxy resin sealed type suitable for PCB washing
- Voltage operating ranges designed specifically for the automotive market
- Form C SPDT contact
- Designed for extreme temperature ranges



Technical specification	60-0369	30A 12V DC
Contact rating	<b>60-0370</b>	30A 24V DC
Contact resistance		100mΩ max.
Power consumption		1.59W
Contact arrangement		SPDT
Contact material		FE130
Operate/release time		10ms max.
Pull in voltage		70% max.
Drop out voltage		5% min.
Insulation resistance		100MΩ min. at 500V DC
Dielectric strength	Between coil and contact	750V AC 1 mins.
	Between contacts	1200V AC for 1 mins.
Life expectancy	Mechanical	10 <sup>7</sup> operations
	Electrical	10 <sup>5</sup> operations
Temperature range		-40°C to +85°C
Dimensions		26 x 21 x 21mm

Type	Coil voltage	Order code	1+	25+	100+	1000+
30A Auto relay	12V	<b>60-0369</b>	1.03	0.988	0.884	0.78
30A Auto relay	24V	<b>60-0370</b>	1.29	1.20	1.10	0.9745

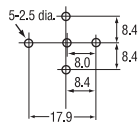


**Mini ISO automotive relay**

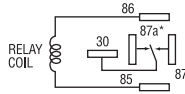
A miniature ISO type PCB mounting relay rated at 40A.  
 • Constructed using copper as the current carrying material so offering low temperature rise  
 • Ruggedly constructed for use in harsh environments  
 • Available with either normally open (NO - 1 Form A) or with change-over contacts (CO - 1 Form C)



PC board pattern (Copper-side view)



PC board pattern (Copper-side view)



**Technical specification**

Dimensions	26 x 12.4 x 25mm
Coil voltage	12V
Coil power	1.4W
Coil resistance	103Ω
Nominal current	117m
Switching voltage	16V DC max
Switching current	40A
Switching power	560W max
Operate/release time	15ms max

Type	Order code	1+	25+	50+	100+
ISO Auto 40A relay - CO	<b>60-5024</b>	3.54	3.38	3.10	2.72
ISO Auto 40A relay - NO	<b>60-5026</b>	3.22	2.91	2.60	2.44



**SPCO Automotive relays - SRZ**

Plug-in SPCO relays that are suitable for automotive use and have a switching capability of 30A.

- 30A Switching capability
- SPCO Contacts
- Dust cover
- Available in 12V and 24V DC coil voltages
- Silver tin oxide contacts
- **IMO type SRZ**



**Technical specification**

Switching current max.	30A
Switching voltage max.	27V DC
Switching power max.	540W
Contact resistance	50mΩ @ 1A/24V DC
Insulation resistance	100MΩ @ 500V DC
Dielectric strength	500V AC 1 min.
Operate time max.	10ms
Release time max.	10ms
Operating temperature	-40°C to +125°C
Mechanical life	1 x 10 <sup>7</sup> operations
Electrical life	1 x 10 <sup>5</sup> operations
Dimensions (body)	23 x 15.5 x 25.4mm
Weight	22g

Type	Order code	1+	25+	50+	100+
12V SPCO auto relay	<b>60-1910</b>	2.20	2.10	1.90	1.70
24V SPCO auto relay	<b>60-1912</b>	2.20	2.10	1.90	1.70



**Automotive relays - SRK**

A range of relays that are available in SPNO or SPCO forms and are suitable for automotive use. Additional features include sealed construction, PC board terminals and a switching capacity of up to 45A.

- 45A Switching capacity
- SPNO or SPCO contacts
- PC Board terminals
- Sealed construction
- Available in 12V or 24V DC coil voltages
- Silver tin oxide contacts
- **IMO type SRK**



**Technical specification**

Switching current max.	Make	100A
Switching current max.	Break	60A
Switching voltage max.		75V DC
Switching power max.		630W
Contact rating		45A
Contact resistance		100mΩ
Insulation resistance		500MΩ @ 500V DC
Dielectric strength		500V AC 1 min.
Operate time max.		5ms
Release time max.		3ms
Operating temperature		-40°C to +125°C
Mechanical life		1 x 10 <sup>7</sup> operations
Electrical life		1 x 10 <sup>5</sup> operations
Dimensions (body)		22 x 22.3 x 26.5mm
Weight		20g

Type	Order code	1+	25+	50+	100+
12V SPCO auto relay	<b>60-1918</b>	2.20	2.10	1.90	1.70
24V SPCO auto relay	<b>60-1914</b>	2.20	2.10	1.90	1.70
12V SPNO auto relay	<b>60-1924</b>	2.20	2.10	1.90	1.70
24V SPNO auto relay	<b>60-1922</b>	2.20	2.10	1.90	1.70



**24V DC SPCO subminiature automotive relay - SRMA**

This subminiature relay is designed for automotive use and features a high current contact capacity and SPCO contacts in a sealed construction body.

- 20A Switching capacity
- SPCO contacts
- Sealed construction
- 24V DC coil voltage
- Silver tin oxide contacts
- Improved heat resistance
- Extended operation range
- High resistance to vibration and shock
- **IMO type SRMA**



**Technical specification**

Voltage drop max.	250mV @ 10A
Switching current max.	20A
Switching voltage max.	60V DC
Switching power max.	210W
Contact rating max.	20A
Minimum contact load	1A 6V DC
Insulation resistance	100MΩ @ 500V DC
Dielectric strength	500V AC 1 min.
Operate time max.	10ms
Release time max.	5ms
Operating temperature	-40°C to +85°C
Mechanical life	1 x 10 <sup>7</sup> operations
Electrical life	2 x 10 <sup>5</sup> operations
Dimensions (body)	12.5 x 14 x 15.7mm
Weight	6g

Type	Order code	1+	25+	50+	100+
24VDC SPCO sub auto relay	<b>60-1926</b>	1.39	1.29	1.19	0.99



**SPCO Automotive relays - SRL**

These relays are designed for automotive use and feature PCB mounting and sealed construction.

- 20A Switching capacity max.
- 3mm Contacts
- SPCO contacts
- Sealed construction to **IP67**
- Available in 12V or 24V DC coil voltage
- Silver tin oxide contacts
- PCB Mounting
- **IMO type SRL**



**Technical specification**

Make current max. (NO)	60A
Switching current max. (NO)	20A
Switching voltage max.	75V DC
Switching power max.	200W
Continuous current max. (NO)	15A
Minimum contact load	0.5A 6V DC
Initial resistance	100mΩ @ 1A 6V DC
Insulation resistance	100MΩ @ 500V DC
Dielectric strength	500V AC 1 min.
Operate time max.	3ms
Release time max.	1.5ms
Operating temperature	-40°C to +85°C
Mechanical life	1 x 10 <sup>7</sup> operations
Electrical life	2 x 10 <sup>5</sup> operations
Contact length	3mm
Dimensions (body)	15 x 17.5 x 19.5mm
Weight	12g

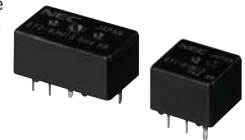
Type	Order code	1+	25+	50+	100+
12V SPCO auto relay	<b>60-1928</b>	1.70	1.50	1.35	1.20
24V SPCO auto relay	<b>60-1930</b>	1.70	1.50	1.35	1.20



**12V DC Twin automotive relay - ET2**

This twin relay has been designed for automotive use and features a low profile design that uses 75% less space than conventional relays.

- 25A Switching capacity max.
- DPDT contacts
- Uses 75% less space than conventional relays
- Low profile
- High performance and productivity by unique symmetrical structure
- Sealed construction
- 12V DC coil voltage
- Silver oxide complex alloy contacts
- **IMO type ET2**



**Technical specification**

Switching current max.	25A @ 16V DC
Switching voltage max.	16V DC
Contact carrying current max.	35A (2 min. max.)
Minimum contact load	0.5A 6V DC
Contact resistance	4mΩ
Nominal voltage	12V DC
Coil resistance	225Ω ±10%
Must operate voltage	6.5V DC
Must release voltage	0.9V DC
Nominal operate power	640mW
Insulation resistance	100MΩ @ 500V DC
Breakdown voltage	500V AC 1 min.
Operate time max.	2.5ms
Release time max.	3ms
Operating temperature	-40°C to +85°C
Mechanical life	1 x 10 <sup>5</sup> operations
Electrical life	100 x 10 <sup>3</sup> operations
Dimensions (body)	10.5 x 12.8 x 22mm
Weight	7.5g

Type	Order code	1+	25+	50+	100+
12V DC Twin automotive relay - ET2	<b>60-1932</b>	3.50	3.20	2.90	2.55

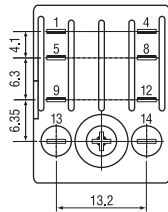
## Plug-in power relays

**GS**

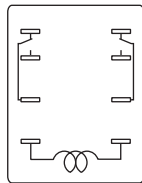
### 2PCO 5A Power relay

A series of 2 pole changeover power relays. These relays are designed for PCB terminal, solder lug terminal or with the rail/surface relay safe separation sockets (coil terminals on one side, c/o terminals on the other) available separately. All are black, with fingerproof screw clamp terminals.

- 2 pole version
- Switching current 5 Amps
- Low coil power consumption
- High response time
- High reliability and long life
- High level of vibration and shock resistance
- Suitable for vending machines, cooking appliances and control equipment
- CE approved
- GS type RE-2 series



BOTTOM VIEW



BOTTOM VIEW

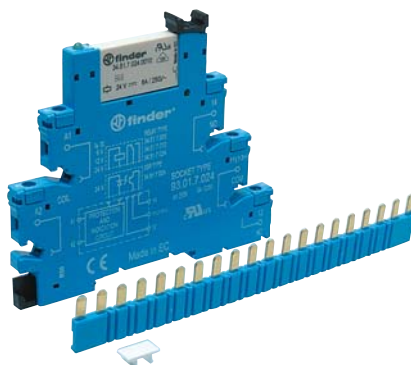
Technical specification					
Nominal load 2P	Contact capacity	5A at 250V AC			
	Contact capacity	5A at 30V DC			
Rated carrying current		5A			
Max. allowable current		5A			
Max. allowable voltage		250V AC, 110V DC			
Max. allowable power force		600VA, 150W			
Min. switching load		10V DC, 10mA			
Contact material		Ag Alloy			
Contact form		DPDT, DPST			
Contact resistance		100mΩ max. at 1A, 6V DC			
Operate time		25ms max.			
Release time		25ms max.			
Dielectric strength	Coil and contact	1.500V AC at 50/60Hz for one minute			
	Between contacts	1.000V AC at 50/60Hz for one minute			
		3.000V (between coil and contact 1.2x50µs)			
Surge resistance		100MΩ min at 500V DC			
Insulation resistance		-25°C to +55°C			
Temperature range		45-85% RH			
Humidity range		35g			
Weight		UL			
Safety					



### Relay module 6A SPDT

6A SPDT 35mm DIN rail mounting relay interface modules from Finder.

- Coil indication
- Protection circuit
- Fitted with retaining clip
- ID tab and jumper busbar available



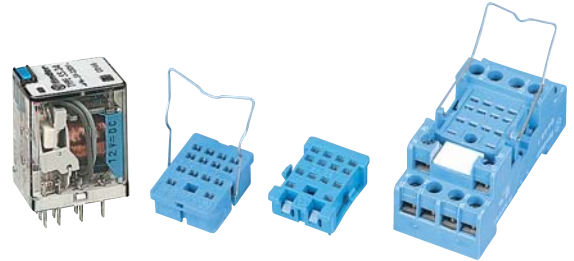
Technical specification					
Contact	SPDT				
Current rating	6A				
Voltage rating	250V				
Rated power	300mW				
Operate/release time	7/11ms				
Dimensions	6 x 75 x 87mm				
Operating temperature	-40°C to +55°C				
Protection category	IP20				

Approvals	ULVDE					
Order Code	Finder part No.s					
60-1750	38.51.7.012.0050					
60-1752	38.51.7.024.0050					
60-1754	38.51.7.048.0050					
60-1756	38.51.0.125.0050					
60-1758	38.51.0.230.0050					
60-1746	93.64					
60-1748	93.2					

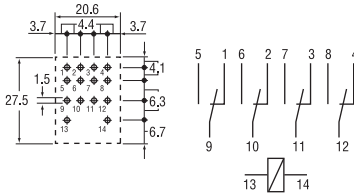
Type	Order code	1+	25+	50+	100+
12VDC	60-1750	7.23	6.71	6.14	5.67
24VDC	60-1752	6.76	6.19	5.72	5.46
48VDC	60-1754	6.29	5.93	5.51	5.15
125VAC	60-1756	7.70	7.18	6.76	6.34
230VAC	60-1758	7.70	7.18	6.76	6.34
ID tabs	60-1746	2.34	2.24	2.08	1.92
20w Jumper	60-1748	1.14	1.09	0.988	0.936

### finder® 7A Power relay 4PDT



An industry standard range of miniature 4-pole changeover relays.

- Manual test button
- Mechanical flag indication
- DIN rail/surface socket has touchproof terminals
- Accepts all modules and a user defined legible identification tab
- Relays approved to IMQ, SEMKO, CSA (4.5A), DEMKO, VDE, SEV and UL
- Sockets approved to CSA and UL
- Finder 55-34 series



Technical specification					
Dimensions	27.5 x 20.6 x 37mm				
Contact rating	7A at 240V AC				
Contact arrangement	4PDT				
Contact material	Silver nickel				
Operate/release time	20ms				
Coil operating range	80% - 110%				
Temperature range	40°C to +70°C				
Sockets	Load rating:				
PCB/chassis	10A 250V				
DIN rails/surface	7A 250V				
Finder Part Nos	55.34.9.012.0040	60-1305			
	55.34.9.024.0040	60-1310			
	55.34.8.024.0040	60-1312			
	9414	60-1400			
	9424	60-1405			
	9474	48-0788			

Coil	Resistance	Order code	1+	25+	100+
<b>Finder 5534 Series</b>					
12V DC	160Ω	60-1305	4.47	3.64	2.96
24V DC	640Ω	60-1310	4.47	3.64	2.81
24V AC	190Ω	60-1312	4.47	3.64	2.81
24V DC	-	60-1345	4.47	3.64	2.81
<b>Sockets</b>					
PCB		60-1400	0.83	0.728	0.624
Chassis		60-1405	0.83	0.676	0.572
Plug-in base		48-0788	2.94	2.42	2.21

### Tyco Miniature relays

Miniature relays that are universally suitable for use in control and automation applications.

- Choice of 2-, 3- or 4-pole CO contacts
- AC or DC coils in various voltages
- Manually operated test system
- White, write-on panel for marking
- Complementary DIN rail sockets, LED modules, protection diodes are also available
- Plastic retaining clip and marking tag also available



Technical specification	Order	Contact configuration	Coil voltage	Rated current	Breaking capacity max.	Mfrs. pt. no.
	<b>60-1216</b>	2 CO	24V DC	12A	300VA	<b>PT270024</b>
	<b>60-1217</b>	2 CO	24V AC	12A	300VA	<b>PT270524</b>
	<b>60-1218</b>	2 CO	115V AC	12A	300VA	<b>PT270615</b>
	<b>60-1221</b>	3 CO	24V DC	10A	2500VA	<b>PT370024</b>
	<b>60-1222</b>	3 CO	24V AC	10A	2500VA	<b>PT370524</b>
	<b>60-1223</b>	3 CO	115V AC	10A	2500VA	<b>PT370615</b>
	<b>60-1224</b>	3 CO	230V AC	10A	2500VA	<b>PT370730</b>
	<b>60-1225</b>	4 CO	12V DC	6A	1500VA	<b>PT570012</b>
	<b>60-1228</b>	4 CO	115V AC	6A	1500VA	<b>PT570615</b>

Rated voltage 240V AC  
 Switching voltage max. 400V AC (240V AC for 4 CO)  
 Operate time 15ms  
 Release time max. 10ms  
 Mechanical life 30 x 10<sup>6</sup> cycles (DC coil)  
 20 x 10<sup>6</sup> cycles (AC coil)  
 Temperature range 40°C to +70°C  
 Height (body) 29mm  
 Width 22.5mm  
 Depth 28mm  
 Weight 30g

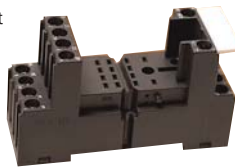
Type	Voltage	Order code	1+	25+	100+	250+
Relay 2CO test btn	24V DC	<b>60-1216</b>	5.56	4.63	4.11	3.38
Relay 2CO test btn	24V AC	<b>60-1217</b>	4.68	4.11	3.90	3.64
Relay 2CO test btn	115V AC	<b>60-1218</b>	4.68	4.11	3.90	3.64
Relay 3CO test btn	24V DC	<b>60-1221</b>	4.68	4.11	3.90	3.64
Relay 3CO test btn	24V AC	<b>60-1222</b>	4.68	4.11	4.11	3.90
Relay 3CO test btn	115V AC	<b>60-1223</b>	4.68	4.11	3.90	3.64
Relay 3CO test btn	230V AC	<b>60-1224</b>	4.84	4.42	4.11	3.95
Relay 4CO test btn	12V DC	<b>60-1225</b>	4.68	4.11	3.90	3.64
Relay 4CO test btn	115V AC	<b>60-1228</b>	4.68	4.11	3.90	3.64
DIN rail socket 2-pole		<b>60-1230</b>	2.39	2.24	2.13	2.03
DIN rail socket 3-pole		<b>60-1231</b>	2.39	2.24	2.13	2.03
DIN rail socket 4-pole		<b>60-1232</b>	2.34	2.18	2.08	1.98
Red LED	6-24V AC/DC	<b>60-1233</b>	2.34	2.18	2.08	1.98
Red LED	110-230V AC/DC	<b>60-1234</b>	2.34	2.18	2.08	1.98
Protection diode		<b>60-1235</b>	0.68	0.6448	0.5928	0.572
Plastic retaining clip		<b>60-1213</b>	0.14	0.1144	0.0832	0.0728
Marking tag		<b>60-1214</b>	0.14	0.1144	0.0832	0.0728



**Compact industrial relay base**

A 14-pin 4-pole DIN rail EN50022 or chassis mount relay base with rising clamp connections.

- Base is supplied complete with marking tab
- Finger proof to **IP20**
- Dual terminal numbering to **IEC67** and **DIN 46 199**
- **UL** and **CSA** approved
- **Camden type CRBS15/4N**



Technical specification  
 Rating 12A/300V AC  
 Dielectric strength >3kV  
 Moulding **UL94V-1** self extinguishing glass filled PA6  
 Contacts 6µ nickel plated brass  
 Screws Nickel plated steel M3 combination head  
 Temperature range -40°C to + 85°C

Type	Order code	1+	25+	100+	250+
Relay base	<b>60-4992</b>	2.39	2.24	2.03	1.92

**GS DPDT 10A Power relay**

A series of double pole double throw power relays. Suitable for vending machines, cooking appliances and control equipment. Also available, sockets for panel builder relays. All are black, with fingerproof screw clamp terminals

- Double pole double throw version
- Switching current 5 Amps
- Socket type, easy to use
- Low coil power consumption
- High response time
- High reliability and long life
- High level of vibration and shock resistance
- **CE** approved
- **GS type RK** series

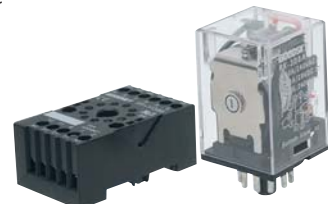


Technical specification  
 Nominal load DPDT contact capacity 10A at 220V AC  
 contact capacity 10A at 24V DC  
 Rated carrying current 10A  
 Max. allowable current 10A  
 Max. allowable voltage 220V AC, 110V DC  
 Max. allowable power force 2400VA, 280W  
 Min. switching load 1V DC, 10mA  
 Contact material Ag  
 Contact form DPDT  
 Contact resistance 100MΩ max. at 1A, 6V DC  
 Operate time 25ms max.  
 Release time 25ms max.  
 Dielectric strength coil and contact between contacts 1.000V AC at 50/60Hz for one minute  
 1.000V AC at 50/60Hz for one minute  
 Surge resistance 3.000V (between coil and contact 1.2 x 50µSec.)  
 Insulation resistance 100MΩ min at 500V DC  
 Temperature range -10°C to +40°C  
 Humidity range 35-85% RH  
 Weight 85g  
 Safety **UL**

Type	Order code	1+	10+	50+	100+
12V DC	<b>60-1672</b>	3.00	2.54	2.14	1.82
24V DC	<b>60-1673</b>	3.00	2.54	2.14	1.82
24V AC	<b>60-1674</b>	3.00	2.54	2.14	1.82
110/120V AC	<b>60-1675</b>	2.54	2.15	1.82	1.62
220/240V AC	<b>60-1676</b>	3.00	2.54	2.14	1.82
RK-2P series socket	<b>60-1677</b>	1.30	1.11	0.9745	0.8965

**GS 3PDT 10A Power relay**

A series of 3-pole double throw power relays. These relays are designed for use with the rail/surface relay safe separation sockets (coil terminals on one side, c/o terminals on the other) available separately. Also available, sockets for panel builder relays.



- 3-pole double throw version
- Switching current 10A
- Low coil power consumption
- High response time
- High reliability and long life
- Suitable for vending machines, cooking appliances and control equipment
- High level of vibration and shock resistance
- **CE** approved
- **GS type RK** series

Technical specification  
 Nominal load 3PDT contact capacity 10A at 220V AC  
 contact capacity 10A at 24V DC  
 Rated carrying current 10A  
 Max. allowable current 10A  
 Max. allowable voltage 220V AC, 110V DC  
 Max. allowable power force 2400VA, 280W  
 Min. switching load 10V DC, 10mA  
 Contact material Ag  
 Contact form 3PDT  
 Contact resistance 100mΩ max. at 1A, 6V DC  
 Operate time 25ms max.  
 Release time 25ms max.  
 Dielectric strength coil and contact between contacts 1.000V AC at 50/60Hz for one minute  
 1.000V AC at 50/60Hz for one minute  
 Surge resistance 3.000V (between coil and contact 1.2 x 50µSec.)  
 Insulation resistance 100MΩ min at 500V DC  
 Temperature range -10°C to +40°C Humidity range 35 - 85% RH  
 Weight 85g  
 Safety **UL**

Type	Order code	1+	10+	50+	100+
12V DC	<b>60-1678</b>	3.32	2.74	2.34	2.08
24V DC	<b>60-1679</b>	3.32	2.74	2.34	2.08
220/240V AC	<b>60-1682</b>	3.32	2.74	2.34	2.08
RK-3P series socket	<b>60-1683</b>	1.44	1.30	1.17	1.04

**Surface mount LEDs**



**Tyco**  
**Multimode relays**

A range of multimode relays that are suitable for such applications as mechanical engineering and plant control.

- Choice of 2- or 3-pole CO contacts in 8-pin or 11-pin configurations
- AC or DC coils in various voltages
- Available with or without front-operated test system
- Has a white, write-on panel for marking
- Also available are a suitable DIN rail socket and metal retaining clip



Technical specification	Order code	Contact Configuration	Test System	Coil Voltage	Mfrs. pt. no.
<b>8-Pin</b>					
	<b>60-1200</b>	2 CO	No	12V DC	<b>MT221012</b>
	<b>60-1203</b>	2 CO	Yes	115V AC	<b>MT226115</b>
	<b>60-1204</b>	2 CO	Yes	230V AC	<b>MT226230</b>
<b>11-Pin</b>					
	<b>60-1206</b>	3 CO	No	12V DC	<b>MT321012</b>
	<b>60-1207</b>	3 CO	No	24V DC	<b>MT321024</b>
	<b>60-1208</b>	3 CO	Yes	24V DC	<b>MT326024</b>
	<b>60-1209</b>	3 CO	Yes	115V AC	<b>MT326115</b>
	<b>60-1210</b>	3 CO	Yes	230V AC	<b>MT326230</b>

Rated current	10A
Rated voltage	240V AC
Switching voltage max.	400V AC
Breaking capacity max.	2500VA
Operate time	12ms
Release time	5ms
Mechanical life	20 x 10 <sup>6</sup> cycles
Temperature range DC coil	40°C to +60°C
Temperature range AC coil	45°C to +50°C
Height (body)	57mm
Width	35.5mm
Depth	35.5mm
Weight	80g

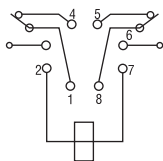
Type	Voltage	Order code	1+	25+	100+	250+
<b>8-pin</b>						
Relay 2 CO	12V DC	<b>60-1200</b>	5.72	5.15	4.52	4.11
Relay 2CO test btn	115V AC	<b>60-1203</b>	5.72	5.15	4.52	4.11
Relay 2CO test btn	230V AC	<b>60-1204</b>	5.56	4.63	4.11	3.38
<b>11-pin</b>						
Relay 2 CO	12V DC	<b>60-1206</b>	5.56	4.63	4.11	3.38
Relay 2 CO	24V DC	<b>60-1207</b>	5.56	4.63	4.11	3.38
Relay 2CO test btn	24V DC	<b>60-1208</b>	5.72	5.15	4.52	4.11
Relay 2CO test btn	115V AC	<b>60-1209</b>	5.56	4.63	4.11	3.38
Relay 2CO test btn	230V AC	<b>60-1210</b>	5.56	4.63	4.11	3.38
<b>Misc</b>						
8-pin DIN rail socket		<b>60-1212</b>	1.92	1.72	1.61	1.46
11-pin DIN rail socket		<b>60-1211</b>	2.03	1.82	1.72	1.56
Retaining clip		<b>60-1205</b>	0.99	0.884	0.832	0.78

**finder**

**Power relays DPDT 10A**

A series of 2-pole changeover power relays.

- Fitted with octal plug in bases
- Relays incorporate a manual test button with a mechanical flag contact operating indicator
- May be controlled by **Finder 86 series timer module (48-0780)** - see this section for details
- Flame retardant cover
- Approved to **BSI, VDE, CSA, UL, BEAB, IMQ, SETI, SEMKO, DEMKO and SEV standards**
- **Finder 60-12 series**



Technical specification		
Dimensions		32.5 x 36.4 x 54mm
Contact rating	(resistive)	10A 250V AC/30V DC
	(inductive)	3A 250V AC/5A 24V DC
Maximum switching capacity		2500VA
Contact arrangement		Double pole changeover
Max switching current		20A
Max switching voltage		250 - 400V AC
Contact material		Silver nickel (90/10%)
Dielectric strength		200V rms
Operate/release time		20ms max
Coil operating range		80-110%
Operating temperature range		-40°C to +70°C

Coil	Resistance	Order code	1+	25+	100+	250+
12V DC	111Ω	<b>60-1610</b>	5.15	4.35	4.15	4.07
24V D	443Ω	<b>60-1615</b>	5.61	4.69	4.58	4.42
24V AC	74Ω	<b>60-1617</b>	5.15	4.35	4.15	4.07
230V AC	7900Ω	<b>60-1620</b>	5.61	4.69	4.58	4.42

**finder**

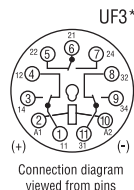
**Power relays 3PDT 10A**

A series of 3-pole changeover power relays.

- Each fitted with 11-pin plug-in bases
- Relays incorporate a manual test button with mechanical flag contact operating indicator
- May be controlled by **Finder 86 series timer module (48-0780)** - see this section for details
- Flame retardant cover
- Approved to **BSI, VDE, CSA, UL, BEAB, IMQ, SETI, SEMKO, DEMKO and SEV standards**
- **Finder 60-13 series**



Technical specification		
Dimensions		32 x 32 x 54mm
Contact rating	(resistive)	10A 250V AC/30V DC
	(inductive)	3A 250V AC/5A 24V DC
Maximum switching capacity		2500VA
Contact arrangement		3 pole changeover
Max switching current		20A
Max switching voltage		250 - 400V AC
Contact material		Silver nickel (90/110%)
Dielectric strength		1000V rms
Operate/release time		9ms max
Coil operating range		80-110%
Operating temperature range		-40°C to +70°C



Coil	Resistance	Order code	1+	25+	100+	250+
12V DC	111Ω	<b>60-1640</b>	5.71	4.78	4.58	4.47
24V DC	443Ω	<b>60-1645</b>	5.71	4.78	4.47	4.26
24V AC	74Ω	<b>60-1647</b>	5.71	4.78	4.47	4.26
230V DC	790Ω	<b>60-1650</b>	6.02	5.15	4.90	4.58

**finder**

**DIN Relay sockets for 60 series relays/86 series timers**



DIN relay sockets in fingerproof mouldings. **60-1652** and **60-1654** are for use with our range of **Finder 60 series relays**. **60-1656** and **60-1658** have been designed for use with both the **Finder 60 series relays** and the **Finder 86 series Multifunction plug-in timer module 48-0780** simultaneously.

- 8 or 11-pin format
- Choice of sockets for use with relay only, or relay + timer
- Captive screw termination
- Rising clamp
- **Finder 90 series**

Technical specification		
Current rating		10A
Voltage rating		250V
Dimensions	Relay sockets	51 x 41 x 23mm
	Relay + time sockets	81.1 x 77.5 x 38mm
Operating temperature		-40°C to +70°C
Approvals		<b>CSA, UL, VDE, SEMKO, FIMKO</b>

Type	Order code	1+	25+	100+	250+
8-pin Socket	<b>60-1652</b>	2.07	1.83	1.60	1.55
11-pin Socket	<b>60-1654</b>	2.29	1.98	1.77	1.65
8-pin Timer socket	<b>60-1656</b>	2.34	2.18	2.03	1.92
11-pin Timer socket	<b>60-1658</b>	2.50	2.34	2.13	2.03

**CAMDENBOSS**  
ELECTRONICS & ENCLOSURES

**DIN Rail/surface relay sockets**

A range of compact DIN rail/surface mounting relay sockets.

- Suits 8-pin octal base relays or 11-pin relays
- Available in fingerproof mouldings
- The base may be mounted to a **EN50022** DIN rail via a retaining/screwdriver release tab or directly onto a chassis surface
- All connections are made via captive screw terminals with self-rising clamps
- Supplied with relay retaining clips (x2)



Technical specification		
Contact rating		10A 380V
Dielectric strength		>2kV
Moulding		UL94V-1 self extinguishing glass filled Nylon
Contacts		tin plated brass
Screws (pozi or slotted)		zinc plated steel M4
Dimensions	8-pin	51(L) x 40(W) x 20.5(H)mm
	11-pin	51(L) x 43(W) x 30(H)mm

Type	Order code	1+	25+	100+	250+
8-pin Fingerproof	<b>60-1770</b>	1.82	1.66	1.46	1.35
11-pin Fingerproof	<b>60-1775</b>	2.29	1.98	1.77	1.51

## Solid state relays



### DC Solid state SPST 2A relay

A series of slim solid state single pole relays.

- PCB mounting
- 1 NO (SPST-NO)
- Ultra-long working life
- High speed
- Reliable
- Switching up to 2A at 24V DC
- Ultra-slim 5mm wide
- Ambient temperature -20°C to +60°C
- Silent switching
- **Finder 34 series**



Technical specification					
Dimensions	28mm (L) x 5mm (W) x 15.5mm (H)				
Contact Rating	2A at 24V DC				
Contact Arrangement	Single pole				
Contact material	Standard AgSnO2 (silver tin oxide)				
Dielectric strength	Output is rated at 2.5kV.				
Operate/release time	6ms/2ms				
Mechanical life	Ultra-long (solid state)				
Finder part No's.	34.81.7.024.9024	60-4084			
	34.81.7.24.8240	60-4085			

Type	Order code	1+	10+	50+	100+
24V DC	60-4084	8.84	8.58	8.16	7.80
240V DC	60-4085	9.52	8.74	8.01	7.44



### Solid state relay 75 to 264V AC SSR04

A solid state SPST-NO relay that provides AC output switching in a SIL package for high density PCB mounting. Featuring an internal snubber and 2kV opto-isolation.

- DC input-AC output for 2A load
- Built-in snubber
- Random turn-on function
- Photo isolation
- Dielectric strength 2000V AC
- PCB Mounting
- Encapsulated in a thermally conductive epoxy SIL package



Technical specification	
<b>Input</b>	
Control voltage range	9.6 to 14.4V DC
Must operate voltage max.	9.6V DC
Must release voltage min.	1V DC
Input current max.	10mA

<b>Characteristics</b>	
Dielectric strength	2000V AC 1 min.
Insulation resistance	1000MΩ
Capacitance max.	5pF
Operating temperature	-30°C to +80°C
Dimensions	24 x 20 x 6.5mm

<b>Output</b>	
Load voltage range	75 to 264V AC
Load current range	0.1 to 2A
Surge current max.	25A pk
Leakage current max.	1.5mA
On-state voltage drop max.	1.5V AC
Turn-on time max.	1ms
Turn-off time max.	10ms
Transient overvoltage	600V pk
Off-state dv/dt min.	100V/μs
Power factor	0.5

Type	Order code	1+	25+	50+	100+
SSR Relay PCB mount 264V	S 60-2066	3.16	3.002	2.844	2.528



### PCB Mount solid state relay 400V AC SSR09

This solid state relay features a miniature DIL-6 package measuring just 10.3 x 6.4 x 3.5mm.

- Photo isolation
- Dielectric strength 1500V AC
- Insulation resistance 1000MΩ
- PCB Mounting



Technical specification	
<b>Input</b>	
Control current range	5 to 20mA
Must release current	0.4mA
Must operate current	5mA
Reverse protection voltage max.	3V

<b>Characteristics</b>	
Dielectric strength	1500V AC 1 min.
Insulation resistance	1000MΩ
Capacitance max.	1.5pF
Operating temperature	-20°C to +80°C
Dimensions	10.3 x 6.4 x 3.5mm

<b>Output</b>	
Load voltage	400V AC
Surge current max.	0.3A
Leakage current max.	1μA
Turn-on time max.	0.3ms
Turn-off time max.	0.5ms
On-resistance max.	50Ω

Type	Order code	1+	25+	50+	100+
SSR Relay PCB mount 400V	S 60-2064	2.84	2.698	2.556	2.272



### 4-32V Panel mount solid state relays with LEDs SSR01

The **SSR01** range of relays are solid state devices that feature LED indication.



These relays have a 4-32V DC input control and MOSFET technology that provides an economical and reliable method of switching medium and high power DC loads. The devices also combine low on-state resistance with fast switching times.

- LED Indication
- MOSFET Output
- DC Control
- Low on-state resistance
- Photo isolation
- 2500V rms dielectric strength

Technical specification	
<b>Input</b>	
Control voltage range	4-32V DC
Must operate voltage	3V DC
Must release voltage	1V DC
Input current max.	28mA @ 32V DC
Reverse voltage max.	-32V DC

<b>Characteristics</b>	
Dielectric strength	2500V rms 1 min.
Insulation resistance	1000MΩ
Operating temperature	-30°C to +80°C

<b>Output</b>				
Order code	60-2034	60-2036	60-2038	
Load voltage range	0 to 110V DC	0 to 110V DC	0 to 50V DC	
Load current range	0.02 to 20A	0.02 to 40A	0.02 to 80A	
Off-state leakage current max.	0.1mA	0.1mA	0.1mA	
On-state voltage drop max.	1.5V	1.5V	0.64V	
On-state resistance max.	0.38Ω	0.38Ω	0.008Ω	
Turn-on time max.	0.5ms	0.5ms	0.5ms	
Turn-off time max.	0.5ms	0.5ms	0.5ms	
Surge current max.	160A	160A	200A	

Type	Order code	1+	25+	50+	100+
0-110V 20A Relay + LED	60-2034	35.08	33.326	31.572	24.95
0-110V 40A Relay + LED	60-2036	41.28	39.216	37.152	29.95
0-50V 80A Relay + LED	60-2038	39.00	37.05	35.10	27.95



### 4-32V Panel mount solid state relays with LEDs SSR02

The **SSR02** range of solid state relays have a 4-32V DC input and feature LED indication.



These devices have an SCR output, providing high dv/dt capability of greater than 500V/μs. All relays have an internal snubber and there is 4000V rms opto-isolation between input and output.

- LED Indication
- Double SCR output
- DC Control
- Panel mounting
- Zero cross or random turn-on versions available
- Photo isolation
- 4000V rms dielectric strength

Technical specification	
<b>Input</b>	
Control voltage range	4-32V DC
Must operate voltage	3V DC
Must release voltage	1V DC
Input current max.	25mA @ 32V DC
Reverse voltage max.	-32V DC

<b>Characteristics</b>	
Dielectric strength	4000V rms 1 min.
Insulation resistance	1000MΩ
Operating temperature	-30°C to +80°C

<b>Output</b>					
Order code	60-2040	60-2044	60-2046	60-2048	
Load voltage range	48 to 280V DC	48 to 280V DC	48 to 280V DC	48 to 400V DC	
Load current	40A	40A	50A	80A	
Zero cross function	Random turn-on	Zero cross turn-on	Zero cross turn-on	Zero cross turn-on	
Off-state leakage current max.	5mA	5mA	5mA	5mA	
On-state voltage drop max.	1.7V	1.7V	1.7V	1.7V	
Turn-on time max.	1ms	1/2 cycle + 1ms	1/2 cycle + 1ms	1/2 cycle + 1ms	
Turn-off time max.	1ms	1ms + 1/2 cycle	1ms + 1/2 cycle	1ms + 1/2 cycle	
Min. off-state (dv/dt)	500V/μs	500V/μs	500V/μs	500V/μs	

Type	Turn-on func.	Order code	1+	25+	50+	100+
48-280V 40A	Random	60-2040	23.16	22.002	20.844	17.35
48-280V 40A	Zero cross	60-2044	20.48	19.456	18.432	15.95
48-280V 50A	Zero cross	60-2046	26.00	24.70	23.40	19.95
48-400V 80A	Zero cross	60-2048	33.36	31.692	30.024	24.95

# IMO



## 4-32V Panel mount solid state relays with LEDs SSR06

The relays in the **SSR06** range are solid state devices that have DC input control. Offering a choice of outputs these relays also feature LED indication, internal snubber and 4kV of opto-isolation between input and output.

- LED Indication
- Triac AC output
- DC control
- Panel mounting
- Built-in snubber
- Zero cross turn-on
- Photo isolation
- 4000V rms dielectric strength



### Technical specification

<b>Input</b>	
Control voltage range	4-32V DC
Must operate voltage	4V DC
Must release voltage	1V DC
Input current max.	25mA
Reverse voltage max.	-32V DC

### Characteristics

Dielectric strength	4000V rms 1 min.
Insulation resistance	1000MΩ
Operating temperature	-30°C to +80°C

### Output

Order code	60-2050	60-2052	60-2054
Load voltage range	48 to 280V AC	48 to 400V AC	48 to 400V AC
Transient overvoltage	600V pk	800V pk	800V pk
Load current	0.1 to 25A	0.1 to 10A	0.1 to 25A
Surge current max.	250A	100A	250A
Leakage current max.	5mA	5mA	5mA
On-state voltage drop max.	1.5V	1.5V	1.5V
Turn-on time max.	1/2 cycle + 1ms	1/2 cycle + 1ms	1/2 cycle + 1ms
Turn-off time max.	1ms + 1/2 cycle	1ms + 1/2 cycle	1ms + 1/2 cycle
Min. off-state (dv/dt)	200V/μs	200V/μs	200V/μs
Power factor min.	0.5	0.5	0.5

Output voltage	Load current	Order code	1+	25+	50+	100+
240V AC	25A	60-2050	17.48	16.606	15.732	12.95
380V AC	10A	60-2052	13.80	13.11	12.42	10.45
380V AC	25A	60-2054	20.44	19.418	18.396	14.95

# IMO



## 3-Phase 4-32V Panel mount solid state relays with LEDs SSR08

These solid state relays provide 3-phase control in a single, thermally conductive epoxy encapsulated package. Featuring a choice of outputs together with an LED indicator, an internal snubber and 4kV opto-isolation.

- LED Indication
- 3-Phase AC output
- Panel mounting
- Built-in snubber
- Zero cross turn-on
- Photo isolation
- 4000V rms dielectric strength



### Technical specification

<b>Input</b>	
Control voltage range	3-32V DC
Must operate voltage	3V DC
Must release voltage	1V DC
Input current max.	35mA
Reverse voltage max.	-32V DC

### Characteristics

Dielectric strength	4000V rms 1 min.
Insulation resistance	1000MΩ
Capacitance (input to output) max.	8pF
Operating temperature	-30°C to +80°C

### Output

Order code	60-2056	60-2058
Load voltage range	48 to 440V AC	48 to 440V AC
Transient overvoltage	800V pk	800V pk
Load current	25A	60A
Surge current max.	250A	600A
Load current min.	100mA	100mA
Leakage current max.	10mA	10mA
On-state voltage drop max.	1.5V	1.5V
Turn-on time max.	10ms	10ms
Turn-off time max.	10ms	10ms
Min. off-state (dv/dt)	200V/μs	200V/μs
Power factor min.	0.5	0.5

Output voltage	Load current	Order code	1+	25+	50+	100+
48-400V AC	25A	60-2056	57.08	54.226	51.372	42.95
48-400V AC	60A	60-2058	139.88	132.886	125.892	99.99

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# IMO



## Slim line interface plug-in relays/PCBs 24V SSR13

These SPST-NO solid state relays are slim line devices that are available in AC or DC output types. Suitable for either high density PCB or socket mounting, these relays also feature 2.5kV of opto-isolation and compatibility with the IMO electromechanical standard relay types **SRRHN** and **ETS**, so are very convenient for using in industrial control.

- Slim line for high packing density
- AC or DC types available
- Photo isolation with 2500V of dielectric strength
- Zero cross turn-on
- TTL and CMOS compatible
- For interface application between PLC and external loads



### Technical specification

<b>Input</b>	
Control voltage range	19.2 to 28.8V DC
Must turn on voltage	19.2V DC
Must turn off voltage	10V DC
Input current max.	25mA
Input impedance nom.	3200Ω
Reverse protection voltage max.	28.8V DC

### Characteristics

Dielectric strength	2500V AC 1 min.
Insulation resistance	1000MΩ
Operating temperature	-30°C to +80°C
Dimensions	28 x 15 x 5mm

### Output

Order code	60-2060	60-2062
Operating voltage range	48 to 280V AC	0 to 28.8V DC
Transient overvoltage max.	600V pk	33V DC
Load current	0.1 to 2A	0.02 to 3A
Surge current max.	80A	48A
On-state voltage drop max.	1.2V rms	0.2V DC
Turn-on time max.	1/2 cycle + 1ms	50μs
Turn-off time max.	1/2 cycle + 1ms	300μs
Min. off-state (dv/dt)	100V/μs	-
Output leakage current max.	1mA	-

Type	Order code	1+	25+	50+	100+
Slimline relay 240V AC 2A	60-2060	15.20	14.44	13.68	11.45
Slimline relay 24V DC 3A	60-2062	15.84	15.048	14.256	11.50

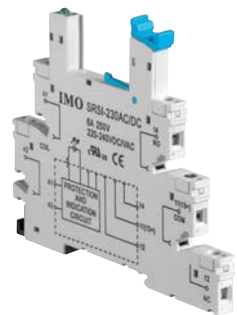
# IMO



## Sockets for slimline relays SSR13 with clip T35 DIN mount

These **IP20** rated DIN mount relay sockets are for use with the SSR13 series slimline relays.

- Rating 250V AC 6A
- Rated to **IP20**



### Technical specification

Rated voltage	250V AC
Rated current	6A per pole
Insulation voltage	5000V AC
Operating temperature	-40°C to +70°C

Part number	Input voltage	Relay coil voltage	Order code
SRSI-24AC/DC	6 to 24V DC/V AC	6 to 24V DC	60-2076
SRSI-60AC/DC	48 to 60V DC/V AC	48 to 60V DC	60-2078
SRSI-110AC/DC	110 to 125V DC/V AC	60V DC	60-2080
SRSI-230AC/DC	220 to 240V DC/V AC	60V DC	60-2082

Type	Order code	1+	25+	50+	100+
Relay socket 24V	60-2076	3.95	3.7525	3.555	3.16
Relay socket 60V	60-2078	3.95	3.7525	3.555	3.16
Relay socket 125V	60-2080	3.95	3.7525	3.555	3.16
Relay socket 240V	60-2082	3.95	3.7525	3.555	3.16