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RELAYS

The Arlin relay catalogue provides detailed information on:

- Sensitive relays for telecommunications
- Power relays for 240 volt switching
- Safety relays with forced guided contacts
- Reed relays for fast switching

This catalogue covers the most popular relays, many of which are regular stock lines. In addition, Arlin offers the full range of relay products from Schrack, OEG, Axicom, Potter&Brumfield and Meder. Many of our relays are pin compatible with other well-known brands.

Arlin has over 25 years experience in relay marketing. Our engineering support service is readily available to assist in relay selection and to provide additional technical data and cross reference information.

For a competitive quotation or engineering assistance please contact Arlin:

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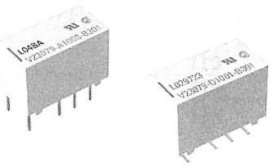


V23079 (P2) series

5 Amp Switching, High Dielectric DPDT Polarized FCC Part 68 PC Board Relay

File E48393

File LR45064

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- Surface and through hole mounting types.
- Breakdown voltage between contacts and coil: 1,500Vrms.
- Surge withstand between contacts and coil: 2,500V (Bellcore).
- High capacity contact: 2A @ 30VDC.
- 2 Form C contact arrangement.
- Board space saving, vertical mount (14.6 x 7.2mm surface area).
- Immersion cleanable, plastic sealed case.
- Single and dual coil latching versions available.
- Basic insulation (coil-to-contact) according to EN 60950 / UL 1950.
- Ultrasonic cleaning is not recommended.

Contact Data @ 23°C

Arrangement: 2 Form C (DPDT) bifurcated contacts.
Material: Gold overlay on silver nickel.
Rating:
Max. Switching Voltage: 250VAC, 220VDC.
Max. Switching Current: 5A.
Max Carrying Current: 2A.
Max Switching Power: 60W, DC; 62.5VA, AC.
Min. Permissible Load: 100µV.
UL/CSA Rating: 1A @ 30VDC; 300mA @ 110VDC; 500mA @ 120VAC; 250mA @ 240VAC.
Expected Mechanical Life: Approx. 100 million ops.
Expected Electrical Life: 50 million ops. @ 10mA, 12V, 10 million ops. @ 100mA, 6V. 1 million ops. @ 1A, 30V, 500,000 ops. @ 500mA, 60V. 200,000 ops. @ 2A, 30V.
Initial Contact Resistance: 50 milliohms @ 10mA, 20mV.
Thermoelectric potential: <10µV.

High Frequency Data

Capacitance: **Between Open Contacts:** 2pF, max.
Between Coil and Contacts: 1.5pF, max.
Between Poles: 1pF, max.
RF Characteristics: **Isolation at 100 / 900 MHz:** -39.0 db / -20.7 db.
Insertion loss at 100 / 900 MHz: -0.02 db / -0.27 db.
V. S. W. R. at 100 / 900 MHz: 1.04 db / 1.40 db.

Initial Dielectric Strength

Between Open Contacts: 1,000Vrms for 1 minute. (1,500Vrms on request, consult factory for availability).
Between Coil and Contacts: 1,500Vrms for 1 minute. (single coil relay).
Between Poles: 1,000Vrms for 1 minute.
Surge Voltage Resistance per Bellcore TR-NWT-001089 (2 / 10 µs):
Between Open Contacts: 2,000V.
Between Coil and Contacts: 2,500V (single coil relay).
Between Poles: 2,500V.
Surge Voltage Resistance per FCC 68 (10 / 160 µs):
Between Open Contacts: 1,500V.
Between Coil and Contacts: 1,500V (single coil relay).
Between Poles: 1,500V.

Initial Insulation Resistance

Between Mutually Insulated Conductors: 10^9 ohms @ 500VDC.

Coil Data @ 23°C

Voltage: 3-24V.
Nominal Power: 70mW-140mW, dependent on model. See chart below.

Nominal Voltage (VDC)	Operating Range @ 23°C: Must Operate Voltage (VDC)	Operating Range @ 23°C: Max. Voltage (VDC)	@ 85°C: Max. Voltage (VDC)	Coil Resistance @ 23°C
Non-Latching, 140mW Nominal Power				
3	2.25	6.5	3.4	64.3 ± 6
4.5	3.375	9.8	5.1	145 ± 15
5	3.75	10.9	5.7	178 ± 18
6	4.50	13.0	6.8	257 ± 26
9	6.75	19.6	10.3	578 ± 58
12	9.0	26.1	13.8	1,029 ± 103
24	18.0	52.3	27.7	4,114 ± 411
Single Coil Latching, 70mW Nominal Power				
3	2.25	9.2	4.8	128 ± 13
4.5	3.375	13.8	7.3	289 ± 29
5	3.75	15.3	8.1	357 ± 36
6	4.5	18.5	9.8	514 ± 51
9	6.75	27.7	14.6	1,157 ± 116
12	9.0	37.0	19.6	2,057 ± 206
24	18.0	74.0	39.2	8,228 ± 823
Dual Coil Latching, 140mW Nominal Power				
3	2.25	6.5	–	64.3 ± 6
4.5	3.375	9.8	–	145 ± 15
5	3.75	10.9	–	178 ± 18
6	4.5	13.0	–	257 ± 26
9	6.75	19.6	–	578 ± 58
12	9.0	26.1	–	1,029 ± 103
24	18.0	52.3	–	4,114 ± 411

Operate Data @ 23°C

Must Operate Voltage: 75% of nominal or less.
Must Release Voltage: 10% of nominal or more.
Operate Time (at nominal voltage)**:** 3 ms, typ.; 5 ms, max.
Reset Time (at nominal voltage)**:** 3 ms, typ.; 5 ms, max.
Release Time (non-latching w/o diode in parallel)**:** 2 ms, typ.; 4 ms, max.
Release Time (non-latching with diode in parallel)**:** 4 ms, typ.; 6 ms, max.
Bounce Time (at contact close)**:** 1 ms, typ.; 3 ms, max.
Maximum Switching Rate (no load)**:** 50 operations/s.

Environmental Data

Temperature Range: -40°C to +85°C.
Maximum Allowable Coil Temperature: 110°C.
Thermal Resistance: < 165K/W.
Shock, half sinus, 11 ms: Functional: 50g.
Shock, half sinus, 11 ms: Destructive: 150g.
Vibration, 10-1,000 Hz.: Functional: 35g.
Needle Flame Test: Application time 20s, burning time <15s.
Resistance to Soldering Heat: 260°C for 10s.

Mechanical Data

Termination: Through hole or surface mount printed circuit terminals.
Mounting Position: Any.
Enclosure: Immersion cleanable (IP67) plastic case.
Weight: .084 oz. (2.5g) approximately.

Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

Ordering Information

Typical Part Number ▶	V23079	A10	01	B301

1. Basic Series:
V23079 = P2 Miniature, printed circuit board relay.

2. Termination:

	Non-Latching Normal Ht.	Non-Latching Reduced Ht.	Dual Coil Latching	Single Coil Latching
Through-Hole	**A10**	**A20**(1)	**B12**	**C11**
SMT Extended Terminal	**D10**	**D20**(1)	**E12**	**F11**
SMT Short Terminal	**G10**	**G20**(1)	**H12**	**J11**

3. Coil Voltage:
08 = 3VDC 11 = 4.5VDC 01 = 5VDC 02 = 6VDC 06 = 9VDC 03 = 12VDC 05 = 24VDC(2)

4. Contact Type:
B301 = Bifurcated, 2 Form C (DPDT), Silver Nickel.

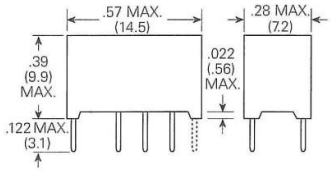
(1) Reduced mounting height of 10.0 mm, as opposed to 10.4 mm (SMT) or 9.6 mm as opposed to 9.9 (through-hole). Non-latching only, not available with 24V coil.
(2) Not available with Termination A20, D20 or G20.

Our authorized distributors are more likely to stock the following items for immediate delivery.

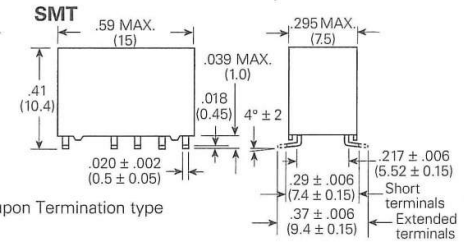
V23079A1001B301	V23079A1011B301	V23079A2011B301	V23079D1005B301	V23079D2003B301
V23079A1003B301	V23079A2001B301	V23079D1001B301	V23079D1011B301	V23079D2011B301
V23079A1005B301	V23079A2003B301	V23079D1003B301	V23079D2001B301	

Outline Dimensions

THT



SMT



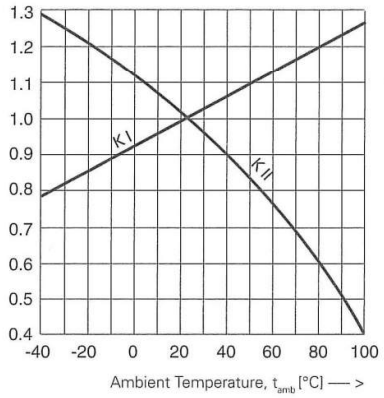
Note: Mounting height varies dependent upon Termination type selected in step 2 of Ordering Information

Coil Limits

U_I = Minimum voltage at 23° C after pre-energizing with nominal voltage without contact current
U_{II} = Maximum continous voltage at 23°

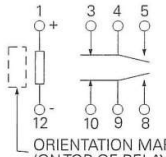
The operating voltage limits U_I and U_{II} depend on the temperature according to the formula:

$U_{I\,tamb} = K_I \cdot U_{I\,23°C}$
and
$U_{II\,tamb} = K_{II} \cdot U_{II\,23°C}$
t_{amb} = Ambient temperature
$U_{I\,tamb}$ = Minimum voltage at ambient temperature, t_{amb}
$U_{II\,tamb}$ = Maximum voltage at ambient temperature, t_{amb}
k_I, k_{II} = Factors (dependent on temperature), see diagram

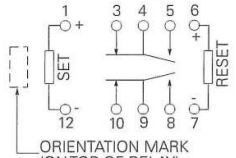


Wiring Diagrams (Bottom Views)

Single Coil Latching* and Single Coil Non-latching**



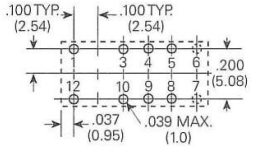
Dual Coil Latching***



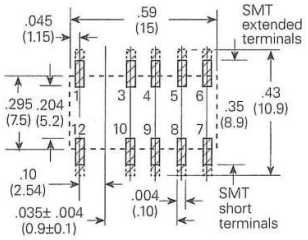
Note: All diagrams shown in de-energized or reset position.
***Note:** For non-latching versions, coil polarity must be observed.
****Note:** For single coil latching versions, polarity shown results in "set" condition. Reverse polarity results in "reset" condition.
*****Note:** The contact position illustrated shows the reset condition. If a positve potential is applied to terminal 1 or 7, the relay adopts the set position.

PC Board Layout (Bottom View)

THT



SMT (Solder Pad)

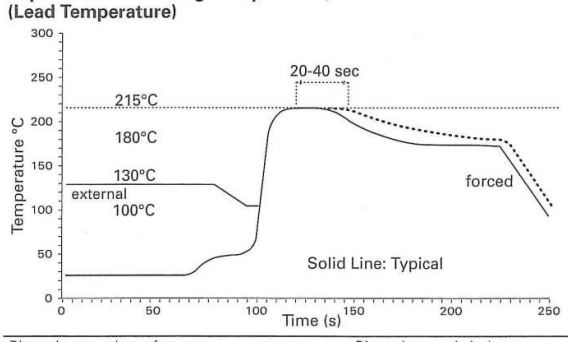


Packaging Information

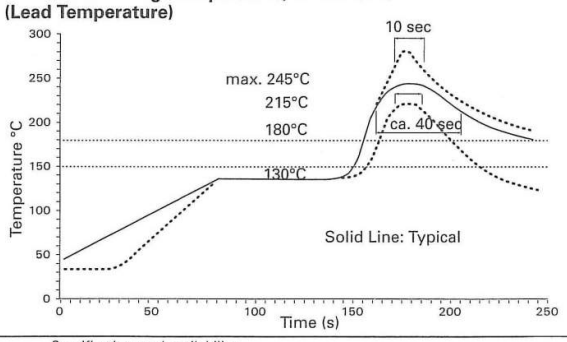
THT P2 relays are shipped in tubes of 50. There are 2,000 relays in a carton. SMT P2 relays with long terminals are shipped in reels of 400, with 2,000 relays in a carton. SMT P2 relays with short terminals are shipped in reels of 500. There are 2,500 relays in a full carton.

Recommended Soldering Conditions (according to CECC 00802)

Vapor Phase Soldering: Temperature/Time Profile (Lead Temperature)



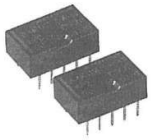
Infrared Soldering: Temperature/Time Profile (Lead Temperature)



Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.



FP2 series

DPDT Low Profile Telecom/Signal PC Board Relays

File E111441
File 169679-1079886
16501-003

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- Through hole PC board terminals.
- Meets FCC Part 68 and ITU-T K20.
- For applications in telecommunications, office automation, consumer electronics, medical equipment, measurement and control equipment.
- Immersion cleanable, plastic sealed case.
- 80mW coil for high sensitivity models, 140mW coil for sensitive types.
- Ultrasonic cleaning not recommended.

Contact Data @ 23°C (except as noted)

Arrangement: 2 Form C (DPDT) bifurcated contacts.
Material: Stationary: Silver-nickel, gold covered.
Ratings: Max. Switched Current: 2A.
Max. Carry Current: 2A (at max ambient temperature.
Max. Switched Voltage: 125VDC, 250VAC.
Max. Switched Power: 30W DC or 62.5VA AC.
UL/CSA Ratings: 500mA @ 50VDC; 1.25A @ 30VDC; 500mA @ 50VAC.
Initial Contact Resistance: <70 milliohms @ 10mA / 20mV.
Expected Mechanical Life: 100 million operations.
Expected Electrical Life: 2.5 million operations @ 10mA / 30mVDC.
2 million operations @ cable load open end.
100,000 operations @ 240mA / 125VDC.
100,000 operations @ 250mA / 250VDC.
100,000 operations @ 1.25A / 24VDC.
Thermoelectric potential: <10µV.

High Frequency Data

Capacitance: Between Open Contacts: 1pF, max.
Between Coil and Contacts: 4pF, max.
Between Poles: 1pF, max.
RF Characteristics: Isolation at 100 / 900 MHz: -40.2 db / -22.3 db.
Insertion loss at 100 / 900 MHz: -0.03 db / -0.25 db.
V. S. W. R. at 100 / 900 MHz: 1.01 db / 1.07 db.

Initial Dielectric Strength

Between Open Contacts: 700Vrms for 1 minute.
Between Coil and Contacts: 1,000Vrms for 1 minute.
Between Poles: 1,000Vrms for 1 minute.
Surge Voltage Resistance per FCC 68 (10 / 160 µs) and IEC (10 / 700 µs):
Between Open Contacts: 1,500V.
Between Coil and Contacts: 1,500V.
Between Poles: 1,500V.

Initial Insulation Resistance

Between Contact and Coil: 10^9 ohms or more @ 500VDC.

Coil Data @ 23°C

Voltage: 3 to 48VDC.
Nominal Power: 80-300mW depending on models. See coil data tables.
Duty Cycle: Continuous.

Coil Data @ 23°C

Nom. Voltage (VDC)	Operate/Set Range Min. Voltage (VDC)	Operate/Set Range Max. Voltage (VDC)	Minimum Release/Reset Voltage (VDC)	Nom. Power (mW)	Resistance ±10% (Ohms)	Part Number
Non-latching 1 coil versions						
3	2.1	6.8	0.3	140	64	D3006
4.5	3.15	10.3	0.45	140	145	D3004
5	3.5	11.4	0.5	140	178	D3009
6	4.2	13.7	0.6	140	257	D3005
9	6.3	20.4	0.9	140	574	D3010
12	8.4	27.3	1.2	140	1,028	D3002
24	16.8	45.7	2.4	200	2,880	D3012
48	33.6	67.5	4.8	300	7,680	D3013
Non-latching, sensitive 1 coil versions						
3	2.25	9.0	0.3	80	113	D3021
4.5	3.38	13.5	0.45	80	253	D3022
5	3.75	15.0	0.5	80	313	D3023
6	4.5	18.0	0.6	80	450	D3024
9	6.75	27.1	0.9	80	1,013	D3025
12	9.0	36.1	1.2	80	1,800	D3026
24	18.0	54.7	2.4	140	4,114	D3027
48	36.0	72.5	4.8	260	8,882	D3028
Latching 1 coil versions						
3	2.25	8.1	-2.25	100	90	D3041
4.5	3.375	12.1	-3.375	100	203	D3042
5	3.75	13.5	-3.75	100	250	D3043
6	4.5	16.2	-4.5	100	360	D3044
9	6.75	24.2	-6.75	100	810	D3045
12	9.0	29.0	-9.0	100	1,440	D3046
24	18.0	47.5	-18.0	150	3,840	D3047
Latching 2 coil versions						
3	2.1	5.7	2.1	200	45	D3061
4.5	3.15	8.6	3.15	200	101	D3062
5	3.5	9.5	3.5	200	125	D3063
6	4.2	11.4	4.2	200	180	D3064
9	6.3	17.1	6.3	200	405	D3065
12	8.4	22.6	8.4	200	720	D3066
24	16.8	33.7	16.8	200	1,920	D3067

Operate Data @ 23°C

Operate and Release Voltage: See values in chart above.
Operate Time (at nominal voltage)**:** 3 ms, typ.; 4 ms, max.
Reset Time [latching](at nominal voltage)**:** 3 ms, typ.; 4 ms, max.
Release Time [non-latching](w/o diode in parallel)**:** 1 ms, typ.; 3 ms, max.
Release Time [non-latching](with diode in parallel)**:** 3 ms, typ.; 4 ms, max.
Bounce Time (at contact close)**:** 1 ms, typ.; 5 ms, max.
Maximum Switching Rate (no load)**:** 50 operations/s.

Environmental Data

Temperature Range: -55°C to +85°C.
Maximum Allowable Coil Temperature: 110°C.
Thermal Resistance: < 185K/W.
Shock, half sinus, 11 ms: Functional: 50g.
Shock, half sinus, 11 ms: Destructive: 1,500g.
Vibration, 10-500 Hz.: Functional: 20g.
Needle Flame Test: Application Time 20s.
Resistance to Soldering: 260°C for 10s.

Mechanical Data

Termination: Through-hole printed circuit terminals.
Mounting Position: Any.
Enclosure Type: Immersion cleanable (IP67) plastic case.
Weight: 0.08 oz. (2g) approximately.

Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

U_I = Minimum voltage at 23° C after pre-energizing with nominal voltage without contact current

U_{II} = Maximum continous voltage at 23°

The operating voltage limits U_I and U_{II} depend on the temperature according to the formula:

$U_{I\,tamb}$ = $K_I \cdot U_{I\,23°C}$

and

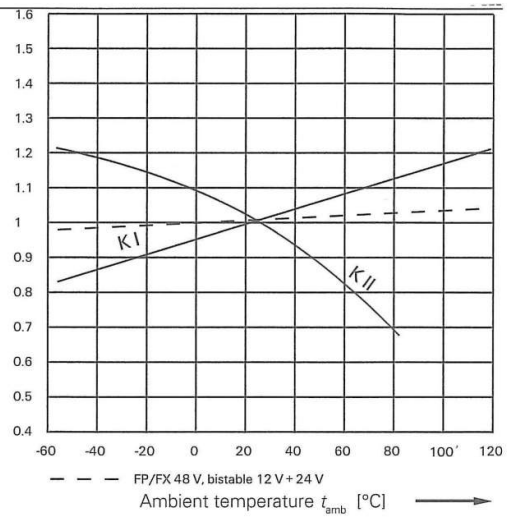
$U_{II\,tamb}$ = $K_{II} \cdot U_{II\,23°C}$

t_{amb} = Ambient temperature

$U_{I\,tamb}$ = Minimum voltage at ambient temperature, t_{amb}

$U_{II\,tamb}$ = Maximum voltage at ambient temperature, t_{amb}

k_I, k_{II} = Factors (dependent on temperature), see diagram



Ordering Information

See "Part Number" column in Coil Data chart on previous page for available part numbers in the FP2 series.

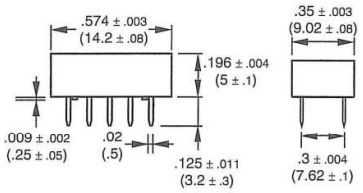
Packaging Information

FP2 series relays are shipped in tubes of 50. There are 1,000 relays in a full carton.

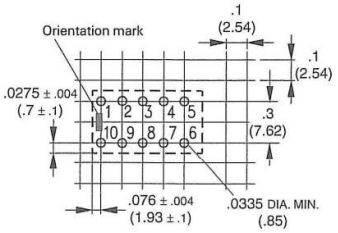
Our authorized distributors are more likely to stock the following items for immediate delivery.

None at present.

Outline Dimensions

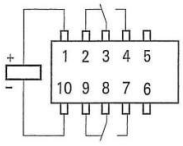


PC Board Layout (Bottom View)

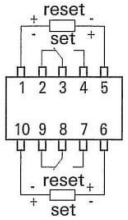


Wiring Diagrams (Bottom Views)

Non-Latching and Latching, 1 Coil Release or Reset Condition



Latching, 2 Coil Reset Condition



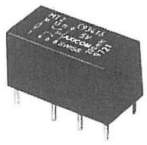
Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

MT2 series

DPDT Telecom/Signal PC Board Relays



File E111441
File 176679-1079886
16502-001

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- Through hole type terminals.
- Meets FCC Part 68 and ITU-T K20.
- For applications in telecommunications, office automation, consumer electronics, medical equipment, measurement and control equipment.
- Immersion cleanable, plastic sealed case.
- 150mW, 200mW, 300mW, 400mW or 550mW coil.
- Ultrasonic cleaning not recommended.

Contact Data @ 23°C (except as noted)

Arrangement: 2 Form C (DPDT) bifurcatedcontacts.
Material: Stationary: Silver-nickel, gold covered.
Ratings: Max. Switched Current: 2A.
Max. Carry Current: 1.25A (at max ambient temperature.
Max. Switched Voltage: 150VDC, 150VAC.
Max. Switched Power: 30W DC or 62.5VA AC.
UL/CSA Ratings: 400mA @ 125VAC; 1.25A @ 24VDC.
Initial Contact Resistance: <70 milliohms @ 10mA / 20mV.
Expected Mechanical Life: 100,000,000 ops.
Expected Electrical Life: 5 million operations @ 10mA / 30mVDC.
2.5 million operations @ cable load open end.
200,000 operations @ 1.25A / 24VDC, res.
200,000 operations @ 200mA / 150VDC, res.
Thermoelectric potential: <10µV.

High Frequency Data

Capacitance: **Between Open Contacts:** 2pF, max.
Between Coil and Contacts: 4pF, max.
Between Poles: 2pF, max..
RF Characteristics: **Isolation at 100 / 900 MHz:** -31.8 db / -14.2 db.
Insertion loss at 100 / 900 MHz: -0.02 db / -0.97 db.
V. S. W. R. at 100 / 900 MHz: 1.03 db / 1.31 db.

Initial Dielectric Strength

Between Open Contacts: 700Vrms for 1 minute.
Between Coil and Contacts: 1,050Vrms for 1 minute.
Between Poles: 700Vrms for 1 minute.
Surge Voltage: 1,500V surge per FCC Part 68 and IEC.

Initial Insulation Resistance

Between Contact and Coil: 10^9 ohms or more @ 500VDC.

Coil Data @ 23°C

Voltage: 4.5 to 48VDC.
Nominal Power: See Coil Data table.
Duty Cycle: Continuous.

Coil Data @ 23°C

Nominal Voltage (VDC)	Minimum Voltage (VDC)	Maximum Voltage (VDC)	Minimum Release Voltage (VDC)	Resistance ±10% (Ohms)	Part Number
150mW versions					
4.5	3.2	10.1	0.45	136	C 93406
5	3.6	11.3	0.50	168	C 93401
6	4.3	13.4	0.60	240	C 93427
9	6.4	20.3	0.90	544	C 93405
12	8.6	27.1	1.2	968	C 93402
24	174.1	54.1	2.4	3,872	C 93404
48	33.1	108.3	4.8	15,468	C 93404
200mW versions					
4.5	2.9	8.7	0.45	101	C 93415
5	3.3	9.7	0.5	125	C 93416
6	3.9	11.6	0.6	180	C 93428
9	5.9	17.5	0.9	405	C 93417
12	7.8	23.3	1.2	720	C 93418
24	15.6	46.7	2.4	2,880	C 93419
48	31.2	93.4	4.8	11,520	C 93420
300mW versions					
4.5	3.1	7.4	0.45	73	C 93433
5	3.4	8.2	0.5	90	C 93434
12	8.25	19.7	1.2	515	C 93412
24	16.5	39.5	2.4	2,060	C 93435
48	32.5	79.0	4.8	8,240	C 93436
400mW versions					
4.5	2.9	6.1	0.45	50	C 93421
5	3.3	6.9	0.5	63	C 93422
6	3.9	8.2	0.6	90	C 93429
9	5.9	12.4	0.9	203	C 93423
12	7.8	16.5	1.2	360	C 93424
24	15.6	33.0	2.4	1,440	C 93425
48	31.2	66.0	4.8	5,760	C 93426
550mW versions					
4.5	2.9	6.0	0.45	36	C 93438
5	3.3	6.8	0.5	45	C 93450
6	3.9	8.1	0.6	66	C 93437
12	7.8	16.7	1.2	280	C 93432
24	15.6	32.4	2.4	1,050	C 93431
48	31.2	64.1	4.8	4,100	C 93430

Operate Data @ 23°C

Operate and Release Voltage: See values in chart above.
Operate Time (at nominal voltage): 4 ms, typ.; 5 ms, max.
Release Time (without diode in parallel): 1 ms, typ.; 3 ms, max.
Release Time (with diode in parallel): 4 ms, typ.; 6 ms, max.
Bounce Time (at contact close): 1 ms, typ.; 5 ms, max.
Maximum Switching Rate (no load): 50 operations/s.

Environmental Data

Temperature Range: -55°C to +85°C.
Maximum Allowable Coil Temperature: 125°C.
Thermal Resistance: < 125K/W.
Shock, half sinus, 11 ms: **Functional:** 50g.
Destructive: 100g.
Vibration, 10-500 Hz.: **Functional:** 10g.
Needle Flame Test: Application Time 10s.
Resistance to Soldering: 260°C for 10s.

Mechanical Data

Termination: DIP compatible, printed circuit terminals.
Mounting Position: Any.
Enclosure Type: Immersion cleanable (IP67) plastic case.
Weight: 0.18 oz. (5g) approximately.

Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

U_I = Minimum voltage at 23° C after pre-energizing with nominal voltage without contact current

U_{II} = Maximum continous voltage at 23°

The operating voltage limits U_I and U_{II} depend on the temperature according to the formula:

$U_{I\,tamb}$ = $K_I \cdot U_{I\,23°\,C}$

and

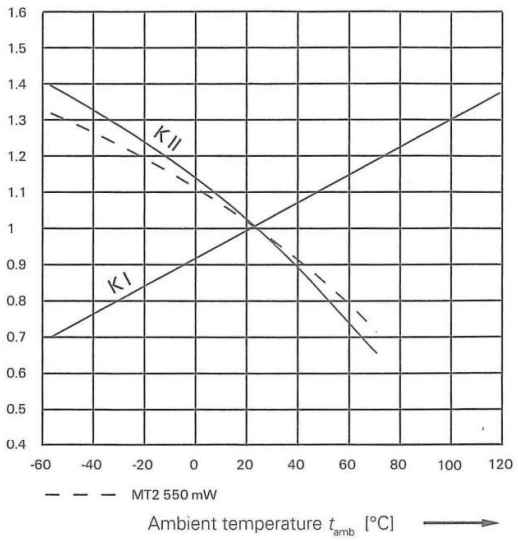
$U_{II\,tamb}$ = $K_{II} \cdot U_{II\,23°\,C}$

t_{amb} = Ambient temperature

$U_{I\,tamb}$ = Minimum voltage at ambient temperature, t_{amb}

$U_{II\,tamb}$ = Maximum voltage at ambient temperature, t_{amb}

k_I, k_{II} = Factors (dependent on temperature), see diagram



Ordering Information

See "Part Number" column in Coil Data chart on previous page for available part numbers in the MT2 series.

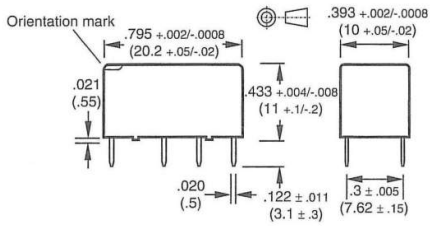
Packaging Information

MT2 series relays are shipped in tubes of 25. There are 500 relays in a full carton.

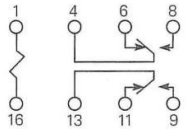
Our authorized distributors are more likely to stock the following items for immediate delivery.

None at present.

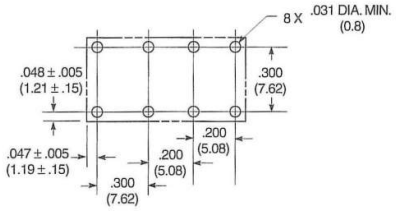
Outline Dimensions



Wiring Diagram (Bottom View)



PC Board Layout (Bottom View)



Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

SRUUH series

15 Amp Miniature Power PC Board Relay

c UL us UL File No. E82292

TUV File No. R60271

Users should thoroughly review the technical data before selecting a product part number. It is recommended that user also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- 15 Amp switching capacity.
- 1 Form A and 1 Form C contact arrangements.
- Immersion cleanable, sealed version available.
- Applications include appliance, HVAC, security system, garage opener control, emergency lighting.

Contact Data @ 20°C

Arrangements: 1 Form A (SPST-NO) and 1 Form C (SPDT).
Material: Silver cadmium oxide.
Max. Switching Rate: 300 ops./min. (no load).
20 ops./min. (rated load).
Expected Mechanical Life: 10 million operations (no load).
Expected Electrical Life: 100,000 operations (rated load, relay vented).
Minimum Load: 100mA @ 5VDC.
Initial Contact Resistance: 100 milliohms @ 1A, 6VDC.

Contact Ratings

Ratings: 15A @ 120VAC resistive,
10A @ 240VAC resistive,
10A @ 28VDC resistive.
Max. Switched Voltage: **AC:** 240V.
DC: 28V.
Max. Switched Current: 15A.
Max. Switched Power: 2,400VA, 300W.

Note: Sealed relays should be vented after soldering and cleaning in order to achieve listed ratings.

Initial Dielectric Strength

Between Open Contacts: 750VAC 50/60 Hz. (1 minute).
Between Coil and Contacts: 1,500VAC 50/60 Hz. (1 minute).
Surge Voltage Between Coil and Contacts: 3,000V (1.2 / 50µs).

Initial Insulation Resistance

Between Mutually Insulated Elements: 100M ohms min. @ 500VDC.

Coil Data

Voltage: 3 to 48VDC.
Nominal Power: 360 mW except 48VDC coil (510mW).
Coil Temperature Rise: 60°C max., at rated coil voltage.
Max. Coil Power: 130% of nominal.
Duty Cycle: Continuous.

Coil Data @ 20°C

SRUUH				
Rated Coil Voltage (VDC)	Nominal Current (mA)	Coil Resistance (ohms) ± 10%	Must Operate Voltage (VDC)	Must Release Voltage (VDC)
3	120	25	2.25	0.30
6	60	100	4.50	0.60
9	40	225	6.75	0.90
12	30	400	9.00	1.20
24	15	1,600	18.00	2.40
48	10	4,500	36.00	4.80

Operate Data

Must Operate Voltage: 75% of nominal voltage or less.
Must Release Voltage: 10% of nominal voltage or more.
Operate Time: 15 ms max.
Release Time: 5 ms max.

Environmental Data

Temperature Range:
Operating: -30°C to +60°C
Vibration, Mechanical: 10 to 55 Hz., 1.5mm double amplitude
Operational: 10 to 55 Hz., 1.5mm double amplitude.
Shock, Mechanical: 1,000m/s² (100G approximately).
Operational: 100m/s² (10G approximately).
Operating Humidity: 20 to 85% RH. (Non-condensing).

Mechanical Data

Termination: Printed circuit terminals.
Enclosure (94V-0 Flammability Ratings):
SRUUH-SS: Vented (Flux-tight) plastic cover
SRUUH-SH: Sealed plastic case
Weight: 0.42 oz (12g) approximately.

Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

Ordering Information

Typical Part Number ▶	SRUUH	-SS	-1	12	D	1	M	,000

1. Basic Series:
SRUUH = Miniature Power PC board relay.

2. Enclosure:
SS = Vent (Flux-tight)* plastic cover. SH = Sealed, plastic case.

3. Termination:
1 = 1 pole

4. Coil Voltage:
03 = 3VDC 09 = 9VDC 24 = 24VDC
06 = 6VDC 12 = 12VDC 48 = 48VDC

5. Coil Input:
D = Standard

6. Contact Material:
1 = Silver Cadmium Oxide

6. Contact Arrangement:
Leave Blank = 1 Form C, SPDT M = 1 Form A, SPST-NO

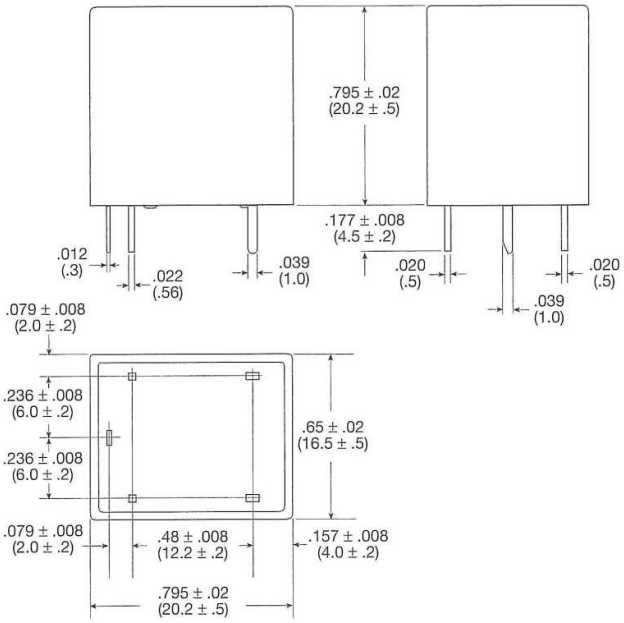
7. Option:
,000= Standard model. Other Suffix = Custom model.

* Not suitable for immersion cleaning processes.

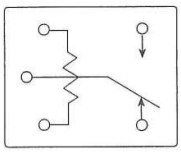
Our authorized distributors are more likely to maintain the following items in stock for immediate delivery.

SRUUH-SH112D1M,000 SRUUH-SH112D1,000
SRUUH-SH124D1M,000 SRUUH-SH124D1,000

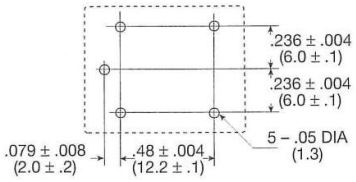
Outline Dimensions



Wiring Diagram (Bottom View)



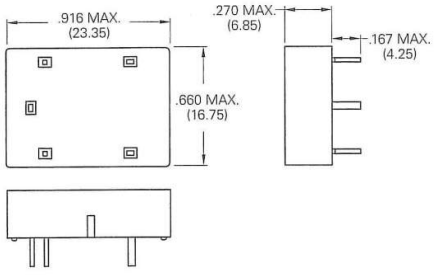
PC Board Layout (Bottom View)



Note: Only necessary terminals are present on 1 Form A (SPST-NO) models.

Socket

27E1064 socket is rated 10A @ 300VAC. UL Recognized for US and Canada. Designed to fit same suggested board layout as relay.



Hold-Down Spring

20C430 spring is designed to secure SRUUH relay in 27E1064 socket.

Dimensions are shown for reference purposes only.

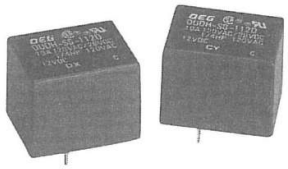
Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

OUDH series

10 Amp Miniature, Sealed PC Board Relay

Appliances, HVAC, Office Machines.



UL File No. E58304
CSA File No. LR48471

Users should thoroughly review the technical data before selecting a product part number. It is recommended that user also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- Low profile miniature power relay
- High density available on PC board due to small size.
- 450mW coil available.
- Meets 2kV dielectric between coil and contacts.
- Meets 5kV surge voltage.
- Immersion cleanable, sealed version available.

Contact Data @ 20°C

Arrangements: 1 Form A (SPST-NO), 1 Form C (SPDT).
Material: Ag Alloy.
Max. Switching Rate: 300 ops./min. (no load).
30 ops./min. (rated load).
Expected Mechanical Life: 10 million operations (no load).
Expected Electrical Life: 100,000 operations (rated load).
Minimum Load: 100mA @ 5VDC.
Initial Contact Resistance: 100 milliohms @ 1A, 6VDC.

Contact Ratings

Ratings: 10A @ 120VAC resistive,
10A @ 28VDC resistive,
1/4 HP @ 120VAC.

3A @ 120VAC inductive (cosø= 0.4),
3A @ 28VDC inductive (L/R= 7msec).

Max. Switched Voltage: **AC:** 240V.
DC: 110V.
Max. Switched Current: 10A.
Max. Switched Power: 1,200VA, 300W.

Initial Dielectric Strength

Between Open Contacts: 750VAC 50/60 Hz. (1 minute).
Between Coil and Contacts: 2,000VAC 50/60 Hz. (1 minute).
Surge Voltage Between Coil and Contacts: 5,000V (1.2/50µs).

Initial Insulation Resistance

Between Mutually Insulated Elements: 1,000M ohms min. @ 500VDCM.

Coil Data

Voltage: 5 to 48VDC.
Nominal Power: 450mW except 48VDC coil (660mW)
Coil Temperature Rise: 60°C max., at rated coil voltage.
Max. Coil Power: 130% of nominal.
Duty Cycle: Continuous.

Coil Data @ 20°C

OUDH				
Rated Coil Voltage (VDC)	Nominal Current (mA)	Coil Resistance (ohms) ± 10%	Must Operate Voltage (VDC)	Must Release Voltage (VDC)
5	89.6	56	3.75	0.50
6	75.0	80	4.50	0.60
9	50.0	180	6.75	0.90
12	37.5	320	9.00	1.20
24	20.9	1,280	18.00	2.40
48	13.7	3,500	36.00	4.80

Operate Data

Must Operate Voltage: 75% of nominal voltage or less.
Must Release Voltage: 10% of nominal voltage or more.
Operate Time: 10 ms max.
Release Time: 5 ms max.

Environmental Data

Temperature Range:
Operating: -30°C to +60°C
Vibration, Mechanical: 10 to 55 Hz., 1.5mm double amplitude
Operational: 10 to 55 Hz., 1.5mm double amplitude.
Shock, Mechanical: 1,000m/s² (100G approximately).
Operational: 100m/s² (10G approximately).
Operating Humidity: 20 to 85% RH. (Non-condensing).

Mechanical Data

Termination: Printed circuit terminals.
Enclosure (94V-0 Flammability Ratings):
OUDH-SS: Vented (Flux-tight), plastic cover.
OUDH-SH: Sealed, plastic case.
Weight: 0.35 oz (10g) approximately.

Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

Ordering Information

Typical Part Number ▶	OUDH	-SH	-1	12	D	M	,000

1. Basic Series:
OUDH = Miniature, sealed PC board relay.

2. Enclosure:
SS = Vented (Flux-tight)* plastic cover.
SH = Sealed, plastic case.

3. Termination:
1 = 1 pole

4. Coil Voltage:
05 = 5VDC 09 = 9VDC 24 = 24VDC
06 = 6VDC 12 = 12VDC 48 = 48VDC

5. Coil Input:
D = Standard

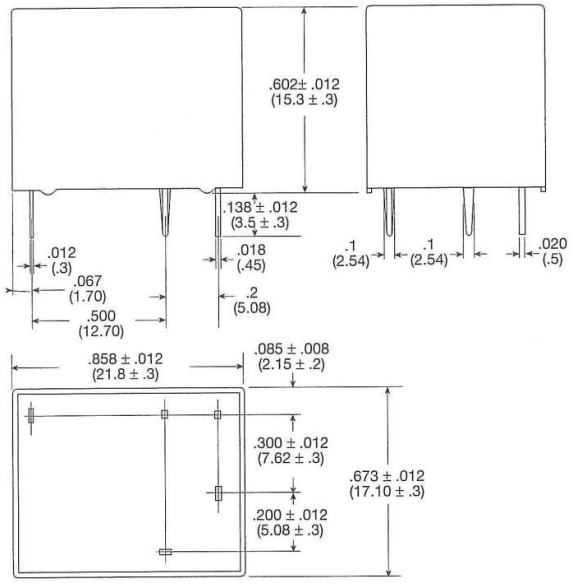
6. Contact Arrangement:
Blank = 1 Form C, SPDT M = 1 Form A, SPST-NO

7. Suffix:
,000 = Standard model Other Suffix = Custom model

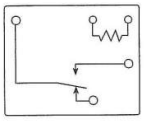
* Not suitable for immersion cleaning processes.

Our authorized distributors are more likely to maintain the following items in stock for immediate delivery.
None at present.

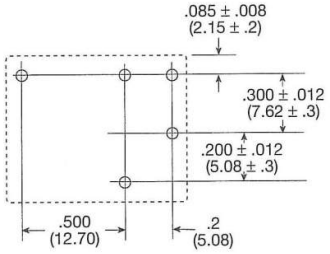
Outline Dimensions



Wiring Diagram (Bottom View)

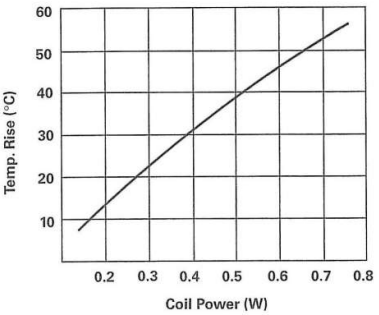


PC Board Layout (Bottom View)

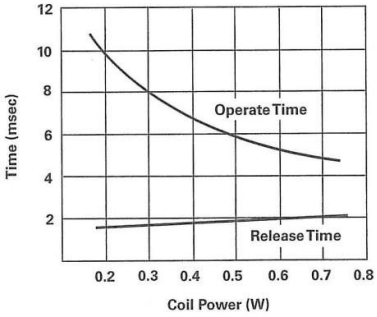


Reference Data

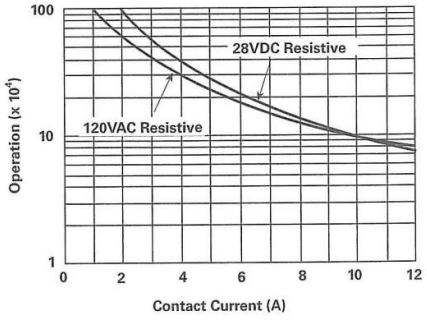
Coil Temperature Rise



Operate Time



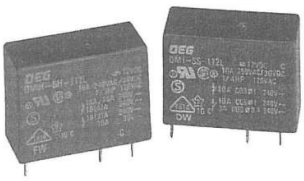
Life Expectancy



Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.



OMI/OMIH series

16A Miniature Power PC Board Relay

Appliances, HVAC, Office Machines.

UL File No. E58304
CSA File No. LR48471
VDE File No. 6678
SEMKO File No. 9517235 (OMI)
9143112 (OMIH)

Users should thoroughly review the technical data before selecting a product part number. It is recommended that user also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- Meet UL 508, VDE0435 and SEMKO requirements.
- 1 Form A and 1 Form C contact arrangements.
- Immersion cleanable, sealed version available.
- Meet 5,000V dielectric voltage between coil and contacts.
- Meet 10,000V surge voltage between coil and contacts (1.2 / 50μs).

Contact Data @ 20°C

Arrangements: 1 Form A (SPST-NO) and 1 Form C (SPDT).
Material: Ag Alloy (OMI), AgSnO (OMIH).
Max. Switching Rate: 300 ops./min. (no load).
30 ops./min. (rated load).
Expected Mechanical Life: 10 million operations (no load).
Expected Electrical Life: 100,000 operations (rated load).
Minimum Load: 100mA @ 5VDC.
Initial Contact Resistance: 100 milliohms @ 1A, 6VDC.

Contact Ratings

Ratings: OMI: 10A @ 240VAC resistive,
10A @ 30VDC resistive,
3A @ 240VAC inductive (cosø= 0.4),
3A @ 30VDC inductive (L/R=7msec).
OMIH: 16A @ 240VAC resistive,
16A @ 30VDC resistive,
4A @ 240VAC inductive (cosø= 0.4),
4A @ 24VDC inductive (L/R=7msec).

Max. Switched Voltage: AC: 250V.
DC: 30V.
Max. Switched Current: 10A (OMI), 16A (OMIH).
Max. Switched Power: OMI: 2,400VA, 300W.
OMIH: 3,800VA, 480W.

Initial Dielectric Strength

Between Open Contacts: 1,000VAC 50/60 Hz. (1 minute).
Between Coil and Contacts: 5,000VAC 50/60 Hz. (1 minute).
Surge Voltage Between Coil and Contacts: 10,000V (1.2 / 50μs).

Initial Insulation Resistance

Between Mutually Insulated Elements: 1,000M ohms min. @ 500VDC.

Coil Data

Voltage: 5 to 48VDC.
Nominal Power: 720 mW (OMI-D), 540mW (OMI-L).
Coil Temperature Rise: 45°C max., at rated coil voltage.
Max. Coil Power: 130% of nominal.
Duty Cycle: Continuous.

Coil Data @ 20°C

OMI/OMIH-L Sensitive				
Rated Coil Voltage (VDC)	**Nominal Current (mA)**	**Coil Resistance (ohms) ± 10%**	**Must Operate Voltage (VDC)**	**Must Release Voltage (VDC)**
5	106.4	47	3.75	0.50
6	88.0	68	4.50	0.60
9	58.0	155	6.75	0.90
12	44.4	270	9.00	1.20
24	21.8	1,100	18.00	2.40
48	10.9	4,400	36.00	4.80
OMI/OMIH-D Standard				
Rated Coil Voltage (VDC)	**Nominal Current (mA)**	**Coil Resistance (ohms) ± 10%**	**Must Operate Voltage (VDC)**	**Must Release Voltage (VDC)**
5	138.9	36	3.50	0.50
6	120.0	50	4.20	0.60
9	78.3	115	6.30	0.90
12	60.0	200	8.40	1.20
24	29.3	820	16.80	2.40
48	14.5	3,300	33.60	4.80

Operate Data

Must Operate Voltage:
OMI/OMIH-D: 70% of nominal voltage or less.
OMI/OMIH-L: 75% of nominal voltage or less.
Must Release Voltage: 5% of nominal voltage or more.
Operate Time: OMI/OMIH-D: 15 ms max.
OMI/OMIH-L: 20 ms max.
Release Time: 8 ms max.

Environmental Data

Temperature Range:
Operating: OMI/OMIH-D:
-30°C to +55°C
OMI/OMIH-L:
-30°C to +70 °C
Vibration, Mechanical: 10 to 55 Hz., 1.5mm double amplitude
Operational: 10 to 55 Hz., 1.5mm double amplitude.
Shock, Mechanical: 1,000m/s² (100G approximately).
Operational: 100m/s² (10G approximately).
Operating Humidity: 20 to 85% RH. (Non-condensing).

Mechanical Data

Termination: Printed circuit terminals.
Enclosure (94V-0 Flammability Ratings):
OMI/OMIH-SS: Vented (Flux-tight) plastic cover.
OMI/OMIH-SH: Sealed plastic case.
Weight: 0.46 oz (13g) approximately.

Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

Ordering Information

Typical Part Number ▶	OMIH	-SH	-1	24	L		,294

1. Basic Series:
OMI = 10A rating OMIH = 16A rating

2. Enclosure:
SS = Vent (Flux-tight)* plastic cover.
SH = Sealed, plastic case.

3. Termination:
1 = 1 pole

4. Coil Voltage:
05 = 5VDC 09 = 9VDC 24 = 24VDC
06 = 6VDC 12 = 12VDC 48 = 48VDC

5. Coil Input:
D = Standard (720mW) L = Sensitive (540mW)

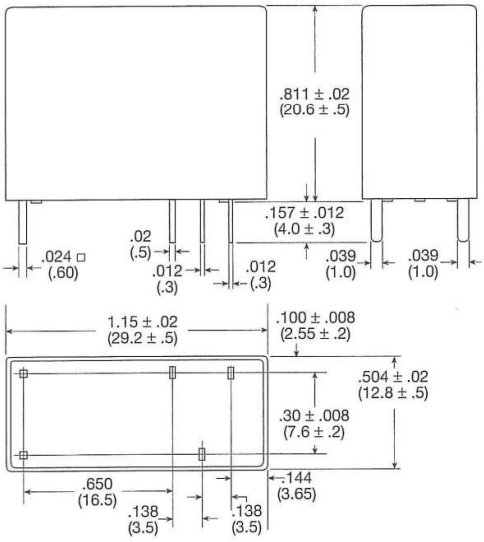
6. Contact Arrangement:
Blank = 1 Form C, SPDT M = 1 Form A, SPST-NO

7. Suffix:
,300 = Standard model for "SS" enclosure ,394 = Standard model for "SH" enclosure Other Suffix = Custom model

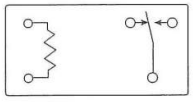
Our authorized distributors are more likely to stock the following items for immediate delivery.

OMIH-SH-105D,394 OMIH-SH-105L,394
OMIH-SH-112D,394 OMIH-SH-112L,394
OMIH-SH-124D,394 OMIH-SH-124L,394

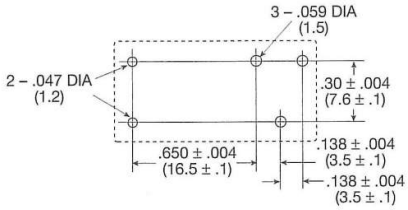
Outline Dimensions



Wiring Diagram (Bottom View)

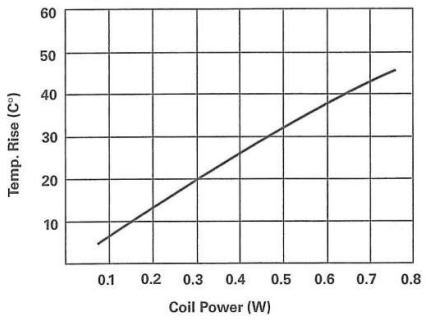


PC Board Layout (Bottom View)

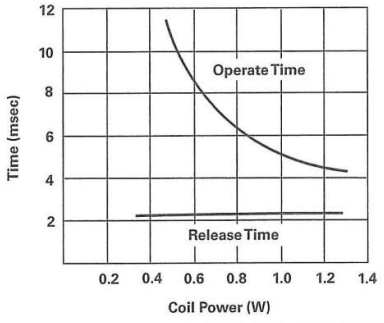


Reference Data

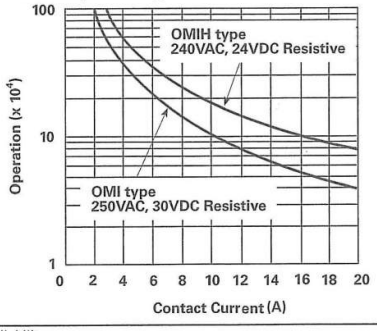
Coil Temperature Rise



Operate Time



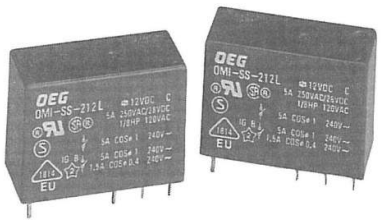
Life Expectancy



Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.



OMI 2 Pole series

2 Pole Miniature Power PC Board Relay

Appliances, HVAC, Office Machines.

- UL File No. E58304
- CSA File No. LR48471
- VDE File No. 6678
- SEMKO File No. 9517235

Users should thoroughly review the technical data before selecting a product part number. It is recommended that user also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- Meet UL 508, VDE0435 and SEMKO requirements.
- 2 Form A and 2 Form C contact arrangements.
- Immersion cleanable, sealed version available.
- Meet 5,000V dielectric voltage between coil and contacts.
- Meet 10,000V surge voltage between coil and contacts (1.2 / 50μs).

Contact Data @ 20°C

Arrangements: 2 Form A (DPST-NO) and 2 Form C (DPDT).
Material: Ag Alloy.
Max. Switching Rate: 300 ops./min. (no load).
30 ops./min. (rated load).
Expected Mechanical Life: 10 million operations (no load).
Expected Electrical Life: 100,000 operations (rated load).
Minimum Load: 100mA @ 5VDC.
Initial Contact Resistance: 100 milliohms @ 1A, 6VDC.

Contact Ratings

Ratings: 5A @ 240VAC resistive,
5A @ 120VAC resistive,
5A @ 30VDC resistive,
1/8 HP @ 250VAC.

1.5A @ 240VAC inductive (cosø= 0.4),
1.5A @ 120VAC inductive (cosø= 0.4),
1.5A @ 24VDC inductive (L/R=7msec).

Max. Switched Voltage: **AC:** 240V.
DC: 30V.
Max. Switched Current: 5A.
Max. Switched Power: **OMI:** 1,200VA, 150W.

Initial Dielectric Strength

Between Open Contacts: 1,000VAC 50/60 Hz. (1 minute).
Between Coil and Contacts: 5,000VAC 50/60 Hz. (1 minute).
Surge Voltage Between Coil and Contacts: 10,000V (1.2 / 50μs).

Initial Insulation Resistance

Between Mutually Insulated Elements: 1,000M ohms min. @ 500VDCM.

Coil Data

Voltage: 5 to 48VDC.
Nominal Power: 720mW (OMI-D), 540mW (OMI-L).
Coil Temperature Rise: 45°C max., at rated coil voltage.
Max. Coil Power: 130% of nominal.
Duty Cycle: Continuous.

Coil Data @ 20°C

OMI-L Sensitive				
Rated Coil Voltage (VDC)	**Nominal Current (mA)**	**Coil Resistance (ohms) ± 10%**	**Must Operate Voltage (VDC)**	**Must Release Voltage (VDC)**
5	106.4	47	4.00	0.50
6	88.0	68	4.80	0.60
9	58.0	155	7.20	0.90
12	44.4	270	9.60	1.20
24	21.8	1,100	19.20	2.40
48	10.9	4,400	38.40	4.80
OMI-D Standard				
Rated Coil Voltage (VDC)	**Nominal Current (mA)**	**Coil Resistance (ohms) ± 10%**	**Must Operate Voltage (VDC)**	**Must Release Voltage (VDC)**
5	138.9	36	3.75	0.50
6	120.0	50	4.50	0.60
9	78.3	115	6.75	0.90
12	60.0	200	9.00	1.20
24	29.3	820	18.00	2.40
48	14.5	3,300	36.00	4.80

Operate Data

Must Operate Voltage:
OMI-D: 75% of nominal voltage or less.
OMI-L: 80 % of nominal voltage or less.
Must Release Voltage: 5% of nominal voltage or more.
Operate Time: **OMI-D:** 15 ms max.
OMI-L: 20 ms max.
Release Time: 8 ms max.

Environmental Data

Temperature Range:
Operating: **OMI-D:**
-30°C to +55°C
OMI-L:
-30°C to +70 °C
Vibration, Mechanical: 10 to 55 Hz., 1.5mm double amplitude
Operational: 10 to 55 Hz., 1.5mm double amplitude.
Shock, Mechanical: 1,000m/s² (100G approximately).
Operational: 100m/s² (10G approximately).
Operating Humidity: 20 to 85% RH. (Non-condensing).

Mechanical Data

Termination: Printed circuit terminals.
Enclosure (94V-0 Flammability Ratings):
OMI-SS: Vented (Flux-tight) plastic cover.
OMI-SH: Sealed plastic case.
Weight: 0.46 oz (13g) approximately.

Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

Ordering Information

Typical Part Number ▶	OMI	-SS	-2	12	L	M	,594

1. Basic Series:
OMI = 2 Pole Miniature Power PC Board Relay.

2. Enclosure:
SS = Vent (Flux-tight)* plastic cover.
SH = Sealed, plastic case.

3. Termination:
2 = 2 pole

4. Coil Voltage:
05 = 5VDC 09 = 9VDC 24 = 24VDC
06 = 6VDC 12 = 12VDC 48 = 48VDC

5. Coil Input:
D = Standard (720mW) L = Sensitive (540mW)

6. Contact Arrangement:
Blank = 2 Form C, DPDT M = 2 Form A, DPST-NO

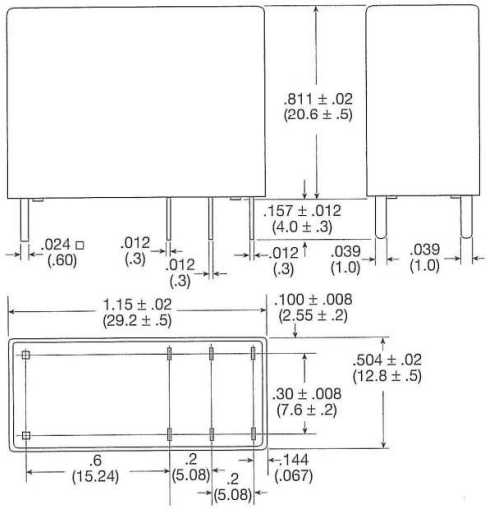
7. Suffix:
,500 = Standard model for "SS" enclosure ,594 = Standard model for "SH" enclosure Other Suffix = Custom model

* Not suitable for immersion cleaning processes.

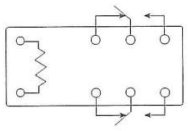
Our authorized distributors are more likely to stock the following items for immediate delivery.

OMI-SH-205D,594 OMI-SH-205L,594
OMI-SH-212D,594 OMI-SH-212L,594
OMI-SH-224D,594 OMI-SH-224L,594

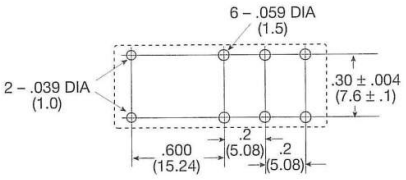
Outline Dimensions



Wiring Diagram (Bottom View)

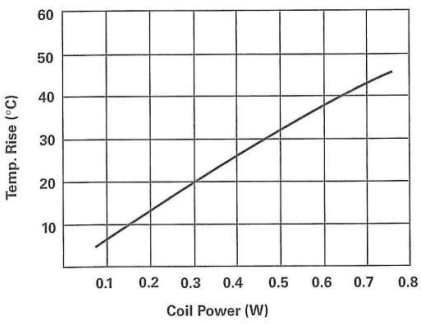


PC Board Layout (Bottom View)

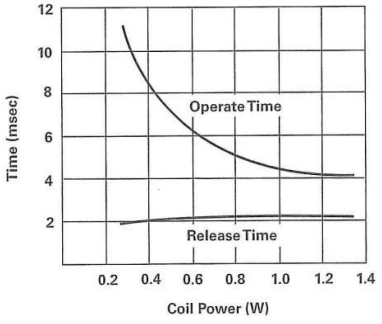


Reference Data

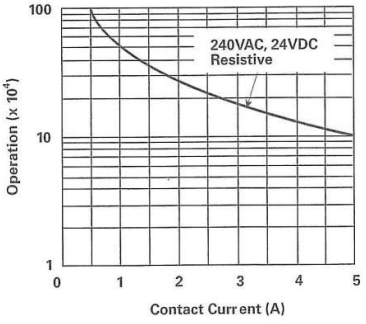
Coil Temperature Rise



Operate Time



Life Expectancy



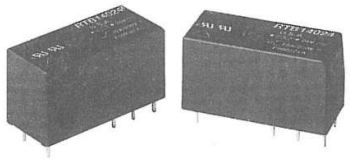
Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

RT series (DC Coil)

16 Amp PC Board Miniature Relay



File E22575
File LR15734
NR 6106

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- SPST through DPDT contact arrangements.
- Immersion cleanable and flux tight versions available.
- VDE 10mm spacing, 5kV dielectric, coil to contacts.
- UL Class F (155°C) coil insulation system.
- Conforms to UL 508, 1873, 353 and 1950.
- Low profile; 15.7mm height.
- Sensitive coil; 400mW.
- Withstand surge voltage of 10,000V.
- Potter & Brumfield or Schrack brand.

Contact Data

Arrangements: 1 Form A (SPST-NO) Wiring Diagram Code 1, 2,3.
2 Form A (DPST-NO) Wiring Diagram Code 5.
1 Form C (SPDT) Wiring Diagram Code 1, 2, 3.
2 Form C (DPDT) Wiring Diagram Code 5.
Material: Silver-nickel 90/10.
Minimum Load: 12V/100mA.
Expected Mechanical Life: 10 million operations.
Initial Contact Resistance: 100 milliohms max @ 1A 12VDC.

Designed to meet UL/CSA/VDE ratings with relay properly vented. Remove vent nib after soldering and cleaning.

UL/CSA/VDE Ratings @ 25°C

Code	NO/NC Load	Type	Operations
1	10A/10A @ 277VAC	Resistive/GP	100K
	10A/10A @ 30VDC	Resistive	100K
	12A/12A @ 250VAC	Resistive/GP	30K
	12A/12A @ 30VDC	Resistive	30K
	3/4 HP @ 480VAC*	Motor	6K
	1/2 HP @ 240VAC*	Motor	6K
	1/3 HP @ 120VAC*	Motor	6K
	48 LRA/10 FLA @ 240VAC*	Motor	30K
	TV-3 @ 120VAC*	Tungsten	25K
	A300, 720VA @ 240VAC*	Pilot Duty	30K
3	16A/16A @ 250VAC	Resistive/GP	50K
	20A/20A @ 277VAC	Resistive/GP	30K
	20A/20A @ 24VDC	Resistive	30K
	16A/16A @ 30VDC	Resistive	30K
	1 HP @ 480VAC*	Motor	6K
	1 HP @ 240VAC*	Motor	6K
	1/2 HP @ 120VAC*	Motor	6K
	60 LRA/10 FLA @ 250VAC*	Motor	30K
	TV-5 @ 120VAC*	Tungsten	25K
	A300, 720VA @ 240VAC*	Pilot Duty	30K
	B300, 360VA @ 240VAC**	Pilot Duty	30K
5	8A/8A @ 277VAC	Resistive/GP	100K
	8A/8A @ 30VDC	Resistive	100K
	10A/10A @ 250VAC	Resistive/GP	30K
	10A/10A @ 30VDC	Resistive	30K
	1/2 HP @ 240VAC*	Motor	6K
	1/4 HP @ 120VAC*	Motor	6K
	34.8 LRA/6 FLA @ 120VAC*	Motor	30K
	17.4 LRA/5 FLA @ 240VAC*	Motor	30K
	B300, 360VA @ 240VAC*	Pilot Duty	30K
	TV-3 @120VAC*	Tungsten	25K

* Form A only
** Form B only

Initial Dielectric Strength

Between Open Contacts: >1,000VAC (1 minute).
Between Poles (code 5): >2,500VAC (1 minute).
Between Coil and Contacts: >5,000VAC (1 minute).
Surge Voltage (DC): >10,000VAC x (1.2 x 50 µsec).

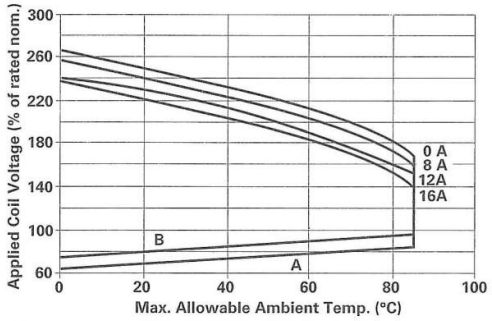
Coil Data @ 25°C

Voltage: 5 to 110VDC.
Nominal Power @ 25°C: 400mW.
Duty Cycle: Continuous.
Initial Insulation Resistance: 10,000 megohms, min., at 25°C, 500VDC and 50% rel. humidity.
Coil Construction: UL Class F (155°C).

Coil Data @ 25°C

Nominal Voltage VDC	DC Resistance in Ohms ±10%	Must Operate Voltage VDC	Nominal Coil Current (mA) – 50/60Hz.
005	62	3.5	80
006	90	4.2	66.7
009	202	6.3	44.4
012	360	8.4	33.3
018	810	12.6	22.2
024	1,440	16.8	16.7
048	5,760	33.6	8.3
060	9,000	42.0	8.0
110	30,250	77.0	4.3

Max. Ambient Temp. vs. Coil Voltage



A: Coil temperature = Ambient temperature.
B: 110% of nominal coil voltage at rated contact load.

Operate Data @ 25°C

Must Operate Voltage(DC): 70% of nominal.
Must Release Voltage(DC): 10% of nominal.
Operate Time (Excluding Bounce):
7 ms, typ., 15ms max. at nom. voltage.
Release Time (Excluding Bounce):
3 ms, typ., 6ms max. at nom. voltage.

Environmental Data

Temperature Range:
Storage: -40°C to +105°C.
Operating: -40°C to +85°C at rated current.
Vibration, Operational
N.O.:0.065"(1.65mm) max. excursions from 10 - 55 Hz:
N.C.:0.032"(0.82mm) max. excursions from 10 - 55 Hz:
with no contact opening >10µs.

Mechanical Data

Termination: Printed circuit terminals.
Enclosures: RT 1, 2, 3, 4: Flux-tight, top vented, plastic case.
RT B, C, D, E: Immersion cleanable, plastic case.
Weight: 0.35 oz. (10g) approximately.

Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

Ordering Information (DC Coil Models)

Typical Part Number ▸	RT	B	3	4	012	F

1. Basic Series:
RT = Miniature, printed circuit board relay.

2. Enclosure:
1 = 1 pole 12A, Pinning 3.5mm, flux-tight (Code 1).
2 = 1 pole 12A, Pinning 5mm, flux-tight (Code 2).
3 = 1 pole 16A, Pinning 5mm, flux-tight (Code 3).
4 = 2 pole 8A, Pinning 5mm, flux-tight (Code 5).
B = 1 pole 12A, Pinning 3.5mm, sealed (Code 1).
C = 1 pole 12A, Pinning 5mm, sealed (Code 2).
D = 1 pole 16A, Pinning 5mm, sealed (Code 3).
E = 2 pole 8A, Pinning 5mm, sealed (Code 5).

3. Contact Arrangement:
1 = 1 Form C (SPDT) (Requires wiring diagram codes 1, 2 or 3.)
2 = 2 Form C (DPDT) (Requires wiring diagram code 5.)
3 = 1 Form A (SPST-NO) (Requires wiring diagram codes 1, 2 or 3.)
4 = 2 Form A (DPST-NO) (Requires wiring diagram code 5.)

4. Contact Material:
4 = Silver-nickel 90/10 (standard stock).

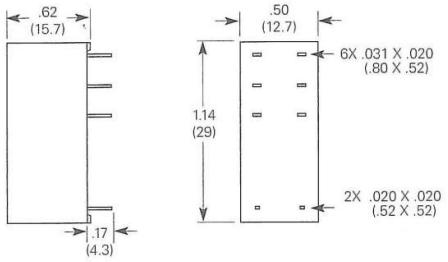
5. Coil Voltage:
005 = 5VDC 009 = 9VDC 018 = 18VDC 048 = 48VDC 110 = 110VDC
006 = 6VDC 012 = 12VDC 024 = 24VDC 060 = 60VDC

5. Coil Insulation Classification, Brand and Case Color
F = UL Class F, Potter & Brumfield Brand, Black Case
Leave Blank = UL Class F, Schrack Brand, Orange Case

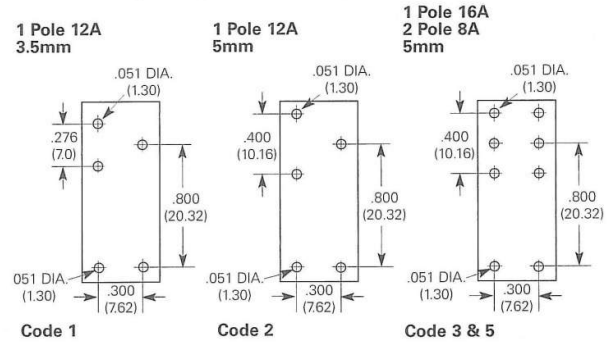
Our authorized distributors are more likely to stock the following items for immediate delivery.

RT114012F	RTB14012F	RTB34024F	RTD14005F	RTD34012F	RTE24005F	RTE44012F
RT114024F	RTB14024F	RT314012F	RTD14012F	RT424012F	RTE24012F	RTE44024F
RTB14005F	RTB34012F	RT314024F	RTD14024F	RT424024F	RTE24024F	

Outline Dimensions

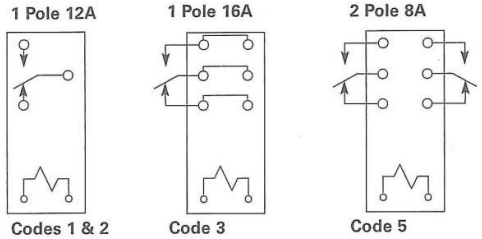


PC Board Layouts (Bottom View)



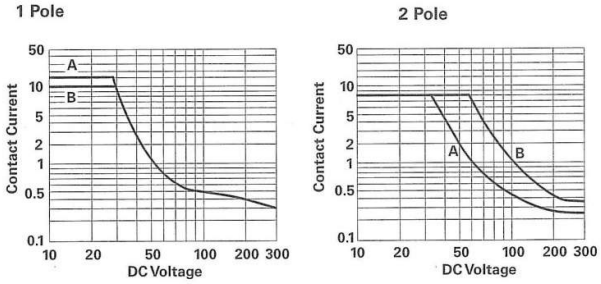
Notes: 1. On single throw models, only necessary terminals are present.
2. With the recommended PCB hole sizes, a grid with a pattern from 0.0984 to 0.1 in (2.5 - 2.54 mm) can be used.

Wiring Diagrams (Bottom View)



Note: On single throw models, only necessary terminals are present.

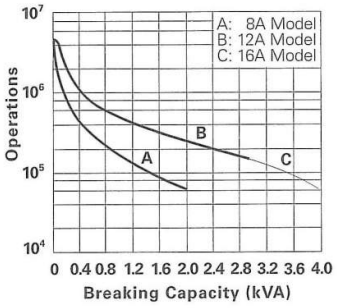
Breaking Capacity



A: 16A Version.
B: 12A Version.

A: 1 Contact.
B: 2 Contacts in series.

Contact Life for Resistive AC Load (Typical)

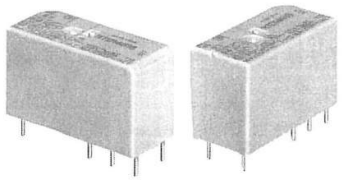


Note: Data from 250VAC @ 70°C.

Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.



RT series (AC Coil)

16 Amp Miniature Printed Circuit Board Relay

File E214025

NR 6106

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- SPST through DPDT contact arrangements.
- Immersion cleanable and flux tight versions available.
- Meets VDE 10mm spacing, 5kV dielectric, coil to contacts.
- Conforms to UL 508, 1873 and 353.
- UL Class F (155°C) coil construction
- Schrack brand

Contact Data

Arrangements: 1 Form A (SPST-NO) Wiring Diagram Code 1, 2, 3.
2 Form A (DPST-NO) Wiring Diagram Code 5.
1 Form C (SPDT) Wiring Diagram Code 1, 2, 3.
2 Form C (DPDT) Wiring Diagram Code 5.
Material: Silver-nickel 90/10.
Minimum Load: 12V/100mA.
Expected Mechanical Life: 10 million operations.

Designed to meet UL/CSA/VDE ratings with relay properly vented. Remove vent nib after soldering and cleaning.

UL/CSA Ratings @ 25°C:

Code	NO/NC Load	Type	Operations
1	12A NO @ 240VAC	GP	30K
	10A/5A @ 240VAC	Resistive/GP	100K
	8A @ 28VDC	Resistive	30K
	1 HP @ 240VAC*	Motor	6K
	1/2 HP @ 120VAC*	Motor	6K
	8A @ 28VDC*	Resistive	30K
	B300	Pilot Duty	6K
3	16A/8A @ 240VAC	GP	6K
	8A @ 28VDC	Resistive	30K
	1/2 HP @ 120VAC*	Motor	6K
	1HP @ 240VAC*	Motor	6K
	48 LRA, 8 FLA @ 240VAC	Motor	30K
	B300	Pilot Duty	6K
5	8A @ 240VAC	Resistive	30K
	8A @ 28VDC	Resistive/GP	30K
	1/2 HP @ 240VAC	Motor	6K
	1/4 HP @ 120VAC	Motor	6K
	B300	Pilot Duty	6K

* Form A only

VDE Ratings @ 25°C:

Code	NO/NC Load	Type	Operations
1	12A @ 250VAC	Resistive	30K
	12A @ 250VAC	Resistive	100K
3	16A @ 250VAC	Resistive	10K
	16A @ 250VAC	Resistive	50K
5	8A @ 250VAC	Resistive	30K
	8A @ 250VAC	Resistive	50K

Initial Dielectric Strength

Between Open Contacts: >1,000VAC (1 minute).
Between Poles (code 5): >2,500VAC (1 minute).
Between Coil and Contacts: >5,000VAC (1 minute).
Creepage/Clearance, Coil to Contact: 10/10mm.

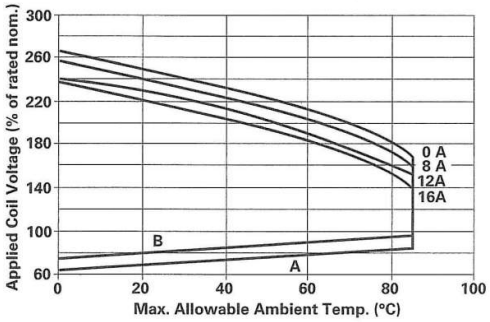
Coil Data @ 20°C

Voltage: 24, 115, 230VAC (consult factory for availability of other voltages).
Nominal Power @ 25°C: .75VA.
Duty Cycle: Continuous.
Initial Insulation Resistance: 10,000 megohms, min., at 20°C, 500VDC and 50% rel. humidity.
Coil Construction: UL Class F (155°C).

Coil Data

Nominal Voltage VAC	DC Resistance in Ohms ±10%	Must Operate Voltage VAC	Drop-out Voltage VAC	Nominal Coil Current (mA)–50Hz.	Nominal Coil Current (mA)–60Hz.
24	350	18.0	3.6	31.6	24.3
115	8,100	86.3	17.3	6.6	5.1
230	32,500	172.5	34.5	3.3	2.3

Max. Ambient Temp. vs. Coil Voltage



A: Coil temperature = Ambient temperature.
B: 110% of nominal coil voltage at rated contact load.

Operate Data

Must Operate Voltage: See coil data.
Operate Time (Excluding Bounce): 8 ms, typ., at nom. voltage.
Release Time (Excluding Bounce): 11 ms, typ., at nom. voltage.

Environmental Data

Temperature Range:
Storage: -40°C to +105°C.
Operating: -40°C to +70°C at rated current.
Vibration: 30 - 150 Hz:
at 20g with no contact opening >10µs on the N.O. contact;
at 5g with no contact opening >10µs on the N.C. contact.

Mechanical Data

Termination: Printed circuit terminals.
Enclosures: RT 1, 2, 3, 4: Flux-tight, top vented, plastic case.
RT B, C, D, E: Immersion cleanable, plastic case.
Weight: 0.42 oz. (12g) approximately.

Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

Ordering Information (AC Coil Model)

Typical Part Number ▸	RT	D	1	4	524

1. Basic Series:
RT = Miniature, printed circuit board relay.

2. Enclosure:
1 = 1 pole 12A, Pinning 3.5mm, flux-tight (Code 1).
2 = 1 pole 12A, Pinning 5mm, flux-tight (Code 2).
3 = 1 pole 16A, Pinning 5mm, flux-tight (Code 3).
4 = 2 pole 8A, Pinning 5mm, flux-tight (Code 5).
B = 1 pole 12A, Pinning 3.5mm, sealed (Code 1).
C = 1 pole 12A, Pinning 5mm, sealed (Code 2).
D = 1 pole 16A, Pinning 5mm, sealed (Code 3).
E = 2 pole 8A, Pinning 5mm, sealed (Code 5).

3. Contact Arrangement:
1 = 1 Form C (SPDT) (Requires wiring diagram codes 1, 2 or 3.)
2 = 2 Form C (DPDT) (Requires wiring diagram code 5.)
3 = 1 Form A (SPST-NO) (Requires wiring diagram codes 1, 2 or 3.)
4 = 2 Form A (DPST-NO) (Requires wiring diagram code 5.)

4. Contact Material:
4 = Silver-nickel 90/10.

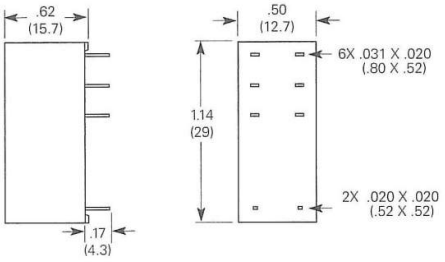
5. Coil Voltage:
524 = 24VAC 615 = 115VAC 730 = 230VAC

Note: All AC coil model RT part numbers are Schrack brand, are orange in color and have UL Class F (155°C) coil construction.

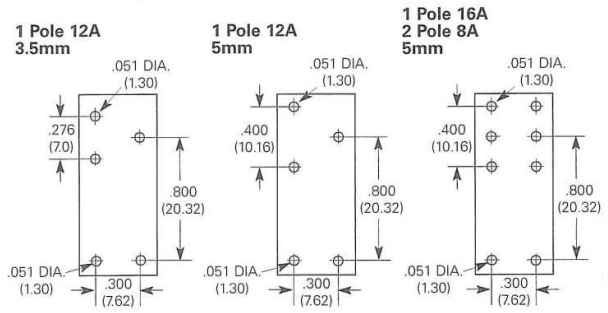
Our authorized distributors are more likely to stock the following items for immediate delivery.

RTB14524	RTD14524	RTE24524
RTB14615	RTD14615	RTE24615
RTB14730	RTD14730	RTE24730

Outline Dimensions

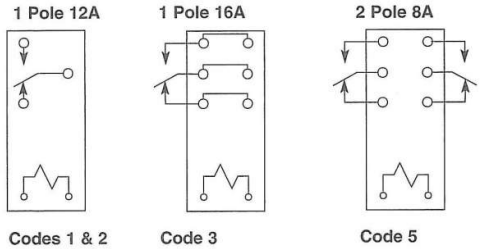


PC Board Layouts (Bottom View)



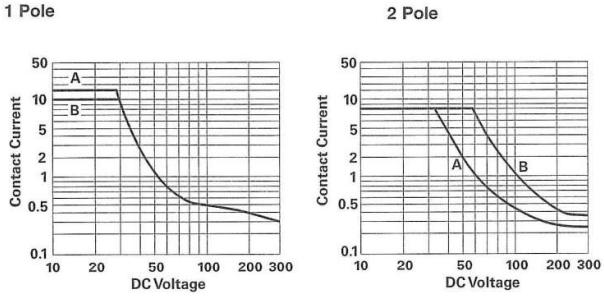
Notes: 1. On single throw models, only necessary terminals are present.
2. With the recommended PCB hole sizes, a grid with a pattern from 0.0984 to 0.1 in (2.5 - 2.54 mm) can be used.

Wiring Diagrams (Bottom View)



Note: On single throw models, only necessary terminals are present.

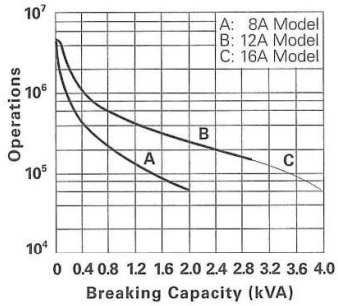
Breaking Capacity



A: 16A Version.
B: 12A Version.

A: 1 Contact.
B: 2 Contacts in series.

Contact Life for Resistive AC Load (Typical)

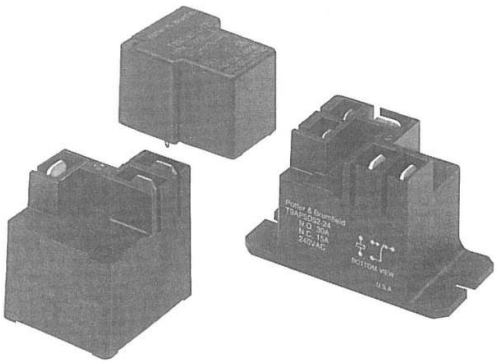


Note: Data from 250VAC @ 70°C.

Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.



T9A series

DC Coil 30 Amp PC Board or Panel Mount Relay

File E22575
File LR15734

Users should thoroughly review the technical data before selecting a product part number. It is recommended that user also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- Up to 30 amp switching in SPST and 20 amp in SPDT arrangements.
- Immersion cleanable(6), plastic sealed case available.
- Meets UL 873 and UL 508 spacing – 1/8" through air, 1/4" over surface.
- Load connections made via 1/4" Q. C. terminals and safety wells accept insulated female Q. C. terminals (mounting codes 2 & 5).
- UL Class F insulation system standard.
- Well suited for various industrial, commercial and residential applications.

Contact Ratings @ 25°C

Arrangements: 1 Form A (SPST-NO), and 1 Form C (SPDT).
Material: Silver-cadmium oxide.
Mechanical Life: 10 million operations, typical.
Minimum Contact Load: 1A @ 5VDC or 12VAC.
Initial Contact Resistance: 75 milliohms, max., @ min. rated current (switched).

Contact Ratings @ 25°C (unless otherwise noted) with relay properly vented. Remove vent nib after soldering and cleaning.

Typical Electrical Load & Life - 1 Watt Coil

Contact Arrangement	Contact Load	Type of Load	Operations
1	30A @ 240VAC	UL General Purpose	100,000
	25A @ 240VAC	Resistive Heater	100,000
5	20A/10A @ 240VAC	UL General Purpose	100,000
	20A/10A @ 240VAC	UL Resistive	100,000
	20A/10A @ 28VDC	Resistive	100,000

UL 508/873 & CSA Contact Ratings - 900mW Coil

Voltage	Load Type	N.O. Contact	N.C. Contact	Operations
240VAC	General Purpose	30A	–	100,000
240VAC	Resistive	18A	–	100,000 @ 105°C
240VAC	Resistive	–	15A	6,000
240VAC	LRA/FLA	30A/15A	–	100,000
120VAC	LRA/FLA	50A/16A	–	100,000
120VAC	LRA/FLA	30A/11A	–	200,000

Note: Consult factory for other 900mW version contact ratings.

UL 508/873 & CSA Contact Ratings - 1 Watt Coil

Voltage	Load Type	N.O. Contact	N.C. Contact
277VAC	Tungsten *	5.4A	–
277VAC	Ballast	10A	3A
240VAC	Motor	2 HP	1/2 HP
240VAC	Resistive *†	25A	20A
240VAC	General Purpose†	30A	15A
240VAC	LRA/FLA **††	80A/30A	30A/12A
240VAC	Pilot Duty *	470VA	275VA
125VAC	Motor	1 HP	1/4 HP
120VAC	LRA/FLA	98A/22A	–
120VAC	Tungsten *	8.3A	–
120VAC	Pilot Duty	470VA	–
28VDC	Resistive	20A	10A

* Rated 6,000 operations.
** Higher UL & CSA ratings available.
† For Form C application, derate current to 20A (N.O.), 10A (N.C.).
†† For Form C application, derate current to 67%.

Note: Consult factory for other 900mW version contact ratings.

Initial Dielectric Strength

Between Open Contacts: 1,500V rms.
Between Contacts and Coil: 2,500V rms.
6 kV surge using 1.2µs/50µs Impulse Wave or .5µs – 100kHz Ring Wave

Initial Insulation Resistance

Between Mutually Insulated Elements: 10^9 ohms, min., @ 500VDC, 25°C and 50% R.H.

Coil Data @ 25°C

Voltage: 5 to 110VDC.
Nominal Coil Power: 1.0W, (approx.) and 900mW (approx.) versions.
Maximum Coil Power: 2.8 Watt.
Maximum Coil Temperature(5): Class F: 155°C.
Duty Cycle: Continuous.

Coil Data - 1 Watt

Nominal Voltage	DC Resistance ± 10% (Ohms)	Nominal Current (mA)
5	25	200
9	81	111
12	144	83
18	324	56
24	576	42
48	2,304	21
110	12,100	9

Coil Data - 900mW

Nominal Voltage	DC Resistance ± 10% (Ohms)	Nominal Current (mA)
5	27	185
9	97	93
12	155	77
18	380	47
24	660	36
48	2,560	19
110	13,450	8

Operate Data @ 25°C

Must Operate Voltage: 75% of nominal voltage or less.
Must Release Voltage: 10% of nominal voltage or more.
Operate Time (Including Bounce)§: 15 ms, max.
Release Time (Including Bounce)§: 15 ms, max.
§ At or From Nominal Coil Voltage

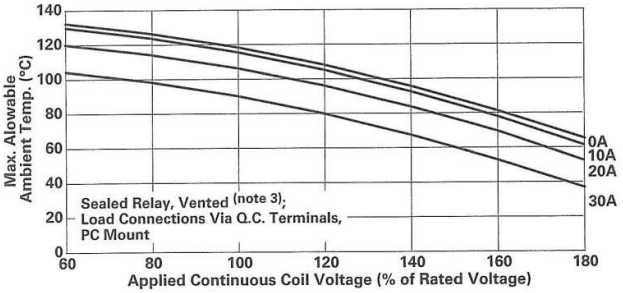
Dimensions are shown for reference purposes only.

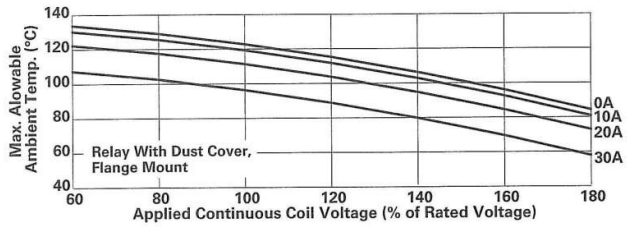
Dimensions are in inches over (millimeters) unless otherwise specified.

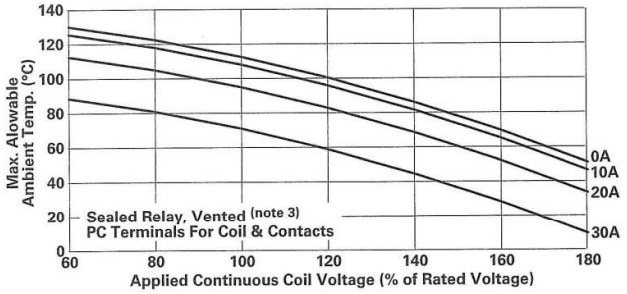
Specifications and availability subject to change.

Ambient Temperature vs. Coil Voltage - 1 Watt Coil

Data below are average values and should be verified in application. Tests were conducted within a 2' (.6 m) cube (still air); at nominal coil power @ 25°C; with normally open contact loaded; and with 4' (1.22 m) long, #10 AWG load wires. P.C. board relays were mounted to a 30A, single side P.C. board [6].







Environmental Data

Storage Temperature Range: -55°C to 130°C.
Operating Temperature Range[1]: -55°C to +85°C.
Vibration, Operational: 0.065" (1.65mm) max. excursions from 10-55 Hz. with no contact opening >100µs.
Shock, Operational: 10g for 11 ms with no contact opening >100µs.
Shock, Mechanical: 100g.

Mechanical Data

Termination: Printed circuit and quick connect terminals [4].
Enclosures (all have 94V-0 flammability rating):
T9AP: Unsealed, plastic dust cover.
T9AS: Immersion cleanable, sealed plastic case [2 & 3].
T9AV: Vented, flux tight, plastic cover.
Weight: Q.C. version: 1.2 oz. (33g) approx. (mounting code 2 & 5).
Sealed Model T9AS: 0.9 oz. (26g) approx. (mounting code 1).

Notes

(1) Operating ambient temperature must consider "Must Operate Voltage Change Over Temperature," Contact Temperature Rise, Coil Temperature Rise (If coil is not allowed to cool) and Maximum Coil Temperature. Specification ambient considers 20A load with coil cooled to ambient.
(2) Sealed relay terminals should not be bent.
(3) Remove knock-off nib after cleaning process for optimum life of sealed relays.
(4) Maximum soldering temperature is 500°F for 4 seconds.
(5) Class F coils are UL systems approved for maximum coil temperature of 140°C, by change of resistance method.
(6) See application note 13C265 for proper relay mounting, termination, cleaning and PC board conductor width. Coil rise test performed with 30A PC board to maintain 20°C maximum rise @ 30A.

Ordering Information

Typical Part Number ▶	T9A	S	5	D	2	2	-12

1. Basic Series:
T9A = Low cost, printed circuit board/panel power relay.

2. Enclosure:
P = Unsealed, plastic dust cover (mounting code 5).
S = Immersion cleanable, knock off nib, sealed plastic case (mounting codes 1 & 2).
V = Vented, flux-tight (mounting code 1).

3. Contact Arrangement:
1 = 1 Form A (SPST-NO). 5 = 1 Form C (SPDT).

4. Coil Input:
D = DC voltage (1 Watt) L = DC voltage (900mW)

5. Mounting & Termination:
1 = Printed circuit board mounting; PC terminals for coil & contacts [a].
2 = Printed circuit board mounting; PC terminals for coil & contacts, and .250" (6.35mm) quick connects for contacts [b].
5 = Flanged mounting; .187" (4.75mm) quick connects for coil and .250" (6.35mm) quick connects for contacts [c].

6. Contact Material:
2 = Silver-cadmium oxide.

7. Coil Voltage:
5 = 5VDC 12 = 12VDC 24 = 24VDC 110 = 110VDC
9 = 9VDC 18 = 18VDC 48 = 48VDC

a) Only available with enclosure code "S" & "V". b) Only available with enclosure code "S". c) Only available with enclosure code "P".

Our authorized distributors are more likely to maintain the following items in stock for immediate delivery.

T9AP1D52-9	T9AS1D12-24	T9AS5D22-12
T9AP1D52-12	T9AS1D12-48	T9AS5D22-24
T9AP5D52-12	T9AS1D22-12	T9AV1L22-24
T9AP5D52-24	T9AS1D22-24	
T9AS1D12-12	T9AS5D12-12	
T9AS1D12-18	T9AS5D12-24	

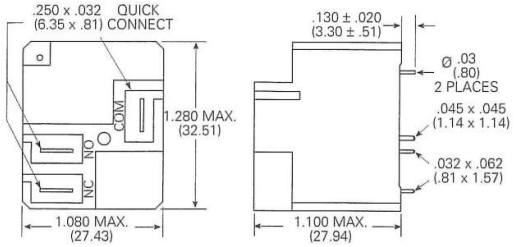
Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

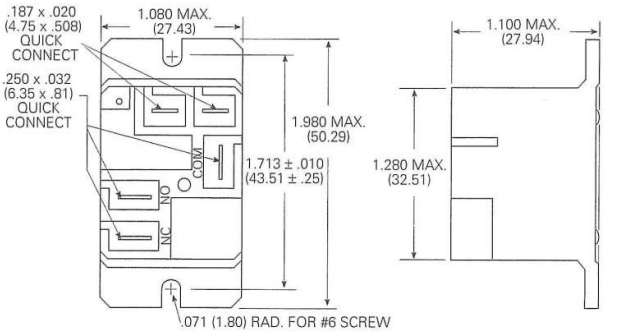
Specifications and availability subject to change.

Outline Dimensions

T9AS – Mounting & Termination Code 2

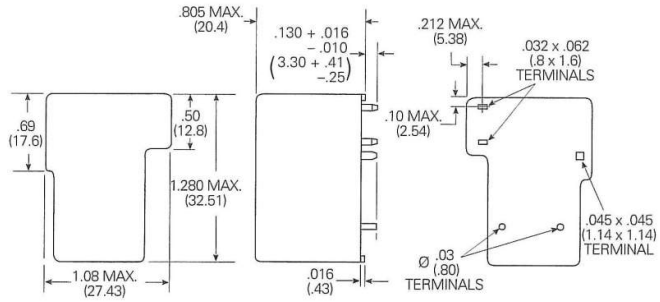


T9AP – Mounting & Termination Code 5



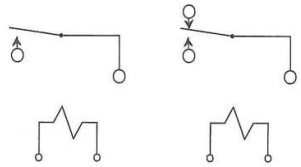
Note: Recommended mounting screw torque is 4.0-5.0 lbs.in when #6 screw is used.

T9AS/V – Mounting & Termination Code 1



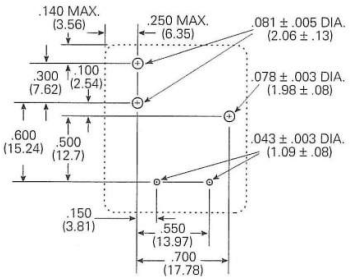
Wiring Diagrams (Bottom Views)

1 Form A **1 Form C**

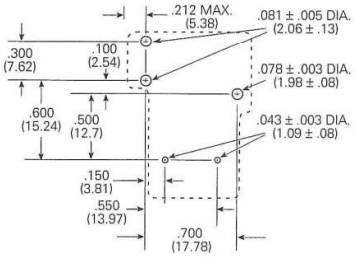


PC Board Layouts (Bottom Views)

T9AP/S – Mounting & Termination Code 2



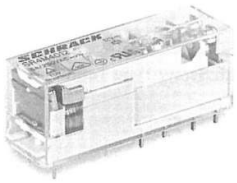
T9AS/V – Mounting & Termination Code 1



Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.



SR4 D/M series

"Safety Relay" with four forcibly guided contacts.

c UL us File E214024

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- 2 NO + 2NC or 3NO + 1 NC contacts.
- 4kV/10mm contact-to-coil.
- Compact package.
- Well suited for emergency shut-off, machine control, elevator and escalator control, light barrier control.

Contact Data

Type: Single button contact, forcibly guided.
Arrangements: 2 NO + 2NC or 3NO + 1 NC.
Material: Silver-tin oxide.
Expected Mechanical Life: 10 million operations.
Ratings:
Current: 8A.
Voltage: 250VAC.
Voltage (breaking): 440VAC.
Power (breaking): 2,000VA.
Minimum Contact Load: >50mW.
Initial Contact Resistance: ≤ 100 millohms/1A/24VDC; ≤ 20 millohms/10mA/5VDC.

Initial Dielectric Strength

Between Open Contacts: 1,000Vrms.
Between Coil and Contacts: 4,000Vrms.
Between Contact Sets: 2,500Vrms.
Creepage/Clearance: Contact-to-coil: 10/10mm.
Between Contact Sets: 3/3.5mm.

Initial Insulation Resistance

Between Mutually Insulated Elements: 10^6 ohms.

Operate Data

Must Operate Voltage: See Coil Data table.
Operate Time /Release Time (typical): 12 ms / 20 ms.
Switching Rate: 3,600 ops./hr. max. at rated load.

Coil Data DC @ 20°C

Nominal Coil Power: 800mW.

Nominal Voltage VDC	DC Resistance in Ohms	Must Operate Voltage VDC	Drop-out Voltage VDC	Nominal Coil Current (mA)
5	31 ± 10%	3.8	0.5	161.3
6	45 ± 10%	4.5	0.6	133.3
9	101 ± 10%	6.8	0.9	89.1
12	180 ± 10%	9.0	1.2	66.7
15	281 ± 10%	11.3	1.5	53.4
18	405 ± 10%	13.5	1.8	44.4
21	551 ± 10%	15.8	2.1	38.1
24	720 ± 10%	18.0	2.4	33.3
36	1,620 ± 10%	27.0	3.6	22.2
40	2,000 ± 10%	30.0	4.0	20.0
48	2,880 ± 10%	25.0	4.8	16.7
60	4,500 ± 10%	45.0	6.0	13.3
85	9,031 ± 10%	64.0	8.5	9.4
110	15125 ± 10%	82.5	11.0	7.3

All values are given for coil without preenergization, at 20°C ambient.
At 70°C after preenergization with 1.1 x nominal voltage, the maximum operating voltage is 85% of nominal.
At 70°C maximum coil voltage is 1.1 x nominal.

Environmental Data

Temperature Range: Operating: -20°C to +70°C.
Vibration (10-200 Hz.): NO: 8g; **NC:** 2.5g.

Mechanical Data

Termination: Printed circuit terminals.
Enclosure: Sealed (RTIII) plastic case.
Weight: 0.56 oz. (16 g) approximately.

Ordering Information

Typical Part Number ▶	SR4	D	4	012

1. Basic Series:
SR4 = 4 pole printed circuit board relay with forcibly guided contacts.

2. Contact Configuration:
D = 2 NO + 2 NC contacts
M = 3 NO + 1 NC contacts

3. Contact Material:
4 = Silver-tin oxide.

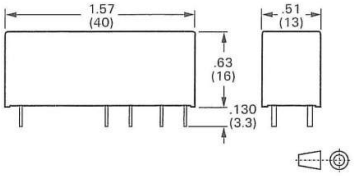
4. Coil Voltage:

005 = 5VDC	009 = 9VDC	015 = 15VDC	021 = 21VDC	036 = 36VDC	048 = 48VDC	085 = 85VDC
006 = 6VDC	012 = 12VDC	018 = 18VDC	024 = 24VDC	040 = 40VDC	060 = 60VDC	110 = 110VDC

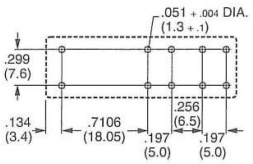
Our authorized distributors are more likely to stock the following items for immediate delivery.

None at present.

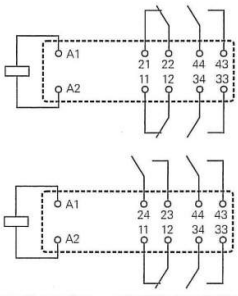
Outline Dimensions



PC Board Layout (Bottom View)



Wiring Diagrams (Bottom Views)



Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

Application Example – Relays with forcibly guided contacts ("safety relays")

The configuration of safety control circuits is basically only possible with specified fault conditions. Safety relays have the characteristic that make and break contacts can never both be closed at the same time.

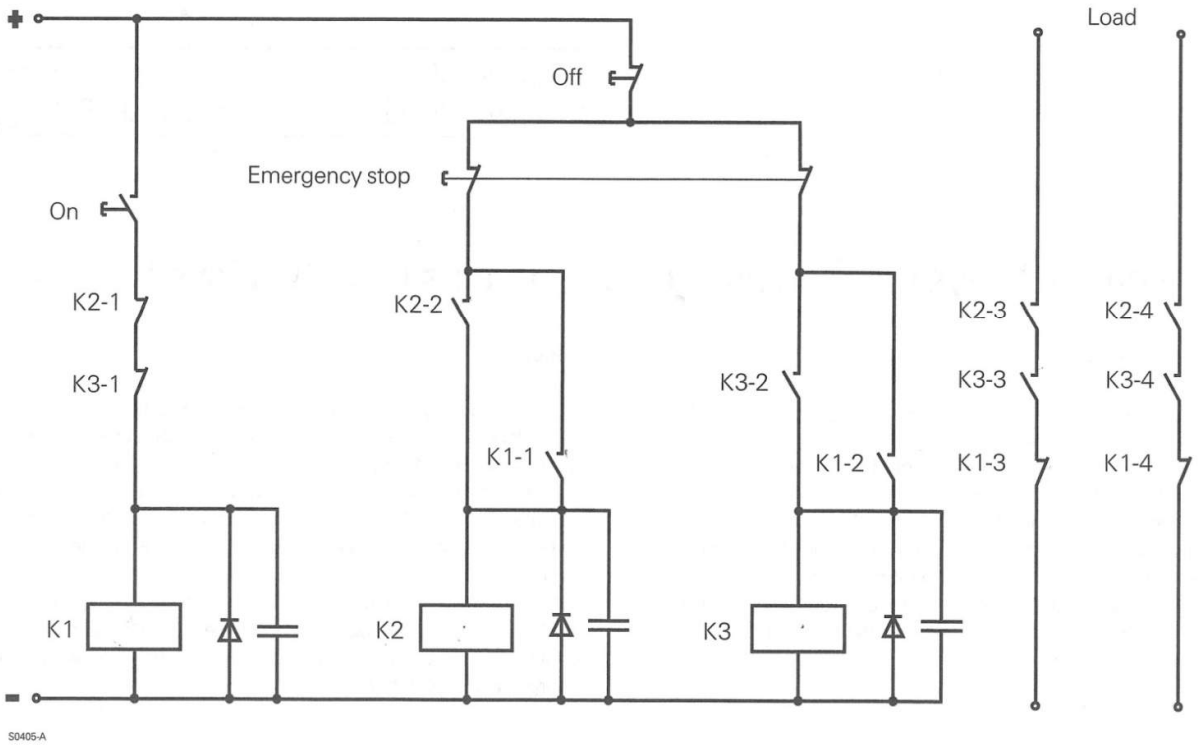
The following circuit diagram shows an emergency stop control circuit consisting of three 4-pole safety relays.

The first fault to occur

- does not cause the safety function to fail because more components are used than required for the circuit to function (redundancy).
- prevents an restart and can be detected as a result (self monitoring)

Operation

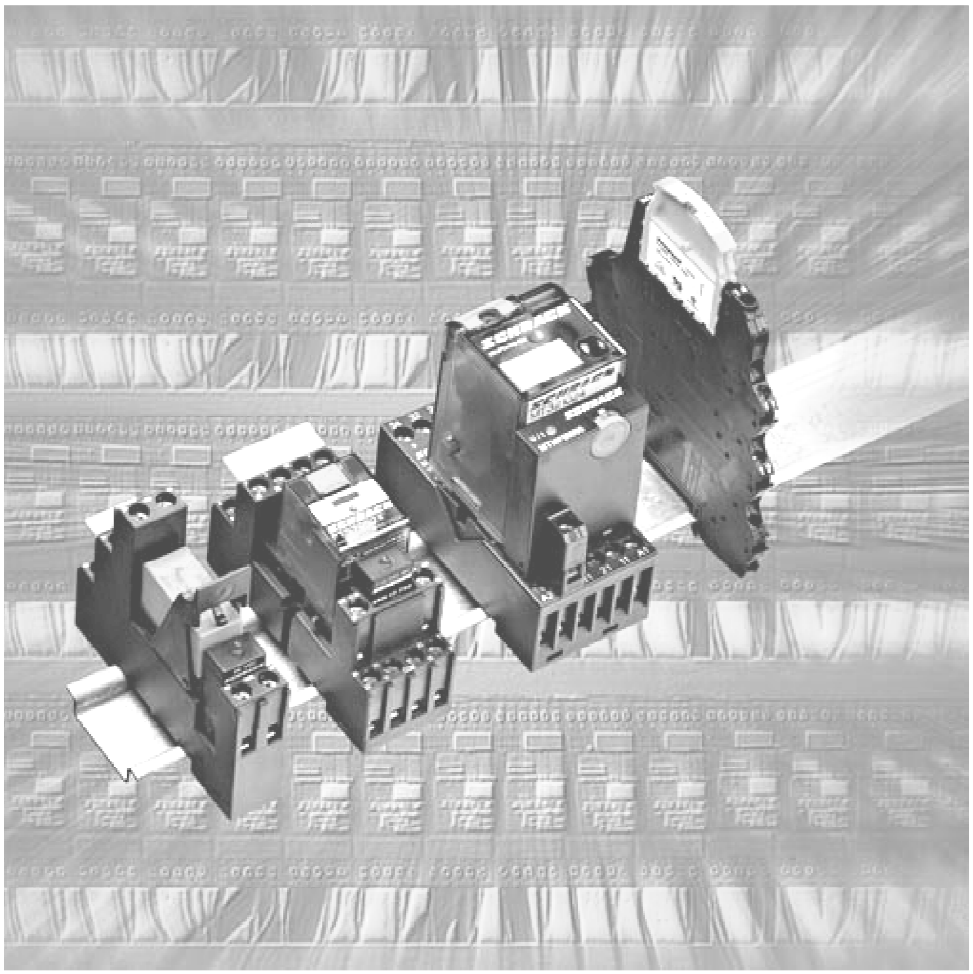
- Closing the "ON" switch causes the K1 relay to be pulled in
- The K2 and K3 relays are energized via the make contacts K1-1 and K1-2 and hold themselves via K2-2 or K3-2
- The break contacts K2-1 and K3-1 cause the drop-out of K1 where the load circuit is released via the break contacts of K1-3 or K1-4.



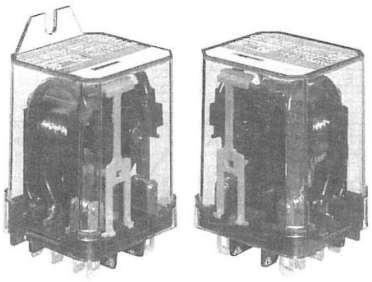
Fault analysis (examples):

Type of fault	Is there any danger arising from the fault?	Is a restart possible?
Failure of contact K2-3 to open	No, K3-3 opens when the emergency stop switch is actuated	No, K2-1 and K2-3 cannot be closed at the same time (fault excluded by forcibly guidance). "ON" button does not cause K1 to close
Failure of contact K1-3 to open	No, K2-3 and K3-3 open when the emergency stop switch is actuated	No, K1-1 and K1-2 cannot close due to closed K1-3. K2 and K3 are not energized

INDUSTRIAL DINRAIL



PLUG-IN RELAYS



RM series

RM2/3/7 2/3 Pole 10/16 Amp
RM5/6 VDE 3mm Contact Gap
RM8 25 Amp

c UL us File E214025
VDE NR 5330, NR 5365, NR 5333
CE

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- Contact arrangements to 3PDT.
- Plug-in or PC terminals.
- Push to test button and mechanical indicator.
- RM 5/6 VDE approved with 3mm contact gap.

Contact Data @ 25°C

Arrangements:
RM 2/3/7: 2 Form C (DPDT) and 3 Form C (3PDT).
RM 5/6: 2 Form A (DPST-NO) and 3 Form A (3PST-NO).
RM 8: 2 Form C (DPDT).
Material: Silver-cadmium oxide.
Expected Mechanical Life: 20 million operations minimum.
Contact Ratings:
UL/CSA @ 25°C
RM 2/5: 16A, 250VAC G.P., 30,000 Ops.
16A, 28VDC G.P., 30,000 Ops.
1 HP, 120VAC G.P., 30,000 Ops.
1HP, 240VAC G.P., 30,000 Ops.
RM 3/6: 10A, 250VAC G.P., 30,000 Ops.
10A, 28VDC G.P., 30,000 Ops.
RM 3/6/7: 1 HP, 120VAC, 30,000 Ops.
1/2 HP, 240VAC, 480VAC, 600VAC, 30,000 Ops.
1.5 HP, 240VAC, 3 Phase, 30,000 Ops.
RM 7: 16A, 250VAC G.P., 30,000 Ops.
16A, 10VDC G.P., 30,000 Ops.
RM 8: 25A,. 240VAC, G.P., 30,000 Ops.
1.5 HP, 120VAC, G.P., 30,000 Ops.
2 HP, 240, G.P., 30,000 Ops.

VDE @ 35°C
RM 2: 16A, 400VAC, 100,000 Ops.
RM 3/6: 10A, 400VAC, 100,000 Ops.
RM 5/7: 16A, 400VAC, 100,000 Ops.
RM 8: 25A, 250VAC, 10,000 Ops.

Initial Dielectric Strength

Between Open Contacts: 1,500VAC (RM 5/6 2,500VAC).
Between Coil and Contacts: 2,500VAC.
Creepage/Clearance coil-contact: 6/3.5mm (RM 8 4/2.8).

DC Coil Data @ 25°C

Nominal Voltage VDC	Operate Voltage VDC	Drop-out Voltage VDC	DC Resistance in Ohms ±10% RM 2 RM 3 RM 8	DC Resistance in Ohms ±10% RM 5 RM 6 RM 7	Nominal Coil Current (mA) RM 2 RM 3 RM 8	Nominal Coil Current (mA) RM 5 RM 6 RM 7
06	4.5	0.9	32	24	187.5	250.0
12	9.0	1.8	110	86	109.1	139.5
24	18.0	3.6	475	345	50.5	69.6
48	36	7.2	2,000	1,340	24.0	35.8
60	45	9.0	2,850	2,200	21.1	27.3
110	82.5	16.5	10,000	7,300	11.0	15.1
221	165	33	40,000	30,000	5.5	7.3

AC Coil Data @ 25°C

Nominal Voltage VAC	Operate Voltage VAC	Drop-out Voltage VAC	DC Resistance in Ohms ±10% RM 2 RM 3	DC Resistance in Ohms ±10% RM 5 RM 6 RM 7 RM 8	Nominal Coil Current (mA) RM 2 RM 3	Nominal Coil Current (mA) RM 5 RM 6 RM 7 RM 8
06	4.8	2.4	5.3	4.7	381.7	476.7
12	9.6	4.8	24.0	19.5	182.5	225.8
24	19.2	9.6	86.0	80.0	94.2	109.2
48	38.4	19.2	345.0	320.0	47.5	54.2
60	48.0	24.0	544.0	500.0	37.8	43.7
115	92.0	46.0	2,000.0	1,850.0	20.6	23.0
230	184.0	92.0	8,300.0	7,500.0	10.1	11.7
400	320.0	160.0	27,500.0	23,500.0	5.8	6.5

Operate Data

Must Operate Voltage: see coil data.
Operate Time : Approximate ms

	RM 2/3/7	RM 5/6	RM 8
Pull-in	15	15	15
Drop Out	10	10	15
Bounce	3	4	3

Switching Rate: 1000 ops/hr max. at rated load.

Environmental Data

Temperature Range:
Operating: -45°C to maximum °C listed below.

	RM2	RM3	RM5	RM6	RM7	RM8
DC Coil	+70°C	+60°C	+60°C	+60°C	+60°C	+65°C
AC Coil	+55°C	+55°C	+50°C	+50°C	+50°C	+40°C

Vibration:
RM2/3/7: 30 to 150 Hz at 5g N/O, 2g N/C
RM5/6: 30 to 150 Hz at 12g N/O.
RM8: 30 to 150 Hz at 10g N/O, 5g N/C

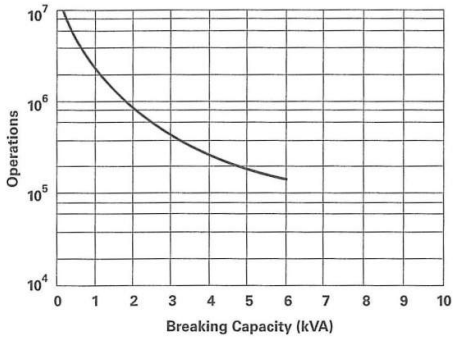
Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

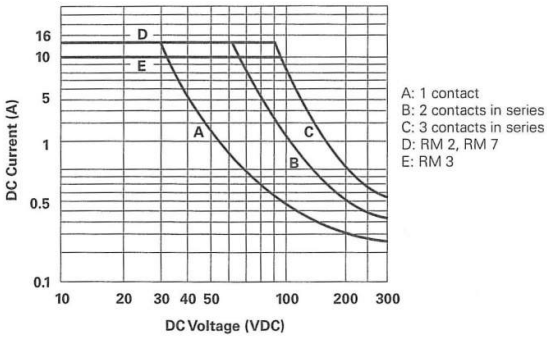
Specifications and availability subject to change.

RM2/3/7
2/3 POLE 10/16A

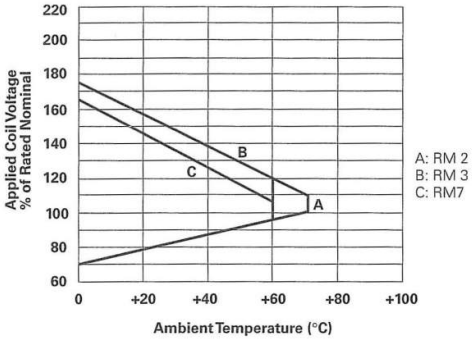
Contact Life



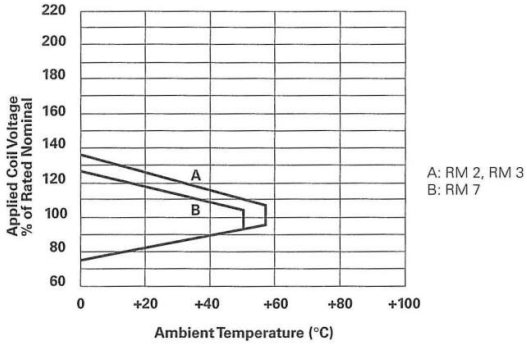
Max. DC Load Breaking Capacity



DC Coil Operating Range

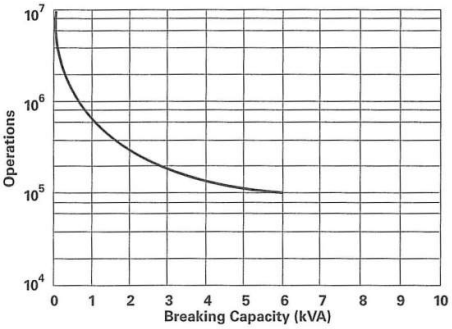


AC Coil Operating Range

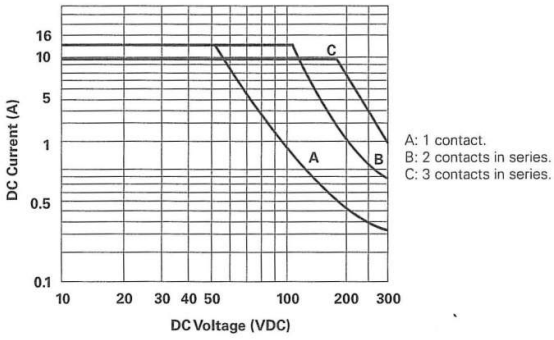


RM5/6
2/3 POLE 10/16A
(Contact gap 3 mm)

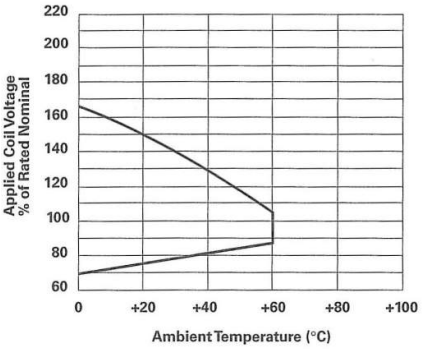
Contact Life



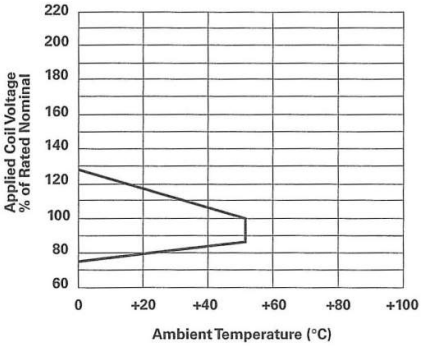
Max. DC Load Breaking Capacity



DC Coil Operating Range



AC Coil Operating Range



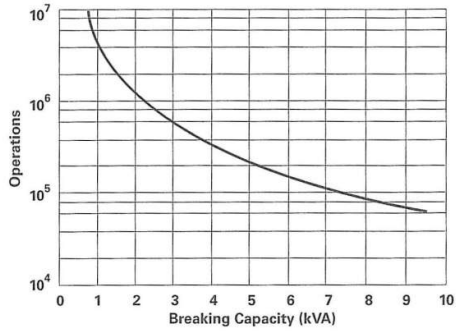
Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

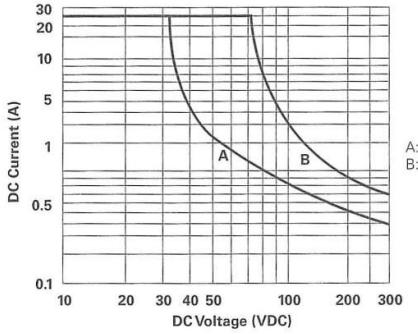
Specifications and availability subject to change.

RM8
2 POLE 25A

Contact Life

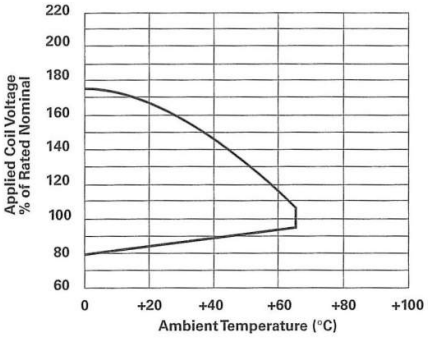


Max. DC Load Breaking Capacity



A: 1 contact.
B: 2 contacts in series.

DC Coil Operating Range



Ordering Information

Typical Part Number ▸	RM	2	3	2	024

1. Basic Series:
RM = General purpose relay.

2. Contact Arrangement and Rating:
2 = 2 Form C (DPDT) 16 Amp
3 = 3 Form C (3PDT) 10 Amp
5 = 2 Form A (DPST-NO) 16 Amp 3mm Contact Gap
6 = 3 Form A (3PST-NO) 10 Amp 3mm Contact Gap
7 = 3 Form C (3PDT) 16 Amp
8 = 2 Form C (DPDT) 25 Amp (Available only with enclosure 5,8, and 9.)

3. Test:
0 = without push-to-test-button.
3 = with push-to-test-button.

4. Enclosure:
2 = Plain Case .187 (4.75mm) quick-connect (Not available with RM 8).
3 = Bracket Mount Case 0.187 (4.75mm) quick connect. (Not available with RM 8)
5 = Bracket Mount Case 0.250 (6.35mm) quick connect.
7 = Plain Case printed circuit (not available with RM8).
8 = Case with snap-on attachment on top 0.250 (6.35mm) quick-connect.
9 = Case with snap-on attachment on side 0.250 (6.35mm) quick-connect.

5. Coil Voltage:

Standard	with LED	with protection diode	with LED and protection diode		Standard	with LED	with protection diode	with LED and protection diode	
006	006	OA6	LA6	=6VDC	506	R06	—	—	=6VAC
012	L12	0B2	LB2	=12VDC	512	R12	—	—	=12VAC
024	L24	0C4	LC4	=24VDC	524	R24	—	—	=24VAC
048	L48	0E8	LE8	=48VDC	548	R48	—	—	=48VA
060	L60	0G0	LG0	=60VDC	560	R60	—	—	=60VAC
110	M10	1B0	MB0	=110VDC	615	S15	—	—	=115VAC
220	N21	2C1	NC1	=220VDC	730	T30	—	—	=230VAC
					900	V00	—	—	=400VAC

Our authorized distributors are more likely to stock the following items for immediate delivery.

RM202012	RM203012	RM205024	RM302024	RM502524	RM602615	RM702615	RM703615	RM805615
RM202024	RM203024	RM205524	RM302524	RM502615	RM702012	RM703012	RM805012	
RM202524	RM203524	RM205615	RM302615	RM602024	RM702024	RM703024	RM805024	
RM202615	RM203615	RM302012	RM502024	RM602524	RM702524	RM703524	RM805524	

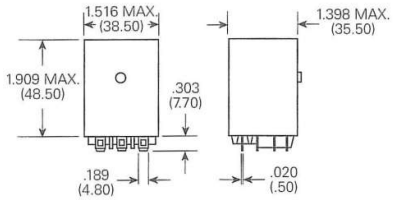
Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

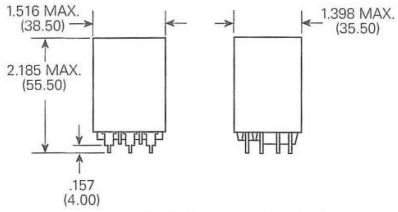
Specifications and availability subject to change.

Outline Dimensions

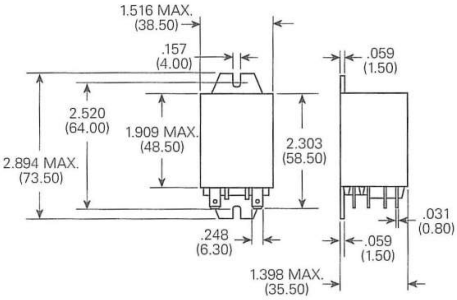
RM .187 quick connect terminals



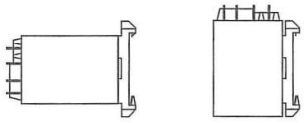
RM with PCB terminals



RM .250 quick connect terminals, with brackets

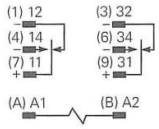


RM with snap-on attachment

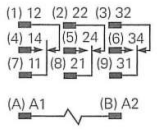


Wiring Diagrams (Bottom Views)

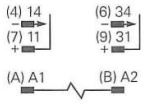
RM2/8 2 Pole



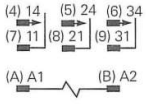
RM3/7 3 Pole



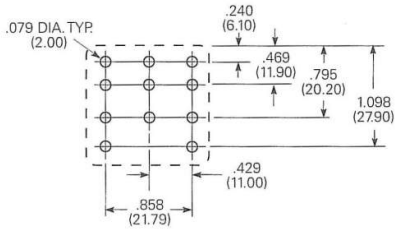
RM5 2 Pole



RM6 3 Pole



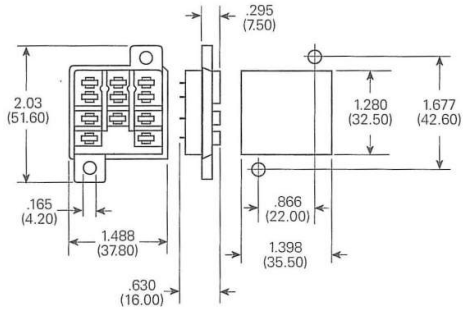
PC Board Layout (Bottom View)



RM Sockets and Accessories

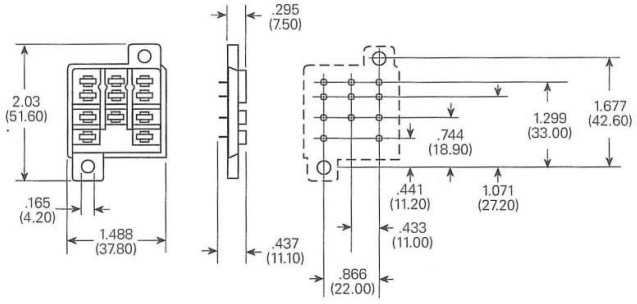
RM78700/701

RM78700 has QC Terminals
RM78701 has Solder Terminals



Hold-Down Spring RM28802

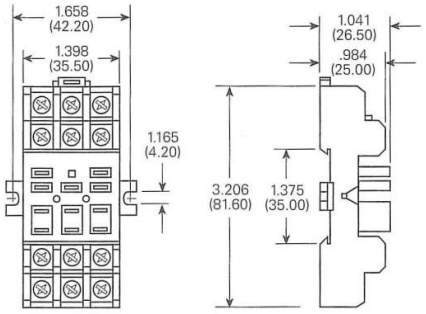
RM78702



Hold-Down Spring RM28802

RM78705

16A, 250VAC, Socket with Screw Terminals



Socket Selection Table

Stock items are boldfaced.

Socket	Socket Termination	Hold-Down Spring
RM78700	.187(4.75)QC Terminals	**RM28802**
RM78701	Solder Terminals	**RM28802**
RM78702	.142(3.61)PCB Terminals	**RM28802**
RM78705	Screw Terminals	

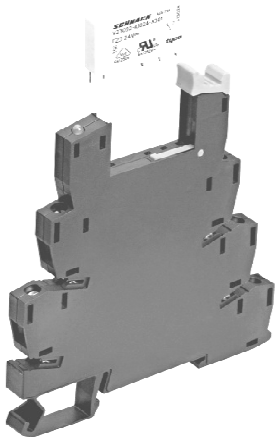
Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

Relay Package SNR

- **Relay package consisting of DIN-rail socket and relay**
- **1 CO with 6 A rated load**
- **Module width only 6.2 mm**
- **Reduced system width for increased packing density on the DIN rail**
- **RoHS compliant (Directive 2002/95/EC)**



Approvals

Relay: VDE REG.-Nr. 6666, c UL us E214024

Socket: VDE REG.-Nr. 6666, c UL us 224918

Technical data of approved types on request

Contact data

Contact configuration	1 CO	
Contact set	single contact	
Type of interruption	micro disconnection	
Rated current	6 A	
Rated voltage / max.switching voltage AC	240/400 VAC	
Maximum breaking capacity AC	1500 VA	
Limiting making capacity, max 4 s, duty factor 10%	10 A	
Contact material	$AgSnO_2$	$AgSnO_2$ gold plated
Minimum contact load	100mA, 12V	50mW
Mechanical endurance	$10x10^6$ cycles	
Rated frequency of operation with / without load	6 /1200 min^{-1}	

Contact ratings

For contact ratings see datasheet	Slim Interface Relay SNR

Input data

Rated input voltage DC	12, 24 VDC, 115, 230 VAC/VDC *)
Input power DC coil	typ. 170 mW
Operative range	2

*) Version 115, 230 VAC/VDC equipped with 60 VDC relay

Coil versions, DC-coil

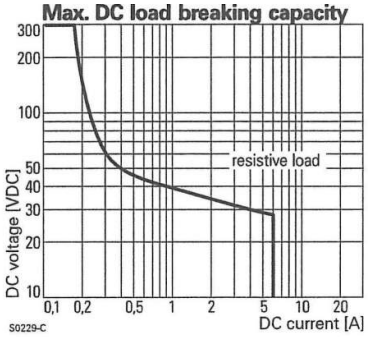
Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance Ohm	Rated coil power mW
LB2	12	8.4	0.6	848±10%	170
LC4	24	16.8	1.2	3390±10%	170

Coil versions, AC-coil 50Hz

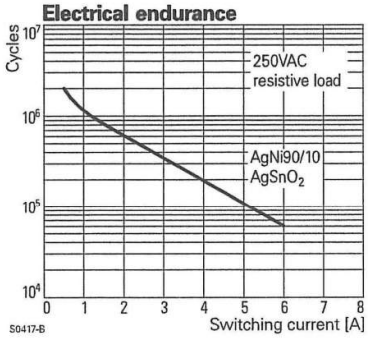
Coil code	Rated voltage VAC	Operate voltage 50 Hz VAC	Release voltage 50 Hz VAC	Coil resistance Ohm	Rated coil power 50 Hz mVA
SM5	115	82.0	9.0	not applicable	180
TP0	230	160.0	15.0	not applicable	180

Other coil voltages on request

Max. DC load breaking capacity



Electrical endurance

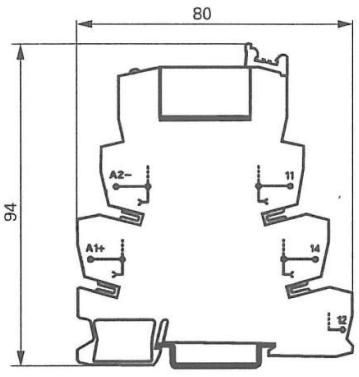


Relay Package SNR (Continued)

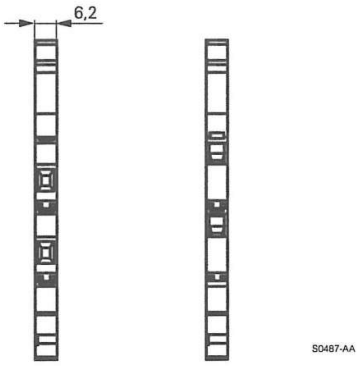
Insulation	
Dielectric strength coil-contact circuit	4000 V_{rms}
open contact circuit	1000 V_{rms}
Clearance / creepage coil-contact circuit	≥ 6 / 8 mm
Material group of insulation parts	IIIa
Insulation to IEC 60664-1	
Type of insulation coil-contact circuit	reinforced
open contact circuit	functional
Rated insulation voltage	250 V
Pollution degree	2
Rated voltage system	230 / 400 V
Overvoltage category	III

Other data	
RoHS - Directive 2002/95/EC	compliant as per product date code 0404
Ambient temperature range	-40...+55°C
Operate- / release time	5 / 2,5 ms
Bounce time NO / NC contact	1,5 / 5 ms
Degree of protection DIN 40050	IP20
Terminals	screw / cage clamp
Terminal screw torque acc. IEC 61984	0.5 Nm
max.	0.6 Nm
Wire cross section	
single wire	0.14...2.5 mm^2
fine wire	0.14...2.5 mm^2
with bootlace crimp (DIN 46228/1)	0.14...2.5 mm^2
Insertion cycles	A (10)
Max. Insertion Force total	100 N
Mounting distance	0 mm, dense packing
Weight	32 g
Packaging unit	10 pcs

Accessories	
For accessories see datasheet	Accessories Slim Interface Relay SNR



S0487-BA



S0487-AA

Version with screw terminals

Version with cage clamp terminals

Product key

S T | | P | | | | |

Type

Version
- **3P** Relay set, SNR 1-pole CO, 6 A, screw terminals
- **4P** Relay set, SNR 1-pole CO, 6 A, cage clamp terminals

Contact material
- **2** $AgSnO_2$, gold plated
- **3** $AgSnO_2$

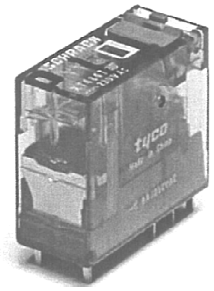
Coil
- **LB2** 12 VDC
- **LC4** 24 VDC
- **SM5** 115 VDC/VAC
- **TP0** 230 VDC/VAC

Other types on request

Product key	Socket	Terminals	Relay	Contacts	Coil
ST3P2LC4	ST3FLC4	screw	V23092-A1024-A201	$AgSnO_2$ gold pl.	24 VDC
ST3P3LB2			V23092-A1012-A301	$AgSnO_2$	12 VDC
ST3P3LC4			V23092-A1024-A301		24 VDC
ST3P3SM5	ST3FSM5		V23092-A1060-A301		115 VDC/VAC
ST3P3TP0	ST3FTP0				230 VDC/VAC
ST4P2LC4	ST4FLC4	cage clamp	V23092-A1024-A201	$AgSnO_2$ gold pl.	24 VDC
ST4P3LB2			V23092-A1012-A301	$AgSnO_2$	12 VDC
ST4P3LC4			V23092-A1024-A301		24 VDC
ST4P3SM5	ST4FSM5		V23092-A1060-A301		115 VDC/VAC
ST4P3TP0	ST4FTP0				230 VAC/VAC

For replacement use identical components according to table only!

- **1 pole 16 A, 2 pole 8 A, 1 CO contact or 2 CO contacts**
- **DC- or AC coil, sensitive coil 400 mW**
- **Reinforced insulation, protection class II (VDE 0700)**
- **4 kV / 8 mm coil-contact**
- **Manual test tab, optionally lockable[1)]**
- **Version with mechanical and/or electrical indicator optionally available**
- **Recycleable packaging**
- **RoHS compliant (Directive 2002/95/EC)**

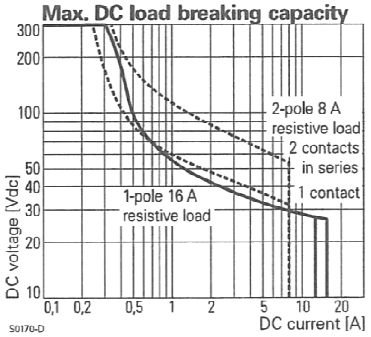


Approvals

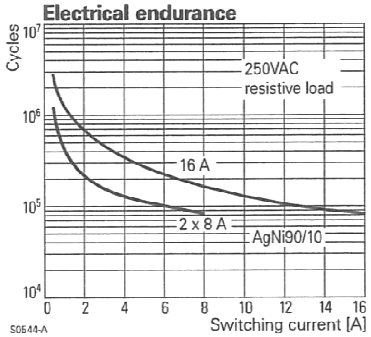
VDE in process cULus E214025
Technical data of approved types on request

Contact data	1-pole	2-pole
Contact configuration	1 CO	2 CO
Contact set	single contact	
Type of interruption	micro disconnection	
Rated current	16 A	8 A
Rated voltage / max.switching voltage AC	240/400 VAC	
Maximum breaking capacity AC	4000 VA	2000 VA
Limiting making capacity,max 4 s, df 10%	30 A	15 A
Contact material	AgNi 90/10	
Mechanical endurance DC coil	> 10 x 10^5	
AC coil	> 5 x 10^5	
Rated frequency of operation with / without load	6 / 600 min^{-1}	

Max. DC load breaking capacity



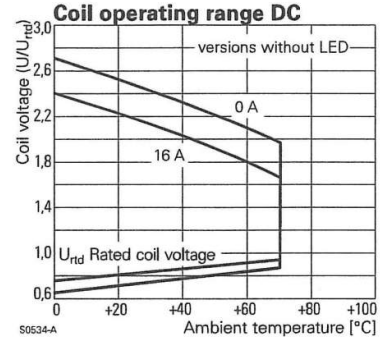
Electrical endurance



Contact ratings

Type	Load	Cycles
XT37*	16 A, 250 VAC, CO contact, 70°C, DF 50%, EN61810-1	$3x10^3$
XT48*	8 A, 250 VAC, CO contact, 70°C, DF 50%, DC coils, EN61810-1	$5x10^3$
XT48*	8 A, 250 VAC, CO contact, 70°C, DF 50%, AC coils, EN61810-1	$3x10^3$
XT31*	16 A, 250 VAC, CO contact, 70°C, DF 50%, EN61810-1	$3x10^3$
XT42*	8 A, 250 VAC, CO contact, 70°C, DF 50%, DC coils, EN61810-1	$5x10^3$
XT42*	8 A, 250 VAC, CO contact, 70°C, DF 50%, AC coils, EN61810-1	$3x10^3$
XT37*	16 A, 250 VAC, CO General Purpose 70°C, DF 50%, UL508	$3x10^3$
XT48*	8 A, 250 VAC, CO General Purpose 70°C, DF 50%, DC coils, UL508	$3x10^3$
XT48*	8 A, 250 VAC, CO General Purpose 70°C, DF 50%, AC coils, UL508	$3x10^3$
XT31*	16 A, 250 VAC, CO General Purpose 70°C, DF 50%, UL508	$3x10^3$
XT42*	8 A, 250 VAC, CO General Purpose 70°C, DF 50%, DC coils, UL508	$3x10^3$
XT42*	8 A, 250 VAC, CO General Purpose 70°C, DF 50%, AC coils, UL508	$3x10^3$

Coil operating range DC



Coil data

Rated coil voltage range DC coil	6...110 VDC
AC coil	24...230 VAC
Coil power DC coil	typ 400 mW
AC coil	typ 0.75 VA
Operative range	2
Coil insulation system according UL1446	class F

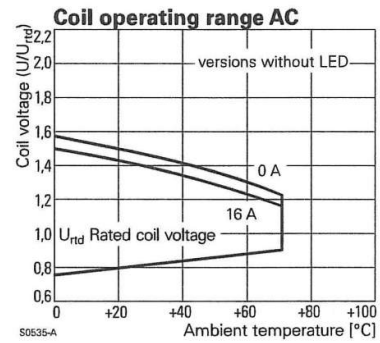
[1)] Locking function description
If the test button is pulled out too forcefully, it may bypass the momentary testing position and go straight into the locked position.

Coil versions, DC-coil

Coil code	LED & PD	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance Ohm	Rated coil power mW	opt. LED power mW
012	LB2	12	8.4	1.2	360±10%	400	10
024	**LC4**	**24**	**16.8**	**2.4**	**1440±10%**	**400**	**19**
048	LE8	48	33.6	4.8	5520±10%	417	39
110	MB0	110	77.0	11.0	28800±12%	420	87

All figures are given for coil without preenergization, at ambient temperature +23°C
Other coil voltages on request

Coil operating range AC



Coil versions, AC-coil 50 Hz

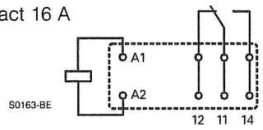
Coil code	LED	Rated voltage VAC	Operate voltage 50 Hz VAC	Release voltage 50 Hz VAC	Coil resistance Ohm	Rated coil power 50 Hz VA	opt. LED power 50 Hz VA
524	**R24**	**24**	**18.0**	**3.6**	**350±10%**	**0.76**	**0.012**
615	S15	115	86.3	17.3	8100±15%	0.76	0.054
730	**T30**	**230**	**172.5**	**34.5**	**32500±15%**	**0.74**	**0.073**

Insulation		
Dielectric strength coil-contact circuit	5000 V_{rms} in combination with RT78726 4000 V_{rms} in combination with RT78725	
open contact circuit	1000 V_{rms}	
adjacent contact circuits	2500 V_{rms}	
Clearance / creepage coil-contact circuit	≥ 8 / 8 mm	
Material group of insulation parts	≥ IIIa	
Tracking index of relay base	PTI 175 V	
Insulation to IEC 60664-1		
Type of insulation coil-contact circuit	reinforced	
open contact circuit	functional	
adjacent contact circuits	basic	
Rated insulation voltage	250 V	
Pollution degree	3	2
Rated voltage system	240 V	400 V
Overvoltage category	III	

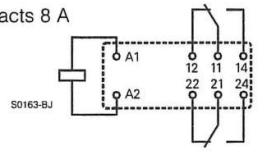
Other data	1-pole	2-pole
RoHS - Directive 2002/95/EC	compliant	
Flammability class according to UL94	V-0	
Ambient temperature range DC coil	-40...+70°C	
AC coil	-40...+70°C	
Operate- / release time DC coil	9 / 6 ms	
Bounce time DC coil, NO / NC contact	4 / 12 ms	
Vibration resistance (function), NO / NC contact	20 / 5 g, 30 ... 500 Hz	
Shock resistance (destruction)	100 g	
Category of protection	RTII	
Mounting distance	4,5 mm, dense packing of sockets	
Relay weight	16 g	
Packaging unit	10 / 250 pcs	

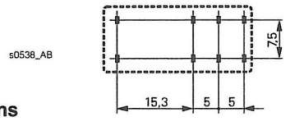
Terminal assignment
Bottom view on pins

1 CO contact 16 A

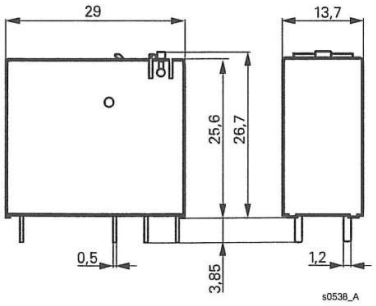


2 CO contacts 8 A





Dimensions



Product key

X	T			4			

Type

Version
- **3** 1-pole, 16 A, pinning 5 mm
- **4** 2-pole, 8 A, pinning 5 mm

Contact configuration
- **1** 1 CO contact
- **2** 2 CO contacts
- **7** 1 CO contact with test button and mechanical indicator
- **8** 2 CO contacts with test button and mechanical indicator

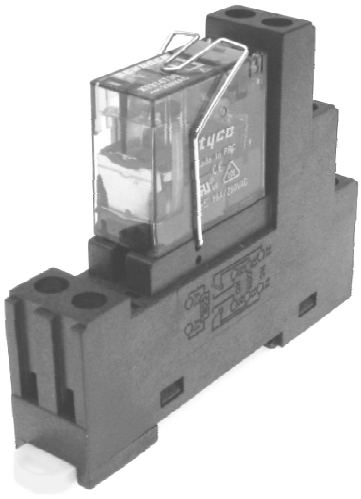
Contact material
- **4** AgNi 90/10

Coil
Coil code: please refer to coil versions table, preferred types in bold print

DIN RAIL SOCKET – Screw terminals

PART NUMBER: EGS-A80

Dielectric strength: 2000V ac



Miniature Power Relay PCLH

2 pole 10 A, DC- or AC-coil

Features

- 2 C/O contacts
- 10 A rated current
- DC- or AC-coil
- Plug-in version, PCB or chassis mount version

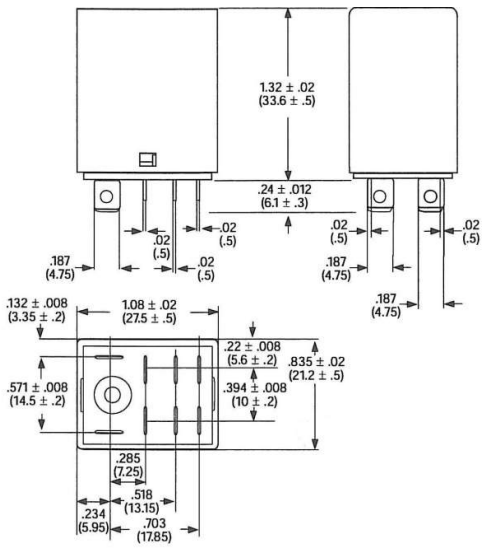
Applications

Panel boards, domestic appliances

Technical data of approved types on request

Contact data

Configuration	2 C/O contact
Type of contact	single contact
Rated current	10 A
Rated voltage / max.breaking voltage AC	250 Vac / 250 Vac
Maximum breaking capacity AC	2500 VA
Make current (max. 4 s at duty cycle 10%)	15 A
Contact material	AgCdO



Coil data

Nominal voltage	DC coil	12...48 Vdc
	AC coil	12...230 Vac
Nominal coil power	DC coil	900 mW
	AC coil	1.2 VA

Coil versions, DC-coil

Coil code	Nominal voltage Vdc	Pull-in voltage Vdc	Release voltage Vdc	Coil resistance Ω	Coil current mA
02D	12	9.6	1.2	160±10%	75.0
03D	**24**	**19.2**	**2.4**	**650±10%**	**37.2**
04D	48	38.4	4.8	2600±10%	18.5

All figures are given for coil without preenergization, at ambient temperature +20°C

Coil versions, AC-coil

Coil code	Nominal voltage Vac	Pull-in voltage Vac	Release voltage Vac	Coil resistance Ω	Coil current mA
02A	12	9.6	3.6	40±10%	101.7
03A	**24**	**19.2**	**7.2**	**160±10%**	**50.0**
04A	48	38.4	14.4	600±10%	25.4
06A	115	92.0	34.5	3400±10%	10.5
08A	**230**	**184.0**	**69.0**	**13600±10%**	**5.3**

All figures are given for coil without preenergization, at ambient temperature +20°C

Other data

Flammability class according to UL 94	V-0
Ambient temperature	-10...+55 °C
Mechanical life	>10x10^6 operations
Max. switching rate at rated- / minimum load	30 min^{-1} / 300 min^{-1}
Operate- / release time	15 / 5 ms
Vibration resistance	10...55 Hz, 1 mm double amplitude
Shock resistance (function)	>10 g
Shock resistance (destruction)	>100 g
Category of protection (IEC 61810)	RT I
Relay weight	32 g

Insulation

Dielectric strength	coil-contacts	1500 V_{rms}
	open contact circuit	1000 V_{rms}
	adjacent contacts	1500 V_{rms}
Clearance / creepage		>1.2 / 1.2 mm

Product key

P	C	L	H	2				1		

Type

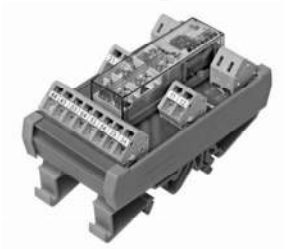
Number of contacts
- **2** 2 C/O contact, dust protected

Coil
- Coil code: please refer to coil versions table

Contact material
- **1** AgCdO

Enclosure
- **S** case with AMP-Faston 187 terminals
- **F** case for flange mount, AMP-Faston 187
- **SP** case with PCB terminals

Other types on request



SR6 Z series

6-pole "Safety Relay" on DIN-rail module.

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- 6-pole SR6 relay mounted to PC board on DIN-rail module.
- AC/DC input.
- Spring connectors.
- Module is 1.81 in (46mm) wide.
- Well suited for emergency shut-off, machine control, elevator and escalator control, light barrier control

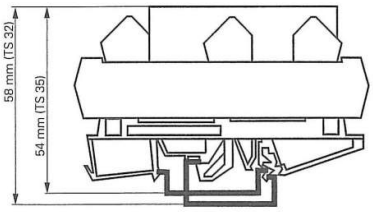
Contact Data

Type: Single button contact, forcibly guided.
Arrangements: 4 NO + 2NC, 3 NO + 3 NC or 5 NO + 1 NC.
Material: Silver-tin oxide.
Expected Mechanical Life: 10 million operations.
Ratings:
Current: 8A.
Voltage: 250VAC.
Voltage (breaking): 440VAC.
Power (breaking): 2,000VA.
Minimum Contact Load: >50mW.
Initial Contact Resistance: ≤ 100 millohms/1A/24VDC;
≤ 20 millohms/10mA/5VDC.

Initial Dielectric Strength

Between Open Contacts: 1,000Vrms.
Between Coil and Contacts: 3,000Vrms.
Between Contact Sets: 2,000Vrms.
Creepage/Clearance: **Contact-to-coil:** 5.5/5.5mm.
Between Contact Sets: 3/3mm.

Outline Dimensions



Module width: 1.81 in (46 mm).
Module length: 3.42 in (87 mm).
Mounted height: 2.12 - 2.28 in. (54 - 58 mm) depending upon DIN rail.

Module fits mounting rails per DIN EN 50022 or DIN EN 50035.

Coil Data DC @ 20°C

Nominal DC Voltage: 24VDC.
Nominal AC/DC Voltage: 24, 115VAC/VDC.
Nominal AC Voltage: 230VAC.
Minimum Operating Voltage: 90% of nominal.
Minimum Release Voltage: ≤10% of nominal.
Maximum Operating Voltage: 110% of nominal.
Input Circuit: Bridge rectifier, series resistor.

Operate Data

Switching Rate: 3,600 ops./hr. max. at rated load.

Environmental Data

Temperature Range: Operating: -20°C to +50°C.

Mechanical Data

Termination: Spring clamp connections.
Acceptable Wire Sizes: 14 - 18 AWG..
Weight: 3.17 oz. (90 g) approximately.

Ordering Information

Typical Part Number ▶	SR6Z	A	024

1. Basic Series:
SR6Z = 6 pole relay with forcibly guided contacts on DIN-rail module.

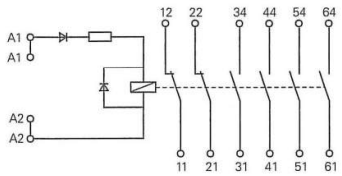
2. Contact Configuration:
A = 3 NO + 3 NC contacts
B = 4 NO + 2 NC contacts
C = 5 NO + 1 NC contacts

5. Coil Voltage:
024 = 24VDC 524 = 24VAC/VDC
615 = 115VAC/VDC 730 = 230VAC

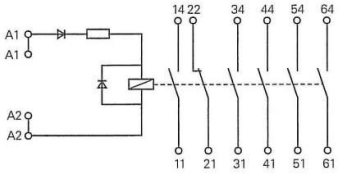
Distributors are more likely to stock the following items.

None at present.

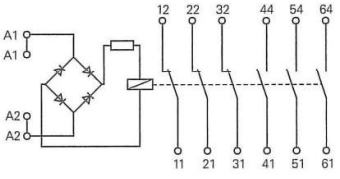
Wiring Diagrams (Bottom Views)



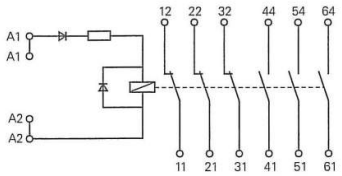
DC Module, 4 NO + 2 NC



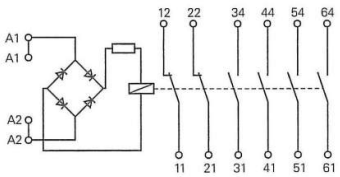
DC Module, 5 NO + 1 NC



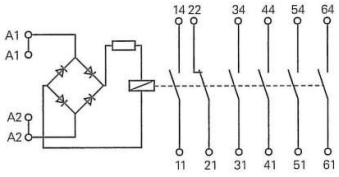
AC/DC Module, 3 NO + 3 NC



DC Module, 3 NO + 3 NC



AC/DC Module, 4 NO + 2 NC



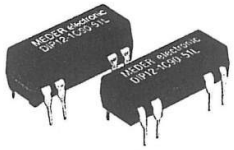
AC/DC Module, 5 NO + 1 NC

Dimensions are shown for reference purposes only.

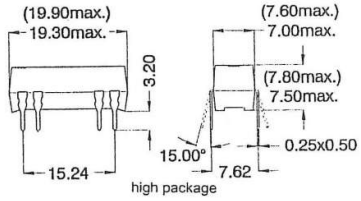
Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

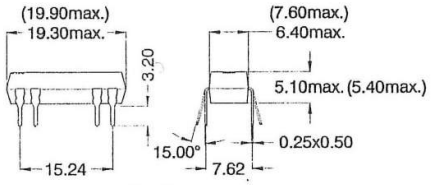
DIP REED RELAYS



Dimensions



high package



flat package

Flat package

- 1 Form A Standard
- 1 Form A Diode 6-9
- 1 Form C Standard

High package

- 1 Form A Diode 2-6
- 1 Form B Standard
- 1 Form B Diode 2-6
- 1 Form C Diode 2-6
- 2 Form A Standard
- 2 Form A Diode 2-6

Characteristics:

- Low profile package
- Standardized pin configurations
- Versions with diode available
- Version with mercury wetted switches on request
- IC-pin compatible
- TTL drive possible
- 4,25 kVDC insulation at diagram 13
- UL approval

Contact Data

Other switches on request

Contact type				71	72	75	84	90
Contact form				A / B dry	A / B dry	A / B dry	A / B dry	C / dry
Rated power		max.	(W)	10	15	10	10	3
Switching voltage		max.	(VDC)	200	200	500	400	175
Switching current		max.	(A)	0,5	1,0	0,5	0,5	0,25
Carry current		max.	(A)	1,0	1,25	1,0	1,0	1,2
Contact resistance		max.	(mΩ)	150	150	200	150	150
Insulation resistance		min.	(Ω)	10^{10}	10^{10}	10^{10}	10^{11}	10^{9}
Breakdown voltage		min.	(VDC)	250	250	1'500*	700	200
Operating time incl. bounce		typ.	(ms)	0,5	0,5	0,5	2,0	0,7
Releasing time		tpy.	(ms)	0,1	0,1	0,1	0,1	1,0
Shock	at 11 ms	max.	(g)	150	150	30	50	50
Vibration		max.	(g)	10	10	30	35	30
			(Hz)	10 - 2000	10 - 2000	50 - 1500	10 - 2000	50 - 2000

Data at 140% pull-in energization and 20°C

* (p. 2 for breakdown voltage)

Relay Data

Operating temperature		(°C)	-20 / +70
Storage temperature		(°C)	-35 / +95
Insulation coil-contact	min.	(kV)	1,5 DC (4,25 DC / 3,0 AC at diagram 13L)
Insulation coil-contact	min.	(Ω)	10^{11}
Life expectancy			Dependent upon load, please refer to factory
Soldering time / temperature	max.		10 Sec. / 260 °C
Washability			Fully sealed

Coil Data

Data at 20°C

Contact form	Contact type	Diagram	Nominal voltage (VDC)	Coil resistance +/-10% (Ω)	Pull-in voltage maximum (VDC)	Drop-out voltage minimum (VDC)	U max. 20°C (VDC)	U max. 60°C at Hg 50° C (VDC)	Nominal power (mW)
1A	71 72 75 84	10/11 12/13 16	5	500 (200)	3,5	0,75	22,0	14,0	50
			12	1'000	8,4	1,8	33,0	21,0	144
			15	2'000	10,5	2,2	44,0	28,5	113
			24	2'000	16,8	3,6	44,0	28,5	288
1B	71 72 75 84	19	5	500 (200)	3,5	0,75	6,5	6,5	50
			12	1'000	8,4	1,8	15,6	15,6	144
			15	2'000	10,5	2,2	19,5	19,5	113
			24	2'000	16,8	3,6	31,2	30,0	288
2A	71 72 75 84	21	5	200 (140)	3,5	0,75	14,0	9,0	125
			12	500	8,4	1,8	25,0	16,0	288
			15	2'000	10,5	2,2	47,0	30,5	113
			24	2'000	16,8	3,6	47,0	30,5	288
1C	90	51	5	200	3,5	0,75	13,0	8,0	125
			12	500	8,4	1,8	22,0	14,0	288
			15	2'000	10,5	2,2	44,0	28,5	113
			24	2'000	16,8	3,6	44,0	28,5	288
1A	71 72	10/11 12/13 16 High resist. type	5	1'000	3,5	0,75	33,0	21,0	25
			12	2'000	8,4	1,8	44,0	28,5	72
1C	90	51 High resist. type	12	1'000	8,4	1,8	15,6	15,6	144

Other coil resistance values on request

Data in () are valid for switch 75 and 84

Order information

DIP 12 - 1A72 - 12 L HR

- DIP — Series
- 12 — Nominal voltage
- 1A72 — Contact type
- 12 — Diagram
- L — Option
- HR — High resistance version

Example for ordering

DIP 12 - 1A72 - 12LHR

DIP series
12V nominal voltage
1 formA switch type 72
Diagram 12
No Option
High resistance version

Surface Mount and Single-in-Line versions also available - Catalogue on request

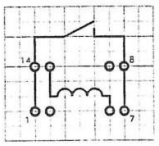
DIP REED RELAYS

Diagram

View on component side

Pitch 2,54

10



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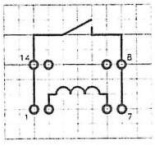

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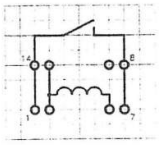

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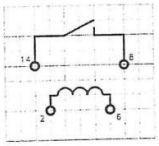

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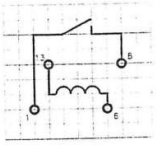

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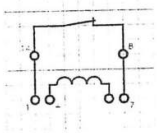

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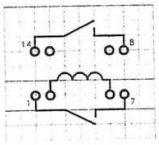

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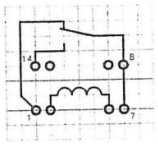
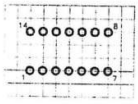


Options

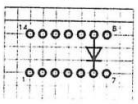
( ) Versions with magnetic screen

Pitch 2,54

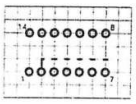
L (M)



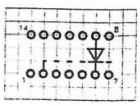
A (N)



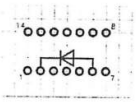
B (O)



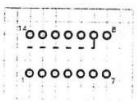
C (P)



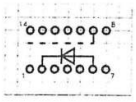
D (Q)



E (R)



F (S)



Contact form	Casing	Diagram	Options						
			L (M)	A (N)	B (O)	C (P)	D (Q)	E (R)	F (S)
1A	flat package	10	X	X	X	X		X	
		11	X	X				X	
		12	X	X				X	
		13	X						
		16	X						
1A	high package	11					X		X
		12					X		X
		13					X		
1B	high package	19	X				X		
2A	high package	21	X				X	X	X
1C	flat package	51	X	X					
	high package	51					X	X	X

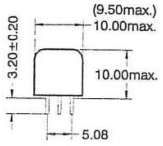
BE

HIGH ISOLATION REED RELAYS

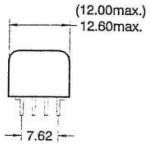
Relay Data

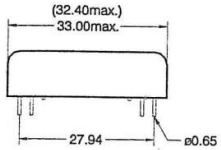
Operating temperature		(°C)	-20 / +70 (mercury wetted -20 / +55)
Storage temperature		(°C)	-40 / +105 (mercury wetted -35 / +105)
Insulation coil-contact	min.	(kVAC)	2,0 (4,5 at sundry diagrams)
Insulation coil-contact	min.	(Ω)	10^{12} (10^{14})
Life expectancy			Dependent upon load, please refer to factory
Soldering time / temperature	max.		5 Sec. / 260 °C
Washability			Fully sealed

Version:
1A / 1C



2A / 1B / 1E





Contact Data

			71	74
Contact type				
Contact form			A/B / dry	A/B / dry
Rated power		(W)	10	30
Switching voltage	max.	(VDC)	200	200 (250 AC)
Switching current	max.	(A)	0,5	1,0
Carry current	max.	(A)	1,0	2,5
Contact resistance	max.	(mΩ)	150	120
Insulation resistance	min.	(Ω)	10^{10}	10^{11}
Breakdown voltage	min.	(VDC)	250	430
Operating time incl. bounce	typ.	(ms)	0,5	0,5
Releasing time	typ.	(ms)	0,2	0,2
Shock at 11 ms	max.	(g)	150	500
Vibration	max.	(g)	10	10
		(Hz)	10 - 2000	10 - 2000

Data at 140% pull-in energization and 20°C

Other switches on request

Coil Data

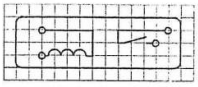
Data in () are valid for versions with metal case

Data at 20°C

Contact form	Contact type	Diagram	Nominal voltage (VDC)	Coil resistance +/- 10% (Ω)	Pull-in voltage maximum (VDC)	Drop-out voltage (VDC)	Nominal power (mW)
1A	71	11 V	5	345	3,5	0,28	72
			12	2'145	8,4	0,70	67
			24	7'845	16,8	1,40	73
1B	71	13 V	5	180	3,5	0,36	139
			12	1'100	8,4	0,90	118
			24	4'240	16,8	1,80	136
2A	71	21 V	5	180	3,5	0,25	133
			12	1'100	8,4	0,65	131
			24	4'240	16,8	1,30	136

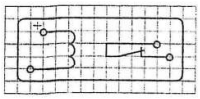
Diagram

11



4,5 kVAC

13



4,5 kVAC

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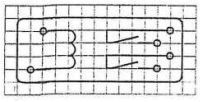

4,5 kVAC
Pitch 2,54

View on component side

Order information

BE 05 - 1A 71 V

- BE — Series
- 05 — Nominal voltage
- 1A 71 — Contact type
- V — Casing

Casing: M = metal, P = plastic, V = plastic (with 4,5 kVAC insulation voltage)

Example for ordering

BE05-1A 71 – V

BE series
5V nominal voltage
1 formA switch type 71
Plastic casing

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