# Section 23

## Relays and Timers


RXM


RSL


RSB


SSR


8501X


CAD32


9050JCK


RE17


ABL8


REG24, REG48, REG96


CA2SKE


SR2, SR3


RM17, RM35

**RELAYS AND TIMERS**

**23**

Schneider Electric

6/20/2017

RSL 1PV••

RSL 1PR••

RSL 1AB••

RSL ZVA•

RSL ZRA•

RSL Z2

RSL Z3

## Zelio™ RSL Interface Relays

Zelio RSL slim interface relays save valuable panel space with a 6 mm width and have a 6 A general purpose load rating. Features include:

- Pre-assembled option: relay and socket are combined into one catalog number.
- Universal AC/DC sockets have built-in protection from transients and reverse polarity voltages (see catalog DIA3ED2090304EN-US for more detailed information).
- Accessories, which include isolators, ID tags, and bus jumper save valuable installation time.
- SPDT (1 C/O) design

Refer to Online Relay Configurator.

### Table 23.1: Pre-assembled Relay and Socket Combination (sold in lots of 10)

| Socket Supply Voltage | Pre-Assembled Catalog Number[1] | | Replacement Relays Catalog Number |
|---|---|---|---|
| | Screw Connector | Spring Terminal | |
| 12 Vac/Vdc | RSL1PVJU | RSL1PRJU | RSL1AB4JD |
| 24 Vac/Vdc | RSL1PVBU | RSL1PRBU | RSL1AB4BD |
| 48 Vac/Vdc | RSL1PVEU | RSL1PREU | RSL1AB4ED |
| 110 Vac/Vdc | RSL1PVFU | RSL1PRFU | RSL1AB4ND |
| 230 Vdc | RSL1PVPU | RSL1PRPU | RSL1AB4ND |

### Table 23.2: Relays (sold in lots of 10)

| Relay Coil Voltage[2] | Catalog Number |
|---|---|
| 12 Vdc | RSL1AB4JD |
| 24 Vdc | RSL1AB4BD |
| 48 Vdc | RSL1AB4ED |
| 60 Vdc | RSL1AB4ND |

### Table 23.3: Sockets (sold in lots of 10)

| Control Voltage | Socket Type | | For Use with Relays: |
|---|---|---|---|
| | Screw Connector | Spring Terminal | |
| | Catalog Number | Catalog Number | |
| 12 Vac/Vdc | RSLZVA1 | RSLZRA1 | RSL1AB4JD |
| 24 Vac/Vdc | | | RSL1AB4BD |
| 48 Vac/Vdc | RSLZVA2 | RSLZRA2 | RSL1AB4ED |
| 60 Vac/Vdc | | | RSL1AB4ND |
| 110 Vac/Vdc | RSLZVA3 | RSLZRA3 | RSL1AB4ND |
| 230 Vac/Vdc | RSLZVA4 | RSLZRA4 | RSL1AB4ND |

### Table 23.4: Accessories

| Description | Compatibility | Catalog Number |
|---|---|---|
| ID tags (2 sheets of 64 tags) | With all RSL and SSL series sockets | RSLZ5 |
| Bus jumper (10 x 20-pole jumpers) | | RSLZ2 |
| Butterfly isolator (10 isolators) | | RSLZ3 |

### Approvals for RSL Relays

c(UL)US    File: E173076 CCN: NRNT2, NRNT8    CSA    File: 240278 Class: 3211 04    CE    IEC 61810-1    RoHS Compliant

### Approvals for RSLZ Sockets

c(UL)US    File: E172326 CCN: SWIV2, SWIV8    CSA    File: 254977 Class: 3211 07    CE    IEC 61984    RoHS Compliant

[1]    Relays are mounted on sockets equipped with LED and protection circuit.
[2]    The RSL sockets will accept an AC or DC input voltage; however, the relay always receives a filtered DC voltage.

**23**

RELAYS AND TIMERS

RSB1A160F7

RSB2A080BD

RSZE1S48M

RSB1A120JD Relay
+ RZM031FPD Socket
+ RSZE1S35M Module

RSB1A160BD Relay
+ RSZE1S48M Socket

## Zelio™ RSB Interface Relays

Zelio RSB interface relays and sockets provide the optimum combination of robust performance and space saving for the most demanding applications. Relays are rated at 8 A, 12 A, and 16 A (250 Vac / 28 Vdc). Features include:

- Optional protection modules for protection against electrical transients
- Optional plastic hold-down ejector clips
- Socket or printed circuit board installation options

Refer to Online Relay Configurator.

### Table 23.5: Relays (sold in lots of 10)

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | |
|---|---|---|---|
| | SPDT (1 C/O) -12 A Res. | SPDT (1 C/O) -16 A Res. | DPDT (2 C/O) -8 A Res. |
| | Catalog Number[3] | Catalog Number[3] | Catalog Number[3] |
| 6 Vdc | RSB1A120RD | RSB1A160RD | RSB2A080RD |
| 12 Vdc | RSB1A120JD | RSB1A160JD | RSB2A080JD |
| 24 Vdc | RSB1A120BD | RSB1A160BD | RSB2A080BD |
| 48 Vdc | RSB1A120ED | RSB1A160ED | RSB2A080ED |
| 60 Vdc | RSB1A120ND | RSB1A160ND | RSB2A080ND |
| 110 Vdc | RSB1A120FD | RSB1A160FD | RSB2A080FD |
| 24 Vac | RSB1A120B7 | RSB1A160B7 | RSB2A080B7 |
| 48 Vac | RSB1A120E7 | RSB1A160E7 | RSB2A080E7 |
| 120 Vac | RSB1A120F7 | RSB1A160F7 | RSB2A080F7 |
| 220 Vac | RSB1A120M7 | RSB1A160M7 | RSB2A080M7 |
| 230 Vac | RSB1A120P7 | RSB1A160P7 | RSB2A080P7 |
| 240 Vac | RSB1A120U7 | RSB1A160U7 | RSB2A080U7 |

### Table 23.6: Sockets – 12 A, 300 Vac (sold in lots of 10)

| Contact Terminal Arrangement | Connection | For Use with Relays | Catalog Number |
|---|---|---|---|
| Separate[4] | Box lug connector | RSB1A120•• | RSZE1S35M |
| | | RSB1A160••[5] RSB2A080•• | RSZE1S48M |

### Table 23.7: Protection Modules (sold in lots of 10)

| Description | Compatibility | Voltage | Catalog Number |
|---|---|---|---|
| Diode | | 6–230 Vdc | RZM040W |
| RC circuit | | 24–60 Vac | RZM041BN7 |
| | | 110–240 Vac | RZM041FU7 |
| Diode + green LED | RSZ•••••• sockets (RSB series), RGZ•••••• sockets (RXG series) | 6–24 Vdc | RZM031RB |
| | | 24–60 Vdc | RZM031BN |
| | | 110–230 Vdc | RZM031FPD |
| Varistor + green LED | | 6–24 Vac/Vdc | RZM021RB |
| | | 24–60 Vac/Vdc | RZM021BN |
| | | 110–230 Vac/Vdc | RZM021FP |

### Table 23.8: Accessories (sold in lots of 10)

| Description | Compatibility | Catalog Number |
|---|---|---|
| Plastic hold-down ejector clip | RSZ•••••• sockets (RSB series) | RSZR215 |
| ID tags | | RSZL300 |

### Approvals for RSB Relays

c**UL**us File: E173076 CCN: NRNT2, NRNT8    **CSA** File: 215736 Class: 3211 07    CE    IEC 61810-1    RoHS Compliant

### Approvals for RSZ Sockets

c**UL**us File: E173076 CCN: NRNT2, NRNT8    **CSA** File: 254977 Class: 3211 07    CE    IEC 61810-1    RoHS Compliant

- RZM modules are RoHS compliant.
- For mounting track, see Mounting Track, End Clamps, Jumpers, Fanning Strips, page 24-19.

---

[3]  To order a relay complete with socket (sold in lots of 20): add suffix S to the catalog numbers selected above.
     Example: RSB 2A080RD + RSZ E1S48M becomes RSB 2A080RDS.
[4]  The inputs and outputs are on separate sides.
[5]  When using the RSB1A160•• relay with socket RSZ E1S48M, terminals 11 and 21, 14 and 24, 12 and 22 must be linked.

RGZE1S35M Socket
+ RXG12BD Relay

RXG11RD

RXG22B7

RXG13RD

RXG15RD

*New!*

## Zelio™ RXG Interface Relays

The Zelio RXG interface relay range is comprised of 10 A relays with 1 C/O contact and 5 A relays with 2 C/O contacts all in the same optimal foot print. The mating sockets feature separate contact terminals with reliable screw connections that attach either to a convenient 35 mm DIN rail or flexible panel mounting. The entire offer is a complete system solution with protection modules (diode, diode + LED, RC circuit, or varistor + LED), plastic ejector/maintaining clip and ID Tags to identify relays.

- Standard hold-down ejector clip integrated with socket
- Optional protection modules for protection against electrical transients
- Industry standard footprint for seamless compatibility with competitive sockets
- UL Listed combination (Relay + Socket) for expedited system certification

Refer to Online Relay Configurator.

**Table 23.9: Relays: Standard Cover, without LED, with Test Button and Lock-Down Door (sold in lots of 10)**

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | |
| --- | --- | --- |
| | SPDT (1 C/O) - 10 A | DPDT (2 C/O) - 5 A |
| | Catalog Number | Catalog Number |
| 6 Vdc | RXG11RD | RXG21RD |
| 12 Vdc | RXG11JD | RXG21JD |
| 24 Vdc | RXG11BD | RXG21BD |
| 48 Vdc | RXG11ED | RXG21ED |
| 60 Vdc | RXG11ND | RXG21ND |
| 110 Vdc | RXG11FD | RXG21FD |
| 24 Vac | RXG11B7 | RXG21B7 |
| 48 Vac | RXG11E7 | RXG21E7 |
| 120 Vac | RXG11F7 | RXG21F7 |
| 220 Vac | RXG11M7 | RXG21M7 |
| 230 Vac | RXG11P7 | RXG21P7 |

**Table 23.10: Relays: Standard Cover, with LED, with Test Button and Lock-Down Door (sold in lots of 10)**

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | |
| --- | --- | --- |
| | SPDT (1 C/O) - 10 A | DPDT (2 C/O) - 5 A |
| | Catalog Number | Catalog Number |
| 6 Vdc | RXG12RD | RXG22RD |
| 12 Vdc | RXG12JD | RXG22JD |
| 24 Vdc | RXG12BD | RXG22BD |
| 48 Vdc | RXG12ED | RXG22ED |
| 60 Vdc | RXG12ND | RXG22ND |
| 110 Vdc | RXG12FD | RXG22FD |
| 24 Vac | RXG12B7 | RXG22B7 |
| 48 Vac | RXG12E7 | RXG22E7 |
| 120 Vac | RXG12F7 | RXG22F7 |
| 220 Vac | RXG12M7 | RXG22M7 |
| 230 Vac | RXG12P7 | RXG22P7 |

**Table 23.11: Relays: Standard Cover, with LED, without Test Button and Lock-Down Door (sold in lots of 10)**

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | |
| --- | --- | --- |
| | SPDT (1 C/O) - 10 A | DPDT (2 C/O) - 5 A |
| | Catalog Number | Catalog Number |
| 6 Vdc | RXG13RD | RXG23RD |
| 12 Vdc | RXG13JD | RXG23JD |
| 24 Vdc | RXG13BD | RXG23BD |
| 48 Vdc | RXG13ED | RXG23ED |
| 60 Vdc | RXG13ND | RXG23ND |
| 110 Vdc | RXG13FD | RXG23FD |
| 24 Vac | RXG13B7 | RXG23B7 |
| 48 Vac | RXG13E7 | RXG23E7 |
| 120 Vac | RXG13F7 | RXG23F7 |
| 220 Vac | RXG13M7 | RXG23M7 |
| 230 Vac | RXG13P7 | RXG23P7 |

**Table 23.12: Relays: Clear Cover, without LED, without Test Button and Lock-Down Door (sold in lots of 10)**

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | |
| --- | --- | --- |
| | SPDT (1 C/O) - 10 A | DPDT (2 C/O) - 5 A |
| | Catalog Number | Catalog Number |
| 6 Vdc | RXG15RD | RXG25RD |
| 12 Vdc | RXG15JD | RXG25JD |
| 24 Vdc | RXG15BD | RXG25BD |
| 48 Vdc | RXG15ED | RXG25ED |
| 60 Vdc | RXG15ND | RXG25ND |
| 110 Vdc | RXG15FD | RXG25FD |
| 24 Vac | RXG15B7 | RXG25B7 |
| 48 Vac | RXG15E7 | RXG25E7 |
| 120 Vac | RXG15F7 | RXG25F7 |
| 220 Vac | RXG15M7 | RXG25M7 |
| 230 Vac | RXG15P7 | RXG25P7 |

**23**

RELAYS AND TIMERS

RGZE1S48M

RZM031RB

RSZL300

### Table 23.13: Sockets (sold in lots of 10)

| Contact Terminal Arrangement | Connection | For Use with Relays | Catalog Number |
|---|---|---|---|
| Separate[6] | Box lug connector | RXG1••• | RGZE1S35M[7] |
| | | RXG2••• | RGZE1S48M[7] |

### Table 23.14: Protection Modules (sold in lots of 10)

| Description | Voltage | Compatibility | Catalog Number |
|---|---|---|---|
| Diode | 6 to 230 Vdc | RSZ•••••• sockets (RSB series), RGZ•••••• sockets (RXG series) | RZM040W |
| RC circuit | 24 to 60 Vac | | RZM041BN7 |
| | 110 to 240 Vac | | RZM041FU7 |
| Diode + green LED | 6 to 24 Vdc | | RZM031RB |
| | 24 to 60 Vdc | | RZM031BN |
| | 110 to 230 Vdc | | RZM031FPD |
| Varistor + green LED | 6 to 24 Vdc/Vac | | RZM021RB |
| | 24 to 60 Vdc/Vac | | RZM021BN |
| | 110 to 230 Vdc/Vac | | RZM021FP |

### Table 23.15: Accessories (sold in lots of 10)

| Description | For Use With | Catalog Number |
|---|---|---|
| Plastic ejector clip | RXG series (RSZ•••••• sockets) | RGZR215 |
| Socket ID tags | | RSZL300 |
| Relay ID tags | RXG series relays | RGZL520 |

**Approvals for RXG Relays**

File: E173076
CCN: NRNT, NRNT7[8]

File: E173076
CCN: NRNT2, NRNT8

File: 254977
Class: 3211 07

CE
IEC 61810-1

RoHS Compliant

**Approvals for RGZ Sockets**

File: E172326
CCN: SW1V2, SW1V8

File: 254977
Class: 3211 07

CE
RoHS Compliant

**RELAYS AND TIMERS**

**23**

---

[6]     The inputs and outputs are on separate sides.
[7]     Please note that RGZE1S35M and RGZE1S48M sockets come standard with the RGZR215 ejector clip
[8]     When used with the appropriate RGZ socket.

RXZE2M114M Socket + RXM4AB2P7 Relay

RXM2AB1B7

RXM2AB2BD

RXM2AB3F7

## Zelio™ RXM Plug-In Relays

Zelio RXM miniature plug-in relays and sockets provide a complete system solution in response to the most demanding applications ranging from 3 to 12 A. Some of the features include:

- Test button with removable lock-down door for testing the contacts (depending on model)
- Green LED indication of relay status (depending on model)
- Mechanical indication of relay status (standard)
- Optional protection modules to protect against electrical spikes
- Bus jumpers for connecting multiple terminals reduce installation time

Refer to Online Relay Configurator.

**Table 23.16: Relays: without LED, with Test button and Lock-Down Door (sold in lots of 10)**

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | |
|---|---|---|---|
| | DPDT (2 C/O) -12 A Res. | 3PDT (3 C/O) - 10 A Res. | 4PDT (4 C/O) - 8 A Res. |
| | Catalog Number | Catalog Number | Catalog Number |
| 12 Vdc | RXM2AB1JD | RXM3AB1JD | RXM4AB1JD |
| 24 Vdc | RXM2AB1BD | RXM3AB1BD | RXM4AB1BD |
| 48 Vdc | RXM2AB1ED | RXM3AB1ED | RXM4AB1ED |
| 110 Vdc | RXM2AB1FD | RXM3AB1FD | RXM4AB1FD |
| 220 Vdc | — | — | RXM4AB1MD |
| 24 Vac | RXM2AB1B7 | RXM3AB1B7 | RXM4AB1B7 |
| 48 Vac | RXM2AB1E7 | RXM3AB1E7 | RXM4AB1E7 |
| 120 Vac | RXM2AB1F7 | RXM3AB1F7 | RXM4AB1F7 |
| 230 Vac | RXM2AB1P7 | RXM3AB1P7 | — |
| 240 Vac | — | — | RXM4AB1U7 |

**Table 23.17: Relays: with LED, with Test Button and Lock-Down Door (sold in lots of 10)**

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | |
|---|---|---|---|
| | DPDT (2 C/O) -12 A Res. | 3PDT (3 C/O) - 10 A Res. | 4PDT (4 C/O) - 8 A Res. |
| | Catalog Number | Catalog Number | Catalog Number |
| 12 Vdc | RXM2AB2JD | RXM3AB2JD | RXM4AB2JD |
| 24 Vdc | RXM2AB2BD | RXM3AB2BD | RXM4AB2BD |
| 48 Vdc | RXM2AB2ED | RXM3AB2ED | RXM4AB2ED |
| 110 Vdc | RXM2AB2FD | RXM3AB2FD | RXM4AB2FD |
| 125 Vdc | — | — | RXM4AB2GD |
| 24 Vac | RXM2AB2B7 | RXM3AB2B7 | RXM4AB2B7 |
| 48 Vac | RXM2AB2E7 | RXM3AB2E7 | RXM4AB2E7 |
| 120 Vac | RXM2AB2F7 | RXM3AB2F7 | RXM4AB2F7 |
| 230 Vac | RXM2AB2P7 | RXM3AB2P7 | RXM4AB2P7 |

**Table 23.18: Relays: with LED, without Test Button and Lock-Down Door (sold in lots of 10)**

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | |
|---|---|---|---|
| | DPDT (2 C/O) -12 A Res. | 3PDT (3 C/O) - 10 A Res. | 4PDT (4 C/O) - 8 A Res. |
| | Catalog Number | Catalog Number | Catalog Number |
| 12 Vdc | RXM2AB3JD | — | RXM4AB3JD |
| 24 Vdc | RXM2AB3BD | — | RXM4AB3BD |
| 48 Vdc | RXM2AB3ED | — | RXM4AB3ED |
| 110 Vdc | RXM2AB3FD | — | RXM4AB3FD |
| 125 Vdc | — | — | RXM4AB3GD |
| 24 Vac | RXM2AB3B7 | — | RXM4AB3B7 |
| 48 Vac | RXM2AB3E7 | — | RXM4AB3E7 |
| 120 Vac | RXM2AB3F7 | — | RXM4AB3F7 |
| 230 Vac | RXM2AB3P7 | — | RXM4AB3P7 |

**Table 23.19: Relays: Low level Contacts, without LED, with Test Button and Lock-Down Door (sold in lots of 10)**

| Coil Voltage | Number and type of contacts - Thermal current (Ith) |
|---|---|
| | 4PDT (4 C/O) -3 A Res. |
| | Catalog Number |
| 12 Vdc | RXM4GB1JD |
| 24 Vdc | RXM4GB1BD |
| 48 Vdc | RXM4GB1ED |
| 110 Vdc | RXM4GB1FD |
| 24 Vac | RXM4GB1B7 |
| 48 Vac | RXM4GB1E7 |
| 120 Vac | RXM4GB1F7 |
| 230 Vac | RXM4GB1P7 |

RXM4GB2F7

**Table 23.20: Relays: Low Level Contacts, with LED, with Test button and Lock-Down Door (sold in lots of 10)**

| Coil Voltage | Number and type of contacts - Thermal current (Ith) |
|---|---|
| | 4PDT (4 C/O) -3 A Res. |
| | Catalog Number |
| 12 Vdc | RXM4GB2JD |
| 24 Vdc | RXM4GB2BD |
| 48 Vdc | RXM4GB2ED |
| 110 Vdc | RXM4GB2FD |
| 24 Vac | RXM4GB2B7 |
| 48 Vac | RXM4GB2E7 |
| 120 Vac | RXM4GB2F7 |
| 230 Vac | RXM4GB2P7 |
| 240 Vac | RXM4GB2U7 |

**Table 23.21: Relays: Low Level Contacts, with LED, without Test Button and Lock-Down Door (sold in lots of 10)**

| Coil Voltage | Number and type of contacts - Thermal current (Ith) |
|---|---|
| | 4PDT (4 C/O) - 3 A Res. |
| | Catalog Number |
| 12 Vdc | RXM4GB3JD |
| 24 Vdc | RXM4GB3BD |
| 48 Vdc | RXM4GB3ED |
| 110 Vdc | RXM4GB3FD |
| 125 Vdc | — |
| 24 Vac | RXM4GB3B7 |
| 48 Vac | RXM4GB3E7 |
| 120 Vac | RXM4GB3F7 |
| 230 Vac | RXM4GB3P7 |

- For sockets and accessories, see .

**23**

**RELAYS AND TIMERS**

RXZE2S108M



RXM040W



RXZ400

## Sockets and Accessories for Zelio™ RXM Relays

Refer to Online Relay Configurator.

### Table 23.22: Sockets (sold in lots of 10)

| Contact Terminal Arrangement | Connection | For Use with Relays | Catalog Number |
|---|---|---|---|
| Mixed[9] | Screw clamp terminals | RXM2•••••[10] RXM4•••••[10] | RXZE2M114[11] |
| | Box lug connector | RXM2••••• RXM4••••• | RXZE2M114M[11] |
| Separate[12] | Box lug connector | RXM2••••• | RXZE2S108M[13] |
| | | RXM3••••• | RXZE2S111M[11] |
| | | RXM4••••• | RXZE2S114M |
| | Spring Terminal | RXM2••••• | RXZE2S114S |

### Table 23.23: Protection Modules (sold in lots of 10)

| Description | Voltage | Compatibility | Catalog Number |
|---|---|---|---|
| Diode | 6–250 Vdc | RXZ•••••• sockets (RXM series), RPZF1 and RPZF2 sockets (RPM series) | RXM040W |
| RC circuit | 24–60 Vac | | RXM041BN7 |
| | 110–240 Vac | | RXM041FU7 |
| Varistor | 6–24 Vac/Vdc | | RXM021RB |
| | 24–60 Vac/Vdc | | RXM021BN |
| | 110–240 Vac/Vdc | | RXM021FP |

### Table 23.24: Accessories (sold in lots of 10)

| Description | Compatibility | Catalog Number |
|---|---|---|
| Metal hold-down clip | RXZ sockets (RXM series) | RXZ400 |
| Plastic hold-down ejector clip | RXZ sockets (RXM series) | RXZR335 |
| Bus jumper, 2-pole (Ith: 5 A max. ) | RXZE2S sockets (RXM series) | RXZS2 |
| DIN rail mounting adapter[14] | RXM series relays | RXZE2DA |
| Panel mounting adapter[14] | RPM1 and RPM2 series relays | RXZE2FA |
| Relay ID tags (sheet of 108 tags) | RXM series relays, RPM series relays, RUM series relays | RXZL520 |
| Socket ID tags | RXZ sockets (RXM series, except RXZE2M114), RUZS sockets (RUM series) | RXZL420 |

### Approvals for RXM Relays

c UL us LISTED — File: E164862 CCN: NLDX, NLDX7[15]   c UR us — File: E164862 CCN: NLDX2, NLDX8   CSA — File: 230765 Class: 3211 07   CE   IEC 61810-1   RoHS Compliant

### Approvals for RXZ Sockets

c UR us — File: E172326 CCN: SWIV2, SWIV8   CSA — File: 230765 Class: 3211 07   CE   IEC 61984   RoHS Compliant

---

[9] The inputs and outputs are mixed on both sides.
[10] When mounting relay RXM2••••• on socket RXZE2M•••••, the thermal current must not exceed 10 A.
[11] Thermal current Ith: 10 A
[12] The inputs and outputs are on separate sides.
[13] Thermal current Ith: 12 A
[14] Test button and lock-down door become inaccessible.
[15] When used with the appropriate RXZ socket.

**23** RELAYS AND TIMERS

schneider-electric.us


RPZF4 Socket
+RPM42P7 Relay


RPM13BD


RPM23P7


RPM33BD


RPM43BD

## Zelio™ RPM Plug-In Relays

Zelio RPM plug-in relays and sockets provide a complete system solution for the most demanding applications up to 15 A. Some of the features include:

- Test button with removable lock-down door for testing the contacts (depending on model)
- Green LED indication of relay status (depending on model)
- Mechanical indication of relay status (standard)
- Optional modules to protect against electrical spikes

Refer to Online Relay Configurator.

**Table 23.25: Relays: without LED, with Test Button and Lock-Down Door (sold in lots of 10)**

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | |
|---|---|---|---|---|
| | SPDT (1 C/O) - 15 A Res. | DPDT (2 C/O) - 15 A Res. | 3PDT (3 C/O) - 15 A Res. | 4PDT (4 C/O) - 15 A Res. |
| | Catalog Number | Catalog Number | Catalog Number | Catalog Number |
| 12 Vdc | RPM11JD | RPM21JD | RPM31JD | RPM41JD |
| 24 Vdc | RPM11BD | RPM21BD | RPM31BD | RPM41BD |
| 48 Vdc | RPM11ED | RPM21ED | RPM31ED | RPM41ED |
| 110 Vdc | RPM11FD | RPM21FD | RPM31FD | RPM41FD |
| 24 Vac | RPM11B7 | RPM21B7 | RPM31B7 | RPM41B7 |
| 48 Vac | RPM11E7 | RPM21E7 | RPM31E7 | RPM41E7 |
| 120 Vac | RPM11F7 | RPM21F7 | RPM31F7 | RPM41F7 |
| 230 Vac | RPM11P7 | RPM21P7 | RPM31P7 | RPM41P7 |

**Table 23.26: Relays: with LED, with Test Button and Lock-Down Door (sold in lots of 10)**

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | |
|---|---|---|---|---|
| | SPDT (1 C/O) - 15 A Res. | DPDT (2 C/O) - 15 A Res. | 3PDT (3 C/O) - 15 A Res. | 4PDT (4 C/O) - 15 A Res. |
| | Catalog Number | Catalog Number | Catalog Number | Catalog Number |
| 12 Vdc | RPM12JD | RPM22JD | RPM32JD | RPM42JD |
| 24 Vdc | RPM12BD | RPM22BD | RPM32BD | RPM42BD |
| 48 Vdc | RPM12ED | RPM22ED | RPM32ED | RPM42ED |
| 110 Vdc | RPM12FD | RPM22FD | RPM32FD | RPM42FD |
| 24 Vac | RPM12B7 | RPM22B7 | RPM32B7 | RPM42B7 |
| 48 Vac | RPM12E7 | RPM22E7 | RPM32E7 | RPM42E7 |
| 120 Vac | RPM12F7 | RPM22F7 | RPM32F7 | RPM42F7 |
| 230 Vac | RPM12P7 | RPM22P7 | RPM32P7 | RPM42P7 |

**Table 23.27: Relays: with LED, without Test Button and Lock-Down Door (sold in lots of 10)**

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | |
|---|---|---|---|---|
| | SPDT (1 C/O) - 15 A Res. | DPDT (2 C/O) - 15 A Res. | 3PDT (3 C/O) - 15 A Res. | 4PDT (4 C/O) - 15 A Res. |
| | Catalog Number | Catalog Number | Catalog Number | Catalog Number |
| 12 Vdc | RPM13JD | RPM23JD | RPM33JD | RPM43JD |
| 24 Vdc | RPM13BD | RPM23BD | RPM33BD | RPM43BD |
| 48 Vdc | RPM13ED | RPM23ED | RPM33ED | RPM43ED |
| 110 Vdc | RPM13FD | RPM23FD | RPM33FD | RPM43FD |
| 125 Vdc | — | — | — | — |
| 24 Vac | RPM13B7 | RPM23B7 | RPM33B7 | RPM43B7 |
| 48 Vac | RPM13E7 | RPM23E7 | RPM33E7 | RPM43E7 |
| 120 Vac | RPM13F7 | RPM23F7 | RPM33F7 | RPM43F7 |
| 230 Vac | RPM13P7 | RPM23P7 | RPM33P7 | RPM43P7 |

**RELAYS AND TIMERS**

**23**

23

RELAYS AND TIMERS

## Sockets and Accessories for Zelio™ RPM Relays

### Table 23.28: Sockets (sold in lots of 10)

| Contact Terminal Arrangement | Connection | For Use with Relays | Catalog Number |
|---|---|---|---|
| Mixed[16] | Screw terminals | RPM1••• | RPZF1 |
| | | RPM2••• | RPZF2 |
| | | RPM3••• | RPZF3 |
| | | RPM4••• | RPZF4 |

RPZF2

### Table 23.29: Protection Modules (sold in lots of 10)

| Description | Voltage | Compatibility | Catalog Number |
|---|---|---|---|
| Diode | 6–250 Vdc | RXZ sockets (RXM series), RPZF1, RPZF2 | RXM040W |
| | | RPZF3 RPZF4 | RUW240BD |
| RC circuit | 24–60 Vac | RXZ sockets (RXM series), RPZF1, RPZF2 | RXM041BN7 |
| | 110–240 Vac | | RXM041FU7 |
| | 110–240 Vac | RPZF3 RPZF4 | RUW241P7 |
| Varistor | 6–24 Vac/Vdc | RXZ sockets (RXM series), RPZF1, RPZF2 | RXM021RB |
| | 24–60 Vac/Vdc | | RXM021BN |
| | 110–240 Vac/Vdc | | RXM021FP |
| | 24 Vac/Vdc | RPZF3 RPZF4 | RUW242B7 |
| | 240 Vac/Vdc | RPZF3 RPZF4 | RUW242P7 |

RXM041BN7

### Table 23.30: Timer Module[17] (sold in lots of 1)

| Description | Voltage | Compatibility | Catalog Number |
|---|---|---|---|
| On-delay timer, interval timer, repeat cycle timer/starting on-delay, repeat cycle timer/starting off-delay, off-delay timer, one-shot timer, timing on de-energization, on-delay timer | 24–240 Vac/Vdc | RPZF3 RPZF4 | RUW101MW |

RUW241P7

### Table 23.31: Accessories (sold in lots of 10)

| Description | Compatibility | Catalog Number |
|---|---|---|
| Metal hold-down clip (for single-pole relays) | RPZF1 | RPZR235 |
| DIN rail mounting adapter [18] | RPM1••• | RPZ1DA |
| | RPM2••• | RXZE2DA |
| | RPM3••• | RPZ3DA |
| | RPM4••• | RPZ4DA |
| Panel mounting adapter[19] | RPM1••• | RPZ1FA |
| | RPM2••• | RXZE2FA |
| | RPM3••• | RPZ3FA |
| | RPM4••• | RPZ4FA |
| ID tags (sheet of 108 tags) | RXM series relays, RPM series relays, RUM series relays | RXZL520 |

RUW101MW

### Approvals for RPM Relays

File: E164862 CCN: NLDX, NLDX7[20]

File: E164862 CCN: NLDX2, NLDX8

File: 230765 Class: 3211 07

CE IEC 61810-1

RoHS Compliant

RPZ1DA

### Approvals for RPZ Sockets

File: E172326 CCN: SWIV2, SWIV8

File: 230765 Class: 3211 07

CE IEC 61810-1

RoHS Compliant

RPZ3FA
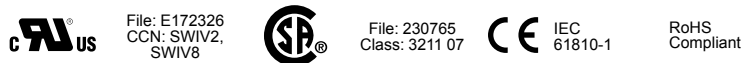
[16]   The inputs and outputs are mixed on both sides.
[17]   See timer module description (selection of functions and time delays) in catalog DIA3ED2090304EN-US.
[18]   Test button and lock-down door become inaccessible
[19]   Test button and lock-down door become inaccessible
[20]   When used with the appropriate RPZ socket.

RUZSF3M Socket
+ RUMF32BD Relay



RUMC31F7



RUMF22BD



RUMC23F7

*New!*) **Zelio™ RUM Plug-In Relays**

Zelio RUM plug-in relays and sockets provide a complete system solution for the most demanding applications up to 10 A. Some of the features include:

- Test button with lock-down door for testing the contacts (depending on model)
- Green LED indication of relay status (depending on model)
- Mechanical indication of relay status (standard)
- Optional protection modules to protect against electrical spikes
- Bus jumpers for connecting multiple terminals reduce installation time.

Refer to Online Relay Configurator.

**Table 23.32: Relays: without LED, with Test Button, and Lock-Down Door (sold in lots of 10)**

| Pins | Coil Voltage | Number and type of contacts - Thermal current (Ith) | |
|------|------|------|------|
| | | DPDT (2 C/O) -10 A Res. | 3PDT (3 C/O) -10 A Res. |
| | | Catalog Number | Catalog Number |
| Octal | 12 Vdc | RUMC21JD | RUMC31JD |
| | 24 Vdc | RUMC21BD | RUMC31BD |
| | 48 Vdc | RUMC21ED | RUMC31ED |
| | 60 Vdc | — | RUMC31ND |
| | 110 Vdc | RUMC21FD | RUMC31FD |
| | 125 Vdc | — | RUMC31GD |
| | 220 Vdc | — | RUMC31MD |
| | 24 Vac | RUMC21B7 | RUMC31B7 |
| | 48 Vac | RUMC21E7 | RUMC31E7 |
| | 120 Vac | RUMC21F7 | RUMC31F7 |
| | 230 Vac | RUMC21P7 | RUMC31P7 |
| Blade | 12 Vdc | RUMF21JD | RUMF31JD |
| | 24 Vdc | RUMF21BD | RUMF31BD |
| | 48 Vdc | RUMF21ED | RUMF31ED |
| | 110 Vdc | RUMF21FD | RUMF31FD |
| | 24 Vac | RUMF21B7 | RUMF31B7 |
| | 48 Vac | RUMF21E7 | RUMF31E7 |
| | 120 Vac | RUMF21F7 | RUMF31F7 |
| | 230 Vac | RUMF21P7 | RUMF31P7 |

**Table 23.33: Relays: with LED, Test Button, and Lock-Down Door (sold in lots of 10)**

| Pins | Coil Voltage | Number and type of contacts - Thermal current (Ith) | |
|------|------|------|------|
| | | DPDT (2 C/O) -10 A Res. | 3PDT (3 C/O) -10 A Res. |
| | | Catalog Number | Catalog Number |
| Octal | 12 Vdc | RUMC22JD | RUMC32JD |
| | 24 Vdc | RUMC22BD | RUMC32BD |
| | 48 Vdc | RUMC22ED | RUMC32ED |
| | 60 Vdc | — | RUMC32ND |
| | 110 Vdc | RUMC22FD | RUMC32FD |
| | 125 Vdc | — | RUMC32GD |
| | 24 Vac | RUMC22B7 | RUMC32B7 |
| | 48 Vac | RUMC22E7 | RUMC32E7 |
| | 120 Vac | RUMC22F7 | RUMC32F7 |
| | 230 Vac | RUMC22P7 | RUMC32P7 |
| Blade | 12 Vdc | RUMF22JD | RUMF32JD |
| | 24 Vdc | RUMF22BD | RUMF32BD |
| | 48 Vdc | RUMF22ED | RUMF32ED |
| | 110 Vdc | RUMF22FD | RUMF32FD |
| | 24 Vac | RUMF22B7 | RUMF32B7 |
| | 48 Vac | RUMF22E7 | RUMF32E7 |
| | 120 Vac | RUMF22F7 | RUMF32F7 |
| | 230 Vac | RUMF22P7 | RUMF32P7 |

**Table 23.34: Relays: with LED, without Push Button, and Lock-Down Door (sold in lots of 10)**

| Pins | Coil Voltage | Number and type of contacts - Thermal current (Ith) | |
|------|------|------|------|
| | | DPDT (2 C/O) -10 A Res. | 3PDT (3 C/O) -10 A Res. |
| | | Catalog Number | Catalog Number |
| Octal | 12 Vdc | RUMC23JD | RUMC33JD |
| | 24 Vdc | RUMC23BD | RUMC33BD |
| | 48 Vdc | RUMC23ED | RUMC33ED |
| | 60 Vdc | — | RUMC33ND |
| | 110 Vdc | RUMC23FD | RUMC33FD |
| | 125 Vdc | — | RUMC33GD |
| | 24 Vac | RUMC23B7 | RUMC33B7 |
| | 48 Vac | RUMC23E7 | RUMC33E7 |
| | 120 Vac | RUMC23F7 | RUMC33F7 |
| | 230 Vac | RUMC23P7 | RUMC33P7 |
| Blade | 12 Vdc | RUMF23JD | RUMF33JD |
| | 24 Vdc | RUMF23BD | RUMF33BD |
| | 48 Vdc | RUMF23ED | RUMF33ED |
| | 110 Vdc | RUMF23FD | RUMF33FD |
| | 125 Vdc | — | — |
| | 24 Vac | RUMF23B7 | RUMF33B7 |
| | 48 Vac | RUMF23E7 | RUMF33E7 |
| | 120 Vac | RUMF23F7 | RUMF33F7 |
| | 230 Vac | RUMF23P7 | RUMF33P7 |

**23**

**RELAYS AND TIMERS**

RUZC2M

RUW241P7

RUW101MW

RUZS2

RUZC200

## Sockets and Accessories for Zelio™ RUM Relays
Refer to Online Relay Configurator.

### Table 23.35: Sockets (sold in lots of 10)

| Contact Terminal Arrangement | | Connection | For Use with Relays | Catalog Number |
|---|---|---|---|---|
| Mixed [21] | | | RUMC2••••• | RUZC2M |
| | | | RUMC3••••• | RUZC3M |
| Separate[22] | | Box lug connector (screw terminals) | RUMC2••••• | RUZSC2M |
| | | | RUMC3••••• | RUZSC3M |
| | | | RUMF2••••• | RUZSF3M |
| | | | RUMF3••••• | |

### Table 23.36: Protection Modules (sold in lots of 10)

| Description | Compatibility | Voltage | Catalog Number |
|---|---|---|---|
| Diode | | 6–250 Vdc | RUW240BD |
| RC circuit | RUZ··· sockets (RUM series) | 110–240 Vac | RUW241P7 |
| Varistor | | 24 Vac/Vdc | RUW242B7 |
| | | 240 Vac/Vdc | RUW242P7 |

### Table 23.37: Timer Module[23] (sold in lots of 1)

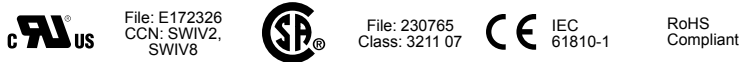| Description | Compatibility | Voltage | Catalog Number |
|---|---|---|---|
| On-delay timer, interval timer, repeat cycle timer/starting on-delay, repeat cycle timer/starting off-delay, off-delay timer, one-shot timer, timing on de-energization, on-delay timer. | RUZ··· sockets (RUM series) | 24–240 Vac/Vdc | RUW101MW |

### Table 23.38: Accessories (sold in lots of 10)

| Description | Compatibility | Catalog Number |
|---|---|---|
| Metal hold-down clip | RUZ sockets (RUM series) | RUZC200 |
| Bus jumper, 2-pole (Ith: 5 A) | RUZS sockets (RUM series) | RUZS2 |
| Relay ID tags (sheet of 108 tags) | RXM series relays, RPM series relays, RUM series relays | RXZL520 |
| Socket ID tags | RXZ sockets (RXM series, except RXZE2M114), RUZS sockets (RUM series), | RUZL420 |

### Approvals for RUM Relays

c**UL**us LISTED — File: E164862 CCN: NLDX, NLDX7[24]

c**UL**us — File: E164862 CCN: NLDX2, NLDX8

**CSA** — File: 230765 Class: 3211 07

**CE**

IEC 61810-1

RoHS Compliant

### Approvals for RUZ Sockets

c**UL**us — File: E172326 CCN: SWIV2, SWIV8

**CSA** — File: 230765 Class: 3211 07

**CE**

IEC 61810-1

RoHS Compliant

[21] The inputs and outputs are mixed on both sides.
[22] The inputs and outputs are on separate sides.
[23] See timer module description (selection of functions and time delays) in catalog **DIA3ED2090304EN-RUM-US**.
[24] When used with the appropriate RUZ socket.

schneider-electric.us

RPF2AP7

RPF2BBD

## Zelio™ RPF Power Relays

Zelio RPF power relays respond to the most demanding applications up to 30 A.
Features include:

- UL Listed
- Sealed construction
- Motor load ratings: 1 hp @ 120 Vac / 3 hp @ 240 Vac (N/O contacts only)
- DIN rail and panel mounting capability
- Short circuit rating of 5,000 A rms @ 3 hp, 240 Vac (N/O contacts only)

Refer to Online Relay Configurator.

### Table 23.39: Relays (sold in lots of 10)

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | |
|---|---|---|
| | DPST (2 N/O) - 30 A at 277 Vac, 20 A at 28 Vdc | DPDT (2 C/O) - 30 A at 277 Vac, 20 A at 28 Vdc, 3A (NC) |
| | Catalog Number | Catalog Number |
| 12 Vdc | RPF2AJD | RPF2BJD |
| 24 Vdc | RPF2ABD | RPF2BBD |
| 24 Vac | RPF2AB7 | RPF2BB7 |
| 120 Vac | RPF2AF7 | RPF2BF7 |
| 230 Vac | RPF2AP7 | RPF2BP7 |

### Approvals for RPF Relays

c**UL**us
LISTED

File: E43641
CCN: NLDX, NLDX7

CSA®

File: 040787
Class: 3211-07

CE

IEC 61810-1

RoHS Compliant

- For mounting track (DIN rail), see Mounting Track, End Clamps, Jumpers, Fanning Strips, page 24-19.

**RELAYS AND TIMERS**

**23**

# General Purpose Relays

**Type K**
Refer to Catalog **8501CT1406**

**SQUARE D**
by Schneider Electric
schneider-electric.us

8501KPDR12V60

8501KFR13V20

8501KUDR12P14V60

8501NR61

8501NR52

8501NR82

8501NR52 Socket
+8501KPR13P14V2 Relay

8501NR82 Socket
+8501KUDR12P14V Relay

*New!*

## Square D™ Universal Relays

8501K relays are designed for multipole switching applications at 240 Vac or lower. These relays have industry standard wiring and pin terminal arrangements which allow for their use as replacements for many competitive relays without wiring or hardware modifications.

- 10 A relays
- DPDT or 3PDT
- Green pilot light option
- Motor load (hp) ratings
- DPDT latching models available
- AC or DC operation
- RoHS Compliant

### Table 23.40: Relays: Standard Cover, without LED

| Pins | Coil Voltage | Number and Type of Contacts - Thermal current (Ith) | |
|---|---|---|---|
| | | **DPDT (2 C/O) - 10 A** | **3PDT (3 C/O) - 10 A** |
| | | **Catalog Number** | **Catalog Number** |
| Octal | 12 Vdc | 8501KPDR12V51 | 8501KPDR13V51 |
| | 24 Vdc | 8501KPDR12V53 | 8501KPDR13V53 |
| | 48 Vdc | 8501KPDR12V56 | 8501KPDR13V56 |
| | 110 Vdc | 8501KPDR12V60 | 8501KPDR13V60 |
| | 24 Vac | 8501KPR12V14 | 8501KPR13V14 |
| | 120 Vac | 8501KPR12V20 | 8501KPR13V20 |
| | 240 Vac | 8501KPR12V24 | 8501KPR13V24 |
| Blade | 12 Vdc | 8501KUDR12V51 | 8501KUDR13V51 |
| | 24 Vdc | 8501KUDR12V53 | 8501KUDR13V53 |
| | 48 Vdc | 8501KUDR12V56 | 8501KUDR13V56 |
| | 110 Vdc | 8501KUDR12V60 | 8501KUDR13V60 |
| | 24 Vac | 8501KUR12V14 | 8501KUR13V14 |
| | 120 Vac | 8501KUR12V20 | 8501KUR13V20 |
| | 240 Vac | 8501KUR12V24 | 8501KUR13V24 |

### Table 23.41: Relays: Flange Mount Cover

| Pins | Coil Voltage | Number and Type of Contacts - Thermal current (Ith) | |
|---|---|---|---|
| | | **DPDT (2 C/O) - 10 A** | **3PDT (3 C/O) - 10 A** |
| | | **Catalog Number** | **Catalog Number** |
| Blade | 12 Vdc | 8501KFDR12V51 | 8501KFDR13V51 |
| | 24 Vdc | 8501KFDR12V53 | 8501KFDR13V53 |
| | 48 Vdc | 8501KFDR12V56 | 8501KFDR13V56 |
| | 110 Vdc | 8501KFDR12V60 | 8501KFDR13V60 |
| | 24 Vac | 8501KFR12V14 | 8501KFR13V14 |
| | 120 Vac | 8501KFR12V20 | 8501KFR13V20 |
| | 240 Vac | 8501KFR12V24 | 8501KFR13V24 |

### Table 23.42: Relays: Standard Cover, with LED

| Pins | Coil Voltage | Number and Type of Contacts - Thermal current (Ith) | |
|---|---|---|---|
| | | **DPDT (2 C/O) - 10 A** | **3PDT (3 C/O) - 10 A** |
| | | **Catalog Number** | **Catalog Number** |
| Octal | 12 Vdc | 8501KPDR12P14V51 | 8501KPDR13P14V51 |
| | 24 Vdc | 8501KPDR12P14V53 | 8501KPDR13P14V53 |
| | 48 Vdc | 8501KPDR12P14V56 | 8501KPDR13P14V56 |
| | 110 Vdc | 8501KPDR12P14V60 | 8501KPDR13P14V60 |
| | 24 Vac | 8501KPR12P14V14 | 8501KPR13P14V14 |
| | 120 Vac | 8501KPR12P14V20 | 8501KPR13P14V20 |
| | 240 Vac | 8501KPR12P14V24 | 8501KPR13P14V24 |
| Blade | 12 Vdc | 8501KUDR12P14V51 | 8501KUDR13P14V51 |
| | 24 Vdc | 8501KUDR12P14V53 | 8501KUDR13P14V53 |
| | 48 Vdc | 8501KUDR12P14V56 | 8501KUDR13P14V56 |
| | 110 Vdc | 8501KUDR12P14V60 | 8501KUDR13P14V60 |
| | 24 Vac | 8501KUR12P14V14 | 8501KUR13P14V14 |
| | 120 Vac | 8501KUR12P14V20 | 8501KUR13P14V20 |
| | 240 Vac | 8501KUR12P14V24 | 8501KUR13P14V24 |

### Table 23.43: Sockets

| Contact Terminal Arrangement | Connection | For Use with Relays | Sold in Lots of | Catalog Number[1] |
|---|---|---|---|---|
| Mixed | Screw Connector | 8501KPR12••• 8501KPDR12••• | 1 | 8501NR51 |
| | | 8501KPR12••• 8501KPDR12••• | 10 | 8501NR51B |
| | | 8501KPR13••• 8501KPDR13••• | 1 | 8501NR61 |
| | | 8501KPR13••• 8501KPDR13••• | 10 | 8501NR61B |
| Separate | Screw Connector | 8501KPR12••• 8501KPDR12••• | 1 | 8501NR52 |
| | | 8501KPR12••• 8501KPDR12••• | 10 | 8501NR52B |
| | | 8501KPR13••• 8501KPDR13••• | 1 | 8501NR62 |
| | | 8501KPR13••• 8501KPDR13••• | 10 | 8501NR62B |
| | | 8501KUR12••• 8501KUDR12••• | 1 | 8501NR82 |
| | | 8501KUR12••• 8501KUDR12••• | 10 | 8501NR82B |
| | | 8501KUR13••• 8501KUDR13••• | 1 | 8501NR82 |

[1] Please note that the B suffix only designates quantities of 10 and is not printed on the socket.

8501NH7



8501NH52



8501NH82

**Table 23.43    Sockets (cont'd.)**

| Contact Terminal Arrangement | Connection | For Use with Relays | Sold in Lots of | Catalog Number[1] |
|---|---|---|---|---|
| | | 8501KUR13•••<br>8501KUDR13••• | 10 | 8501NR82B |

**Table 23.44: Accessories (Sold in Lots of 10)**

| Description | For Use With | Sold in Lots of | Catalog Number |
|---|---|---|---|
| Metal Restraining Srap | 8501NR51 sockets<br>8501NR52 sockets<br>8501NR62 sockets<br>8501NR82 sockets | 1 | 8501NH7 |
| Metal Hold-Down Clip | 8501NR52 sockets<br>8501NR62 sockets<br>8501NR82 sockets | 10 | 8501NH52<br>8501NH82 |

**Approvals for 8501 KPR, KUR, and KFR Relays**

File: E3190 CCN: NLDX, NLDX7[2]    File: E3190 CCN: NLDX2, NLDX8    File: 260367 Class: 3211 07    CE    IEC 61810-1    RoHS Compliant

**Approvals for 8501NR Sockets**

File: E66924 CCN: SWIV2, SWIV8    File: 211268 Class: 3211 07    CE    IEC 61810-1    RoHS Compliant

RELAYS AND TIMERS

23

[1]    Please note that the B suffix only designates quantities of 10 and is not printed on the socket.
[2]    When used with the appropriate 8501NR socket.

**General Purpose Relays**

**Type R**
Refer to Catalog **8501CT1409**

**SQUARE D**
by Schneider Electric

schneider-electric.us

8501RS41P14V20

8501RSD42P14V51

8501RS43P14V20

8501RS44P14V20

8501NR41 Socket
+8501RS41P14V20 Relay

8501NR42 Socket
+8501RSD42P14V51 Relay

8501NR43 Socket
+8501RS43P14V20 Relay

8501NR34 Socket
+8501RS44P14V20 Relay

## Square D™ Plug-in Relays

8501R miniature plug-in relays have a 15 A resistive rating. The compact size of these relays makes them ideal for downsizing equipment and applications where space is at a premium.

- SPDT through 4PDT
- AC or DC operated
- Horsepower rated
- Socket compatible
- Green LED pilot light option
- Silver alloy contacts

### Table 23.45: Relays: Standard Cover, without LED

| Coil Voltage | Number and Type of Contacts - Thermal current (Ith) | | | |
|---|---|---|---|---|
| | SPDT (1 C/O) - 15 A | DPDT (2 C/O) - 15 A | 3PDT (3 C/O) - 15 A | 4PDT (4 C/O) - 15 A |
| | Catalog Number | Catalog Number | Catalog Number | Catalog Number |
| 12 Vdc | 8501RSD41V51 | 8501RSD42V51 | 8501RSD43V51 | 8501RSD44V51 |
| 24 Vdc | 8501RSD41V53 | 8501RSD42V53 | 8501RSD43V53 | 8501RSD44V53 |
| 110 Vdc | 8501RSD41V60 | 8501RSD42V60 | 8501RSD43V60 | 8501RSD44V60 |
| 12 Vac | 8501RS41V36 | 8501RS42V36 | 8501RS43V36 | 8501RS44V36 |
| 24 Vac | 8501RS41V14 | 8501RS42V14 | 8501RS43V14 | 8501RS44V14 |
| 120 Vac | 8501RS41V20 | 8501RS42V20 | 8501RS43V20 | 8501RS44V20 |
| 240 Vac | 8501RS41V24 | 8501RS42V24 | 8501RS43V24 | 8501RS44V24 |

### Table 23.46: Relays: Standard Cover, with LED

| Coil Voltage | Number and Type of Contacts - Thermal current (Ith) | | | |
|---|---|---|---|---|
| | SPDT (1 C/O) - 15 A | DPDT (2 C/O) - 15 A | 3PDT (3 C/O) - 15 A | 4PDT (4 C/O) - 15 A |
| | Catalog Number | Catalog Number | Catalog Number | Catalog Number |
| 12 Vdc | 8501RSD41P14V51 | 8501RSD42P14V51 | 8501RSD43P14V51 | 8501RSD44P14V51 |
| 24 Vdc | 8501RSD41P14V53 | 8501RSD42P14V53 | 8501RSD43P14V53 | 8501RSD44P14V53 |
| 110 Vdc | 8501RSD41P14V60 | 8501RSD42P14V60 | 8501RSD43P14V60 | 8501RSD44P14V60 |
| 12 Vac | 8501RS41P14V36 | 8501RS42P14V36 | 8501RS43P14V36 | 8501RS44P14V36 |
| 24 Vac | 8501RS41P14V14 | 8501RS42P14V14 | 8501RS43P14V14 | 8501RS44P14V14 |
| 120 Vac | 8501RS41P14V20 | 8501RS42P14V20 | 8501RS43P14V20 | 8501RS44P14V20 |
| 240 Vac | 8501RS41P14V24 | 8501RS42P14V24 | 8501RS43P14V24 | 8501RS44P14V24 |

### Table 23.47: Sockets

| Contact Terminal Arrangement | Connection | For Use with Relays | Sold in Lots of | Catalog Number[3] |
|---|---|---|---|---|
| Separate[4] | Screw Connector | 8501RS41•••  8501RSD41••• | 1 | 8501NR41 |
| | | | 10 | 8501NR41B |
| | | 8501RS42•••  8501RSD42••• | 1 | 8501NR42 |
| | | | 10 | 8501NR42B |
| | | 8501RS43•••  8501RSD43••• | 1 | 8501NR43 |
| | | | 10 | 8501NR43B |
| | | 8501RS44•••  8501RSD44••• | 1 | 8501NR34 |
| | | | 10 | 8501NR34B |

### Table 23.48: Accessories (Sold in Lots of 10)

| Description | For Use With | Sold in Lots of | Catalog Number |
|---|---|---|---|
| Plastic ID Clip | 8501NR41 socket | Supplied with socket | — |
| Metal Hold-Down Clip | 8501NR42 socket  8501NR43 socket  8501NR34 socket | 10 | 8501NH42 |

### Approvals for 8501 RS41, RSD41, RS42, RSD42, RS43, RSD43, RS44, and RSD44

c(UL)us LISTED  File: E3190 CCN: NLDX, NLDX7[5]

c(UR)us  File: E3190 CCN: NLDX2, NLDX8

(CSA)  File: 260367 Class: 3211 07

CE  IEC 61810-1

RoHS Compliant

### Approvals for 8501NR Sockets

c(UR)us  File: E66924 CCN: SWIV2, SWIV8

(CSA)  File: 211268 Class: 3211 07

CE  IEC 61810-1

RoHS Compliant

[3] Please note that the B suffix only designates quantities of 10 and is not printed on the socket.
[4] The inputs and outputs are on separate sides.
[5] When used with the appropriate 8501NR socket.

8501NR45 Socket
+8501RS14V20 Relay


8501RS14V14


8501RSD24P14V60


8501RSD34V51

## Square D™ Miniature Control Relays

8501R relays are suited for use as logic elements and power switching output devices. The short stroke motion of the armature provides long mechanical life required for high speed operation of control systems. Different contact compositions allow these relays to be used in a variety of applications. Bifurcated crossbar (gold overlay silver) is suitable for high contact reliability and low level switching requirements. Silver alloy is best suited for inductive loads. Class I Division II sealed relays can be used in specified hazardous locations.

- 4PDT
- Complete socket line
- Horsepower rated
- AC or DC operation
- Green pilot light option

**Table 23.49: Relays: Standard Cover, without LED**

| Coil Voltage | Number and Type of Contacts — Thermal current (Ith) | |
| --- | --- | --- |
| | 4PDT (4 C/O) — 6 A | 4PDT (4 C/O) — 3 A |
| | Catalog Number | Catalog Number |
| 12 Vdc | 8501RSD14V51 | 8501RSD24V51 |
| 24 Vdc | 8501RSD14V53 | 8501RSD24V53 |
| 48 Vdc | 8501RSD14V56 | 8501RSD24V56 |
| 110 Vdc | 8501RSD14V60 | 8501RSD24V60 |
| 24 Vac | 8501RS14V14 | 8501RS24V14 |
| 120 Vac | 8501RS14V20 | 8501RS24V20 |
| 240 Vac | 8501RS14V24 | 8501RS24V24 |

**Table 23.50: Relays: Standard Cover, with LED**

| Coil Voltage | Number and Type of Contacts — Thermal current (Ith) | |
| --- | --- | --- |
| | 4PDT (4 C/O) — 6 A | 4PDT (4 C/O) — 3 A |
| | Catalog Number | Catalog Number |
| 12 Vdc | 8501RSD14P14V51 | 8501RSD24P14V51 |
| 24 Vdc | 8501RSD14P14V53 | 8501RSD24P14V53 |
| 48 Vdc | 8501RSD14P14V56 | 8501RSD24P14V56 |
| 110 Vdc | 8501RSD14P14V60 | 8501RSD24P14V60 |
| 24 Vac | 8501RS14P14V14 | 8501RS24P14V14 |
| 120 Vac | 8501RS14P14V20 | 8501RS24P14V20 |
| 240 Vac | 8501RS14P14V24 | 8501RS24P14V24 |

**Table 23.51: Relays: Hermetically Sealed Miniature Control Relays**

| Coil Voltage | Number and Type of Contacts — Thermal current (Ith) |
| --- | --- |
| | 4PDT (4 C/O) — 5 A |
| | Catalog Number |
| 6 Vdc | 8501RSD34V50 |
| 12 Vdc | 8501RSD34V51 |
| 24 Vdc | 8501RSD34V53 |
| 48 Vdc | 8501RSD34V56 |
| 110 Vdc | 8501RSD34V60 |
| 6 Vac | 8501RS34V35 |
| 12 Vac | 8501RS34V36 |
| 24 Vac | 8501RS34V14 |
| 48 Vac | 8501RS34V17 |
| 110 Vac | 8501RS34V20 |
| 240 Vac | 8501RS34V24 |

# General Purpose Relays

**Type R**
Refer to Catalog **8501CT1407**

**SQUARE D**
by Schneider Electric

schneider-electric.us

8501NR45


8501NH45

**Table 23.52: Sockets**

| Contact Terminal Arrangement | Connection | For Use With Relays | Sold in Lots of | Catalog Number[6] |
|---|---|---|---|---|
| Separate[7] | Screw Clamp Terminals | 8501RS(D)14•••<br>8501RS(D)24•••<br>8501RS(D)34••• | 1 | 8501NR45 |
| | | 8501RS(D)14•••<br>8501RS(D)24•••<br>8501RS(D)34••• | 10 | 8501NR45B |
| | Spring Clamp Terminals | 8501RS(D)14•••<br>8501RS(D)24•••<br>8501RS(D)34••• | 10 | RXZE2S114S |

**Table 23.53: Accessories (Sold in Lots of)**

| Description | For Use With | Sold in Lots of | Catalog Number |
|---|---|---|---|
| Metal hold-down clip | 8501NR45 socket | 10 | 8501NH45 |
| Clip-in ID tags | RXZE2S114S socket | 10 | RSZL300 |

**Approvals for 8501 RS14, RSD14, RS24, and RSD24 Relays**

| c(UL)us LISTED | File: E3190 CCN: NLDX, NLDX7[8] | c(UL)us | File: E3190 CCN: NLDX2, NLDX8 | CSA | File: 260367 Class: 3211 07 | CE | IEC 61810-1 | RoHS Compliant |

**Approvals for 8501 RS34 and RSD34 Relays**

| c(UL)us LISTED | File: E123950 CCN: NLDX, NLDX7[8] ANSI/ISA 12.12.01 | c(UL)us | File: E196809 CCN: NQMJ2, NQMJ8 | CSA | File: 211268 Class: 3218 06 | CE | IEC 61810-1 | RoHS Compliant |

**Approvals for 8501NR Sockets**

| c(UL)us | File: E66924 CCN: SWIV2, SWIV8 | CSA | File: 211268 Class: 3211 07 | CE | IEC 61810-1 | RoHS Compliant |

[6] Please note that the B suffix only desginates quantities of 10 and is not printed on the socket.
[7] The inputs and outputs are on separate sides.
[8] When used with the appropriate 8501NR socket.

![Square D by Schneider Electric logo]

schneider-electric.us

**Type C**

Class **8501** / Refer to Catalog **8501CT0301**



8501CDO6V51

## Square D™ Power Relays

8501C relays are ideally suited for controlling single-phase motors, electric heaters, pumps, conveyors, material handling equipment, and other applications.

- 40 A contact rating
- Motor load (hp) ratings
- Durable open-frame construction
- UL Listed
- CSA certified
- CE approved
- RoHS compliant

**Table 23.54: Relays: AC Rated Contacts, 40 A at 277 V (sold in lots of 1)**

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | | |
|---|---|---|---|---|---|
| | SPST: 1 NO / 0 NC | DPST: 2 NO / 0 NC | SPST: 0 NO / 1 NC | SPDT: 1 NO / 1 NC | DPDT: 2 NO / 2 NC |
| | Catalog Number | Catalog Number | Catalog Number | Catalog Number | Catalog Number |
| 6 Vdc | 8501CDO6V50 | 8501CDO7V50 | 8501CDO8V50 | 8501CDO15V50 | 8501CDO16V50 |
| 12 Vdc | 8501CDO6V51 | 8501CDO7V51 | 8501CDO8V51 | 8501CDO15V51 | 8501CDO16V51 |
| 24 Vdc | 8501CDO6V53 | 8501CDO7V53 | 8501CDO8V53 | 8501CDO15V53 | 8501CDO16V53 |
| 110 Vdc | 8501CDO6V60 | 8501CDO7V60 | 8501CDO8V60 | 8501CDO15V60 | 8501CDO16V60 |
| 6 Vac | 8501CO6V35 | 8501CO7V35 | 8501CO8V35 | 8501CO15V35 | 8501CO16V35 |
| 12 Vac | 8501CO6V36 | 8501CO7V36 | 8501CO8V36 | 8501CO15V36 | 8501CO16V36 |
| 24 Vac | 8501CO6V14 | 8501CO7V14 | 8501CO8V14 | 8501CO15V14 | 8501CO16V14 |
| 120 Vac | 8501CO6V20 | 8501CO7V20 | 8501CO8V20 | 8501CO15V20 | 8501CO16V20 |
| 208 Vac | 8501CO6V08 | 8501CO7V08 | 8501CO8V08 | 8501CO15V08 | 8501CO16V08 |
| 240 Vac | 8501CO6V24 | 8501CO7V24 | 8501CO8V24 | 8501CO15V24 | 8501CO16V24 |
| 277 Vac | 8501CO6V04 | 8501CO7V04 | 8501CO8V04 | 8501CO15V04 | 8501CO16V04 |
| 480 Vac | 8501CO6V29 | 8501CO7V29 | 8501CO8V29 | 8501CO15V29 | 8501CO16V29 |

**Table 23.55: Relays: DC Rated Contacts, 20 A at 110 V (sold in lots of 1)**

| Coil Voltage | Number and type of contacts - Thermal current (Ith) |
|---|---|
| | SPST: 1 NO / 0 NC |
| | Catalog Number |
| 6 Vdc | 8501CDO21V50 |
| 12 Vdc | 8501CDO21V51 |
| 24 Vdc | 8501CDO21V53 |
| 110 Vdc | 8501CDO21V60 |
| 6 Vac | 8501CO21V35 |
| 12 Vac | 8501CO21V36 |
| 24 Vac | 8501CO21V14 |
| 120 Vac | 8501CO21V20 |
| 208 Vac | 8501CO21V08 |
| 240 Vac | 8501CO21V24 |
| 277 Vac | 8501CO21V04 |
| 480 Vac | 8501CO21V29 |

**Table 23.56: Relays: DC Rated Contacts, 10 A at 110 V (sold in lots of 1)**

| Coil Voltage | Number and type of contacts - Thermal current (Ith) |
|---|---|
| | DPDT: 1 NO / 0 NC |
| | Catalog Number |
| 6 Vdc | 8501CDO22V50 |
| 12 Vdc | 8501CDO22V51 |
| 24 Vdc | 8501CDO22V53 |
| 110 Vdc | 8501CDO22V60 |
| 6 Vac | 8501CO22V35 |
| 12 Vac | 8501CO22V36 |
| 24 Vac | 8501CO22V14 |
| 120 Vac | 8501CO22V20 |
| 208 Vac | 8501CO21V08 |
| 240 Vac | 8501CO22V24 |
| 277 Vac | 8501CO22V04 |
| 480 Vac | 8501CO22V29 |

**Approvals for Square D Power Relays**

![UL logo]   File: E78351
CCN: NLDX, NLDX7

![CSA logo]   File: 218139
Class: 3211 04

![CE mark]   IEC 60947-4-1

CAD32

## TeSys™ D IEC Style Instantaneous Control Relays

These 600 V relays are approved for use around the world. TeSys D relays are usually mounted on 35 mm DIN track, but can also be mounted directly to a panel. The contacts have NEMA A600 and Q600 ratings, in addition to the standard IEC ratings, making them suitable for use in most any control circuit. Low consumption versions are available for use with low level DC control signals from a computer or a PLC. Adder decks can be added to a basic five pole relay to make it up to an 11 pole relay. The serrated silver-nickel contacts with wiping action provide excellent reliability in 12 or 24 V control circuits. Special auxiliary contacts are available for switching low power down to 5 V at 10 mA. Timer and mechanical latch attachments are available.

### Table 23.57: Instantaneous Control Relays

| Terminal Type | Number of Contacts | Contact Composition | | Catalog Number[1] |
|---|---|---|---|---|
| | | Normally Open | Normally Closed | |
| Screw Clamp | 5 | 5 | 0 | CAD50 |
| | | 3 | 2 | CAD32 |
| Spring Terminal | 5 | 5 | 0 | CAD503 |
| | | 3 | 2 | CAD323 |
| Ring Tongue | 5 | 5 | 0 | CAD506 |
| | | 3 | 2 | CAD326 |

### Table 23.58: Coil Voltage Codes: 12–240 Vac, 12–72 Vdc, 5–72 Vdc Low Consumption [2]

| AC 50/60 Hz Coil (for additional voltage code options see page 7 of Catalog 8501CT0101). | | | | | | |
|---|---|---|---|---|---|---|
| Volts | 12 | 24 | 48 | 120 | 208 | 240 |
| Code | J7 | B7 | E7 | G7 | LE7 | U7 |
| DC Coil (coils have built in suppression as standard) | | | | | | |
| Volts | 12 | 24 | 36 | 48 | 60 | 72 |
| Code | JD | BD | CD | ED | ND | SD |
| DC Low Consumption Coil (coils have built in suppression as standard) | | | | | | |
| Volts | 5 | 12 | 24 | 48 | 72 | |
| Code | AL | JL | BL | EL | SL | |

### Table 23.59: Coil Voltage Codes (cont.): 277–600 Vac, 110–440 Vdc[2]

| AC 50/60 Hz Coil (for additional voltage code options see page 7 of Catalog 8501CT0101). | | | | | |
|---|---|---|---|---|---|
| Volts | 277 | 480 | 600 | | |
| Code | W7 | T7 | X7 | | |
| DC Coil (coils have built in suppression as standard) | | | | | |
| Volts | 110 | 125 | 220 | 250 | 440 |
| Code | FD | GD | MD | UD | RD |

### Table 23.60: Instantaneous Auxiliary Contact Blocks (for use in normal operation environments)

| Number of Contacts | Maximum Number per Device Clip-on Mounting | | Termination Type | Contact Composition | | Catalog Number |
|---|---|---|---|---|---|---|
| | Front | Left Side Only | | Normally Open | Normally Closed | |
| 2 | 1 | — | Screw Clamp | 2 | 0 | LADN20 |
| | | | | 1 | 1 | LADN11 |
| | | | | 0 | 2 | LADN02 |
| | | | Spring Terminal | 2 | 0 | LADN203 |
| | | | | 1 | 1 | LADN113 |
| | | | | 0 | 2 | LADN023 |
| | — | 1 Not for DC devices | Screw Clamp | 2 | 0 | LAD8N20 |
| | | | | 1 | 1 | LAD8N11 |
| | | | | 0 | 2 | LAD8N02 |
| 4 [3] | 1 | — | Screw Clamp | 4 | 0 | LADN40 |
| | | | | 3 | 1 | LADN31 |
| | | | | 2 | 2 | LADN22 |
| | | | | 1 | 3 | LADN13 |
| | | | | 0 | 4 | LADN04 |
| | | | Spring Terminal | 4 | 0 | LADN403 |
| | | | | 3 | 1 | LADN313 |
| | | | | 2 | 2 | LADN223 |
| | | | | 1 | 3 | LADN133 |
| | | | | 0 | 4 | LADN043 |
| 4 [3] | 1 | — | Screw Clamp | 2 [4] | 2 [4] | LADC22 |
| | | | Spring Terminal | 2 [4] | 2 [4] | LADC223 |

### Table 23.61: Instantaneous Auxiliary Contacts with Dust and Damp Protected Contacts (for use in harsh industrial environments)

| Number of Contacts | Maximum Number per Device | Contact Composition | | | | | Catalog Number |
|---|---|---|---|---|---|---|---|
| | Front Mounting | Sealed | | [5] | Normal | | |
| 2 | 1 | 2 | — | — | — | — | LA1DX20 |
| | | — | 2 | — | — | — | LA1DX02 |
| | | 2 | — | 2 | — | — | LA1DY20 |
| 4 [3] | 1 | 2 | — | — | 2 | — | LA1DZ40 |
| | | 2 | — | — | 1 | 1 | LA1DZ31 |

### Approvals for TeSys D IEC Style Instantaneous Control Relays

UL
File: E164353
CCN: NKCR

CSA
File: LR43364
Class: 3211 03

CE

- For replacement AC coils, see TeSys™ D and F Overload Relay Accessories, page 18-22. DC coils are not replaceable.

[1] Add the proper voltage code from Table 23.58 or Table 23.59 to the end of the catalog number. For example, CAD50**B7**.
[2] Add the proper voltage code to the end of catalog number.
[3] Auxiliary contact blocks with four contacts cannot be used on relays with low consumption coils.
[4] Includes 1 N.O. and 1 N.C. overlapping contact.
[5] Grounding terminal points (2 terminals jumpered together; see diagram on page 8 of Catalog 8501CT0101).

LADT


LA6DK


LAD4

## TeSys™ D IEC Style Contact Blocks and Accessories
### Table 23.62: Time Delay Auxiliary Contact Blocks
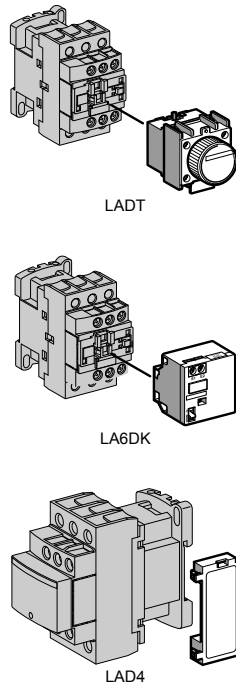
| Number and Type of Contacts | Maximum Number per Device — Front Mounting | Time Delay Type | Termination Type | Range | Catalog Number |
|---|---|---|---|---|---|
| 1 N.C. and 1 N.O. | 1 | On-Delay | Screw Clamp | 0.1–3 s [6] | LADT0 |
| | | | | 0.1–30 s | LADT2 |
| | | | | 10–180 s | LADT4 |
| | | | | 1–30 s [7] | LADS2 |
| | | | Spring Terminal | 0.1–3 s [6] | LADT03 |
| | | | | 0.1–30 s | LADT23 |
| | | | | 10–180 s | LADT43 |
| | | | | 1–30 s [7] | LADS23 |
| | | Off-Delay | Screw Clamp | 0.1–3 s [6] | LADR0 |
| | | | | 0.1–30 s | LADR2 |
| | | | | 10–180 s | LADR4 |
| | | | Spring Terminal | 0.1–3 s [6] | LADR03 |
| | | | | 0.1–30 s | LADR23 |
| | | | | 10–180 s | LADR43 |

**NOTE:** For Lockout Cover, see page 7 of catalog 8501CT0101.

### Table 23.63: Mechanical Latch Blocks [8]

| Unlatching Control | Maximum Number per Device — Front Mounting | Catalog Number[9] |
|---|---|---|
| Manual or electrical | 1 | LAD6K10 |

### Table 23.64: Coil Suppressor Modules
These modules clip onto the right hand side of the control relay and the electrical connection is instantly made. Adding an input module is still possible.

**RC Circuits (Resistor-Capacitor)**
- Effective protection for circuits highly sensitive to "high frequency" interference.
- Voltage limited to 3 Uc maximum and oscillating frequency limited to 400 Hz maximum.
- Slight increase in drop-out time (1.2 to 2 times the normal time).

| For Mounting On: | Operational Voltage | Catalog Number |
|---|---|---|
| CAD (Vac) | 24 to 48 Vac | LAD4RCE |
| | 110 to 240 Vac | LAD4RCU |

**Varistors (Peak Limiting)**
- Protection provided by limiting the transient voltage value to 2 Uc maximum.
- Maximum reduction of transient voltage peaks.
- Slight increase in drop-out time (1.1 to 1.5 times the normal time).

| CAD (Vac) | 24 to 48 Vac | LAD4VE |
|---|---|---|
| | 50 to 127 Vac | LAD4VG |
| | 110 to 250 Vac | LAD4VU |

**Bidirectional Peak Limiting Diode**
- Protection provided by limiting the transient voltage value to 2 Uc maximum.
- Maximum reduction of transient voltage peaks.

| CAD (Vac) | 24 Vac | LAD4TB |
|---|---|---|
| | 72 Vac | LAD4TS |

### Table 23.65: Coil Voltage Codes

| Volts (Vac/Vdc) | 24 | 32/36 | 42/48 | 60/72 | 100 | 110/127 | 220/240 |
|---|---|---|---|---|---|---|---|
| Code | B | C | E | EN | K | F | M |

### Table 23.66: Dimensions (See Figures at Left)

| CAD (Vac Coil) | | 32 50 | 323 503 |
|---|---|---|---|
| b | | 3.03 (77) | 3.90 (99) |
| c | Without cover or add-on blocks | 3.31 (84) | 3.31 (84) |
| | With cover, without add-on blocks | 3.39 (86) | 3.39 (86) |
| c1 | with LADN or C (2 or 4 contacts) | 4.61 (117) | 4.61 (117) |
| c2 | with LA6DK10 | 5.08 (129) | 5.08 (129) |
| c3 | with LADT, R, S | 5.39 (137) | 5.39 (137) |
| | with LADT, R, S and sealing cover | 5.55 (141) | 5.55 (141) |

| CAD (Vdc Coil or Low Consumption Vdc Coil) | | 32 50 | 323 503 |
|---|---|---|---|
| b | | 3.03 (77) | 3.90 (99) |
| c | Without cover or add-on blocks | 3.66 (93) | 3.66 (93) |
| | With cover, without add-on blocks | 3.74 (95) | 3.74 (95) |
| c1 | with LADN or C (2 or 4 contacts) | 4.96 (126) | 4.96 (126) |
| c2 | with LA6DK10 | 5.43 (138) | 5.43 (138) |
| c3 | with LADT, R, S | 5.75 (146) | 5.75 (146) |
| | with LADT, R, S and sealing cover | 5.91 (150) | 5.91 (150) |

**Dimensions (in./mm)**
**CAD** (Vac Coil)



0.49 12.5 (LAD-8)   1.77 45

**CAD** (Vdc Coil or Low Consumption Vdc Coil)



1.77 45
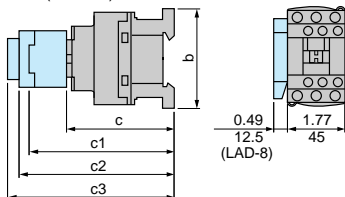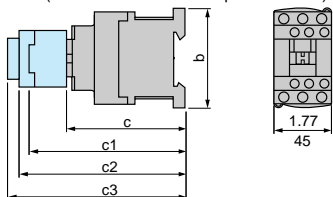
[6] With extended scale from 0.1 to 0.6 s.
[7] With switching time of 40 ms ± 15 ms between opening of the N.C. contact and closing of the N.O. contact.
[8] Power should not be simultaneously applied or maintained to the mechanical latching block and the CAD relay. The duration of the control signal to the mechanical latching block and the CAD relay should be greater than or equal to 100 ms.
[9] Complete the catalog number by adding the coil voltage code from Table 23.65. For example, LADK10**B**.

## TeSys™ D IEC Style Accessories

### Table 23.67: Cabling Accessory

| Description | | | Catalog Number |
|---|---|---|---|
| Mounting Adapter For adapting existing wiring to a new product | Without coil suppression | | LAD4BB |
| | With coil suppression | 24 to 48 Vac | LAD4BBVE |
| | | 50 to 127 Vac | LAD4BBVG |
| | | 110 to 250 Vac | LAD4BBVU |

### Table 23.68: Electronic Serial Timer Modules [10]

| On-Delay Type | | |
|---|---|---|
| Mounted using adaptor LAD4BB, to be ordered separately, see listing above. | | |
| **Operational Voltage** | **Time Delay** | **Catalog Number** |
| 24 to 250 Vac | 0.1 to 2 s | LA4DT0U |
| | 1.5 to 30 s | LA4DT2U |
| | 25 to 500 s | LA4DT4U |

### Table 23.69: Auto-Man-Stop Control Modules

| For local override operation tests with two-position "Auto-Man" switch and "O-I" switch | |
|---|---|
| Mounted using adaptor LAD4BB, to be ordered separately, see listing above. | |
| **Operational Voltage** | **Catalog Number** |
| 24 to 100 Vac | LA4DMK |

### Table 23.70: Accessories (ordered separately)

| Description | For Mounting On: | Must be Ordered in Multiples of: | Catalog Number |
|---|---|---|---|
| For Marking | | | |
| Sheet of 64 self-adhesive blank labels 8 x 33 | CAD, LAD (4 contacts), LA6DK | 10 | LAD21 |
| Sheet of 112 self-adhesive blank labels 8 x 12 | LAD (2 contacts), LADT | 10 | LAD22 |
| For Protection | | | |
| Lockout cover | LADT, LADR | 1 | LA9D901 |
| Relay cover preventing access to the moving contact carrier | CAD | 1 | LAD9ET1 |

### Table 23.71: Application Data

| Type | | CAD (Vac) | CAD (Vdc) | CAD (Vdc) Low Consumption |
|---|---|---|---|---|
| Rated Insulation Voltage (Ui) | Conforming to IEC 60947-1-1 Overvoltage category III and degree of pollution 3 | 690 V | 690 V | 690 V |
| | Conforming to UL, CSA | 600 V | 600 V | 600 V |
| Rated Impulse Withstand Voltage (Uimp) | Conforming to IEC 60947-1-1 | 6 kV | 6 kV | 6 kV |
| Separation of Electrical Circuits | To IEC 536 and VDE 0106 | Reinforced insulation up to 400 V | | |
| Conforming to Standards | | IEC 60947-1-1, N-F C 63-140, VDE 0660, BS 4794. EN 60947-5-15 | | |
| Approvals | | UL: File: E164353 CSA: File: LR43364 CE | CCN: NKCR Class: 3211 03 | |
| Protective Treatment | Conforming to IEC 60068 | "TH" (Tropical Finish). See page 23 of Catalog 8501CT0101 for details. | | |
| Degree of Protection | Conforming to VDE 0106 | Front face protected against direct finger contact IP 2X | | Protection against direct finger contact |

[10]    For 24 V operation, the relay must be fitted with a 21 V coil (code Z7).

![Schneider Electric logo]
schneider-electric.us


CA2KN22


CA2KN403

## TeSys™ K IEC Style Control Relays

- Mounting on 35 mm DIN 3 track or 4 screw direct mounting.
- Screws in open "ready-to-tighten" position
- NEMA A600, Q600
- IEC AC15, DC13

### Table 23.72: Control Relays

| Control Circuit | | Type of Termination | Contact Configuration | | Catalog Number [11] |
|---|---|---|---|---|---|
| Supply | Consumption | | N.O. | N.C. | |
| AC | 4.5 VA | Screw clamp | 4 | 0 | CA2KN40 • • |
| | | | 3 | 1 | CA2KN31 • • |
| | | | 2 | 2 | CA2KN22 • • |
| | | Spring Termination | 4 | 0 | CA2KN403 • • |
| | | | 3 | 1 | CA2KN313 • • |
| | | | 2 | 2 | CA2KN223 • • |
| | | Faston 1 x 6.35 or 2 x 2.8 | 4 | 0 | CA2KN407 • • |
| | | | 3 | 1 | CA2KN317 • • |
| | | | 2 | 2 | CA2KN227 • • |
| | | Solder pins for printed circuit board | 4 | 0 | CA2KN405 • • |
| | | | 3 | 1 | CA2KN315 • • |
| | | | 2 | 2 | CA2KN225 • • |
| DC | 3 W | Screw clamp | 4 | 0 | CA3KN40 • • |
| | | | 3 | 1 | CA3KN31 • • |
| | | | 2 | 2 | CA3KN22 • • |
| | | Spring Termination | 4 | 0 | CA3KN403 • • |
| | | | 3 | 1 | CA3KN313 • • |
| | | | 2 | 2 | CA3KN223 • • |
| | | Faston 1 x 6.35 or 2 x 2.8 | 4 | 0 | CA3KN407 • • |
| | | | 3 | 1 | CA3KN317 • • |
| | | | 2 | 2 | CA3KN227 • • |
| | | Solder pins for printed circuit board | 4 | 0 | CA3KN405 • • |
| | | | 3 | 1 | CA3KN315 • • |
| | | | 2 | 2 | CA3KN225 • • |


CA4KN405


CA3KN407

### Table 23.73: Low Consumption Control Relays
Compatible with programmable controller outputs.

- LED indicator incorporated.
- Wide range coil (70 to 130% Uc), suppressor fitted as standard.
- Mounting on 35 mm DIN 3 track or 4 screw direct mounting.
- Screws in open "ready-to-tighten" position.

| Control Circuit | | Type of Termination | Contact Configuration | | Catalog Number [12] |
|---|---|---|---|---|---|
| Supply | Consumption | | N.O. | N.C. | |
| DC | 1.8 W | Screw clamp | 4 | 0 | CA4KN40 • • • |
| | | | 3 | 1 | CA4KN31 • • • |
| | | | 2 | 2 | CA4KN22 • • • |
| | | Spring Termination | 4 | 0 | CA4KN403 • • • |
| | | | 3 | 1 | CA4KN313 • • • |
| | | | 2 | 2 | CA4KN223 • • • |
| | | Faston 1 x 6.35 or 2 x 2.8 | 4 | 0 | CA4KN407 • • • |
| | | | 3 | 1 | CA4KN317 • • • |
| | | | 2 | 2 | CA4KN227 • • • |
| | | Solder pins for printed circuit board | 4 | 0 | CA4KN405 • • • |
| | | | 3 | 1 | CA4KN315 • • • |
| | | | 2 | 2 | CA4KN225 • • • |

[11]	Complete the catalog number by adding the proper voltage code from Table 23.74, Table 23.75, Table 23.76, or Table 23.77. For example, CA2KN40**G7**.
[12]	Complete the catalog number by adding the proper voltage code from Table 23.78. For example, CA4KN40**BW3**.

**RELAYS AND TIMERS**

**23**

**Table 23.74: Coil Voltage Codes for CA2K Control Relays (0.8–1.15 Uc) (0.85–1.10 Uc)—12 to 220/230 Vac 50/60 Hz**

| Voltage | 12 Vac | 24 Vac | 36 Vac | 42 Vac | 48 Vac | 110 Vac | 120 Vac | 127 Vac | 208 Vac | 220/230 Vac |
|---|---|---|---|---|---|---|---|---|---|---|
| Code | J7 | B7 | C7 | D7 | E7 | F7 | G7 | FC7 | L7 | M7 |

**NOTE:** Up to and including 240 V, coil with integral suppression device available: add **2** to the code required. Example: **J72**.

**Table 23.75: Coil Voltage Codes for CA2K Control Relays (0.8–1.15 Uc) (0.85–1.10 Uc)—230 to 660/690 Vac 50/60 Hz**

| Voltage | 230 Vac | 230/240 Vac | 380/400 Vac | 400 Vac | 400/415 Vac | 440 Vac | 480 Vac | 500 Vac | 660/690 Vac |
|---|---|---|---|---|---|---|---|---|---|
| Code | P7 | U7 | Q7 | V7 | N7 | R7 | T7 | S7 | Y7 |

**NOTE:** Up to and including 240 V, coil with integral suppression device available: add **2** to the code required. Example: **J72**.

**Table 23.76: Coil Voltage Codes for CA3K Control Relays (0.8–1.15 Uc)—12 to 72 Vdc**

| Voltage | 12 Vdc | 20 Vdc | 24 Vdc | 36 Vdc | 48 Vdc | 60 Vdc | 72 Vdc |
|---|---|---|---|---|---|---|---|
| Code | JD | ZD | BD | CD | ED | ND | SD |

**NOTE:** Coil with integral suppression device available: add **3** to the code required. Example: **JD3**.

**Table 23.77: Coil Voltage Codes for CA3K Control Relays (0.8–1.15 Uc)—100 to 250 Vdc**

| Voltage | 100 Vdc | 110 Vdc | 125 Vdc | 200 Vdc | 220 Vdc | 230 Vdc | 240 Vdc | 250 Vdc |
|---|---|---|---|---|---|---|---|---|
| Code | KD | FD | GD | LD | MD | MPD | MUD | UD |

**NOTE:** Coil with integral suppression device available: add **3** to the code required. Example: **JD3**.

**Table 23.78: Coil Voltage Codes for CA4K, Low Consumption Control Relays (Wide Range Coil: 0.7–1.3 Uc)**

| Voltage | 12 Vdc | 24 Vdc | 48 Vdc | 72 Vdc |
|---|---|---|---|---|
| Code | JW3 | BW3 | EW3 | SW3 |

**Approvals for TeSys K IEC Style Control Relays**

File: E164353
CCN: NKCR

File: LR43364
Class: 3211 03

LA1KN20

LA1KN40

LA1KN403

Approximate Dimensions for
LA2KT Electronic Time Delay Contact Blocks (in./mm)

1.06 / 27

1.34 / 34

1.45 / 38

LA2KT

2.28 / 58

1.34 / 34

2.24 / 57
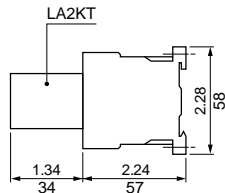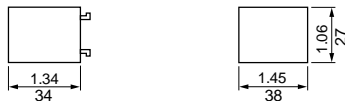
Approximate Dimensions
for CA2, CA3, CA4K Control Relays (in./mm)
On Panel

LA1-K

2.28 / 58

1.22 / 31

2.24 / 57

4xØ4

1.97 / 50

1.38 / 35

1.77 / 45

On Printed Circuit Board

0.34 / 8.65

A1

2.28 / 58

1.97 / 50

2.05 / 53

10xØ1.3
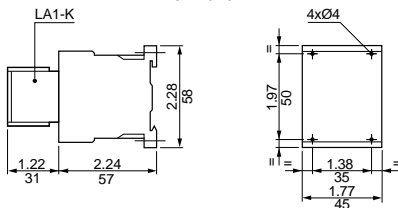
1.77 / 45

A2

## TeSys™ K IEC Style Contact Blocks and Accessories

### Table 23.79: Instantaneous Auxiliary Contact Blocks [13][14]
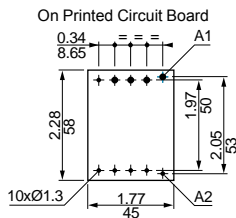
| Type of Connection | Contact Configuration | | Catalog Number |
|---|---|---|---|
| | N.O. | N.C. | |
| Screw Clamp | 2 | 0 | LA1KN20 |
| | 0 | 2 | LA1KN02 |
| | 1 | 1 | LA1KN11 |
| | 4 | 0 | LA1KN40[15] |
| | 3 | 1 | LA1KN31[15] |
| | 2 | 2 | LA1KN22[15] |
| | 1 | 3 | LA1KN13[15] |
| | 0 | 4 | LA1KN04[15] |
| Spring Termination | 2 | 0 | LA1KN203 |
| | 1 | 1 | LA1KN113 |
| | 0 | 2 | LA1KN023 |
| | 4 | 0 | LA1KN403[15] |
| | 3 | 1 | LA1KN313[15] |
| | 2 | 2 | LA1KN223[15] |
| | 1 | 3 | LA1KN133[15] |
| | 0 | 4 | LA1KN043[15] |
| Faston 1 x 6.35 or 2 x 2.8 | 2 | 0 | LA1KN207 |
| | 0 | 2 | LA1KN027 |
| | 1 | 1 | LA1KN117 |
| | 4 | 0 | LA1KN407[15] |
| | 3 | 1 | LA1KN317[15] |
| | 2 | 2 | LA1KN227[15] |
| | 1 | 3 | LA1KN137[15] |
| | 0 | 4 | LA1KN047[15] |

*Clip-on Front Mounting, 1 Block Per Control Relay*

### Table 23.80: Clip-On Front Mounting, 1 Block per Control Relay

| Voltage | Type | Timing Range (s) | Composition C.O. | Catalog No. |
|---|---|---|---|---|
| AC or DC: 24 to 48 | On-delay | 1 to 30 s | 1 | LA2KT2E |
| AC: 110 to 240 | On-delay | 1 to 30 s | 1 | LA2KT2U |

### Table 23.81: Electronic Time Delay Contact Blocks

| | |
|---|---|
| Relay output, with common point changeover contact | 240 Vac/Vdc, 2 A maximum |
| Control voltage | 0.85–1.1 Uc |
| Maximum switching capacity | 250 VA or 150 W |
| Operating temperature | –10 to + 60°C (+14° F to 140° F) |
| Reset time | 1.5 s during the time delay period, 0.5 s after the time delay. |

**NOTE:** For other electronic timers, see Type JCK60 and JCK70 Timers, page 23-43.

### Table 23.82: Accessories (supplied separately)

| Description | | | Sold in lots of | Catalog No. |
|---|---|---|---|---|
| Marker holder[16] | Clips on front of relay | | 100 | LA9D90 |
| Clip-on markers[16] | 4 maximum per device | Strip of 10 identical numbers, 0 to 9 Strip of 10 identical capital letters A to Z | 25 | AB1R•[16] |
| | | Strip of 10 identical capital letters A to Z | | AB1G•[16] |
| Suppressor modules with incorporated LED indicator | Clips onto front of relay with locating device. No tools required for connection. | For 12 to 24 Vac and Vdc (varistor) | 5 | LA4KE1B[17] |
| | | For 32 to 48 Vac and Vdc (varistor) | | LA4KE1E[17] |
| | | For 50 to 129 Vac and Vdc (varistor) | | LA4KE1FC[17] |
| | | For 130 to 250 Vac and Vdc (varistor) | | LA4KE1UG[17] |
| | | For 12 to 24 Vdc (diode + Zener diode) | | LA4KC1B[18] |
| | | For 32 to 48 Vdc (diode + Zener diode) | | LA4KC1E[18] |
| | | For 220 to 250 Vac (RC) | | LA4KA1U[19] |

### Table 23.83: Environment

| | | |
|---|---|---|
| Conforming to Standards | | IEC 947, NF C 63-140, VDE 0660, BS 5424, CE |
| Approvals | | UL, CSA, DEMKO, NEMKO, SEMKO, FI |
| Protective treatment | Conforming to IEC 68 (DIN 50016) | "TC" (Climateproof) |
| Degree of protection | Conforming to VDE 0106 | Protection against direct finger contact |
| Ambient air temperature | Storage | -58 to 176 °F (-50 to 80°C) |
| | Operation | -13 to 122 °F (-25 to 50°C) |
| Max. operating altitude | Without derating | 6562 ft (2000 m) |

[13] Clip-on front mounting, 1 block per control relay.
[14] Auxiliary contact module not suitable for safety circuits.
[15] Not to be used on CA4KN relays.
[16] See "Clip-in Marker Strips" in Catalog **8501CT0101** for information on completing the catalog number.
[17] Protection by the limitation of the transient voltage to 2 Uc maximum. Maximum reduction of the transient voltage peaks. Slight time delay on drop-out (1.1 to 1.5 times normal).
[18] No overvoltage or oscillation frequency. Polarized component. Slight time delay on drop-out (1.1 to 1.5 times normal).
[19] Protection by limitation of the transient voltage to 3 Uc max. and limitation of the oscillation frequency. Slight time delay on drop-out (1.2 times to twice normal).

**RELAYS AND TIMERS**

**23**

**Industrial Relays**

**CA2SK, CA3SK, and CA2SKE**
Refer to Catalog **8501CT0101**

Schneider
Electric

schneider-electric.us

CA2SK11G7

LA1SK11

CA2SKE20

## TeSys™ SK IEC Style Control Relays

- Miniature size saves space.
- Mounts on 35 mm DIN 3 track.
- Up to 4 poles.

### Table 23.84: IEC Style Industrial Control Relays

| Control Circuit Supply | Consumption | Type of Termination | Contact Configuration | | Catalog Number [20] |
|---|---|---|---|---|---|
| | | | N.O. | N.C. | |
| AC | 4.2 VA | Screw clamp | 1 | 1 | CA2SK11 • • |
| | | | 2 | 0 | CA2SK20 • • |
| DC | 2.2 W | | 1 | 1 | CA3SK11 • • |
| | | | 2 | 0 | CA3SK20 • • |

### Table 23.85: Contact Adder Decks (for CA2SK20 only)

| Type of Termination | Contact Configuration | | Catalog Number |
|---|---|---|---|
| | N.O. | N.C. | |
| Screw clamp | 2 | 0 | LA1SK20 |
| | 1 | 1 | LA1SK11 |
| | 0 | 2 | LA1SK02 |

**Transient Suppressor Module** dampens the voltage spike that may occur when the relay coil is de-energized. The spike may adversely affect solid state equipment near the relay. The transient suppressor module snaps into a cavity located in the side of the relay. These modules can be used with CA2SK and CA3SK relays.

### Table 23.86: Transient Suppressor Module

| Control Circuit Voltage | Catalog Number |
|---|---|
| 24–48 Vac 50/60 Hz, 24–48 Vdc | LA4SKEIE |
| 110–250 Vac 50/60 Hz, 110–250 Vdc | LA4SKEIU |

### Table 23.87: Coil Voltage Codes for Control Relays

| Voltage | 12 | 24 | 36 | 48 | 72 | 110 | 120 | 220 | 230 | 240 | 277 | 380 | 400 | 480 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50/60 Hz | — | B7 [21] | — | E7 [21] | — | F7 | G7 [21] | M7 [21] | P7 | U7 [21] | UE7 | Q7 | V7 | T7 [21] |
| DC | JD | BD | CD | ED | SD | — | — | — | — | — | — | — | — | — |

**IEC Style Alternating Relays** are used to alternate the use of 2 motor circuits. When the coil is energized the first time, one contact closes and will open when the coil is de-energized. When the coil is energized again, the other contact will close and will open when the coil is de-energized. The contacts from these alternators are to be used in the control circuit of the starters that are controlling pump or compressor motors.
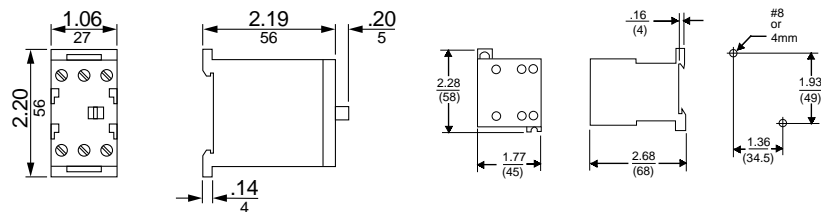
### Table 23.88: Alternating Relays

| Coil Voltage (Voltage-Hz) | Type |
|---|---|
| 24–50/60 | CA2SKE20• •[22] |

### Table 23.89: Contact Ratings for CA2SK, CA3SK, and CA2SKE20 Relays

| | | AC | | | | | | DC | |
|---|---|---|---|---|---|---|---|---|---|
| | | Inductive 35% PF | | | | | Resistive 75% PF | | |
| V | NEMA Rating | Make | | Break | | Continuous Amperes | Make, Break and Continuos Amperes | V | Continuous Amperes |
| | | A | VA | A | VA | | | | |
| 120 | A600 | 60 | 7200 | 6 | 720 | 10 | 10 | 24 | 3 |
| 240 | | 30 | | 3 | | | | 60 | 2 |
| 480 | | 15 | | 1.5 | | | | 110 | 0.8 |
| 600 | | 12 | | 1.2 | | | | 240 | 0.2 |

### Approximate Dimensions for CA2SKE Relay

1.06
27

2.19
56

.20
5

2.20
56

.14
4

2.28
(58)

1.77
(45)

.16
(4)

2.68
(68)

#8
or
4mm

1.93
(49)

1.36
(34.5)

Dual Dimensions: **INCHES**
Millimeters

### Approvals for TeSys SK IEC Style Relays

UL
File: E164353
CCN: NKCR

CSA
File: LR43364
Class: 3211 03

CE

**SQUARE D**
by Schneider Electric

schneider-electric.us

**Type X**
Class **8501** / Refer to Catalog **8501CT9601**

**Industrial Relays**

8501XO40V02 AC Control Relay


8501XMO40V02 AC Master Relay

AC Control and Master Relays Dimensions


B30080-064

Dual Dimensions: **INCHES**
Millimeters
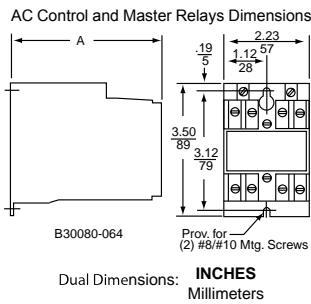

8501XO40XTE1V02 AC Timing Relay

## Square D™ NEMA Style AC Relays

Class 8501 Type X relays combine a rugged, heavy-duty design with modular construction for greater flexibility. They are ideal for applications where long life, high reliability, and ease of maintenance are important. The Type X family offers a complete line of relays and accessories for most control applications. The 8501X relay consists of a standard 4 pole base to which it is possible to add additional contacts, timer, and latch functionality. Instantaneous and Master contacts are converted from N.O. to N.C. by flipping the contact cartridge within the base. The 8501X relay can either be built from individual part numbers or ordered pre-assembled.

### AC Control Relays

- Straight-through wiring
- Plug-in contact cartridges for easy contact conversion and replacement
- Contact conversion without removing terminal screws or wires
- Self-lifting pressure wire connectors
- Replaceable coil

#### Table 23.90: AC Control Relays (lots of 1)

| No. of N.O. 10 A Convertible Instantaneous Contacts[1] | Type[1][2] |
|---|---|
| 0 | XO00 |
| 2 | XO20 |
| 3 | XO30 |
| 4 | XO40 |
| 6 | XO60 |
| 8 | XO80 |
| 10 | XO1000 |
| 12 | XO1200 |

### AC Master Relays

- 20 ampere contact rating due to use of master contact cartridges.[3]
- Provisions for standard cartridges to be used in contact cavities not occupied by master cartridges in 2–8 pole AC relay.

#### Table 23.91: AC Master Relays

| No. of N.O. 20 A Convertible Contacts | Type[2][4] |
|---|---|
| 2 | XMO20 |
| 4 | XMO40 |
| 6 | XMO60 |

#### Table 23.92: Dimension A (See Figure at Left) and Weights

| No. of Poles | Dim. A | | Shipping Weight, lb |
|---|---|---|---|
| | in. | mm | |
| 0–4 | 3.95 | 100 | 2.0 |
| 6–8 | 5.16 | 131 | 2.3 |
| 10–12 | 6.36 | 162 | 2.7 |

### AC Timing Relays

- Easily convertible On or Off Delay
- Two adjustable timing ranges
- Repeat accuracy well above ±10%
- Convertible 1 N.O. and 1 N.C. timed contacts
- Large knob for easy adjustment of time delay
- Off Delay mode times out even after loss of power

#### Table 23.93: AC Timing Relays (lots of 1)

| Timing Mode | No. of N.O. 10 A Convertible Instantaneous Contacts | Timed Convertible Contacts | | Timing Relay | |
|---|---|---|---|---|---|
| | | | | 0.2–60 s | 5–180 s |
| | | N.O. | N.C. | Type [2] | Type [2] |
| On Delay | 0 | 1 | 1 | XO00XTE1 | XO00XTE2 |
| | 2 | 1 | 1 | XO20XTE1 | XO20XTE2 |
| | 4 | 1 | 1 | XO40XTE1 | XO40XTE2 |
| Off Delay | 0 | 1 | 1 | XO00XTD1 | XO00XTD2 |
| | 2 | 1 | 1 | XO20XTD1 | XO20XTD2 |
| | 4 | 1 | 1 | XO40XTD1 | XO40XTD2 |

[1]   A maximum of 8 N.C. contacts is allowed on 9–12 pole relays.
[2]   Voltage code must be specified to order these products. Refer to Table 23.97 and insert the code as shown in Table 23.98.
[3]   Maximum of six 8501 Type XC4 master cartridges may be used on only 7 and 8 pole AC devices.
[4]   Attachments not permitted on this relay.

**Industrial Relays**

**Type X**
Class **8501** / Refer to Catalog **8501CT9601**

SQUARE D
by Schneider Electric

schneider-electric.us

**23**

RELAYS AND TIMERS



8501XO40XLV02 Latching Relay



AC Latching Relays Dimensions

B30080-160

Prov. for
(2) #8/#10 Mtg. Screws

Dual Dimensions:  **INCHES**
Millimeters

## AC Latching Relays

- Mechanical latch holds all contacts switched even after removal of power from replaceable latching coil.
- Provides sequence memory in the event of power loss. Ideal for press control, process control, and punch presses.
- Replaceable unlatch coil to switch contacts back to original state.

### Table 23.94: AC Latching Relays (lots of 1)

| N.O. 10 A Convertible Instantaneous Contacts | Latching Relay Type [5] |
|---|---|
| 2 | XO20XL |
| 3 | XO30XL |
| 4 | XO40XL |
| 6 | XO60XL |
| 8 | XO80XL |

### Table 23.95: Dimension A (See Figure at Left) and Weights

| No. of Poles | Dim. A | | Shipping Weight, lb |
|---|---|---|---|
| | in. | mm | |
| 2–4 | 6.54 | 166 | 2.8 |
| 6–8 | 7.74 | 197 | 3.1 |

- For replacement coils, see Table 23.112.

### Table 23.96: AC Contact Ratings

| Type of Cartridge | V | Inductive 35% Power Factor | | | | | Resistive 75% Power Factor |
|---|---|---|---|---|---|---|---|
| | | NEMA Rating | Make | | Break | | Make, Break and Continuous Amperes |
| | | | A | VA | A | VA | Continuous Amperes | |
| Standard or Overlapping | 120 | A600 | 60 | 7200 | 6 | 720 | 10 | 10 |
| | 240 | | 30 | | 3 | | | |
| | 480 | | 15 | | 1.5 | | | |
| | 600 | | 12 | | 1.2 | | | |
| Master[6] | — | A600 | Same as standard cartridge above except substitute 20 A for the continuous ampere rating | | | | | |
| Logic Reed | — | — | 150 Vac, 150 mA, 8 W Maximum | | | | | |

- For DC ratings, see Table 23.102.

### Table 23.97: Voltage Codes

| AC Voltages - Hz | Code |
|---|---|
| 12–60 | V11 |
| 24–60 | V01 |
| 24–50 | V12 |
| 48–60 | V18 |
| 48–50 | V16 |
| 120–60/110–50 | V02 |
| 208–60 | V08 |
| 240–60/220–50 | V03 |
| 277–60 | V04 |
| 480–60/440–50 | V06 |
| 600–60/550–50 | V07 |

### Table 23.98: How to Order

| To Order Specify: | Catalog Number | | |
|---|---|---|---|
| | Class | Type | Voltage Code |
| - Class Number<br>- Type Number<br>- Voltage Code | 8501 | XO40 | V02 |

### Approvals for Square D NEMA Style Relays

UL
File: E78403
CCN: NKCR

CSA
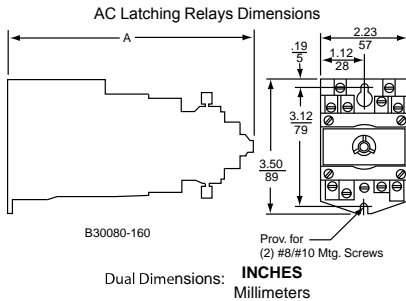File: 060905
Class: 3211 03

CE    IEC 60947–1

---

[5]  Voltage code must be specified to order these products. Refer to Table 23.97 and insert the code as shown in Table 23.98.
[6]  Maximum of six 8501 Type XC4 master cartridges may be used on only 7 and 8 pole AC devices.
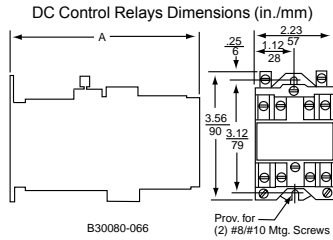
schneider-electric.us



8501XDO40V53 Control Relay

DC Control Relays Dimensions (in./mm)



B30080-066



8501XDO40XTE2V53 Timing Relay

DC Timing Relays Dimensions (in./mm)



B30080-075 A

## Square D™ NEMA Style DC Relays

### DC Control Relays

- Replaceable, highly reliable pure DC power plant: no economizing resistors, overlapping contacts or dual-wound coil.
- Uses the same Type XB adder decks and attachments as the AC version.
- Offers all the features of the AC relay.
- Available in up to 8 poles.
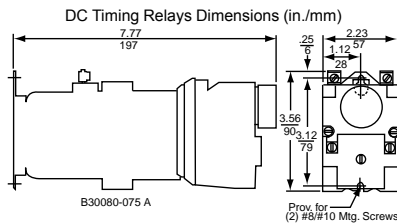- All contact poles are usable since no overlapping contacts are needed.

**Table 23.99: DC Control Relays**

| Normally Open 5 A Convertible Instantaneous Contacts | Control Relay Type[7] |
|---|---|
| 0 | XDO00 |
| 2 | XDO20 |
| 4 | XDO40 |
| 6 | XDO60 |
| 8 | XDO80 |

**Table 23.100: Dimension A (See Figure at Left) and Weights**

| No. of Poles | Dim. A | | Shipping Weight lb. |
|---|---|---|---|
| | in. | mm | |
| 0–4 | 5.17 | 131 | 3.1 |
| 6–8 | 6.37 | 162 | 3.4 |
| 10–12 | 7.60 | 193 | 3.8 |

### DC Timing Relays

- Easily convertible On Delay or Off Delay.
- Two adjustable timing ranges.
- Repeat accuracy well above ±10%.
- Convertible 1 N.O. and 1 N.C. timed contacts.
- Large knob for easy adjustment of time delay.
- Off Delay mode times out even after loss of power.

**Table 23.101: DC Timing Relays**

| Timing Mode | Normally Open 5 A Convertible Instantaneous Contacts | Timed Convertible Contacts | | Timing Relay[7] | |
|---|---|---|---|---|---|
| | | N.O. | N.C. | 0.2–60 s Type | 5–180 s Type |
| On Delay | 0 | 1 | 1 | XDO00XTE1 | XDO00XTE2 |
| | 2 | 1 | 1 | XDO20XTE1 | XDO20XTE2 |
| | 4 | 1 | 1 | XDO40XTE1 | XDO40XTE2 |
| Off Delay | 0 | 1 | 1 | XDO00XTD1 | XDO00XTD2 |
| | 2 | 1 | 1 | XDO20XTD1 | XDO20XTD2 |
| | 4 | 1 | 1 | XDO40XTD1 | XDO40XTD2 |

**Table 23.102: DC Contact Ratings**

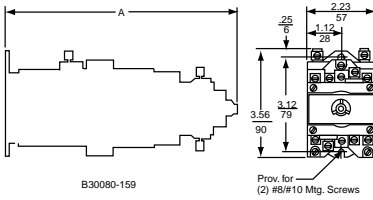| Type of Cartridge | Volts | DC Ratings | | | | |
|---|---|---|---|---|---|---|
| | | Inductive | | | Resistive | |
| | | NEMA Rating | Make and Break Amperes 138 VA Max. | Continuous Amperes | Make and Break Amperes | Continuous Amperes |
| Standard | 125 | P600 | 1.1 | 5 | 4 | 5 |
| | 250 | | 0.55 | 5 | 0.8 | 5 |
| Overlapping | 125 | P150 | 1.1 | 5 | 4 | 5 |
| Logic Reed | — | — | 30 Vdc, 60 mA | — | — | — |

- For AC ratings, see Table 23.96.

**NOTE:** Do not use any 8501 Type XC4 Master Cartridges on any DC-operated device.

---

[7] Voltage code must be specified to order these products. Refer to Table 23.106 and insert the appropriate code as shown in Table 23.107.

**RELAYS AND TIMERS**

**23**

**Industrial Relays**

**Type X**
Class **8501** / Refer to Catalog **8501CT9601**

SQUARE D
by Schneider Electric

schneider-electric.us

**23**

**RELAYS AND TIMERS**

8501XDO40XDLV53 Latching Relay

DC Latching Relays Dimensions (in./mm)

B30080-159

Prov. for
(2) #8/#10 Mtg. Screws

8501XUDO40V53 Utility Relay

## DC Latching Relays

- Mechanical latch holds all contacts switched even after removal of power from replaceable latching coil.
- Provides sequence memory in the event of power loss.
- Ideal for sequencing applications such as press control, process control and punch presses.
- Replaceable unlatch coil to switch contacts back to original state.

### Table 23.103: DC Latching Relays

| Normally Open 5 A Convertible Instantaneous Contacts | Latching Relay [8] |
|---|---|
| | Type |
| 2 | XDO20XDL |
| 4 | XDO40XDL |
| 6 | XDO60XDL |
| 8 | XDO80XDL |

**NOTE:** Unlatch coil is rated for intermittent duty and should be connected through a N.O. contact of the relay if the input signal is maintained. Order one more N.O. contact than the application requires to use as a coil clearing contact.

### Table 23.104: Dimension A (See Figure at Left) and Weights

| No. of Poles | Dim. A | | Shipping Weight, lb. |
|---|---|---|---|
| | in. | mm | |
| 2–4 | 7.76 | 197 | 3.9 |
| 6–8 | 8.98 | 228 | 4.2 |

## DC Utility Relays

Ideal for utility plant applications where reliable performance and a pure DC power plant is required. In addition to the Type XDO relay features, the Type XUDO provides:

- Up to 12 poles N.O. or N.C.
- Nominal 125 Vdc coil, capable of handling 140 Vdc continuously and picking up at 105 Vdc after having been operated at 140 Vdc continuously. Other voltages with comparable operating characteristics are available.
- Enclosed device capable of operating in 145°F ambient.

### Table 23.105: DC Utility Relays

| Number of 5 A Convertible Contacts | | Open Type[8] |
|---|---|---|
| N.O. | N.C. | Type |
| 4 | 0 | XUDO40 |
| 0 | 4 | XUDO04 |
| 8 | 0 | XUDO80 |
| 0 | 8 | XUDO08 |
| 12 | 0 | XUDO1200 |
| 0 | 12 | XUDO0012 |

### Table 23.106: Voltage Codes—8501 XUDO and XDO Relays

| DC Voltages for 8501 XUDO Relays ONLY | Code | DC Voltages for 8501 XDO Relays | Code |
|---|---|---|---|
| 6 | V50 | 6 | V50 |
| 12 | V51 | 12 | V51 |
| 24 | V53 | 24 | V53 |
| 48 | V56 | 32 | V54 |
| 125 | V63 | 48 | V56 |
| 250 | V67 | 72 | V58 |
| — | — | 90 | V59 |
| — | — | 115/125 | V62 |
| — | — | 230/250 | V66 |

### Table 23.107: How to Order

| To Order Specify: | Catalog Number | | |
|---|---|---|---|
| | Class | Type | Voltage Code |
| • Class Number<br>• Type Number<br>• Voltage Code | 8501 | XDO40 | V53 |

- For replacement coils, see Table 23.111.
- For UL and CSA approvals, see Square D NEMA Style AC Relays.

[8] Voltage code must be specified to order these products. Refer to Table 23.106 and insert the appropriate code as shown in Table 23.107.

# Attachments and Accessories for Square D™ NEMA Style Relays

## Table 23.108: Type X™ Relays

| | Description | Type |
|---|---|---|
| | **Mechanical Latch Attachment**—Mounts on any 2 through 8-pole relay (except XMO master relay). The Type XL and XDL latch attachments are identical in size and mounting provisions. The Type XLAC latch attachment has a continuous-duty-rated coil which is replaceable. **The Type XDLDC latch attachment has an intermittent–rated coil (replaceable) and should be connected through a N.O. contact of the basic relay if the input signal is maintained to the unlatch coil.**<br>AC Latch Attachment<br>DC Latch Attachment | XL [9]<br>XDL [9] |
| | **Pneumatic Timer Attachment**—Mounts only on any 0 through 4-pole AC or DC relays (except XMO master relay). It provides 1 N.O. and 1 N.C. convertible timed contacts, which are the same Type XC1 cartridges used on the basic relay. Two timing ranges are available, and conversion from On Delay to Off Delay or vice versa is easy.<br>**Off Delay**<br>0.2–60 seconds<br>5–180 seconds<br>**On Delay**<br>0.2–60 seconds<br>5–180 seconds | XTD1<br>XTD2<br>XTE1<br>XTE2 |
| | **Timer Lockout Cover**—Fits over the time delay adjustment knob of any Type XT timing attachment. The Lockout Cover is designed to protect the time setting against accidental adjustment. It mounts directly to the timing attachment with two included screws. | XJ1 |
| | **Adder Decks**—Adder decks are used to expand the number of poles on a relay. The basic 4-pole relay can be easily converted to an 8-pole or 12-pole relay by installing one or two adder decks. The Class 8501 Type XB20 comes with 2 convertible contact cartridges and will accept 2 additional convertible contact cartridges. The Class 8501 Type XB40 comes with 4 convertible contact cartridges. The same Type XB adder deck is used for both the middle and upper decks of the AC or DC relay. | |
| | With 2 N.O. contact cartridges | XB20 |
| | With 4 N.O. contact cartridges | XB40 |
| | **Contact Cartridges**—The Type X relay offers 4 Types of contact cartridges. All are color–coded for visual identification of each Type. | |
| | **Standard Cartridge**—The standard cartridge, used for most applications, has a black case. | XC1 |
| | **Overlapping Cartridge**—Same NEMA Type A600 AC rating as standard cartridge and a NEMA Type P150 DC rating. When it is used in the N.O. mode it will close early and when used in the N.C. mode it will open late. If two or more are used together, the N.O. contacts will close before the N.C. contacts open as the relay picks up. Overlap also occurs during dropout. Overlapping cartridge has a red case. | XC2 |
| | May be ordered factory installed:<br>• Substitute 1 N.O. and 1 N.C. overlapping cartridges for 2 standard cartridges.<br>• Substitute 2 N.O. and 2 N.C. overlapping cartridges for 4 standard cartridges.<br>• Substitute 3 N.O. and 3 N.C. overlapping cartridges for 6 standard cartridges.<br>• Substitute 4 N.O. and 4 N.C. overlapping cartridges for 8 standard cartridges. | **Form<br>Y1591<br>Y1592<br>Y1593<br>Y1594** |
| | **Master Cartridge**—Features the same contact ratings as the Type XC1 standard cartridge except it has a 20 ampere continuous current rating instead of 10 amperes. It can be used in circuits where a master relay is required. Master cartridge has a blue case. **Maximum of 6 master cartridges may be used on any 7 and 8-pole AC relays. Do not use any master cartridges on 9-12-pole AC or any DC-operated devices. Note: If master cartridges are added to a standard relay, attachments (latch mechanism, timers, etc.) cannot be used.** | XC4 |
| | **Mounting Track**—The mounting track has pre-punched mounting holes to simplify mounting the track on the control panel. The relay mounting screws are factory installed on the track so that the relays can be hung prior to tightening the screws.<br> 9 in. long for 4 relays<br>18 in. long for 8 relays<br>27 in. long for 12 relays<br>36 in. long for 16 relays | XM4<br>XM8<br>XM12<br>XM16 |
| | **Manual Test Tool**—Provides a means of manually switching the contacts of a basic relay or timing relay and holding all contacts in their switched state until the tool is removed. This simplifies the checking of control circuits without power on the coil or contacts. | XA1 |
| | **Transient Suppressor**—Consists of an R-C circuit designed to suppress coil generated transients to approximately 200 percent of peak voltage. It is particularly useful when switching the Type X relay near solid state equipment. It is designed for use on coils up to 120 Vac. | XS1 |
| | **NEMA 1 Enclosure**—Formed from sheet steel to provide strength and rigidity. Two conduit knockouts are located in both the top and bottom of the enclosure. The enclosure is furnished with self tapping screws for mounting the relay inside the enclosure. Accommodates a single 4 or 8-pole AC or DC relay, 12-pole AC relay, 4-pole AC latching relay, and 4-pole AC timing relay.<br>**NOTE:** The 4-pole DC latching relay, 4-pole DC timing relay, 8-pole AC and DC latching relays and 12-pole utility auxiliary relay will not fit. | Class 9991 Type UE7 |

## Table 23.109: Mechanical Latch Attachment Voltage Codes

| AC Voltage | Code | DC Voltage | Code |
|---|---|---|---|
| 24–60 | V01 | 6 | V50 |
| 24–50 | V12 | 12 | V51 |
| 120–60/110–50 | V02 | 18 | V99 |
| 208–60 | V08 | 24 | V53 |
| 240–60/220–50 | V03 | 48 | V56 |
| 277–60 | V04 | 72 | V58 |
| 480–60/440–50 | V06 | 90 | V59 |
| 600–60/550–50 | V07 | 115/125 | V62 |
| | | 230/250 | V66 |

## Table 23.110: How to Order

| To Order Specify: | Catalog Number | |
|---|---|---|
| | **Class** | **Type** |
| • Class Number | | |
| • Type Number | | |
| • Voltage Code for mechanical latch attachment | 8501 | XTE1 |
| • Form for factory installed overlapping contacts | | |

[9] See Table 23.109.

**Industrial Relays**

**Type X**
Class **8501** / Refer to Catalog **8501CT9601**

**SQUARE D**
by Schneider Electric

schneider-electric.us

**Table 23.111: DC Relay Coil Selection**

| Equipment To Be Serviced | | Coil Prefix, or Class and Type | Hz | Suffix (The complete coil number consists of prefix or the Class and Type, followed by suffix.) | | | | | | | | | | | | | Coil Burden Watts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Class | Type | | | 6 V | 12 V | 18 V | 24 V | 32 V | 48 V | 64 V | 72 V | 90 V | 110 V | 115/125 V | 220 V | 230/250 V | |
| 8501 | XD | 9998 XD | — | 19 | 28 | 34 | 37 | 40 | 46 | 49 | 52 | 55 | — | 58 | — | 67 | 18 |
| | XDL | 9998 XDL | — | 19 | 28 | 34B | 37B | 40B | 46B | 49B | 52B | 55B | — | 58B | — | 67B | 50 |
| | XUD | 9998 XUD | — | 19 | 28 | — | 37 | — | 46 | — | — | — | — | 58 [10] | — | 67[11] | 16 |

**Table 23.112: AC Relay Coil Selection**

| Equipment To Be Serviced | | Coil Prefix or Class and Type | Suffix (The complete coil number consists of prefix or the Class and Type, followed by suffix.) | | | | | | | | | | | | | Coil Volt-Amperes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Class | Type | | — | 24 V | 110-115 V | 120 V | 208 V | 220 V | 240 V | 277 V | 380 V | 440 V | 480 V | 550 V | 600 V | In-rush | Sealed |
| 8501 | XO, XMO | 9998 X [12] | 60 | 23 | — | 44 | 51 | 52 | 53 | 55 | — | — | 62 | — | 65 | 148 | 23 |
| | | | 50 | 24 | 44 | — | 52 | 53 | — | — | — | 62 | — | 65 | — | 143 | 25 |

[10]   125 Vdc only
[11]   Not dual rated—250 Vdc only
[12]   To order an unlatch coil, add the letter L to the type number and the letter B to the suffix number. Example: for a 120 V 60 Hz unlatch coil, order a Class 9998 Type XL44B.
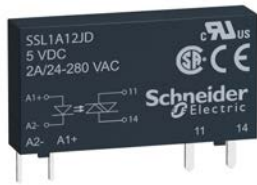
SSL1A12JD

SSLVA1

RSL Z2

RSL Z3

*New!)* **Zelio™ SSL Relays**

Zelio SSL solid state relays offer the advantages of several input and output configurations for both AC and DC switching applications. Their compact size and modular design reduces space and allows easy mounting on the socket. Key features include:

- Available with zero voltage switching for resistive load and random switching for inductive load applications.
- Socket with reverse polarity protection circuit and LED indicator for easy identification of control status.

Refer to Online Relay Configurator.

**Table 23.113: Relays (sold in lots of 12)**

| Switching | Input Voltage | Output Voltage | Contact Configuration | Load Current Range | SPDT (1 C/O) Catalog Number |
|---|---|---|---|---|---|
| DC switching | 3–12 Vdc | 1–24 Vdc | SPST N.O. (1 N/O) | 3.5 A | SSL1D03JD |
| | | 1–48 Vdc | SPST N.O. (1 N/O) | 0.1 A | SSL1D101JD |
| | 15–30 Vdc | 1–24 Vdc | SPST N.O. (1 N/O) | 3.5 A | SSL1D03BD |
| | 16–30 Vdc | 1–48 Vdc | SPST N.O. (1 N/O) | 0.1 A | SSL1D101BD |
| | 38–72 Vdc | 1–24 Vdc | SPST N.O. (1 N/O) | 3.5 A | SSL1D03ND |
| | | 1–48 Vdc | SPST N.O. (1 N/O) | 0.1 A | SSL1D101ND |
| Zero voltage switching | 3–12 Vdc | 24–280 Vac | SPST N.O. (1 N/O) | 2 A | SSL1A12JD |
| | 15–30 Vdc | 24–280 Vac | SPST N.O. (1 N/O) | 2 A | SSL1A12BD |
| | 38–72 Vdc | 24–280 Vac | SPST N.O. (1 N/O) | 2 A | SSL1A12ND |
| Random switching | 3–12 Vdc | 24–280 Vac | SPST N.O. (1 N/O) | 2 A | SSL1A12JDR |
| | 15–30 Vdc | 24–280 Vac | SPST N.O. (1 N/O) | 2 A | SSL1A12BDR |
| | 38–72 Vdc | 24–280 Vac | SPST N.O. (1 N/O) | 2 A | SSL1A12NDR |

**Table 23.114: Sockets (sold in lots of 10)**

| Control Voltage | For Use with Relays | Socket Type | |
|---|---|---|---|
| | | Screw Connector Catalog Number | Spring Terminal Catalog Number |
| 5 Vdc | SSL1D03JD SSL1D101JD SSL1A12JD SSL1A12JDR | SSLZVA1 | SSLZRA1 |
| 24 Vdc | SSL1D03BD SSL1D101BD SSL1A12BD SSL1A12BDR | SSLZVA1 | SSLZRA1 |
| 60 Vdc | SSL1D03ND SSL1D101ND SSL1A12ND SSL1A12NDR | SSLZVA2 | SSLZRA2 |
| 110 Vac/Vdc | SSL1D03ND SSL1D101ND SSL1A12ND SSL1A12NDR | SSLZVA3 | SSLZRA3 |
| 230 Vac/Vdc | SSL1D03ND SSL1D101ND SSL1A12ND SSL1A12NDR | SSLZVA4 | SSLZRA4 |

**Table 23.115: Accessories**

| Description | Compatibility | Catalog Number |
|---|---|---|
| ID tags (2 sheets of 64 tags) | RSL series sockets, SSL series sockets | RSLZ5 |
| Bus jumper (10 x 20-pole jumper) | | RSLZ2 |
| Butterfly isolator (10 isolators) | | RSLZ3 |

**Approvals for SSL Relays**

File: E173076 CCN: NRNT2, NRNT8    File: 257594 Class: 3211 07    CE    IEC 60950–1    RoHS Compliant

**Approvals for SSLZ Sockets**

File: E172326 CCN: SWIV2    File: 254977 Class: 3211 07    CE    IEC 60950–1    RoHS Compliant

**RELAYS AND TIMERS**

**23**

**23**

**RELAYS AND TIMERS**

SSM1A36BD

SSM1A312BD

*New!*

## Zelio™ SSM Relays

Zelio SSM solid state relays are ready-to-use modular relays with SCR/MOSFET outputs for greater switching density. The unique IP20 housing design and integrated heat sink with no exposed metal surface offers compactness and enhances operating conditions of the relay. SSM relays are DIN rail mounted and available with zero voltage switching for resistive load and random switching for inductive load applications. The SSM relay range comprises:

- SSM1: Single channel, single-phase relays with 6 A and 12 A ratings
- SSM2: Dual channel, single-phase relays with 6 A rating

Refer to Online Relay Configurator.

**Table 23.116: SSM1 Single Channel Solid State Relays (sold in lots of 1)**

| Switching | Input Voltage | Ouput Voltage | Contact Configura-tion | Load Current Range | Motor Load Rating | Catalog Number |
|---|---|---|---|---|---|---|
| DC switching | 4–32 Vdc | 1–60 Vdc | SPST N.O. (1 N/O) | 6 A | – | SSM1D26BD |
| | | | SPST N.O. (1 N/O) | 12 A | – | SSM1D212BD |
| | | 1–100 Vdc | SPST N.O. (1 N/O) | 6 A | – | SSM1D36BD |
| | | | SPST N.O. (1 N/O) | 12 A | – | SSM1D312BD |
| Zero voltage switching | 4–32 Vdc | 24–280 Vac | SPST N.O. (1 N/O) | 6 A | 1/6 hp @ 240 Vac | SSM1A16BD |
| | | | SPST N.O. (1 N/O) | 12 A | 1/3 hp @ 240 Vac | SSM1A112BD |
| | | 48–600 Vac | SPST N.O. (1 N/O) | 6 A | 1/6 hp @ 240 Vac | SSM1A36BD |
| | | | SPST N.O. (1 N/O) | 12 A | 1/3 hp @ 240 Vac | SSM1A312BD |
| | 18–36 Vac | 24–280 Vdc | SPST N.O. (1 N/O) | 6 A | 1/6 hp @ 240 Vac | SSM1A16B7 |
| | | | SPST N.O. (1 N/O) | 12 A | 1/3 hp @ 240 Vac | SSM1A112B7 |
| | | 48–600 Vac | SPST N.O. (1 N/O) | 12 A | 1/3 hp @ 240 Vac | SSM1A312B7 |
| | 90–140 Vac | 24–280 Vac | SPST N.O. 1 N/O) | 6 A | 1/6 hp @ 240 Vac | SSM1A16F7 |
| | | | SPST N.O. (1 N/O) | 12 A | 1/3 hp @ 240 Vac | SSM1A112F7 |
| | | 48–600 Vac | SPST N.O. (1 N/O) | 12 A | 1/3 hp @ 240 Vac | SSM1A312F7 |
| | 200–265 Vac | 24–280 Vac | SPST N.O. (1 N/O) | 6 A | 1/6 hp @ 240 Vac | SSM1A16P7 |
| | | | SPST N.O. (1 N/O) | 12 A | 1/3 hp @ 240 Vac | SSM1A112P7 |
| | | 48–600 Vac | SPST N.O. (1 N/O) | 12 A | 1/3 hp @ 240 Vac | SSM1A312P7 |
| Random switching | 4–32 Vdc | 24–280 Vac | SPST N.O. (1 N/O) | 6 A | 1/6 hp @ 240 Vac | SSM1A16BDR |
| | | | SPST N.O. (1 N/O) | 12 A | 1/3 hp @ 240 Vac | SSM1A112BDR |
| | | 48–600 Vac | SPST N.O. (1 N/O) | 6 A | 1/6 hp @ 240 Vac | SSM1A36BDR |
| | | | SPST N.O. (1 N/O) | 12 A | 1/3 hp @ 240 Vac | SSM1A312BDR |
| | 18–36 Vac | 24–280 Vac | SPST N.O. (1 N/O) | 6 A | 1/6 hp @ 240 Vac | SSM1A16B7R |
| | | | SPST N.O. (1 N/O) | 12 A | 1/3 hp @ 240 Vac | SSM1A112B7R |
| | | 48–600 Vac | SPST N.O. (1 N/O) | 12 A | 1/3 hp @ 240 Vac | SSM1A312B7R |
| | 90–140 Vac | 24–280 Vac | SPST N.O. (1 N/O) | 6 A | 1/6 hp @ 240 Vac | SSM1A16F7R |
| | | | SPST N.O. (1 N/O) | 12 A | 1/3 hp @ 240 Vac | SSM1A112F7R |
| | | 48–600 Vac | SPST N.O. (1 N/O) | 12 A | 1/3 hp @ 240 Vac | SSM1A312F7R |
| | 200–265 Vac | 24–280 Vac | SPST N.O. (1 N/O) | 6 A | 1/6 hp @ 240 Vac | SSM1A16P7R |
| | | | SPST N.O. (1 N/O) | 12 A | 1/3 hp @ 240 Vac | SSM1A112P7R |
| | | 48–600 Vac | SPST N.O. (1 N/O) | 12 A | 1/3 hp @ 240 Vac | SSM1A312P7R |

SSM2A36BD

**Table 23.117: SSM2 Dual Channel Solid State Relays (sold in lots of 1)**

| Switching | Input Voltage | Ouput Voltage | Contact Configura-tion | Load Current Range | Catalog Number [1] |
|---|---|---|---|---|---|
| Zero voltage switching | 4–32 Vdc | 24–280 Vac | DPST N.O. (2 N/O) | 6 | SSM2A16BD |
| | | 48–600 Vac | DPST N.O. (2 N/O) | 6 | SSM2A36BD |
| Random switching | 4–32 Vdc | 24–280 Vac | DPST N.O. (2 N/O) | 6 | SSM2A16BDR |
| | | 48–600 Vac | DPST N.O. (2 N/O) | 6 | SSM2A36BDR |

**Approvals for SSM Relays**

File: E359576
CCN: NMFT2, NMFT8

File: 257594
Class: 3211 04

IEC 60950-1

RoHS Compliant

RELAYS AND TIMERS

23

[1]    4–pin connector for dual channel output only. Mating connector: MOLEX 050579404 or equivalent.

**23**

RELAYS AND TIMERS


SSRPCDS25A1


SSRDCDS10A1


SSRDCDS45A1


SSRAH1

## Zelio™ SSRP and SSRD Relays

Zelio SSRP and SSRD relays do not have any moving parts to wear out. Combined with vibration resistance, arc-less switching and the lack of acoustical noise, solid state relays are the ideal product for switching applications that demand reliable execution. For added reliability, the Zelio SSRP and SSRD solid state relays use Direct Copper Bonding (DCB) technology to decrease internal temperatures and improve the overall quality of the product. The SSR solid state relay range comprises:

- Relays for DIN rail mounting: SSRD
- Relays for panel mounting: SSRP

Key features include:

- Input voltage range 3–32 Vdc, 90–280 Vac
- Breaking capacities up to 125 A
- Zero voltage turn on, low EMI/RFI
- No moving parts
- Shock and vibration resistant
- No acoustical noise
- Fast response
- Arc-less switching
- Long life (>$10^9$ operations typical)

Refer to Online Relay Configurator.

**Table 23.118: SSRP Single Channel Solid State Relays (sold in lots of 1)**

| Switching | Input Voltage | Ouput Voltage | Contact Configuration | Load Current Range | Catalog Number [2] |
|---|---|---|---|---|---|
| DC switching | 3.5–32 Vdc | 0–100 Vdc | SPST N.O. (1 N/O) | 12 | SSRPCDM12D5 |
| | | | SPST N.O. (1 N/O) | 25 | SSRPCDM25D5 |
| | | | SPST N.O. (1 N/O) | 40 | SSRPCDM40D5 |
| Zero voltage switching | 3–32 Vdc | 24–280 Vac | SPST N.O. (1 N/O) | 10 | SSRPCDS10A1 |
| | | | SPST N.O. (1 N/O) | 25 | SSRPCDS25A1 |
| | | | SPST N.O. (1 N/O) | 50 | SSRPCDS50A1 |
| | 4–32 Vdc | 48–530 Vac | SPST N.O. (1 N/O) | 75 | SSRPCDS75A2 |
| | | 48–660 Vac | SPST N.O. (1 N/O) | 90 | SSRPCDS90A3 |
| | | | SPST N.O. (1 N/O) | 125 | SSRPCDS125A3 |
| | 90–280 Vdc | 24–280 Vac | SPST N.O. (1 N/O) | 10 | SSRPP8S10A1 |
| | | | SPST N.O. (1 N/O) | 25 | SSRPP8S25A1 |
| | | | SPST N.O. (1 N/O) | 50 | SSRPP8S50A1 |
| | | 48–530 Vac | SPST N.O. (1 N/O) | 75 | SSRPP8S75A2 |
| | | 48–660 Vac | SPST N.O. (1 N/O) | 90 | SSRPP8S90A3 |
| | | | SPST N.O. (1 N/O) | 125 | SSRPP8S125A3 |

**Table 23.119: SSRD Single Channel Solid State Relays (sold in lots of 1)**

| Switching | Input Voltage | Ouput Voltage | Contact Configuration | Load Current Range | Catalog Number |
|---|---|---|---|---|---|
| Zero voltage switching | 90–280 Vac | 24–280 Vac | SPST N.O. (1 N/O) | 10 | SSRDP8S10A1 |
| | | | SPST N.O. (1 N/O) | 20 | SSRDP8S20A1 |
| | | | SPST N.O. (1 N/O) | 30 | SSRDP8S30A1 |
| | 90–140 Vac | 24–280 Vac | SPST N.O. (1 N/O) | 45 | SSRDF8S45A1 |
| | 4–32 Vdc | 24–280 Vac | SPST N.O. (1 N/O) | 10 | SSRDCDS10A1 |
| | | | SPST N.O. (1 N/O) | 20 | SSRDCDS20A1 |
| | | | SPST N.O. (1 N/O) | 30 | SSRDCDS30A1 |
| | 3–32 Vdc | 24–280 Vac | SPST N.O. (1 N/O) | 45 | SSRDCDS45A1 |

### Approvals for SSRP and SSRD Relays

cULus
File: E258297
CCN: NRNT2, NRNT8

CSA
File: 230765
Class: 3211 07

CE

IEC 60950-1

RoHS Compliant

[2] See Table 23.121 for accessories.

SSP3A225P7

*New!* **Zelio™ SSP Relays**

Zelio SSP solid state relays are three-phase panel mounted relays with IP20 housing. The SCR outputs allow them to be used in various power switching applications. These power relays with 25 A and 50 A current rating are EMC compliant. SSP relays are integrated with an R-C snubber circuit and TVS (Transient Voltage Suppression). They are available with zero voltage switching for resistive load and random switching for inductive load applications.

Refer to Online Relay Configurator.

**Table 23.120: SSP Three-Phase Solid State Relays (sold in lots of 1)**

| Switching | Input Voltage | Ouput Voltage | Contact Configura-tion | Load Current Range | Motor Load Rating | Catalog Number *[3]* |
|---|---|---|---|---|---|---|
| Zero voltage switching | 4–32 Vdc | 48–530 Vac | 3PST N.O. (3 N/O) | 25 A | 3/4 hp @ 120 Vac<br>1 hp @ 240 Vac<br>3 hp @ 480 Vac<br>4.4 hp @ 530 Vac | SSP3A225BD |
| | | | | 50 A | 1.5 hp @ 120 Vac<br>3 hp @ 240 Vac<br>7.5 hp @ 480 Vac<br>8.8 hp @ 530 Vac | `SSP3A250BD |
| | 18–36 Vac | 48–530 Vac | 3PST N.O. (3 N/O) | 25 A | 3/4 hp @ 120 Vac<br>1 hp @ 240 Vac<br>3 hp @ 480 Vac<br>4.4 hp @ 530 Vac | SSP3A225B7 |
| | | | | 50 A | 1.5 hp @ 120 Vac<br>3 hp @ 240 Vac<br>7.5 hp @ 480 Vac<br>8.8 hp @ 530 Vac | SSP3A250B7 |
| | 90–140 Vac | 48–530 Vac | 3PST N.O. (3 N/O) | 25 A | 3/4 hp @ 120 Vac<br>1 hp @ 240 Vac<br>3 hp @ 480 Vac<br>4.4 hp @ 530 Vac | SSP3A225F7 |
| | | | | 50 A | 1.5 hp @ 120 Vac<br>3 hp @ 240 Vac<br>7.5 hp @ 480 Vac<br>8.8 hp @ 530 Vac | SSP3A250F7 |
| | 180–280 Vac | 48–530 Vac | 3PST N.O. (3 N/O) | 25 A | 3/4 hp @ 120 Vac<br>1 hp @ 240 Vac<br>3 hp @ 480 Vac<br>4.4 hp @ 530 Vac | SSP3A225P7 |
| | | | | 50 A | 1.5 hp @ 120 Vac<br>3 hp @ 240 Vac<br>7.5 hp @ 480 Vac<br>8.8 hp @ 530 Vac | SSP3A250P7 |
| Random switching | 4–32 Vdc | 48–530 Vac | 3PST N.O. (3 N/O) | 25 A | 3/4 hp @ 120 Vac<br>1 hp @ 240 Vac<br>3 hp @ 480 Vac<br>4.4 hp @ 530 Vac | SSP3A225BDR |
| | | | | 50 A | 1.5 hp @ 120 Vac<br>3 hp @ 240 Vac<br>7.5 hp @ 480 Vac<br>8.8 hp @ 530 Vac | SSP3A250BDR |
| | 18–36 Vac | 48–530 Vac | 3PST N.O. (3 N/O) | 25 A | 3/4 hp @ 120 Vac<br>1 hp @ 240 Vac<br>3 hp @ 480 Vac<br>4.4 hp @ 530 Vac | SSP3A225B7R |
| | | | | 50 A | 1.5 hp @ 120 Vac<br>3 hp @ 240 Vac<br>7.5 hp @ 480 Vac<br>8.8 hp @ 530 Vac | SSP3A250B7R |
| | 90–140 Vac | 48–530 Vac | 3PST N.O. (3 N/O) | 25 A | 3/4 hp @ 120 Vac<br>1 hp @ 240 Vac<br>3 hp @ 480 Vac<br>4.4 hp @ 530 Vac | SSP3A225F7R |
| | | | | 50 A | 1.5 hp @ 120 Vac<br>3 hp @ 240 Vac<br>7.5 hp @ 480 Vac<br>8.8 hp @ 530 Vac | SSP3A250F7R |
| | 180–280 Vac | 48–530 Vac | 3PST N.O. (3 N/O) | 25 A | 3/4 hp @ 120 Vac<br>1 hp @ 240 Vac<br>3 hp @ 480 Vac<br>4.4 hp @ 530 Vac | SSP3A225P7R |
| | | | | 50 A | 1.5 hp @ 120 Vac<br>3 hp @ 240 Vac<br>7.5 hp @ 480 Vac<br>8.8 hp @ 530 Vac | SSP3A250P7R |

**RELAYS AND TIMERS**

**23**

[3]     Add a T to the end of the part number to order the SSP with a thermal pad interface.

**RELAYS AND TIMERS**
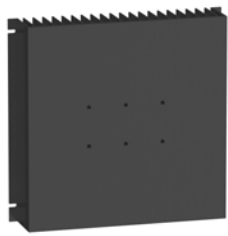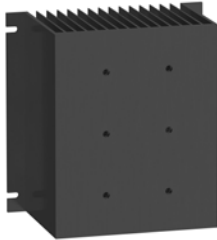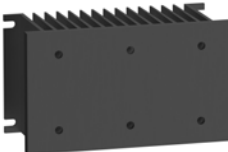
SSRHP02

SSRHP05

SSRHP10

SSRAT1

**Table 23.121: Accessories**

| Description | Compatibility | Thermal Resistance | Catalog Number |
|---|---|---|---|
| Heat sink panel mount (lot of 10) | 1 x SSP<br>1 x SSRP<br>2 x SSRP<br>3 x SSRP | 0.2 °C/W | SSRHP02 |
| | 1 x SSP<br>1 x SSRP<br>2 x SSRP<br>3 x SSRP | 0.5 °C/W | SSRHP05 |
| | 1 x SSP<br>1 x SSRP<br>2 x SSRP | 1 °C/W | SSRHP10 |
| | 1 x SSRP<br>2 x SSRP | 1.7 °C/W | SSRHP17 |
| | 1 x SSRP | 2.5 °C/W | SSRHP25 |
| | 1 x SSRP<br>2 x SSRP | 0.9 °C/W | SSRAH1 |
| Heat sink DIN rail mount (lot of 1) | 1 x SSP<br>1 x SSRP<br>2 x SSRP | 1 °C/W | SSRHD10 |
| Thermal pad interface (lot of 10) | SSRPP8S••••<br>SSRPCDS••••<br>SSRPCDM•••• | — | SSRAT1 |

**Approvals for SSP Relays**

c**UL**us   File: E359576 CCN: NMFT2, NMFT8

CSA   File: 257594 Class: 3211 04

CE   IEC 60950-1

RoHS Compliant

RE17LAMW

RE17LMBM

RE17RLMU

## Zelio™ RE17 Modular Timers

The Zelio RE17 modular timer range is comprised of both 8 A relay and 0.7 A solid state outputs. Thanks to its space saving 17.5 mm design, this relay is ideal for applications that require a lot of control in a small foot print. The RE17 series is designed to attach to a 35 mm DIN rail.

- Multifunction, dual function, or single function
- Multi-range (7 selectable ranges)
- Multivoltage
- Solid state or relay output options

**Table 23.122: RE17 Series Timers**

| Supply Voltage | Timing Ranges | Output Type | Rated Current | Functions | Function Descriptions [1] | Catalog Number |
|---|---|---|---|---|---|---|
| 24–240 Vac/Vdc | 0.1 s to 100 h | SPST Solid State | 0.7 A | A | Power On delay | RE17LAMW |
| 24–240 Vac | 0.1 s to 100 h | SPST Solid State | 0.7 A | H | Interval | RE17LHBM |
| | | | | C | Off delay with control signal | RE17LCBM |
| | | | | L, Li | Asymmetrical flasher | RE17LLBM |
| | | | | A, At, B, C, H, Ht, D, Di, Ac, Bw | Multi-function | RE17LMBM |
| 24 Vdc, 24–240 Vac | 0.1 s to 100 h | SPDT Relay | 8 A | B | Interval with control signal | RE17RBMU |
| | | | | C | Off delay with control signal | RE17RCMU |
| | | | | A, At | Power on delay | RE17RAMU |
| | | | | H, Ht | Interval | RE17RHMU |
| | | | | L, Li | Asymmetrical flasher | RE17RLMU |
| | | | | A, At, B, C, H, Ht, D, Di, Ac, Bw | Multi-function | RE17RMMU |
| | | | | Ad, Ah, N, O, P, Pt, T, Tt, W | Multi-function | RE17RMXMU |
| | | | | A, At, B, C, H, Ht, D, Di | Multi-function | RE17RMEMU |
| 12 Vdc | 0.1 s to 100 h | SPDT Relay | 8 A | L, Li | Asymmetrical flasher | RE17RLJU |
| | | | | A, At, B, C, H, Ht, D, Di, Ac, Bw | Multi-function | RE17RMJU |
| 12–240 Vac | 0.1 s to 100 h | SPDT Relay | 8 A | A, At, B, C, H, Ht, D, Di, Ac, Bw | Multi-function | RE17RMMW |
| 12–240 Vac | 0.1 s to 100 h | SPDT Relay | 8 A | A, At, B, C, H, Ht, D, Di, Ac, Bw | Multi-function | RE17RMMWS |

## Approvals for RE17 Timers

c**UL**us
LISTED

File: E173076
CCN: NRNT, NRNT7

**CSA**®

File: 248382
Class: 3211–06

CE

IEC 61812–1

RoHS Compliant

**RELAYS AND TIMERS**

**23**

[1]    For detailed function definitions, see Table 23.128.

**Timers**

**RE48**
Refer to Catalog **9050CT0001**

**Schneider**
Electric

schneider-electric.us

RE48ATM12MW

RE48AMH13MW

RUZC3M

RE48ASOC11AR

RE48ASOC8SOLD

RE48ASOC11SOLD

RE48ASETCOV

RE48AIPCOV

## Zelio™ RE48 Panel Mount Timers

The Zelio RE48 panel mount timer range is comprised of 5 A relay outputs. The unit can be mounted either on a panel or on a DIN rail with the optional octal socket. Thanks to the large selector knob, the user can quickly and easily see the current value selected and change it if needed.

- Time unit selector knob
- Multifunction, single function, or dual function
- 1.2 second to 300 hour timing range
- Wide input voltage range
- 5 A relay outputs
- Panel-mounted or plug-in
- LED indication

**Table 23.123: RE48 Series Timers**

| Supply Voltage | Timing Ranges | Pin Configuration | Output Type | Rated Current | Functions | Function Descriptions [2] | Catalog Number |
|---|---|---|---|---|---|---|---|
| 24–240 Vac/Vdc | 1.2 s to 300 h | 8–Pin Octal | DPDT Relay | 5 A | A | Power On delay | RE48ATM12MW |
| | | | | | A1, A2, H1, H2 | Delay On Energization, Pulse-on Energization | RE48AMH13MW |
| 24–240 Vac/Vdc | 1.2 s to 300 h | 11–Pin Octal | DPDT Relay | 5 A | L, Li | Asymmetrical flasher | RE48ACV12MW |
| | | | | | A, B, C, Di | Multi-function | RE48AML12MW |

**Table 23.124: Sockets (sold in lots of 10)**

| Description | Connection | Compatibility | Catalog Number |
|---|---|---|---|
| Mixed 8–Pin DIN Rail Mountable Socket | Box lug connector, DIN rail mount | RE48ATM12MW, RE48AMH13MW | RUZC2M |
| Mixed 11–Pin DIN Rail Mountable Socket | | RE48ACV12MW, RE48AML12MW | RUZC3M |
| Mixed 11–Pin Mountable Socket | Box lug connector | RE48ACV12MW, RE48AML12MW | RE48ASOC11SOLD |
| Mixed 8–Pin Solder Connector | Solder connectors | RE48ATM12MW, RE48AMH13MW | RE48ASOC8SOLD |
| Mixed 11–Pin Solder Connector | Solder connectors | RE48ACV12MW, RE48AML12MW | RE48ASOC11SOLD |

**Table 23.125: Accessories (sold in lots of 10)**

| Description | Compatibility | Catalog Number |
|---|---|---|
| Setting protective cover | RE48 Series Timers | RE48ASETCOV |
| Protective cover IP64 | | RE48AIPCOV |

## Approvals for RE48 Timers

c**UL**us
File: E173076
CCN: NRNT2, NRNT8

**CSA**
File: 248382
Class: 3211 07

**CE** IEC 61812-1

RoHS Compliant

[2]    For detailed function definitions, see Table 23.128.

## Zelio™ REXL Miniature Plug-In Timers

The Zelio REXL miniature plug-in timer range is comprised of DPDT and 4PDT single On-delay function timers. The unit is designed to be mounted in a socket in a panel. Thanks to the large selector knob, the user can quickly and easily see the current value selected and change it if needed. Features include:

- Miniature and plug-in (21 x 27 mm / 0.827 x 1.062 in.)
- Single function: function A = delay on energization
- Rated current at 5 A
- 7 timing ranges (0.1 s to 100 h)

- Multivoltage
- Excellent immunity to interference
- Power on and relay energized indication by 2 LEDs

**RXEL2TM**

**REXL4TM**

**RXZE2M114M**

**RXZE2S114M**

### Table 23.126: REXL Series Timers

| Supply Voltage | Timing Ranges | Pin Configuration | Output Type | Rated Current | Functions | Function Descriptions [3] | Catalog Number |
|---|---|---|---|---|---|---|---|
| 12 Vdc | 0.1 s to 100 h | 8-Pin Quick Connect (Blade) | DPDT Relay | 5 A | A | Power On delay | REXL2TMJD |
| 24 Vdc | 0.1 s to 100 h | 8-Pin Quick Connect (Blade) | DPDT Relay | 5 A | A | Power On delay | REXL2TMBD |
| 24 Vac | 0.1 s to 100 h | 8-Pin Quick Connect (Blade) | DPDT Relay | 5 A | A | Power On delay | REXL2TMB7 |
| 120 Vac | 0.1 s to 100 h | 8-Pin Quick Connect (Blade) | DPDT Relay | 5 A | A | Power On delay | REXL2TMF7 |
| 230 Vac | 0.1 s to 100 h | 8-Pin Quick Connect (Blade) | DPDT Relay | 5 A | A | Power On delay | REXL2TMP7 |
| 12 Vdc | 0.1 s to 100 h | 14-Pin Quick Connect (Blade) | 4PDT Relay | 5 A | A | Power On delay | REXL4TMJD |
| 24 Vdc [4] | 0.1 s to 100 h | 14-Pin Quick Connect (Blade) | 4PDT Relay | 5 A | A | Power On delay | REXL4TMBD |
| 24 Vac [4] | 0.1 s to 100 h | 14-Pin Quick Connect (Blade) | 4PDT Relay | 5 A | A | Power On delay | REXL4TMB7 |
| 120 Vac | 0.1 s to 100 h | 14-Pin Quick Connect (Blade) | 4PDT Relay | 5 A | A | Power On delay | REXL4TMF7 |
| 230 Vac | 0.1 s to 100 h | 14-Pin Quick Connect (Blade) | 4PDT Relay | 5 A | A | Power On delay | REXL4TMP7 |

### Table 23.127: Sockets (sold in lots of 10)

| Contact Terminal Arrangement | Connection | For Use with Relays | Catalog Number |
|---|---|---|---|
| Mixed | Box lug connector | REXL2TM••, REXL4TM•• | RXZE2M114M |
| Separate | Box lug connector | REXL2TM•• | RXZES108M |
|  | Box lug connector | REXL4TM•• | RXZE2S114M |

### Approvals for REXL Timers

c(UL)us    File: E173076 CCN: NRNT2, NRNT8    (CSA)    File: 248382 Class: 3211 07    CE    IEC 61812-1    RoHS Compliant

### Table 23.128: Timer Function Description

| Function | Function Description [5] | Timer |
|---|---|---|
| A | Power on delay relay | RE17, RE48, REXL |
| A1, A2 | Delay on energization | RE48 |
| Ac | On-delay and off-delay relay with control signal | RE17 |
| Ad | Pulse delayed relay with control signal | RE17 |
| At | Power on delay relay (summation) with control signal | RE17 |
| B | Interval relay with control signal | RE17, RE48 |
| Bw | Double interval relay with control signal | RE17 |
| C | Off-delay relay with control signal | RE17, RE48 |
| D | Symmetrical flasher relay (starting pulse off) | RE17 |
| Di | Symmetrical flasher relay (starting pulse on) | RE17, RE48 |
| H | Interval relay | RE17 |
| H1, H2 | Pulse-on energization | RE48 |
| Ht | Interval relay (summation) with control signal | RE17 |
| L | Asymmetrical flasher relay (starting pulse off) | RE17, RE48 |
| Li | Asymmetrical flasher relay (starting pulse on) | RE17, RE48 |
| N | Retriggerable interval relay with control signal on | RE17 |
| O | Retriggerable interval delayed relay with control signal on | RE17 |
| P | Pulse delayed relay with fixed pulse length | RE17 |
| Pt | Pulse delayed relay (summation and fixed pulse length) with control signal off | RE17 |
| T | Bistable relay with control signal on | RE17 |
| Tt | Retriggerable bistable relay with control signal on | RE17 |
| W | Interval relay with control signal off | RE17 |

[3]    For detailed function definitions, see Table 23.128.
[4]    For 48 Vdc supply, additional resistor 560 ohms 2 W / 24 Vdc. For 48 Vac, additional resistor 390 ohms 4 W / 24 Vac.
[5]    See catalog 9050CT0001 for timing diagrams and detailed descriptions.

**Timers**

**Type JCK**
Class 9050 / Refer to Catalog **9050CT9601**

**SQUARE D**
by **Schneider Electric**

schneider-electric.us

**23**

**RELAYS AND TIMERS**

9050JCK46V20

## Square D™ JCK General Purpose Plug-In Timers

Square D 9050JCK timing relays are designed to provide low-cost timing in a plug-in housing. The Types JCK11 through 59 provide ±1% repeat accuracy. The Types JCK60 and 70 offer ±0.1% repeat accuracy. These timers are directly interchangeable with many other 8 and 11 pin octal base timers.

- Up to ±0.1% repeat accuracy
- Timing from 0.05 seconds to 999 hours
- Available in 7 timing modes
- DPDT contacts (2 N.O. and 2 N.C.)
- 10 A contact rating

- Transient protected
- Hold down spring available
- Variable or fixed time delay
- Horsepower rated
- RoHS compliant

### Table 23.129: Variable Time Delay

| Knob Adjustable Timing Range | On Dela[1] | Off Delay[2][1] | Off Delay Power Trigger[1] | Interval[1] | One Shot [2][1] | One Shot Power Trigger[1] | Repeat Cycle[3][1] |
|---|---|---|---|---|---|---|---|
| 0.1–10 seconds | JCK11 | JCK21 | JCK21PT | JCK31 | JCK41 | JCK41PT | JCK51 |
| 0.3–30 seconds | JCK12 | JCK22 | JCK22PT | JCK32 | JCK42 | JCK42PT | JCK52 |
| 0.6–60 seconds | JCK13 | JCK23 | JCK23PT | JCK33 | JCK43 | JCK43PT | JCK53 |
| 1.2–120 seconds | JCK14 | JCK24 | JCK24PT | JCK34 | JCK44 | JCK44PT | JCK54 |
| 1.8–180 seconds | JCK15 | JCK25 | JCK25PT | JCK35 | JCK45 | JCK45PT | JCK55 |
| 0.1–10 minutes | JCK16 | JCK26 | JCK26PT | JCK36 | JCK46 | JCK46PT | JCK56 |
| 0.3–30 minutes | JCK17 | JCK27 | JCK27PT | JCK37 | JCK47 | JCK47PT | JCK57 |
| 0.6–60 minutes | JCK18 | JCK28 | JCK28PT | JCK38 | JCK48 | JCK48PT | JCK58 |
| 1.2–120 minutes | JCK19 | JCK29 | JCK29PT | JCK39 | JCK49 | JCK49PT | JCK59 |

### Table 23.130: Fixed Time Delay

| Timing Mode | Type[1][4][5] | Timing Range (seconds) |
|---|---|---|
| On Delay | JCK1F(XXXX) | 0.1 to 180 |
| | | 181 to 3600 |
| Off Delay [2] | JCK2F(XXXX) | 0.1 to 180 |
| | | 181 to 3600 |
| Off Delay with Power Trigger | JCK2F(XXXX)PT | 0.1 to 180 |
| | | 181 to 3600 |
| Interval | JCK3F(XXXX) | 0.1 to 180 |
| | | 181 to 3600 |
| One Shot [2] | JCK4F(XXXX) | 0.1 to 180 |
| | | 181 to 3600 |
| One Shot with Power Trigger | JCK4F(XXXX)PT | 0.1 to 180 |
| | | 181 to 3600 |
| Repeat Cycle | JCK5F(XXXX) | 0.1 to 180 |
| | | 181 to 3600 |

### Table 23.131: Voltage Codes

| Voltage | Code |
|---|---|
| 12 Vdc | V36 |
| 24 Vac/Vdc | V14 |
| 48 Vac/Vdc | V17 |
| 120 Vac/110 Vdc | V20 |
| 240–50/60 Vac | V24 |

### Table 23.132: How to Order

| To Order Specify: | Catalog Number | | |
|---|---|---|---|
| | Class | Type | Voltage Code |
| • Class Number<br>• Type Number<br>• Voltage Code | 9050 | JCK11 | V20 |

[1] Voltage code must be specified to order this product. Refer to the standard voltage codes listed in Table 23.131 and insert as shown in Table 23.132.
[2] Initiating contact can be up to 50 feet from the timer.
[3] Two dials are provided for independently adjustable repeat cycle timing ranges.
[4] (XXXX) denotes the timing period in seconds.
  Example: Class 9050 Type JCK1F60 is an On Delay timer fixed at 60 seconds.
[5] Fixed repeat cycle timers can be supplied with the same or different On-Time and Off-Time.

## Type JCK60 and JCK70 Timers

### Type JCK60

This On-Delay timer uses four push button thumbwheels to set the time delay. One switch is used for the range. The remaining three are used for the time setting.

**Table 23.133: Selection**

| Timing Modes | Timing Ranges | | Type |
|---|---|---|---|
| On Delay | 0.01s<br>0.1s<br>S<br>0.1m<br>M<br>0.1h<br>H | 0.05–9.99 seconds<br>00.1–99.9 seconds<br>001–999 seconds<br>00.1–99.9 minutes<br>001–999 minutes<br>00.1–99.9 hours<br>001–999 hours | JCK60[6] |

9050JCK60V14

### Type JCK70

This multifunction multirange time delay relay uses five push button thumbwheel switches. Three switches are used for the time delay, one switch is used for the timing range, and the other switch is used to select the timing mode.

**Table 23.134: Selection**

| Timing Modes | Timing Ranges | Type |
|---|---|---|
| On Delay<br>Interval<br>Off Delay<br>One Shot<br>Repeat Cycle-Off[7]<br>Repeat Cycle-On<br>On/Off Delay<br>1 Shot Falling Edge<br>Watchdog<br>Trigger On Delay | Same as JCK60 | JCK70[6] |

9050JCK70V14

**Table 23.135: Sockets**

| Contact Terminal Arrangement | Connection | For Use with Relays | Sold in Lots of | Catalog Number[8] |
|---|---|---|---|---|
| Mixed[9] | Screw Connector | JCK11–19<br>JCK31–39<br>JCK51–59<br>JCK60<br>JCK1 F<br>JCK3 F<br>JCK5 F | 1 | 8501NR51 |
| | | | 10 | 8501NR51B |
| | | JCK21–29<br>JCK41–49<br>JCK70<br>JCK2F<br>JCK4F | 1 | 8501NR61 |
| | | | 10 | 8501NR61B |
| Separate[10] | Screw Connector | JCK11–19<br>JCK31–39<br>JCK51–59<br>JCK60<br>JCK1 F<br>JCK3 F<br>JCK5 F | 1 | 8501NR52 |
| | | | 10 | 8501NR52B |
| | | JCK21–29<br>JCK41–49<br>JCK70<br>JCK2F<br>JCK4F | 1 | 8501NR62 |
| | | | 10 | 8501NR62B |

8501NR61

8501NR52

**Table 23.136: Accessories (sold in lots of 10)**

| Description | For Use With | Sold in Lots of | Catalog Number |
|---|---|---|---|
| Metal Restraining Strap | 8501NR51 sockets<br>8501NR52 sockets<br>8501NR61 sockets<br>8501NR62 sockets | 1 | 8501NH7 |

8501NH7

### Approvals for 9050JCK Timers

c**UL**us  File: E3190  CCN: NLDX2

c**UL**us LISTED  File: E3190  CCN: NLDX, NLDX7[11]

**CSA**®  File: 260367  Class: 3211 07

**CE**

IEC 61810-1

RoHS Compliant

---
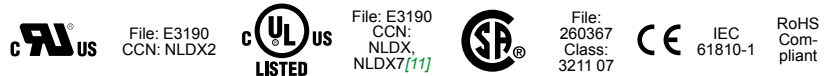
[6] Voltage code must be specified to order this product. Refer to the standard voltage codes listed in Table 23.131 and insert as shown in Table 23.132.
[7] The repeat cycle mode uses the same on-time and off-time.
[8] Please note that the B suffix only designates quantities of 10 and is not printed on the socket.
[9] The inputs and outputs are mixed on both sides.
[10] The inputs and outputs are on separate sides.
[11] When used with the appropriate 8501NR socket.

23

RELAYS AND TIMERS

*New!*

## Zelio™ RTC48 Temperature Controllers

The cost-effective Zelio RTC48 temperature controllers combine simplicity, performance, and value. With the Modbus open communication option, they easily interface with solid-state relays, plug-in relays, tower lights, PLCs, and HMIs. The units' three color, 5-digit LED display intelligently adapts to any variation in the process value and can be easily read from a distance. The free configuration software simplifies setup via USB connection to any laptop or PC. These temperature controllers are indispensable in the execution of critical processes, such as in food and beverage, extrusion equipment, injection machines, mold presses, thermo-forming, and horticulture and livestock facilities. The Zelio RTC48 offer comprises a standard 48 x 48 mm (1/16-inch DIN) format and provides the optimal balance of price and functionality, featuring the desirable PID control with auto-tuning, outputs, and alarms.

Key features include:

- PID control algorithm with auto-tuning function
- Universal input types
- Adaptive display
- Modbus communication for easy data exchange with other automation products
- Optional programming cable for use with Zelio Temperature Control Soft configuration software

RTC48PUN1RNLU

RTCCBL

RTCCOV

RTCACC

**Table 23.137: Catalog Numbers**

| Input Type | Supply Voltage | Output 1 | Output 2 | Alarms | Communication on Modbus | Catalog Number |
|---|---|---|---|---|---|---|
| **Thermo-couple:**<br><br>J, K, R, B, S, T, E, N, PL-2, C (W/Re 5-26)<br><br>**RTD:**<br><br>Pt100, JPt100, 3-wire system | 110–240 Vac | Relay | – | 1 | – | RTC48PUN1RNHU |
| | | SSR | – | 1 | – | RTC48PUN1SNHU |
| | | Relay | – | 1 | RS485 | RTC48PUNCRNHU |
| | | SSR | – | 1 | RS485 | RTC48PUNCSNHU |
| | | Relay | Relay | 1 | – | RTC48PUN1RRHU |
| | | SSR | Relay | 1 | – | RTC48PUN1SRHU |
| | | Relay | – | 2 | – | RTC48PUN2RNHU |
| | | SSR | – | 2 | – | RTC48PUN2SNHU |
| | | Relay | Relay | 1 | RS485 | RTC48PUNCRRHU |
| | | SSR | Relay | 1 | RS485 | RTC48PUNCSRHU |
| | | Relay | SSR | 1 | – | RTC48PUN1RSHU |
| | | SSR | SSR | 1 | – | RTC48PUN1SSHU |
| | | Relay | SSR | 1 | RS485 | RTC48PUNCRSHU |
| | | SSR | SSR | 1 | RS485 | RTC48PUNCSSHU |
| **DC Current:**<br><br>0–20 mA, 4–20 mA<br><br>**DC Voltage:**<br><br>0–1 Vdc, 0–5 Vdc, 1–5 Vdc, 0–10 Vdc | 24 Vac/Vdc | Relay | – | 1 | – | RTC48PUN1RNLU |
| | | SSR | – | 1 | – | RTC48PUN1SNLU |
| | | Relay | – | 1 | RS485 | RTC48PUNCRNLU |
| | | SSR | – | 1 | RS485 | RTC48PUNCSNLU |
| | | Relay | Relay | 1 | – | RTC48PUN1RRLU |
| | | SSR | Relay | 1 | – | RTC48PUN1SRLU |
| | | Relay | – | 2 | – | RTC48PUN2RNLU |
| | | SSR | – | 2 | – | RTC48PUN2SNLU |
| | | Relay | Relay | 1 | RS485 | RTC48PUNCRRLU |
| | | SSR | Relay | 1 | RS485 | RTC48PUNCSRLU |
| | | Relay | SSR | 1 | – | RTC48PUN1RSLU |
| | | SSR | SSR | 1 | – | RTC48PUN1SSLU |
| | | Relay | SSR | 1 | – | RTC48PUNCRSLU |
| | | SSR | SSR | 1 | – | RTC48PUNCSSLU |

**Table 23.138: RTC48 Temperature Controller Accessories**

| Catalog Number | Description | For Use with Temperature Controllers |
|---|---|---|
| RTCCBL | USB Communications Cable | RTC48********* |
| RTCCOV | Terminal Cover | |
| RTCACC | Spare Parts Pack (Gasket, Shunt and Mounting Frame) | |

**Approvals for RTC48 Temperature Controllers**

c**UL**us   File: E327516   CCN: XAPX2

**CSA**   File: 257850   Class: 4813 02

CE   IEC 61010-1

RoHS Compliant

![Schneider Electric]

schneider-electric.us

REG24PTP1RHU

REG48PUN1RHU

## Zelio™ REG Temperature Controllers

Zelio REG temperature controllers offer seamless interfacing with solid state relays, electromechanical relays, PLCs, variable speed drives and HMI displays make them a key component to controlling the temperature in your process.

Offer includes 3 versions:

- A 24x48 mm (1/32 DIN) cost effective solution for basic temperature control needs.
- A 48x48 mm (1/16 DIN) balanced version for optimal price and functionality.
- A 96x48 mm (1/8 DIN) full-featured version for complete performance and function.

Key features include:

- Modbus communication for easy data exchange with other automation products
- Simple parameter settings
- IP66 certification enables dust resistance
- Flash memory (saves configurations)
- Compatible with a wide range of sensors
- Advanced Functions (standard): PID, fuzzy logic, auto-tuning, soft start
- Optimized programming
  - Common software for all products in the temperature relay range (freely downloadable from www.schneider-electric.us).
  - A single cable enables connection to both a computer and PLCs.
  - Simple adjustment of parameters.
  - Saving of configurations.

**Table 23.139: Zelio Temperature Controllers—24 x 48 Size — 1/32 DIN Standard**

| Input Type | Supply Voltage | Output 1 | Output 2 | Alarms | Comm. on Modbus | Catalog Number |
|---|---|---|---|---|---|---|
| **Thermocouple:** J,K,R,B,S,T, E,N,PL2, | 100/240 Vac | Relay | – | – | Yes | REG24PTP1RHU |
| | | Relay | – | 1 | Yes | REG24PTP1ARHU |
| | | SSR | – | – | Yes | REG24PTP1LHU |
| | | SSR | – | 1 | – | REG24PTP1ALHU |
| | | Analog (4-20 mA) | – | – | Yes | REG24PTP1JHU |
| **RTD:** PT100 | 24 Vac/ Vdc | Relay | – | – | Yes | REG24PTP1RLU |
| | | SSR | – | – | Yes | REG24PTP1LLU |
| | | Analog (4-20 mA) | – | – | Yes | REG24PTP1JLU |
| **DC Voltage:** 1–5 Vdc, 0–5 Vdc, 0–10 Vdc, 2–10 Vdc, 0–100 mVdc **DC Current:** 0–20 mA, 4–20 mA | 100/240 Vac | Relay | – | – | Yes | REG24PUJ1RHU |
| | | SSR | – | – | Yes | REG24PUJ1LHU |
| | 24 Vac/ Vdc | Relay | – | – | Yes | REG24PUJ1RLU |
| | | SSR | – | – | Yes | REG24PUJ1LLU |

**Table 23.140: Zelio Temperature Controllers—48 x 48 Size — 1/16 DIN Standard**

| Input Type | Supply Voltage | Output 1 | Output 2 | Alarms | Comm. on Modbus | Catalog Number |
|---|---|---|---|---|---|---|
| **Thermocouple:** J,K,R,B,S,T, E,N,PL2, **RTD:** PT100, **DC Voltage:** 1–5 Vdc, 0–5 Vdc, 0–10 Vdc, 2–10 Vdc, 0–100 mVdc **DC Current:** 0–20 mA, 4–20 mA | 100/240 Vac | Relay | – | 2 | Yes | REG48PUN1RHU |
| | | Relay | – | 2 | – | REG48PUNL1RHU |
| | | Relay | Relay | 2 | Yes | REG48PUN2RHU |
| | | SSR | SSR | 2 | Yes | REG48PUN1LHU |
| | | SSR | SSR | 2 | – | REG48PUNL1LHU |
| | | SSR | Relay | 2 | Yes | REG48PUN2LRHU |
| | | Analog (4-20 mA) | – | 2 | Yes | REG48PUN1JHU |
| | | SSR | Analog (4-20 mA) | 2 | Yes | REG48PUN2LJHU |
| | 24 Vac/ Vdc | Relay | – | 2 | Yes | REG48PUN1RLU |
| | | Relay | Relay | 2 | Yes | REG48PUN2RLU |
| | | Relay | – | 2 | Yes | REG48PUN1LLU |
| | | SSR | Relay | 2 | Yes | REG48PUN2LRLU |
| | | Analog (4-20 mA) | – | 2 | Yes | REG48PUN1JLU |
| | | SSR | Analog (4-20 mA) | 2 | Yes | REG48PUN2LJLU |

REG96PUN1RHU

**Table 23.141: Zelio Temperature Controllers—96 x 48 Size — 1/8 DIN Standard**

| Input Type | Supply Voltage | Output 1 | Output 2 | Alarms | Comm. on Modbus | Catalog Number |
|---|---|---|---|---|---|---|
| **Thermocouple:** J,K,R,B,S,T, E,N,PL2  **RTD:** PT100  **DC Voltage:** 1–5 Vdc, 0–5 Vdc, 0–10 Vdc, 2–10 Vdc, 0–100 mVdc  **DC Current:** 0–20 mA, 4–20 mA | 100/ 240 Vac | Relay | – | 3 | Yes | REG96PUN1RHU |
| | | Relay | – | 3 | – | REG96PUNL1RHU |
| | | Relay | Relay | 3 | Yes | REG96PUN2RHU |
| | | SSR | – | 3 | Yes | REG96PUN1LHU |
| | | SSR | – | 3 | – | REG96PUNL1LHU |
| | | SSR | Relay | 3 | Yes | REG96PUN2LRHU |
| | | Analog (4-20 mA) | – | 3 | Yes | REG96PUN1JHU |
| | | SSR | Analog (4-20 mA) | 3 | Yes | REG96PUN2LJHU |
| | 24 Vac/ Vdc | Relay | – | 3 | Yes | REG96PUN1RLU |
| | | Relay | Relay | 3 | Yes | REG96PUN2RLU |
| | | SSR | – | 3 | Yes | REG96PUN1LLU |
| | | SSR | Relay | 3 | Yes | REG96PUN2LRLU |
| | | Analog (4-20 mA) | – | 3 | Yes | REG96PUN1JLU |
| | | Analog (4-20 mA) | SSR | 3 | Yes | REG96PUN2LJLU |

**Table 23.142: Temperature Controller Accessories**

| Description | For Use with Relays | Sold in Lots Of | Catalog Number |
|---|---|---|---|
| Bracket for mounting on DIN rail | 24 x 48 mm (1/32 DIN) | 4 | REG24PSOC |
| Terminal block cover | 48 x 48 mm (1/16 DIN) | 2 | REG48PCOV |
| | 96 x 48 mm (1/8 DIN) | 2 | REG96COV |

**Approvals for Zelio REG Temperature Controllers**

c**UL**us  File: E327516  CCN: XAPX2

CSA  File: 245853  Class: 4813 02

CE  IEC 61010-1  RoHS Compliant

RM17JC00MW



RM35JA31MW



RM35JA32MW

## Zelio™ Current Measurement Relays

Zelio Current Measurement Relays are designed to measure under and overcurrent conditions, without external sensors. Current measurement relays enable continuous monitoring of the operation of electrical and mechanical loads such as motors and heaters. They are DIN rail mountable and the control status is indicated by an LED.

**RM17JC Current Control Relay**
- Monitors AC currents
- Designed to monitor overcurrent
- Equipped with an integrated current transfmormer

**RM35JA Current Control Relays**
- Selection between overcurrent or undercurrent
- Automatic DC or AC recognition
- Selectable memory function

**Table 23.143: Zelio Current Measurement Relays**

| Supply Voltage | Measurement Range | | Output 5 A | Width | | Catalog Number |
|---|---|---|---|---|---|---|
| | Range[1] | Terminals | | Inches | mm | |
| 24–240 Vac/dc | 2–20 A | N/A | 1 C/O | 0.69 | 17.50 | RM17JC00MW |
| | 2–20 mA | E1-M | 2 C/O | 1.38 | 35.00 | RM35JA31MW |
| | 10–100 mA | E2-M | | | | |
| | 50–500 mA | E3-M | | | | |
| | 0.15–1.5 A | E1-M | | | | RM35JA32MW |
| | 0.5–5 A | E2-M | | | | |
| | 1.5–15 A | E3-M | | | | |

**Table 23.144: Output Characteristics and Measurement Circuit Characteristics**

| Type of Relay | | RM17JC00MW | RM35JA31MW | RM35JA32MW |
|---|---|---|---|---|
| Setting accuracy | | Plus or minus 10% of the full scale value | | |
| Repeat accuracy (with constant parameters) | | Plus or minus 0.5% | | |
| Hysteresis | | 15% of the threshold setting, fixed | 5 to 50% of the threshold setting, adjustable | |
| Time delay accuracy (with constant parameters) | | N/A | Plus or minus 2% | |
| Time delay on pick-up | | 500 ms | 300 ms | |
| Conforming to standards | | NF EN 60255-6 | | |
| Ambient air temperature around the device | Storage | -40 to 158 degrees F (-40 to +70°C) | | |
| | Operational | -4 to 122 degrees F (-20 to +50°C) | | |

### Approvals for Zelio Current Measurement Relays

 File: E173076
CNN: NRNT, NRNT7
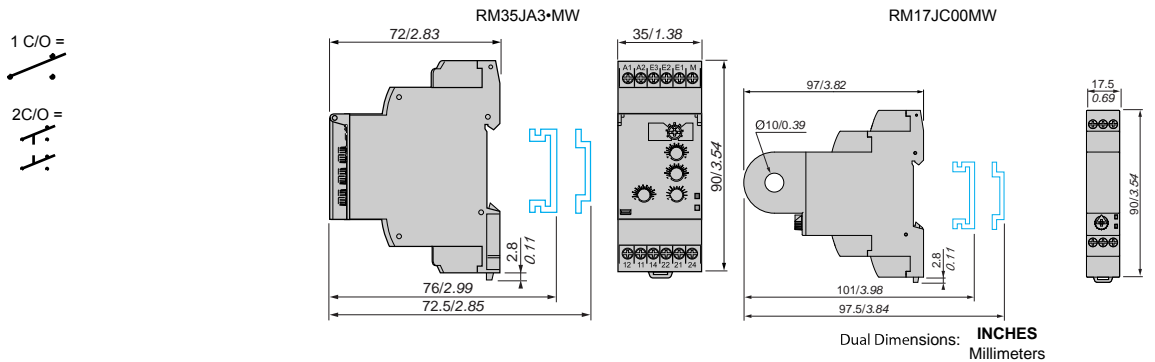
 File: 248382
Class: 3211 07

 CE: 73/23/EEC
and EMC 89/336/EEC

GL, C-Tick, GOST, RoHS

### Approximate Dimensions

1 C/O =

2C/O =



RM35JA3•MW

RM17JC00MW

Dual Dimensions: **INCHES**
Millimeters

RELAYS AND TIMERS

23

---

[1] Above 15 A, a current transformer can be connected (for RM35JA3•MW). See page 57 of catalog 8430CT0601 for suggested wiring.

## Zelio™ Phase Measurement Relays

Zelio Phase Measurement Relays monitor their own power supply. Relay status is indicated by an LED and they are DIN rail mountable.

RM17TG•0 measurement and control relays are for monitoring of 3-phase supplies for the correct sequencing of phases L1, L2, and L3, as well as the total loss of one or more phases.

RM17TG•0

### Table 23.145: 3-Phase Supply Control Relays

| Supply Voltage | Detection Threshold | Output 5 A | Width | | Catalog Number |
|---|---|---|---|---|---|
| | | | inches | mm | |
| 208–480 Vac | <100 Vac | 1 C/O | 0.69 | 17.50 | RM17TG00 |
| 208–440 Vac | | 2 C/O | | | RM17TG20 |

### Table 23.146: Multifunction 3-Phase Supply Control Relays

| Supply Voltage | Voltage Range | Output 5 A | Width | | Catalog Number |
|---|---|---|---|---|---|
| | | | inch | mm | |
| 208–480 Vac | Selectable voltages: 208, 220, 380, 400, 415, 440, 480 | 1 C/O | 0.69 | 17.50 | RM17TT00 |
| | | | | | RM17TA00 |
| | | | | | RM17TU00 |
| | | | | | RM17TE00 |

RM17TE00    RM17TA00

### Table 23.147: RM17TT, RM17TA, RM17TU, and RM17TE Multifunction Control Relays monitor the following on 3-phase supplies:

| Function | RM17TT | RM17TA | RM17TU | RM17TE |
|---|---|---|---|---|
| Sequence of phases L1, L2 and L3 | Yes | Yes | Yes | Yes |
| Phase failure with regeneration (0.7 x selected voltage range) | Yes | Yes | Yes | Yes |
| Asymmetry (phase imbalance) | No | Yes | No | Yes |
| Undervoltage | No | No | Yes | No |
| Overvoltage and undervoltage | No | No | No | Yes |

### Table 23.148: 3-Phase Supply and Motor Temperature Control Relays

| Supply Voltage | Measurement Range | Output 5 A | Width | | Catalog Number |
|---|---|---|---|---|---|
| | | | inch | mm | |
| 220–480 Vac | 208–480 Vac | 2 N.O. | 1.38 | 35.00 | RM35TM50MW |
| | | | | | RM35TM250MW |

RM35TM••MW    RM35TF30

### Table 23.149: RM35TM Control Relays monitor the following on 3-phase supplies:

| Function | RM35TM50MW | RM35TM250MW |
|---|---|---|
| Sequence of phases L1, L2 and L3 | Yes | Yes |
| Phase failure | Yes | Yes |
| Motor temperature via PTC probe | Yes | Yes |
| Selection (with or without memory) | No | Yes |
| Test-reset button | No | Yes |

RM35TF30 measurement and control relay is for monitoring of phase sequence, phase failure, asymmetry, undervoltage and overvoltage in window mode.

### Table 23.150: Multifunction 3-Phase Supply Control Relays

| Supply Voltage | Measurement Range | Output 5 A | Width | | Catalog Number |
|---|---|---|---|---|---|
| | | | inch | mm | |
| 220–480 Vac | 194–528 Vac | 2 C/O | 1.38 | 35.00 | RM35TF30 |

### Approvals for Zelio Phase Measurement Relays

c(UL)us LISTED    File: E173076 CNN: NRNT, NRNT7    CSA    File: 248382 Class: 3211 07    CE    CE: 73/23/EEC and EMC 89/336/EEC    GL, C-Tick, GOST, RoHS

### Approximate Dimensions

1 C/O =

2 C/O =

2 N/O =

RM35•

72/2.83    35/1.38    90/3.54    2.8/0.11    76/2.99    72.5/2.85

RM17•

72/2.83    17.5/0.69    90/3.54    2.8/0.11    76/2.99    72.5/2.85

Dual Dimensions: **INCHES**/Millimeters

RM17UB310

RM17UAS••

RM35UA1•MW

RM35UB3•••
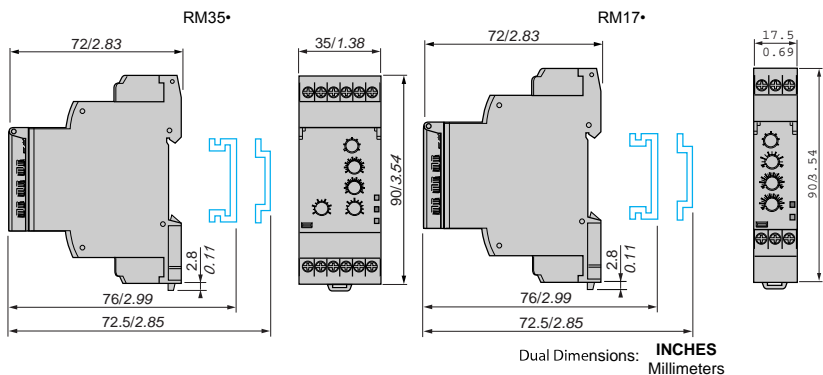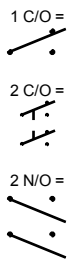
## Zelio™ Voltage Measurement Relays

Zelio Voltage Measurement Relays are DIN rail mountable and relay status is indicated by an LED. Single phase and DC voltage measurement and control relays RM17UAS•• and RM17UBE•• monitor:

- Overvoltage
- Undervoltage
- Overvoltage and undervoltage
- Nominal voltages

**Table 23.151: Single-phase and DC voltage control relays**

| Supply Voltage | Ranges Controlled | Output 5 A | Width | | Catalog Number |
|---|---|---|---|---|---|
| | | | in. | mm | |
| 12 Vdc | 9–15 Vdc | | | | RM17UAS14[2] |
| 24–48 Vac/Vdc | 20–80 Vac/Vdc | | | | RM17UAS16[2] |
| 110–240 Vac/Vdc | 65–260 Vac/Vdc | 1 C/O | 0.69 | 17.50 | RM17UAS15[2] |
| 24–48 Vac/Vdc | 20–80 Vac/Vdc | | | | RM17UBE16[3] |
| 110–240 Vac/Vdc | 65–260 Vac/Vdc | | | | RM17UBE15[3] |

Multifunction voltage control relays RM35UA1•MW monitor both AC and DC voltages.
- Automatic Vdc or Vac recognition
- Selection between overvoltage and undervoltage

**Table 23.152: Multifunction voltage control relays**

| Supply Voltage | Measurement Range | | Output 5 A | Width | | Catalog Number |
|---|---|---|---|---|---|---|
| | Range[4] | Terminals | | in. | mm | |
| | 0.05–0.5 V | E1-M | | | | RM35UA11MW |
| | 0.3–3 V | E2-M | | | | |
| | 0.5–5 V | E3-M | | | | |
| 24–240 Vac/Vdc | 1–10 V | E1-M | 2 C/O | 1.38 | 35.00 | RM35UA12MW |
| | 5–50 V | E2-M | | | | |
| | 10–100 V | E3-M | | | | |
| | 15–150 V | E1-M | | | | RM35UA13MW |
| | 30–300 V | E2-M | | | | |
| | 60–600 V | E3-M | | | | |

3-phase voltage control relays monitor:

- Failure of one or more phases
- Voltage between phases
- Absence of neutral
- Voltage between phases and neutral
- Overvoltage and undervoltage

**Table 23.153: Three-phase voltage control relays**

| Rated 3-Phase Supply Voltage Vac | Measurement Range | Output 5 A | Width | | Catalog Number |
|---|---|---|---|---|---|
| | | | in. | mm | |
| 220–480 phase-phase | 195–528 Vac | 1 C/O + 1 C/O 1 per threshold | 1.38 | 35.00 | RM35UB330[5] |
| 120–277 phase-neutral | 183–528 Vac | 1 C/O | 0.69 | 17.50 | RM17UB310[5] |
| 120–277 phase-neutral | 114–329 Vac | 1 C/O + 1 C/O 1 per threshold | 1.38 | 35.00 | RM35UB3N30[4] |

### Approvals for Zelio Voltage Measurement Relays

c(UL)us LISTED
File: E173076
CNN: NRNT, NRNT7

CSA
File: 248382
Class: 3211 07

CE
CE 73/23/EEC and EMC 89/336/EEC

GL, C-Tick, GOST, RoHS

### Approximate Dimensions

1 C/O =

2 C/O =

RM35•

72/2.83    35/1.38    90/3.54
76/2.99
72.5/2.85
2.8/0.11

RM17•

72/2.83    90/3.54    17.5/0.69
76/2.99
72.5/2.85
2.8/0.11

Dual Dimensions: **INCHES** Millimeters

---
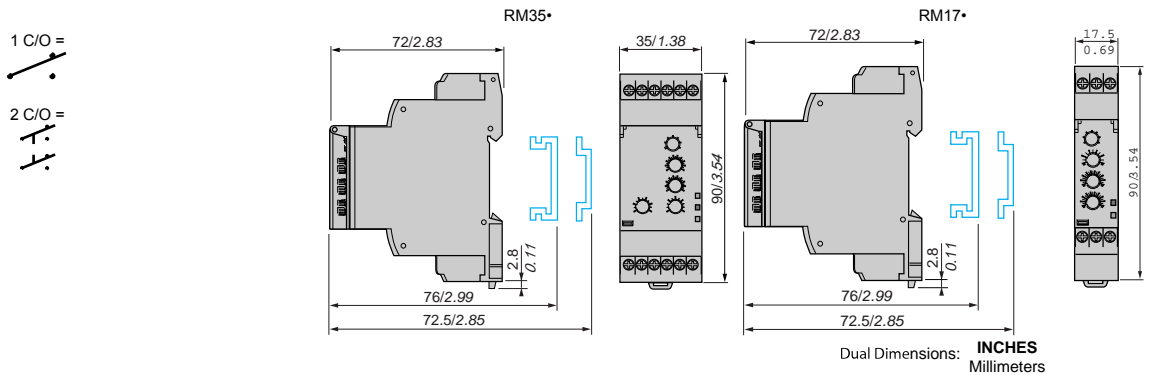
[2]  Provides overvoltage or undervoltage protection.
[3]  Provides overvoltage and undervoltage protection in window mode.
[4]  Provides overvoltage and undervoltage protection between phases and neutral and absence of neutral.
[5]  Provides overvoltage and undervoltage protection between phases.

**RELAYS AND TIMERS**

**23**

**23**

**RELAYS AND TIMERS**



RM35LM33MW



RM35LV14MW



RM79696043



LA9RM201



RM79696006

## Zelio™ Level Control Relays and Zelio™ Pump Control Relays

Zelio level control relays control one or two levels with fill or empty function. The settings are protected by a sealable cover, control status is indicated by an LED, and they are DIN rail mountable. RM35LM is designed to control levels of conductive liquid, and RM35LV is designed to control levels of other materials.

**Application examples for RM35LM:**
- Detecting pump seal failures
- Spring, town, industrial and sea water
- Metallic salt, acid or base solutions
- Liquid fertilizers
- Non-concentrated alcohol (<40%)

**Application examples for RM35LV:**
- Liquids in the food-processing industry: milk, beer, coffee, etc.
- Chemically pure water
- Fuels, liquid gasses (inflammable)
- Oil, concentrated alcohol (>40%)
- Ethylene, glycol, paraffin, varnish and paints

**Table 23.154: Level Control Relays**

| Time Delay on Crossing the Threshold | Function | Output Relay | Supply Voltage 50/60 Hz | Measurement Ranges | Catalog Number |
|---|---|---|---|---|---|
| 0.1–5 seconds, 0 + 10% | Detection by resistive probes | 2 C/O, 5 A | 24–240 Vac/Vdc | 250–5 k<br>5 k–100 k<br>50 k–1 M | RM35LM33MW |
| | Detection by discrete sensors | 1 C/O, 5 A | | — | RM35LV14MW |

**Table 23.155: Probes**

| Application | No. of probes | Operating temperature | | Max. Pressure kg/cm² | Catalog Number |
|---|---|---|---|---|---|
| | | °F | °C | | |
| Recommended for drink vending machines and where installation space is limited (stainless steel)[6] | 3 | 176 | 80 | 2 | RM79696044 |
| Suitable for boilers, pressure vessels, and under high temperature conditions (1) (304 stainless steel)[6] | 1 | 392 | 25 | 200 | RM79696014 |

**Table 23.156: Probes**

| Description | Catalog Number |
|---|---|
| Protected probe for mounting by suspension, protective shell PUC (S7) Electrode: stainless steel | RM79696043 |
| Liquid level control probe, suspended by cable, maximum operating temperature 212 °F (100 °C)[7] | LA9RM201 |

**Table 23.157: Electrode Holders**

| Description | Material | Catalog Number |
|---|---|---|
| Electrode for use up to 662°F (350°C) | Stainless steel isolated by ceramic | RM79696006 |

[6]   3/8 in. BSP mounting thread with hexagonal head. Use a 24 mm spanner for tightening.
[7]   3/8 in. BSP mounting head.

**Schneider Electric**
schneider-electric.us

RM35BA10

1 C/O =

2 C/O =
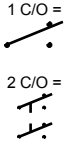
## Pump Control Relay

Zelio pump control relay RM35BA10 can operate on a single-phase or 3-phase supply. It incorporates three functions in a signal unit:

- Over and under current measurement
- Single or three phase
- Phase presence control

It has two operating modes which are designed to control a pump via two external signal inputs (Y1 Y2). These two signals are controlled by volt-free contacts. Control inputs Y1 and Y2 can be connected to:

- Level sensor
- Pressure sensor
- Level relay
- Push button

**Table 23.158: Pump Control Relay**

| Description | Current Range Controlled | Supply Voltage | Output | Catalog Number |
|---|---|---|---|---|
| Pump Control Relay | 1–10 A | 208–480 Vac, 3 phase | 1 C/O 5 A | RM35BA10 |
| | | 230, single-phase | | |

### Approvals for Zelio Level Control and Pump Control Relays

File: E173076 CNN: NRNT, NRNT7
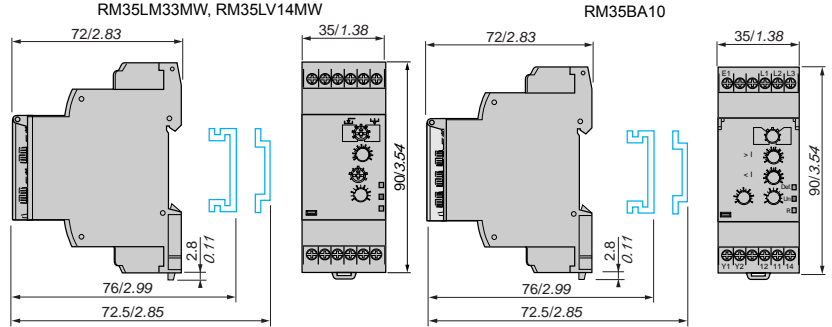
File: 248382 Class: 3211 07

CE 73/23/EEC and EMC 89/336/EEC

GL, C-Tick, GOST, RoHS

### Approximate Dimensions (mm/in.)

RM35LM33MW, RM35LV14MW

RM35BA10

72/2.83  35/1.38  90/3.54  2.8/0.11  76/2.99  72.5/2.85

**RELAYS AND TIMERS**

**23**

## Zelio™ Speed Control Relays, Frequency Control Relays, and Temperature Control Relays

Zelio speed control relay RM35SOMW monitors underspeed and overspeed conditions, with or without memory, with inhibition by an external contact. It operates with either N.O. or N.C. sensors. Adjustable time between impulses is 0.05 s to 10 min. Power-on inhibition time is adjustable from 0.6 to 60 s. Inhibition is controlled by an external contact. Settings are protected by a sealable cover, control status is indicated by an LED, and it is DIN rail mountable.

RM35S0MW

RM35HZ21FM

RM35AT•0MW

**Table 23.159: Speed Control Relay**

| Function | Time Delay | Measurement Input | Supply | Output | Catalog Number |
|---|---|---|---|---|---|
| Under-speed | 0.05 s to 10 min | 3-wire PNP or NPN proximity sensor | 24–240 Vac/Vdc | 1 C/O 5A | RM35S0MW |
| Over-speed | | Namur type proximity sensor 0–30 V voltage Volt-free contact | | | |

Zelio frequency control relay RM35HZ monitors its own supply voltage. Settings are protected by a sealable cover, control status is indicated by an LED, and it is DIN rail mountable.

**Table 23.160: Frequency Control Relay**

| Function | Controlled | Supply Voltage | Output | Catalog Number |
|---|---|---|---|---|
| Over frequency and under frequency (50 or 60 Hz) | 40–60 Hz (50 Hz) / 50–70 Hz (60 Hz) | 120–277 Vac | 1 C/O + 1 C/O 5 A | RM35HZ21FM |

Zelio temperature control relays are designed for monitoring the temperature in elevator (lift) rooms, in compliance with directive EN81. For use with PT100 input (customer supplied). Features adjustable control, control status indicated by an LED, and is DIN rail mountable.

**Table 23.161: Temperature Control Relays**

| Function | Supply Voltage | Vac | Output | Catalog Number |
|---|---|---|---|---|
| Over temperature 93 to 114°F (34 to 46°C) | 24–240 Vac/Vdc | — | 1 C/O 5 A | RM35ATL0MW |
| Under temperature 30 to 51°F (-1 to 11°C) | | — | 2 N.O. 5 A | RM35ATR5MW |
| Over temperature 93 to 114 °F (34 to 46°C) | | 208–480 Vac | 2 N.O. 5 A | RM35ATW5MW |
| Under temperature 30 to 51°F (-1 to 11°C) | | | | |
| Phase sequence | | | | |
| Phase failure | | | | |

### Approvals for Zelio Speed, Frequency, and Temperature Control Relays

c UL us LISTED
File: E173076
CNN: NRNT, NRNT7

CSA
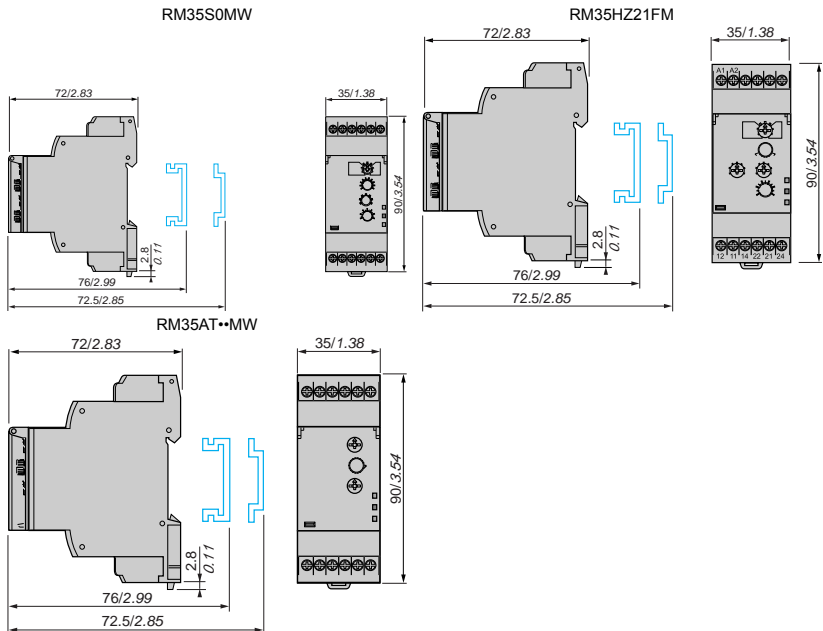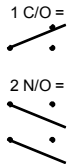File: 248382
Class: 3211 07

CE
CE: 73/23/EEC and EMC 89/336/EEC

GL, C-Tick, GOST, RoHS

### Approximate Dimensions (mm/in.)

1 C/O =

2 N/O =

RM35S0MW

72/2.83
76/2.99
72.5/2.85
2.8/0.11
35/1.38

RM35HZ21FM

72/2.83
90/3.54
76/2.99
72.5/2.85
2.8/0.11
35/1.38
90/3.54

RM35AT••MW

72/2.83
76/2.99
72.5/2.85
2.8/0.11
35/1.38
90/3.54

ABL8MEM12020 · ABL8REM24030

ABL8RPS24100 · ABL8WPS24200

ABL1RPM24042 · ABL1RPM24100

## Phaseo™ DC Power Supply

Phaseo switch mode power supplies are totally electronic and their output voltage is regulated. They offer:

- Compact size
- High degree of output voltage stability

For use with Universal power supplies, see optional function modules in catalog DIA3ED207041EN-US, which offer a set of solutions to meet the needs for continuity of service such as:

- Immunity to microbreaks
- Voltage holding during power outages
- Voltage holding during power supply equipment failure

### Table 23.162: Modular, Single Phase

| Input Voltage (Vac) | Output Voltage (Vdc) | Nominal Current (I) | Protection Reset | Catalog Number |
|---|---|---|---|---|
| 100–240 | 5 | 4 | Auto | ABL8MEM05040 |
| | 12 | 2 | | ABL8MEM12020 |
| | 24 | 0.3 | | ABL8MEM24003 |
| | | 0.6 | | ABL8MEM24006 |
| | | 1.2 | | ABL8MEM24012 |
| | | 2.5 | | ABL7RM24025 |

### Table 23.163: Optimum, Single Phase

| Input Voltage (Vac) | Output Voltage (Vdc) | Nominal Current (I) | Protection Reset | Catalog Number |
|---|---|---|---|---|
| 100–240 | 12 | 5 | Auto | ABL7RP1205 |
| | 24 | 3 | | ABL8REM24030 |
| | | 5 | | ABL8REM24050 |
| | 48 | 2.5 | | ABL7RP4803 |

### Table 23.164: Universal, Single Phase

| Input Voltage (Vac) | Output Voltage (Vdc) | Nominal Current (I) | Auto-Protection Reset | Catalog Number |
|---|---|---|---|---|
| 100–120 / 200–500 | 24 | 3 | Auto/Manual | ABL8RPS24030 |
| | | 5 | | ABL8RPS24050 |
| | | 10 | | ABL8RPS24100 |
| 100–120 / 200–240 | | 20 | | ABL8RPM24200 |

### Table 23.165: Universal, Three Phase

| Input Voltage (Vac) | Output Voltage (Vdc) | Nominal Current (I) | Auto-Protection Reset | Catalog Number |
|---|---|---|---|---|
| 380–500 | 24 | 20 | Auto/Manual | ABL8WPS24200 |
| | | 40 | | ABL8WPS24400 |

### Table 23.166: Dedicated, Single Phase

| Input Voltage (Vac) | Output Voltage (Vdc) | Nominal Current (I) | Protection Reset | Catalog Number |
|---|---|---|---|---|
| 100–240[1] | 12 | 5 | Auto | ABL1REM12050 |
| | 24 | 2.5 | | ABL1REM24025 |
| | | 4.2 | | ABL1REM24042 |
| 100–120 / 200–240 [2] | 24 | 6.2 | | ABL1REM24062 |
| | | 10 | | ABL1REM24100 |
| 100–240[1] | 12 | 8.3 | Auto | ABL1RPM12083 |
| | 24 | 4.2 | | ABL1RPM24042 |
| 100–120 / 200–240 [2] | 24 | 6.2 | | ABL1RPM24062 |
| | | 10 | | ABL1RPM24100 |

### Approvals for Phaseo DC Power Supply

UL LISTED — File: E164867 CCN: NMTR, NMTR7 · cURus — File: E164867 CCN: NMTR2, NMTR8 · CSA — File: 238438 Class: 5311-87, 5311-07 · CE · RoHS Compliant

- SEMI F47 Compliant for most units
- For additional information, refer to Catalog DIA3ED207041EN-US.

[1] Compatible input voltage 120-370 Vdc not indicated on the product.
[2] Compatible input voltage 180-370 Vdc not indicated on the product.

## Zelio™ Analog Interface Modules

The Zelio Analog range of converters is designed to convert signals emitted by sensors or electrical measurement devices into standard electrical signals that are compatible with automation platforms and controllers. They also allow the connection distance between a sensor and a measurement device to be increased, for example, between a thermocouple and a programmable controller

**Table 23.167: Converters for Type J and K thermocouples—supply voltage 24 Vdc ± 20%, non-isolated**

| Type | Temperature Range | | Switchable Output Signals | Catalog Number |
|---|---|---|---|---|
| | °F | °C | | |
| Type J | 32–302 | 0–150 | 0–10 V, 0–20 mA, 4–20 mA | RMTJ40BD |
| | 32–572 | 0–300 | 0–10 V, 0–20 mA, 4–20 mA | RMTJ60BD |
| | 32–1112 | 0–600 | 0–10 V, 0–20 mA, 4–20 mA | RMTJ80BD |
| Type K | 32–1112 | 0–600 | 0–10 V, 0–20 mA, 4–20 mA | RMTK80BD |
| | 32–2192 | 0–1200 | 0–10 V, 0–20 mA, 4–20 mA | RMTK90BD |

**Table 23.168: Converters for Universal Pt100 probes—supply voltage 24 Vdc ± 20%, non-isolated**

| Type | Temperature Range | | Switchable Output Signals | Catalog Number |
|---|---|---|---|---|
| | °F | °C | | |
| Pt100 2-wire, 3-wire, and 4-wire | - 40–104 | - 40–40 | 0–10 V, 0–20 mA, 4–20 mA | RMPT10BD |
| | - 148–212 | - 100–100 | 0–10 V, 0–20 mA, 4–20 mA | RMPT20BD |
| | 32–212 | 0–100 | 0–10 V, 0–20 mA, 4–20 mA | RMPT30BD |
| | 32–482 | 0–250 | 0–10 V, 0–20 mA, 4–20 mA | RMPT50BD |
| | 32–932 | 0–500 | 0–10 V, 0–20 mA, 4–20 mA | RMPT70BD |

**Table 23.169: Converters for Optimum Pt100 probes[1]—supply voltage 24 Vdc ± 20%, non-isolated**

| Type | Temperature Range | | Switchable Output Signals | Catalog Number |
|---|---|---|---|---|
| | °F | °C | | |
| Pt100 2-wire, 3-wire, and 4-wire | - 40–104 | - 40–40 | 0–10 V or 4–20 mA | RMPT13BD |
| | - 148–212 | - 100–100 | 0–10 V or 4–20 mA | RMPT23BD |
| | 32–212 | 0–100 | 0–10 V or 4–20 mA | RMPT33BD |
| | 32–482 | 0–250 | 0–10 V or 4–20 mA | RMPT53BD |
| | 32–932 | 0–500 | 0–10 V or 4–20 mA | RMPT73BD |

**Table 23.170: Universal Voltage/Current Converters**

| Type | Input Signal | Output Signal | Catalog Number |
|---|---|---|---|
| Supply voltage 24 Vdc ± 20%, non-isolated | 0–10 V or 4–20 mA | 0–10 V or 4–20 mA | RMCN22BD |
| Supply voltage 24 Vdc ± 20%, isolated | 0–10 V, ± 10 V, 0–20 mA, 4–20 mA | Switchable: 0–10 V, ± 10 V, 0–20 mA, 4–20 mA | RMCL55BD |
| | 0–50 V, 0–300 V, 0–500 V DC or AC, 50/60 Hz | Switchable: 0–10 V, 0–20 mA, 4–20 mA | RMCV60BD |
| | 0–1.5 A, 0–5 A, 0–15 A DC or AC, 50/60 Hz | 0–10 V, 0–20 mA, 4–20 mA | RMCA61BD |

**Approvals for Zelio Analog Interface Modules**

cULus LISTED  File: E164353  CCN: NKCR

CSA  File: 044087_S_000  Class: 3211 07

CE

IEC 60947-1

RoHS Compliant

**Table 23.171: How to Order**

| To Order Specify: | Catalog Number |
|---|---|
| ● Catalog Number | RMCN22BD |


RMTJ40BD


RMTK90BD


RMPT70BD


RMPT13BD


RMCN22BD

[1]    Converters dedicated to Zelio Logic smart relays.

ABS2EA02EM

ABS2SA01MB

## Solid State Interface Modules

ABS solid state relay interface modules are for discrete digital input or output control signals exchanged in automated equipment. Features include:

- High operating rate
- 5 separate character places for marking
- Silent operation
- LED indication of the control signal state
- 35 mm DIN 3 or 32 mm DIN 1 track mountable

### Table 23.172: Solid State Interface Input Modules

| | Input Module Catalog Number | | | | |
|---|---|---|---|---|---|
| Input Module Catalog No. | ABS2EC01EA | ABS2EC01EB | ABS2EC01EE | ABS2EA02EF | ABS2EA02EM |
| Dimensions (WxDxH)[2] | Inches: 0.37 x 2.78 x 2.91 | | | mm: 9.5 x 70.5 x 74 | |
| **Control Circuit Characteristics** | | | | | |
| Rated Voltage US | 5 Vdc | 24 Vdc | 48 Vdc | 120/127 60Hz | 230/240 60Hz |
| Maximum Voltage | 6 (TTL) | 28.8 Vdc | 57.6 Vdc | 140 Vac | 264 Vac |
| Maximum Current at Us | 13.6 mA | 12 mA | 10.5 mA | 17 mA | 15 mA |
| Internal Protection Against Reverse Polarity | Yes | Yes | Yes | N/A | N/A |
| **Output Circuit Characteristics** | | | | | |
| Rated Operational Voltage Ve | 5 to 48 Vdc | 5 to 48 Vdc | 5 to 48 Vdc | 5 to 48 Vdc | 5 to 48 Vdc |
| Min./Max. Voltage | 2/60 Vdc | 2/60 Vdc | 2/60 Vdc | 2/60 Vdc | 2/60 Vdc |
| Min./Max. Switching Current | 1/50 mA | 1/50 mA | 1/50 mA | 1/50 mA | 1/50 mA |
| Rated Insulation Voltage | Conforming to IEC 60947-1: 300 V Conforming to IEC 0110: 250 V group C | | | | |
| Approvals | UL E164353, CSA 044087_S_000, IEC 60947-1 | | | | |

### Table 23.173: Solid State Interface Output Modules

| | Output Module Catalog Number | | | |
|---|---|---|---|---|
| | ABS2SC01EB — — | — ABS2SC02EB — | — — ABS2SA01MB | — — — ABS2SA02MB |
| Dimensions (W x D x H) [2] | Inches: 0.69 x 2.78 x 2.91 | | mm: 17.5 x 70.5 x 74 | |
| **Control Circuit Characteristics** | | | | |
| Rated Voltage Us | 24 Vdc | 24 Vdc | 24 Vdc | 24 Vdc |
| Maximum Voltage | 28.8 Vdc | 28.8 Vdc | 28.8 Vdc | 28.8 Vdc |
| Maximum Current at Us | 12 mA | 12 mA | 13.6 mA | 13.6 mA |
| Internal Protection against reverse polarity | Yes | Yes | Yes | Yes |
| **Output Circuit Characteristics** | | | | |
| Rated Operational Voltage Ve | 5 to 48 Vdc | 5 to 48 Vdc | 24 to 240 Vac | 24 to 240 Vac |
| Maximum Voltage | 57.6 Vdc | 57.6 Vdc | 264 Vac | 264 Vac |
| Internal Protection against reverse polarity | Yes | Yes | Yes | Yes |
| External Protection | 3.15 A external fuse fast blow (Ik <= 1 kA AC and Ik <= 100 A DC) | | | |
| Rated insulation voltage | Conforming to IEC 60947-1: 300 V Conforming to VDE 0110: 250 V group C | | | |
| Approvals | UL E164353, CSA 044087_S_000, IEC 60947-1 | | | |

- For Mounting Track, see .

### Table 23.174: How to Order

| To Order Specify: | Catalog Number |
|---|---|
| • Catalog Number | ABS2EC01EA |

[2] Dimensions mounted on DIN 3 (7.5 mm high) track.

RELAYS AND TIMERS

23

ABR1E411F

ABR2E112E

ABR1S111F

ABR2S102B

## Electromechanical Interface Modules

ABR electromechanical relay modules are for discrete digital input or output control signals exchanged in automated equipment. Features include:

- High contact reliability
- LED indication of the control signal state
- 5 separate character places for marking
- 35 mm DIN 3 or 32 mm DIN 1 track mountable

### Table 23.175: Input Modules

| Coil Voltage | Options | 1 N.O. Contact Catalog Number | 1 C.O. Contact Catalog Number | 2 N.O. Contacts Catalog Number |
|---|---|---|---|---|
| 24 Vac/Vdc | Manual Operator and LED Indication | ABR1E118B[3] | ABR1E318B[3] | ABR1E418B[3] |
| 48 Vac/Vdc | | ABR1E118E[3] | ABR1E318E[3] | ABR1E418E[3] |
| 110–125 Vdc | | ABR1E112F[3] | ABR1E312F[3] | ABR1E412F[3] |
| 110–127 Vac 50/60 Hz | | ABR1E111F[3] | ABR1E311F[3] | ABR1E411F[3] |
| 230–240 Vac 50/60 Hz | | ABR1E111M[3] | ABR1E311M[3] | ABR1E411M[3] |
| 230–240 Vac 50/60 Hz | Manual Operator | ABR1E101M[3] | ABR1E301M[3] | — |
| 24 Vdc | LED Indication | ABR2E112B | — | — |
| 48 Vdc | | ABR2E112E | — | — |
| 120–127 Vac 60 Hz | | ABR2E116F | — | — |
| 230–240 Vac 50/60 Hz | | ABR2E111M | — | — |
| 24 Vdc | | — | ABR2EB312B | — |

### Table 23.176: Output Modules

| Coil Voltage | Options | 1 N.O. Contact Catalog Number | 1 C.O. Contact Catalog Number | 2 N.O. Contacts Catalog Number | 1 N.C. & 1 N.O. Contact Catalog Number |
|---|---|---|---|---|---|
| 24 Vdc | Manual Operator | ABR1S102B[3] | ABR1S302B[3] | ABR1S402B[3] | ABR1S602B[3] |
| 24 Vac/Vdc | Manual Operator and LED Indication | ABR1S118B[3] | ABR1S318B[3] | ABR1S418B[3] | ABR1S618B[3] |
| 48 Vac/Vdc | | ABR1S118E[3] | ABR1S318E[3] | ABR1S418E[3] | ABR1S618E[3] |
| 110–127 Vac 50/60 Hz | | ABR1S111F[3] | ABR1S311F[3] | ABR1S411F[3] | ABR1S611F[3] |
| 24 Vdc | LED Indication | ABR2S112B | — | — | — |
| 48 Vdc | | — | ABR2SB312B | — | — |
| 24 Vdc | — | ABR2S102B | — | — | — |

### Table 23.177: Coil Data: ABR1E, ABR2E

| Relay | | ABR1E | | | | | ABR2E | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Coil Voltage Ue | V | 24 Vac/Vdc | 48 Vac/Vdc | 127 Vdc | 127 Vac | 240 Vac | 24 Vdc | 48 Vdc | 127 Vac | 240 Vac |
| Maximum Voltage | V | 30 | 53 | 137 | 140 | 255 | 28.8 | 56 | 140 | 264 |
| Pick-up Voltage | V | 17 | 38 | 97 | 93 | 195 | 16.9 | 37.3 | 97 | 186 |
| Minimum Sealed Current | mA | 5.2 | 5.4 | 1.5 | 2.4 | 2 | 2 | 2 | 2.5 | 2.5 |
| Maximum Sealed Current | mA | 62 | 36 | 15 | 8 | 7 | 19.5 | 11 | 16 | 15 |

### Table 23.178: Coil Data: ABR2EB, ABR1S, ABR2S, ABR2SB

| Relay | | ABR2EB | ABR1S | | | | ABR2S | ABR2SB |
|---|---|---|---|---|---|---|---|---|
| Coil Voltage Ue | V | 24 Vdc | 24 Vdc | 24 Vdc | 48 Vac/Vdc | 127 Vac | 24 | 24 | 24 |
| Maximum Voltage | V | 28.8 | 30 | 30 | 53 | 140 | 28.8 | 28.8 | 28.8 |
| Pick-up Voltage | V | 16.9 | 17 | 17 | 38 | 83 | 16.9 | 16.9 | 16.9 |
| Minimum Sealed Current | mA | 2 | 6.6 | 6.2 | 5.4 | 2.4 | 2 | 2 | 2 |
| Maximum Sealed Current | mA | 29 | 62 | 62 | 36 | 8 | 28 | 17 | 29 |

### Table 23.179: Contact Ratings

| Relay | | ABR1E | ABR2E | ABR2EB | ABR1S | ABR2S | ABR2SB |
|---|---|---|---|---|---|---|---|
| Rated Voltage Ue | Vac | 250 | 115 | 48 | 250 | 230 | 48 |
| Rated Voltage Ue | Vdc | 125 | 100 | 48 | 125 | 120 | 48 |
| Thermal Current Ith | A | 2 | 1 | 0.05 | 5 | 5 | 0.05 |
| Break Rating (AC14) | A | 1 | 0.5 | 1 | 1 | 1 | — |
| Break Rating (DC13) | A | 1 | 1 | 1 | 1 | 1.5 | — |

### Table 23.180: Dimensions

| Modules | Approximate Dimensions (WxDxH)[4] | |
|---|---|---|
| | In. | mm |
| ABR1E, ABR2EB, ABR2SB | 0.69 x 2.91 x 2.78 | 17.5 x 74 x 70.5 |
| ABR2E | 0.37 x 2.91 x 2.78 | 9.5 x 74 x 70.5 |
| ABR2S1 | 0.47 x 2.91 x 2.78 | 12 x 74 x 70.5 |

| Approvals | |
|---|---|
| ABR1E, ABR2E | UL E164353, CSA 044087_S_000, IEC 60947-1 |
| ABR1S, ABR2S | UL E164353, CSA 044087_S_000, IEC 60947-1 |

- ABR1 relays are RoHS compliant.
- For Mounting Track, see

---

[3] RoHS Compliant
[4] Dimensions mounted on DIN 3 (7.5 mm high) track.