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Zelio™ Interface Relays

Zelio RSL slim interface relays save valuable panel space with a 6 mm width and have a 6 Amp 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.

Table 23.1: Zelio RSL Slim Interface: Pre-assembled Relay + Socket (sold in lots of 10)

| Socket Supply Voltage (Vac/Vdc) | Socket Type | | | | Replacement Relays |
|---------------------------------|------------------|--------------|------------------|--------------|--------------------|
| | Screw Connector | | Spring Terminal | | Catalog No. |
| | Catalog Number ▲ | \$ Price ea. | Catalog Number ▲ | \$ Price ea. | |
| 12 | RSL1PVJU | 12.00 | RSL1PRJU | 12.00 | RSL1AB4JD |
| 24 | RSL1PVBU | 14.60 | RSL1PRBU | 15.70 | RSL1AB4BD |
| 48 | RSL1PVEU | 14.90 | RSL1PREU | 16.10 | RSL1AB4ED |
| 110 | RSL1PVFU | 14.90 | RSL1PRFU | 16.10 | RSL1AB4ND |
| 230 | RSL1PVPU | 14.90 | RSL1PRPU | 16.10 | RSL1AB4ND |

▲ Relays are mounted on sockets equipped with LED and protection circuit.

Table 23.2: Zelio RSL Slim Interface: Relay Only (sold in lots of 10)

| Relay Coil Voltage (Vdc) | Catalog Number | \$ Price ea. |
|--------------------------|----------------|--------------|
| 12 | RSL1AB4JD | 6.20 |
| 24 | RSL1AB4BD | 7.70 |
| 48 | RSL1AB4ED | 7.90 |
| 60 | RSL1AB4ND | 7.90 |

Table 23.3: Zelio RSL Slim Interface: Socket Only (sold in lots of 10)

| Socket Supply Voltage (Vac/Vdc) | Socket Type | | | | For use with relays: |
|---------------------------------------|-----------------|--------------|-----------------|--------------|----------------------|
| | Screw Connector | | Spring Terminal | | |
| | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. | |
| 12 | RSLZVA1 | 7.20 | RSLZRA1 | 8.30 | RSL1AB4JD |
| 24 | | | | | RSL1AB4BD |
| 48 | RSLZVA2 | 7.20 | RSLZRA2 | 8.30 | RSL1AB4ED |
| 60 | | | | | RSL1AB4ND |
| 110 | RSLZVA3 | 7.40 | RSLZRA3 | 8.60 | RSL1AB4ND |
| 230 | RSLZVA4 | 7.40 | RSLZRA4 | 8.60 | RSL1AB4ND |

Table 23.4: Socket Accessories

| Description | Compatibility | Catalog Number | \$ Price ea. |
|-----------------------------------|------------------|----------------|--------------|
| ID tags (2 sheets of 64 tags) | With all sockets | RSLZ5 | 4.60 |
| Bus jumper (10 x 20-pole jumpers) | With all sockets | RSLZ2 | 3.80 |
| Butterfly isolator (10 isolators) | With all sockets | RSLZ3 | 3.70 |

Approvals for RSL relays:File
CCNE173076
NRNT2,
NRNT8File
Class240278
3211 04IEC
61810-1RoHS
Compliant**Approvals for RSLZ sockets:**File
CCNE172326S
SWIV2
SWIV8File
Class247510
3211 07IEC
61810-1RoHS
Compliant

RSL 1PV**

RSL 1PR**

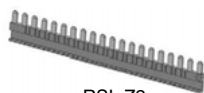


RSL 1AB**

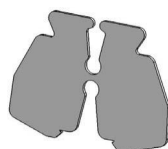


RSL ZVA*

RSL ZRA*



RSL Z2



RSL Z3

Zelio™ Plug-In 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 spikes
- Optional plastic hold-down ejector clips
- Socket or printed circuit board installation options

Table 23.5: Relays (sold in lots of 10)

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | | | |
|--------------|---|--------------|------------------|--------------|------------------|--------------|
| | 1 C/O -12 A Res. | | 1 C/O -16 A Res. | | 2 C/O -8 A Res. | |
| | Catalog Number ▲ | \$ Price ea. | Catalog Number ▲ | \$ Price ea. | Catalog Number ▲ | \$ Price ea. |
| 6 Vdc | RSB1A120RD | 3.50 | RSB1A160RD | 4.20 | RSB2A080RD | 4.20 |
| 12 Vdc | RSB1A120JD | 3.50 | RSB1A160JD | 4.20 | RSB2A080JD | 4.20 |
| 24 Vdc | RSB1A120BD | 3.50 | RSB1A160BD | 4.20 | RSB2A080BD | 4.20 |
| 48 Vdc | RSB1A120ED | 3.50 | RSB1A160ED | 4.20 | RSB2A080ED | 4.20 |
| 60 Vdc | RSB1A120ND | 3.50 | RSB1A160ND | 4.20 | RSB2A080ND | 4.20 |
| 110 Vdc | RSB1A120FD | 3.50 | RSB1A160FD | 4.20 | RSB2A080FD | 4.20 |
| 24 Vac | RSB1A120B7 | 3.50 | RSB1A160B7 | 4.20 | RSB2A080B7 | 4.20 |
| 48 Vac | RSB1A120E7 | 3.50 | RSB1A160E7 | 4.20 | RSB2A080E7 | 4.20 |
| 120 Vac | RSB1A120F7 | 3.50 | RSB1A160F7 | 4.20 | RSB2A080F7 | 4.20 |
| 220 Vac | RSB1A120M7 | 3.50 | RSB1A160M7 | 4.20 | RSB2A080M7 | 4.20 |
| 230 Vac | RSB1A120P7 | 3.50 | RSB1A160P7 | 4.20 | RSB2A080P7 | 4.20 |
| 240 Vac | RSB1A120U7 | 3.50 | RSB1A160U7 | 4.20 | RSB2A080U7 | 4.20 |

▲ 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.

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

| Contact terminal arrangement | Connection | Relay type | Catalog Number | \$ Price ea. |
|------------------------------|-------------------|------------|----------------|--------------|
| Separate | Box lug connector | RSB1A120** | RSZE1S35M | 4.80 |
| | | RSB1A160** | RSZE1S48M | 5.30 |
| | | RSB2A080** | | |

■ When using the relay with socket RSZ E1S48M, terminals must be jumpered.

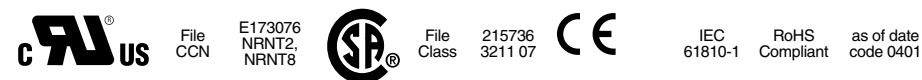
Table 23.7: Protection modules (sold in lots of 10)

| Description | For use with | Voltage | Catalog Number | \$ Price ea. |
|----------------------|--------------|-----------------|----------------|--------------|
| Diode | All sockets | 6–230 Vdc | RZM040W | 2.40 |
| RC circuit | All sockets | 24–60 Vac | RZM041BN7 | 4.80 |
| | | 110–240 Vac | RZM041FU7 | 4.80 |
| Diode + green LED | All sockets | 6–24 Vdc | RZM031RB | 4.20 |
| | | 24–60 Vdc | RZM031BN | 4.20 |
| | | 110–230 Vdc | RZM031FPD | 6.00 |
| Varistor + green LED | All sockets | 6–24 Vac/Vdc | RZM021RB | 6.00 |
| | | 24–60 Vac/Vdc | RZM021BN | 6.00 |
| | | 110–230 Vac/Vdc | RZM021FP | 6.00 |

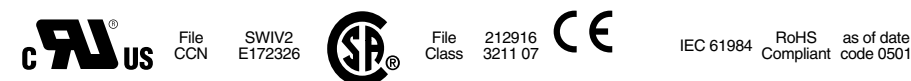
Table 23.8: Accessories (sold in lots of 10)

| Description | For use with | Catalog Number | \$ Price ea. |
|--------------------------------|--------------|----------------|--------------|
| Plastic hold-down ejector clip | All sockets | RSZR215 | .42 |
| ID tags | All sockets | RSZL300 | .30 |

Approvals for RSB relays:



Approvals for RSB sockets:



RZM modules are RoHS compliant as of date code 0610.

For mounting track, see page 24-16.

Zelio™ 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 3A to 12A. 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

Table 23.9: Miniature relays without LED, with Test Button and Lock-Down Door (sold in lots of 10)

| Coil Voltage | Number and type of contacts - Thermal current (lth) | | | | | |
|--------------|---|--------------|-------------------|--------------|------------------|--------------|
| | 2 C/O - 12 A Res. | | 3 C/O - 10 A Res. | | 4 C/O - 8 A Res. | |
| | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. |
| 12 Vdc | RXM2AB1JD | 5.30 | RXM3AB1JD | 5.70 | RXM4AB1JD | 6.00 |
| 24 Vdc | RXM2AB1BD | 5.30 | RXM3AB1BD | 5.70 | RXM4AB1BD | 6.00 |
| 48 Vdc | RXM2AB1ED | 5.30 | RXM3AB1ED | 5.70 | RXM4AB1ED | 6.00 |
| 110 Vdc | RXM2AB1FD | 5.30 | RXM3AB1FD | 5.70 | RXM4AB1FD | 6.00 |
| 220 Vdc | — | — | — | — | RXM4AB1MD | 6.00 |
| 24 Vac | RXM2AB1B7 | 5.30 | RXM3AB1B7 | 5.70 | RXM4AB1B7 | 6.00 |
| 48 Vac | RXM2AB1E7 | 5.30 | RXM3AB1E7 | 5.70 | RXM4AB1E7 | 6.00 |
| 120 Vac | RXM2AB1F7 | 5.30 | RXM3AB1F7 | 5.70 | RXM4AB1F7 | 6.00 |
| 230 Vac | RXM2AB1P7 | 5.30 | RXM3AB1P7 | 5.70 | RXM4AB1P7 | 6.00 |
| 240 Vac | — | — | — | — | RXM4AB1U7 | 6.00 |



RXM2AB2F7

Table 23.10: Miniature relays with LED, Test Button, and Lock-Down Door (sold in lots of 10)

| Coil Voltage | Number and type of contacts - Thermal current (lth) | | | | | |
|--------------|---|--------------|-------------------|--------------|------------------|--------------|
| | 2 C/O - 12 A Res. | | 3 C/O - 10 A Res. | | 4 C/O - 8 A Res. | |
| | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. |
| 12 Vdc | RXM2AB2JD | 6.20 | RXM3AB2JD | 6.60 | RXM4AB2JD | 6.80 |
| 24 Vdc | RXM2AB2BD | 6.20 | RXM3AB2BD | 6.60 | RXM4AB2BD | 6.80 |
| 48 Vdc | RXM2AB2ED | 6.20 | RXM3AB2ED | 6.60 | RXM4AB2ED | 6.80 |
| 110 Vdc | RXM2AB2FD | 6.20 | RXM3AB2FD | 6.60 | RXM4AB2FD | 6.80 |
| 125 Vdc | — | — | — | — | RXM4AB2GD | 6.80 |
| 24 Vac | RXM2AB2B7 | 6.20 | RXM3AB2B7 | 6.60 | RXM4AB2B7 | 6.80 |
| 48 Vac | RXM2AB2E7 | 6.20 | RXM3AB2E7 | 6.60 | RXM4AB2E7 | 6.80 |
| 120 Vac | RXM2AB2F7 | 6.20 | RXM3AB2F7 | 6.60 | RXM4AB2F7 | 6.80 |
| 230 Vac | RXM2AB2P7 | 6.20 | RXM3AB2P7 | 6.60 | RXM4AB2P7 | 6.80 |

Table 23.11: Miniature relays with LED, without Test Button and Lock-Down Door (sold in lots of 10)

| Coil Voltage | Number and type of contacts - Thermal current (lth) | | | | | |
|--------------|---|--------------|-------------------|--------------|------------------|--------------|
| | 2 C/O - 12 A Res. | | 3 C/O - 10 A Res. | | 4 C/O - 8 A Res. | |
| | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. |
| 12 Vdc | RXM2AB3JD | 5.70 | — | — | RXM4AB3JD | 6.30 |
| 24 Vdc | RXM2AB3BD | 5.70 | — | — | RXM4AB3BD | 6.30 |
| 48 Vdc | RXM2AB3ED | 5.70 | — | — | RXM4AB3ED | 6.30 |
| 110 Vdc | RXM2AB3FD | 5.70 | — | — | RXM4AB3FD | 6.30 |
| 125 Vdc | — | — | — | — | RXM4AB3GD | 6.30 |
| 24 Vac | RXM2AB3B7 | 5.70 | — | — | RXM4AB3B7 | 6.30 |
| 48 Vac | RXM2AB3E7 | 5.70 | — | — | RXM4AB3E7 | 6.30 |
| 120 Vac | RXM2AB3F7 | 5.70 | — | — | RXM4AB3F7 | 6.30 |
| 230 Vac | RXM2AB3P7 | 5.70 | — | — | RXM4AB3P7 | 6.30 |

Table 23.12: Miniature relays with low level contacts, without LED, with Test Button and Lock-Down Door (sold in lots of 10)

| Number and type of contacts - Thermal current (lth) | | |
|---|----------------|--------------|
| 4 C/O - 3 A Res. | | |
| Coil Voltage | Catalog Number | \$ Price ea. |
| 12 Vdc | RXM4GB1JD | 6.00 |
| 24 Vdc | RXM4GB1BD | 6.00 |
| 48 Vdc | RXM4GB1ED | 6.00 |
| 110 Vdc | RXM4GB1FD | 6.00 |
| 24 Vac | RXM4GB1B7 | 6.00 |
| 48 Vac | RXM4GB1E7 | 6.00 |
| 120 Vac | RXM4GB1F7 | 6.00 |
| 230 Vac | RXM4GB1P7 | 6.00 |

Table 23.14: Miniature relays with low level contacts, with LED, without Test Button and Lock-Down Door (sold in lots of 10)

| Number and type of contacts - Thermal current (lth) | | |
|---|----------------|--------------|
| 4 C/O - 3 A Res. | | |
| Coil Voltage | Catalog Number | \$ Price ea. |
| 12 Vdc | RXM4GB3JD | 6.30 |
| 24 Vdc | RXM4GB3BD | 6.30 |
| 48 Vdc | RXM4GB3ED | 6.30 |
| 110 Vdc | RXM4GB3FD | 6.30 |
| 125 Vdc | — | — |
| 24 Vac | RXM4GB3B7 | 6.30 |
| 48 Vac | RXM4GB3E7 | 6.30 |
| 120 Vac | RXM4GB3F7 | 6.30 |
| 230 Vac | RXM4GB3P7 | 6.30 |

Table 23.13: Miniature relays with low level contacts, with LED, Test Button and Lock-Down Door (sold in lots of 10)

| Number and type of contacts - Thermal current (lth) | | |
|---|----------------|--------------|
| 4 C/O - 3 A Res. | | |
| Coil Voltage | Catalog Number | \$ Price ea. |
| 12 Vdc | RXM4GB2JD | 6.80 |
| 24 Vdc | RXM4GB2BD | 6.80 |
| 48 Vdc | RXM4GB2ED | 6.80 |
| 110 Vdc | RXM4GB2FD | 6.80 |
| 24 Vac | RXM4GB2B7 | 6.80 |
| 48 Vac | RXM4GB2E7 | 6.80 |
| 120 Vac | RXM4GB2F7 | 6.80 |
| 230 Vac | RXM4GB2P7 | 6.80 |
| 240 Vac | RXM4GB2U7 | 6.80 |

For sockets and accessories, see page 23-5.

Approvals for Relays:

File CCN ▲ E164862 NLDX, NLDX7



File CCN

E164862 NLDX2, NLDX8



File 230765 Class 3211 07



IEC 61810-1 RoHS Compliant

▲ When used with the appropriate socket.

CP2 Discount Schedule



RXZE2M114M Socket +
RXM4AB2P7 Relay

Table 23.15: Miniature relays (sold in lots of 100)

| Coil Voltage | Number and type of contacts - Thermal current (lth) | | | |
|--|---|--------------|------------------|--------------|
| | 2 C/O - 12 A Res. | | 4 C/O - 8 A Res. | |
| | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. |
| Without LED, with Test Button, and Lock-Down Door | | | | |
| 12 Vdc | — | — | RXM4AB1JDTQ | 6.00 |
| 24 Vdc | RXM2AB1BDTQ | 5.30 | RXM4AB1BDTQ | 6.00 |
| 48 Vdc | — | — | RXM4AB1EDTQ | 6.00 |
| 110 Vdc | — | — | RXM4AB1FDTQ | 6.00 |
| 220 Vdc | — | — | RXM4AB1MDTQ | 6.00 |
| 24 Vac | RXM2AB1B7TQ | 5.30 | RXM4AB1B7TQ | 6.00 |
| 48 Vac | — | — | RXM4AB1E7TQ | 6.00 |
| 120 Vac | RXM2AB1F7TQ | 5.30 | RXM4AB1F7TQ | 6.00 |
| 230 Vac | RXM2AB1P7TQ | 5.30 | RXM4AB1P7TQ | 6.00 |
| With LED, Test Button, and Lock-Down Door | | | | |
| 24 Vdc | — | — | RXM4AB2BDTQ | 6.80 |
| 24 Vac | RXM2AB2B7TQ | 6.20 | RXM4AB2B7TQ | 6.80 |
| 230 Vac | RXM2AB2P7TQ | 6.20 | RXM4AB2P7TQ | 6.80 |

Table 23.16: Miniature relays with LED without Test Button and Lock-Down Door (sold in lots of 100)

| Coil Voltage | Number and type of contacts - Thermal current (lth) | | | |
|--------------|---|--------------|------------------|--------------|
| | 2 C/O - 12 A Res. | | 4 C/O - 8 A Res. | |
| | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. |
| 24 Vdc | RXM2AB3BDTQ | 5.70 | RXM4AB3BDTQ | 6.30 |
| 24 Vac | RXM2AB3B7TQ | 5.70 | RXM4AB3B7TQ | 6.30 |
| 230 Vac | RXM2AB3P7TQ | 5.70 | RXM4AB3P7TQ | 6.30 |



RXZE2S114M Socket +
RXM4AB2F7 Relay

Table 23.17: Sockets (sold in lots of 10)

| Contact terminal arrangement | Connection | Relay type | Catalog Number | \$ Price ea. |
|------------------------------|-----------------------|--------------------------|----------------|--------------|
| Mixed | Screw clamp terminals | RXM2*****▲ RXM4*****▲ | RXZE2M114■ | 5.00 |
| | Box lug connector | RXM2***** RXM4***** | RXZE2M114M■ | 5.00 |
| Separate | Box lug connector | RXM2***** | RXZE2S108M◆ | 5.00 |
| | | RXM3***** | RXZE2S111M■ | 5.00 |
| | | RXM4***** | RXZE2S114M■ | 5.00 |

- ▲ When mounting relay RXM2***** on socket RXZE2M****, the thermal current must not exceed 10 A.
■ Thermal current lth: 10 A
◆ Thermal current lth: 12 A

Table 23.18: Protection modules (sold in lots of 10)

| Description | Voltage | For use with | Catalog Number | \$ Price ea. |
|-------------|-----------------|--------------|----------------|--------------|
| Diode | 6–250 Vdc | All sockets | RXM040W | 1.90 |
| RC circuit | 24–60 Vac | All sockets | RXM041BN7 | 1.90 |
| | 110–240 Vac | All sockets | RXM041FU7 | 1.90 |
| Varistor | 6–24 Vac/Vdc | All sockets | RXM021RB | 1.90 |
| | 24–60 Vac/Vdc | All sockets | RXM021BN | 1.90 |
| | 110–240 Vac/Vdc | All sockets | RXM021FP | 1.90 |

Table 23.19: Accessories (sold in lots of 10)

| Description | For use with | Catalog Number | \$ Price ea. |
|--------------------------------|------------------------------------|----------------|--------------|
| Metal hold-down clip | All sockets | RXZ400 | .50 |
| Plastic hold-down ejector clip | All sockets | RXZR335 | .50 |
| Bus jumper, 2-pole (lth: 5 A) | All sockets with separate contacts | RXZS2 | .70 |
| DIN rail mounting adapter | All relays | RXZE2DA | .70 |
| Panel mounting adapter | All relays | RXZE2FA | .50 |
| ID tags | All relays (sheet of 108 tags) | RXZL520 | .10 |
| | All sockets except RXZE2M114 | RXZL420 | .10 |



RXM041BN7



RXZ400

Approvals for Sockets:



File CCN E172326
SWIV2, SWIV8



File 230765
Class 3211 07



IEC 61984 RoHS
Compliant

Zelio™ Plug-In Relays

Zelio RPM plug-in relays and sockets provide a complete system solution in response to 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



RPM22F7

Table 23.20: Power 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) | | | | | | | |
|--------------|---|--------------|-------------------|--------------|-------------------|--------------|-------------------|--------------|
| | 1 C/O - 15 A Res. | | 2 C/O - 15 A Res. | | 3 C/O - 15 A Res. | | 4 C/O - 15 A Res. | |
| | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. |
| 12 Vdc | RPM11JD | 4.50 | RPM21JD | 6.00 | RPM31JD | 8.10 | RPM41JD | 10.00 |
| 24 Vdc | RPM11BD | 4.50 | RPM21BD | 6.00 | RPM31BD | 8.10 | RPM41BD | 10.00 |
| 48 Vdc | RPM11ED | 4.50 | RPM21ED | 6.00 | RPM31ED | 8.10 | RPM41ED | 10.00 |
| 110 Vdc | RPM11FD | 4.50 | RPM21FD | 6.00 | RPM31FD | 8.10 | RPM41FD | 10.00 |
| 24 Vac | RPM11B7 | 4.50 | RPM21B7 | 6.00 | RPM31B7 | 8.10 | RPM41B7 | 10.00 |
| 48 Vac | RPM11E7 | 4.50 | RPM21E7 | 6.00 | RPM31E7 | 8.10 | RPM41E7 | 10.00 |
| 120 Vac | RPM11F7 | 4.50 | RPM21F7 | 6.00 | RPM31F7 | 8.10 | RPM41F7 | 10.00 |
| 230 Vac | RPM11P7 | 4.50 | RPM21P7 | 6.00 | RPM31P7 | 8.10 | RPM41P7 | 10.00 |



RPM42BD

Table 23.21: Power relays with LED, Test Button and Lock-Down Door (sold in lots of 10)

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | | | | | |
|--------------|---|--------------|-------------------|--------------|-------------------|--------------|-------------------|--------------|
| | 1 C/O - 15 A Res. | | 2 C/O - 15 A Res. | | 3 C/O - 15 A Res. | | 4 C/O - 15 A Res. | |
| | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. |
| 12 Vdc | RPM12JD | 5.30 | RPM22JD | 6.80 | RPM32JD | 9.00 | RPM42JD | 10.90 |
| 24 Vdc | RPM12BD | 5.30 | RPM22BD | 6.80 | RPM32BD | 9.00 | RPM42BD | 10.90 |
| 48 Vdc | RPM12ED | 5.30 | RPM22ED | 6.80 | RPM32ED | 9.00 | RPM42ED | 10.90 |
| 110 Vdc | RPM12FD | 5.30 | RPM22FD | 6.80 | RPM32FD | 9.00 | RPM42FD | 10.90 |
| 24 Vac | RPM12B7 | 5.30 | RPM22B7 | 6.80 | RPM32B7 | 9.00 | RPM42B7 | 10.90 |
| 48 Vac | RPM12E7 | 5.30 | RPM22E7 | 6.80 | RPM32E7 | 9.00 | RPM42E7 | 10.90 |
| 120 Vac | RPM12F7 | 5.30 | RPM22F7 | 6.80 | RPM32F7 | 9.00 | RPM42F7 | 10.90 |
| 230 Vac | RPM12P7 | 5.30 | RPM22P7 | 6.80 | RPM32P7 | 9.00 | RPM42P7 | 10.90 |

Table 23.22: Power 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) | | | | | | | |
|--------------|---|--------------|-------------------|--------------|-------------------|--------------|-------------------|--------------|
| | 1 C/O - 15 A Res. | | 2 C/O - 15 A Res. | | 3 C/O - 15 A Res. | | 4 C/O - 15 A Res. | |
| | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. |
| 12 Vdc | RPM13JD | 5.00 | RPM23JD | 6.30 | RPM33JD | 8.30 | RPM43JD | 10.10 |
| 24 Vdc | RPM13BD | 5.00 | RPM23BD | 6.30 | RPM33BD | 8.30 | RPM43BD | 10.10 |
| 48 Vdc | RPM13ED | 5.00 | RPM23ED | 6.30 | RPM33ED | 8.30 | RPM43ED | 10.10 |
| 110 Vdc | RPM13FD | 5.00 | RPM23FD | 6.30 | RPM33FD | 8.30 | RPM43FD | 10.10 |
| 125 Vdc | — | — | — | — | — | — | — | — |
| 24 Vac | RPM13B7 | 5.00 | RPM23B7 | 6.30 | RPM33B7 | 8.30 | RPM43B7 | 10.10 |
| 48 Vac | RPM13E7 | 5.00 | RPM23E7 | 6.30 | RPM33E7 | 8.30 | RPM43E7 | 10.10 |
| 120 Vac | RPM13F7 | 5.00 | RPM23F7 | 6.30 | RPM33F7 | 8.30 | RPM43F7 | 10.10 |
| 230 Vac | RPM13P7 | 5.00 | RPM23P7 | 6.30 | RPM33P7 | 8.30 | RPM43P7 | 10.10 |

Approvals for relays:



File E164862
CCN ▲ NLDX, NLDX7



File E164862
CCN NLDX2, NLDX8



File 230765
Class 3211 07



IEC 61810-1
RoHS Compliant

▲ When used with the appropriate socket

Table 23.23: Sockets (sold in lots of 10)

| Contact terminal arrangement | Connection | Relay type | Catalog Number | \$ Price ea. |
|------------------------------|-----------------|------------|----------------|--------------|
| Mixed | Screw terminals | RPM1*** | RPZF1 | 4.30 |
| | | RPM2*** | RPZF2 | 5.50 |
| | | RPM3*** | RPZF3 | 6.30 |
| | | RPM4*** | RPZF4 | 7.30 |

Approvals for Sockets:



File E172326
CCN SWIV2, SWIV8



File 230765
Class 3211 07



IEC 61984
RoHS Compliant

RPZF2 Socket +
RPM22F7 Relay



RXM041BN7

Table 23.24: Protection modules (sold in lots of 10)

| Description | Voltage | For use with | Catalog Number | \$ Price ea. |
|-------------|-----------------|----------------|----------------|--------------|
| Diode | 6–250 Vdc | RPZF1 RPZF2 | RXM040W | 1.90 |
| | | RPZF3 RPZF4 | RUW240BD | 2.60 |
| RC circuit | 24–60 Vac | RPZF1 RPZF2 | RXM041BN7 | 1.90 |
| | 110–240 Vac | RPZF1 RPZF2 | RXM041FU7 | 2.20 |
| | | RPZF3 RPZF4 | RUW241P7 | 2.20 |
| | 24–60 Vac | RPZF1 RPZF2 | RXM041FU7 | 2.20 |
| Varistor | 6–24 Vac/Vdc | RPZF1 RPZF2 | RXM021RB | 1.90 |
| | 24–60 Vac/Vdc | RPZF1 RPZF2 | RXM021BN | 1.90 |
| | 110–240 Vac/Vdc | RPZF1 RPZF2 | RXM021FP | 1.90 |
| | 24 Vac/Vdc | RPZF3 RPZF4 | RUW242B7 | 2.70 |
| | 240 Vac/Vdc | RPZF3 RPZF4 | RUW242P7 | 2.70 |
| | 24 Vac/Vdc | RPZF3 RPZF4 | RUW242B7 | 2.70 |



Table 23.25: Timer module▲ (sold in lots of 1)

| Description | Voltage | For Use With | Catalog Number | \$ Price |
|---|----------------|----------------|----------------|----------|
| 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 | 47.10 |

▲ See timer module description (selection of functions and time delays) in catalog DIA3ED2090304EN-US.

Table 23.26: Accessories (sold in lots of 10)

| Description | For use with | Catalog Number | \$ Price ea. |
|---|--------------|----------------|--------------|
| Metal hold-down clip (for single-pole relays) | RPZF1 | RPZR235 | 0.50 |
| DIN rail mounting adapter ■ | RPM1*** | RPZ1DA | 0.70 |
| | RPM2*** | RXZE2DA | 0.70 |
| | RPM3*** | RPZ3DA | 0.70 |
| | RPM4*** | RPZ4DA | 0.70 |
| Panel mounting adapter | RPM1*** | RPZ1FA | 0.50 |
| | RPM2*** | RXZE2FA | 0.50 |
| | RPM3*** | RPZ3FA | 0.50 |
| | RPM4*** | RPZ4FA | 0.50 |
| ID tags (sheet of 108 tags) | All relays | RXZL520 | 0.10 |

■ Test button and lock-down door become inaccessible



RPZ1DA



RPZ3FA

Zelio™ Plug-In Relays

Zelio RUM plug-in relays and sockets provide a complete system solution in response to the most demanding applications up to 16 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

Table 23.27: Relays for standard applications 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) | | | |
|-------------|--------------|---|--------------|------------------|--------------|
| | | 2 C/O -16 A Res. | | 3 C/O -16 A Res. | |
| | | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. |
| Cylindrical | 12 Vdc | RUMC2AB1JD | 10.10 | RUMC3AB1JD | 11.30 |
| | 24 Vdc | RUMC2AB1BD | 10.10 | RUMC3AB1BD | 11.30 |
| | 48 Vdc | RUMC2AB1ED | 10.10 | RUMC3AB1ED | 11.30 |
| | 60 Vdc | — | — | RUMC3AB1ND | 11.30 |
| | 110 Vdc | RUMC2AB1FD | 10.10 | RUMC3AB1FD | 11.30 |
| | 125 Vdc | — | — | RUMC3AB1GD | 11.30 |
| | 220 Vdc | — | — | RUMC3AB1MD | 11.30 |
| | 24 Vac | RUMC2AB1B7 | 10.10 | RUMC3AB1B7 | 11.30 |
| | 48 Vac | RUMC2AB1E7 | 10.10 | RUMC3AB1E7 | 11.30 |
| | 120 Vac | RUMC2AB1F7 | 10.10 | RUMC3AB1F7 | 11.30 |
| | 230 Vac | RUMC2AB1P7 | 10.10 | RUMC3AB1P7 | 11.30 |
| Flat | 12 Vdc | RUMF2AB1JD | 10.10 | RUMF3AB1JD | 11.30 |
| | 24 Vdc | RUMF2AB1BD | 10.10 | RUMF3AB1BD | 11.30 |
| | 48 Vdc | RUMF2AB1ED | 10.10 | RUMF3AB1ED | 11.30 |
| | 110 Vdc | RUMF2AB1FD | 10.10 | RUMF3AB1FD | 11.30 |
| | 24 Vac | RUMF2AB1B7 | 10.10 | RUMF3AB1B7 | 11.30 |
| | 48 Vac | RUMF2AB1E7 | 10.10 | RUMF3AB1E7 | 11.30 |
| | 120 Vac | RUMF2AB1F7 | 10.10 | RUMF3AB1F7 | 11.30 |
| | 230 Vac | RUMF2AB1P7 | 10.10 | RUMF3AB1P7 | 11.30 |

Table 23.28: Relays for standard applications, with LED, Test Button, and Lock-Down Door
(sold in lots of 10)

| Pins | Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | |
|-------------|--------------|---|--------------|------------------|--------------|
| | | 2 C/O -16 A Res. | | 3 C/O -16 A Res. | |
| | | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. |
| Cylindrical | 12 Vdc | RUMC2AB2JD | 11.30 | RUMC3AB2JD | 12.50 |
| | 24 Vdc | RUMC2AB2BD | 11.30 | RUMC3AB2BD | 12.50 |
| | 48 Vdc | RUMC2AB2ED | 11.30 | RUMC3AB2ED | 12.50 |
| | 60 Vdc | — | — | RUMC3AB2ND | 12.50 |
| | 110 Vdc | RUMC2AB2FD | 11.30 | RUMC3AB2FD | 12.50 |
| | 125 Vdc | — | — | RUMC3AB2GD | 12.50 |
| | 24 Vac | RUMC2AB2B7 | 11.30 | RUMC3AB2B7 | 12.50 |
| | 48 Vac | RUMC2AB2E7 | 11.30 | RUMC3AB2E7 | 12.50 |
| | 120 Vac | RUMC2AB2F7 | 11.30 | RUMC3AB2F7 | 12.50 |
| | 230 Vac | RUMC2AB2P7 | 11.30 | RUMC3AB2P7 | 12.50 |
| Flat | 12 Vdc | RUMF2AB2JD | 11.30 | RUMF3AB2JD | 12.50 |
| | 24 Vdc | RUMF2AB2BD | 11.30 | RUMF3AB2BD | 12.50 |
| | 48 Vdc | RUMF2AB2ED | 11.30 | RUMF3AB2ED | 12.50 |
| | 110 Vdc | RUMF2AB2FD | 11.30 | RUMF3AB2FD | 12.50 |
| | 24 Vac | RUMF2AB2B7 | 11.30 | RUMF3AB2B7 | 12.50 |
| | 48 Vac | RUMF2AB2E7 | 11.30 | RUMF3AB2E7 | 12.50 |
| | 120 Vac | RUMF2AB2F7 | 11.30 | RUMF3AB2F7 | 12.50 |
| | 230 Vac | RUMF2AB2P7 | 11.30 | RUMF3AB2P7 | 12.50 |

Table 23.29: Relays for standard applications 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) | | | |
|-------------|--------------|---|--------------|------------------|--------------|
| | | 2 C/O -16 A Res. | | 3 C/O -16 A Res. | |
| | | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. |
| Cylindrical | 12 Vdc | RUMC2AB3JD | 10.40 | RUMC3AB3JD | 11.60 |
| | 24 Vdc | RUMC2AB3BD | 10.40 | RUMC3AB3BD | 11.60 |
| | 48 Vdc | RUMC2AB3ED | 10.40 | RUMC3AB3ED | 11.60 |
| | 60 Vdc | — | — | RUMC3AB3ND | 11.60 |
| | 110 Vdc | RUMC2AB3FD | 10.40 | RUMC3AB3FD | 11.60 |
| | 125 Vdc | — | — | RUMC3AB3GD | 11.60 |
| | 24 Vac | RUMC2AB3B7 | 10.40 | RUMC3AB3B7 | 11.60 |
| | 48 Vac | RUMC2AB3E7 | 10.40 | RUMC3AB3E7 | 11.60 |
| | 120 Vac | RUMC2AB3F7 | 10.40 | RUMC3AB3F7 | 11.60 |
| | 230 Vac | RUMC2AB3P7 | 10.40 | RUMC3AB3P7 | 11.60 |
| Flat | 12 Vdc | RUMF2AB3JD | 10.40 | RUMF3AB3JD | 11.60 |
| | 24 Vdc | RUMF2AB3BD | 10.40 | RUMF3AB3BD | 11.60 |
| | 48 Vdc | RUMF2AB3ED | 10.40 | RUMF3AB3ED | 11.60 |
| | 110 Vdc | RUMF2AB3FD | 10.40 | RUMF3AB3FD | 11.60 |
| | 125 Vdc | — | — | RUMF3AB3GD | 11.60 |
| | 24 Vac | RUMF2AB3B7 | 10.40 | RUMF3AB3B7 | 11.60 |
| | 48 Vac | RUMF2AB3E7 | 10.40 | RUMF3AB3E7 | 11.60 |
| | 120 Vac | RUMF2AB3F7 | 10.40 | RUMF3AB3F7 | 11.60 |
| | 230 Vac | RUMF2AB3P7 | 10.40 | RUMF3AB3P7 | 11.60 |

Approvals for Relays:

File
CCN ▲E164862
NLDX,
NLDX7File
CCNE164862
NLDX2,
NLDX8File 230765
Class 3211 07

IEC 61810-1

RoHS
Compliant

▲ When used with appropriate socket



RUMF3AB2P7
Universal Relay



RUM C3M Socket+
RUMC3 Relay



RUW241P7



RUW101MW



RUZS2



RUZC200

Table 23.30: Sockets (sold in lots of 10)

| Contact terminal arrangement | Connection | Relay type | Catalog Number | \$ Price ea. |
|------------------------------|--|------------|----------------|--------------|
| Mixed ▲ | Box lug connector (screw terminals) | RUMC2**** | RUZC2M | 3.50 |
| | | RUMC3**** | RUZC3M | 4.20 |
| | | RUMC2**** | RUZSC2M | 4.50 |
| | | RUMC3**** | RUZSC3M | 5.00 |
| Separate ■ | | RUMF2**** | RUZSF3M | 5.60 |
| | | RUMF3**** | | |

- ▲ The inputs are mixed with the relay coil terminals, with the outputs located on the opposite side of the socket.
■ The inputs and outputs are separated from the relay coil terminals.

Table 23.31: Protection modules (sold in lots of 10)

| Description | For use with | Voltage | Catalog Number | \$ Price ea. |
|-------------|--------------|-------------|--------------------------|--------------|
| Diode | All sockets | 6–250 Vdc | RUW240BD | 2.20 |
| RC circuit | | 110–240 Vac | RUW241P7 | 2.20 |
| Varistor | | 24 Vac/Vdc | RUW242B7 | 2.70 |
| | | 240 Vac/Vdc | RUW242P7 | 2.70 |

Table 23.32: Timer module (sold in lots of 1)

| Description | For use with | Voltage | Catalog Number | \$ Price |
|--|--------------|----------------|----------------|----------|
| 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. | All sockets | 24–240 Vac/Vdc | RUW101MW | 47.10 |

- ♦ See timer module description (selection of functions and time delays) in catalog 8501CT0601.

Table 23.33: Accessories (sold in lots of 10)

| Description | For use with | Catalog Number | \$ Price ea. |
|-------------------------------|------------------------------------|----------------|--------------|
| Metal hold-down clip | All sockets | RUZC200 | 1.20 |
| Bus jumper, 2-pole (lth: 5 A) | All sockets with separate contacts | RUZS2 | 0.70 |
| ID tags | All relays (sheet of 108 tags) | RXZL520 | 0.10 |
| | All sockets with separate contacts | RUZ420 | 0.10 |

Approvals for Sockets:



File CCN E172326
SWIV2, SWIV8



File Class 230765
3211 07



IEC 61810-1

RoHS
Compliant

Zelio™ RPF Power Relays

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

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

Table 23.34: Power relays (sold in lots of 10)

| Coil Voltage | Number and type of contacts - Thermal current (lth) | | | |
|--------------|---|--------------|---|--------------|
| | 2 N/O - 30 A ▲ Res. | | 2 C/O - 30 A on N.O. / 3 A on N.C. ▲ Res. | |
| | Catalog Number | \$ Price ea. | Catalog Number | \$ Price ea. |
| 12 Vdc | RPF2AJD | 10.40 | RPF2BJD | 10.90 |
| 24 Vdc | RPF2ABD | 10.40 | RPF2BBD | 10.90 |
| 110 Vdc | RPF2AFD | 10.40 | RPF2BFD | 10.90 |
| 24 Vac | RPF2AB7 | 10.40 | RPF2BB7 | 10.90 |
| 120 Vac | RPF2AF7 | 10.40 | RPF2BF7 | 10.90 |
| 230 Vac | RPF2AP7 | 10.40 | RPF2BP7 | 10.90 |

- ▲ 30 A when mounted with 13 mm gap between two relays.
25 A when mounted side by side without a gap.



RPF2BJD

Approvals for Relays:



File CCN E43641
NLDX, NLDX7



File Class 040787
3211-07



IEC 61810-1

RoHS
Compliant

For mounting track, see page 24-16

Square D™ Plug-In 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.

- 12 A relays
- DPDT or 3PDT
- Manual operator/ green pilot light options
- Motor load (hp) ratings
- DPDT latching models available
- AC or DC operation
- RoHS Compliant

Table 23.35: Type KF—Flange Mounted—Spade Terminals


| | Input Voltage | Contact Arrangement | Options | Type | \$ Price |
|---|---------------|---------------------|----------------|--------|----------|
|  | AC 50/60 Hz | DPDT | None Available | KF12★ | 24.60 |
| | | 3PDT | | KF13★ | 26.70 |
| | | DPDT | None Available | KFD12★ | 24.60 |
| | | 3PDT | | KFD13★ | 26.70 |
| | DC | DPDT | None Available | KFD12★ | 24.60 |
| | | 3PDT | | KFD13★ | 26.70 |

Table 23.36: Type KL—Latching Relay—Spade Terminals


| | Input Voltage | Contact Arrangement | Options | Type | \$ Price |
|---|---------------|---------------------|----------------|--------|----------|
|  | AC 50/60 Hz | DPDT | None Available | KL12★ | 45.00 |
| | | DPDT | | KLD12★ | 45.00 |
| | DC | DPDT | None Available | KLD12★ | 45.00 |
| | | DPDT | | KLD12★ | 45.00 |

Table 23.37: Voltage Codes and Stocked Relays

| Type | AC Voltage 50/60 Hz | | | | | Type | DC Voltage | | | | | |
|---------------|---------------------|-----|-----|-----|-----|---------------|------------|-----|-----|-----|-----|-----|
| | 6 | 12 | 24 | 120 | 240 | | 6 | 12 | 24 | 48 | 110 | 125 |
| Voltage Codes | V35 | V36 | V14 | V20 | V24 | Voltage Codes | V50 | V51 | V53 | V56 | V60 | V63 |
| KP12 | S | S | S | S | S | KPD12 | S | S | S | S | S | S |
| KP12P14 | | S | S | S | S | KPD12P14 | | S | S | | S | S |
| KP13 | | S | S | S | S | KPD13 | | S | S | S | S | S |
| KP13P14 | | | S | S | S | KPD13P14 | | | S | | | |
| KU12 | | S | S | S | S | KUD12 | | S | | | | |
| KU12M1 | | | | | | KUD12M1 | | | S | | | |
| KU12P14 | | | S | S | | KUD12P14 | | | S | | | |
| KU12M1P14 | | | S | S | | KUD12M1P14 | | | S | | | |
| KU13 | | S | S | S | S | KUD13 | | S | S | | | S |
| KU13M1 | | | | | | KUD13M1 | | | | | | |
| KU13P14 | | | S | S | | KUD13P14 | | | | | | |
| KU13M1P14 | | | S | S | S | KUD13M1P14 | | | S | | | S |
| KF12 | | | S | S | S | KFD12 | | S | S | | | |
| KF13 | | | S | S | | KFD13 | | | S | | | |
| KL12 | | | S | S | | KLD12 | | S | S | | | |

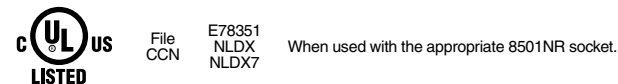
Note: S = Stocked.

Factory order items require a minimum order quantity of 25 and have a lead time of 12 weeks.

For 8501 KP, KU, and KF:



For 8501 KP, KU, and KL:



For 8501 KL:



Pilot Light Option—Available on Types KP and KU. Internal pilot lights are available in both AC and DC versions for positive indication of power to the coil. The pilot light is a green LED.

Manual Operator Option—Available on Type KU only. To facilitate speed circuit testing, a manual operator (test button) can be provided.

Coil VAC—3.0 VA

Coil VDC—1.4 Watts

Table 23.38: Type KP—Tubular Terminals


| | Input Voltage | Contact Arrangement | Options | Type | \$ Price |
|---|---------------|---------------------|-------------|-----------|----------|
|  | AC 50/60 Hz | DPDT | None | KP12★ | 39.00 |
| | | DPDT | Pilot Light | KP12P14★ | 45.00 |
| | | 3PDT | None | KP13★ | 47.30 |
| | | 3PDT | Pilot Light | KP13P14★ | 53.30 |
| | DC | DPDT | None | KPD12★ | 39.00 |
| | | DPDT | Pilot Light | KPD12P14★ | 45.00 |
| | | 3PDT | None | KPD13★ | 47.30 |
| | | 3PDT | Pilot Light | KPD13P14★ | 53.30 |

Table 23.39: Type KU—Spade Terminals


| | Input Voltage | Contact Arrangement | Options | Type | \$ Price |
|---|---------------|---------------------|---------------------------------|-------------|----------|
|  | AC 50/60 Hz | DPDT | None | KU12★ | 22.70 |
| | | DPDT | Manual Operator | KU12M1★ | 26.70 |
| | | DPDT | Pilot Light | KU12P14★ | 28.70 |
| | | DPDT | Manual Operator and Pilot Light | KU12M1P14★ | 30.80 |
| | | 3PDT | None | KU13★ | 24.60 |
| | | 3PDT | Manual Operator | KU13M1★ | 28.70 |
| | | 3PDT | Pilot Light | KU13P14★ | 30.80 |
| | | 3PDT | Manual Operator and Pilot Light | KU13M1P14★ | 35.00 |
| | DC | DPDT | None | KUD12★ | 22.70 |
| | | DPDT | Manual Operator | KUD12M1★ | 26.70 |
| | | DPDT | Pilot Light | KUD12P14★ | 28.70 |
| | | DPDT | Manual Operator and Pilot Light | KUD12M1P14★ | 30.80 |
| | | 3PDT | None | KUD13★ | 24.60 |
| | | 3PDT | Manual Operator | KUD13M1★ | 28.70 |
| | | 3PDT | Pilot Light | KUD13P14★ | 30.80 |
| | | 3PDT | Manual Operator and Pilot Light | KUD13M1P14★ | 35.00 |

Table 23.40: Contact Ratings (Contacts are Silver Tin Oxide)

| Type | AC | | | DC | |
|-----------|----------|-------------------------------------|-----|----------|-------------------|
| | AC Volts | Resistive 75% PF Continuous Amperes | Hp | DC Volts | Resistive Amperes |
| KP | 120 | 10 ♦ | 1/3 | 28 | 12 |
| | 240 | 6.5 ■ | 1/2 | | |
| KU KF★ | 120 | 12 | 1/3 | 28 | 12 |
| | 240 | 12 | 1/2 | | |
| KL | 120 | 10 | 1/3 | 28 | 10 |
| | 240 | 10 | 1/2 | | |

Note: All 8501 K relays have a B300 rating.

- ▲ Socket is not required with Type KF relays.
- 3 pole devices have a 20 A max. total (sum of currents in all 3 poles), continuous rating.
- ♦ 3 pole devices have a 30 A max. total (sum of currents in all 3 poles), continuous rating.
- ★ Voltage code must be specified to order this product. Refer to standard voltage codes listed in Table 23.37 and insert as shown in Table 23.41: How to Order.

Table 23.41: How to Order

| To Order Specify: | Catalog Number | | |
|--|----------------|------|--------------|
| • Class Number | Class | Type | Voltage Code |
| • Type Number | | | |
| • Voltage Code (See Stocked Relay Table above) | 8501 | KP12 | V20 |

For sockets and accessories, see page 23-14.

For track, see page 24-16.

Square D™ Alternating Plug-In Relays

8501KA alternating relay is designed to minimize pump and motor wear by equalizing run time between parallel components in a multi-pump system.

The relay is controlled by an external control switch. The switch may be any type of contact closure; for example the contacts of a timing relay or the closure of a float switch. The 8501KA relay also has a toggle switch that allows the operator to lock one side of the duplex system in the "on" position.

- 12 A Resistive Rating
- SPDT or DPDT
- Toggle switch for load control
- LED Load Indicators
- Horsepower Rated
- AC and DC Control
- UL Listed w/ Square D Socket
- Rohs Compliant

Table 23.42: Type KA — Alternating Relay


| | Input Voltage | Contact Arrangement | Options | Type | \$ Price |
|---|---------------|---------------------|----------------------------|---------------|----------|
|  | AC & DC | SPDT | LED + Toggle | 8501KA81*** | 93.00 |
| | AC & DC | DPDT | LED + Toggle + Cross Wired | 8501KA82*** | 95.00 |
| | AC & DC | DPDT (N.C.) | LED + Toggle | 8501KA112*** | 94.00 |
| | AC & DC | DPDT (N.O.) | LED + Toggle | 8501KA112A*** | 94.00 |

Table 23.43: Relay Availability

| Type | AC & DC Voltage | | | AC Voltage |
|---------------|-----------------|-----|-----|------------|
| | 12 | 24 | 120 | 240 |
| Voltage Code | V36 | V14 | V20 | V24 |
| 8501KA81*** | | | S | |
| 8501KA82*** | | | S | |
| 8501KA112*** | | | S | |
| 8501KA112A*** | | | S | |

Notes:

- AC Voltage is 50/60 Hz
- S = Stocked. "S" items have a 2 week lead time and minimum order requirement.
- All other part numbers are considered factory order (FO) and require a minimum order quantity of 25 and have a lead-time of 18 weeks

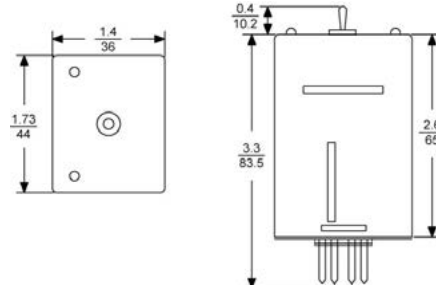
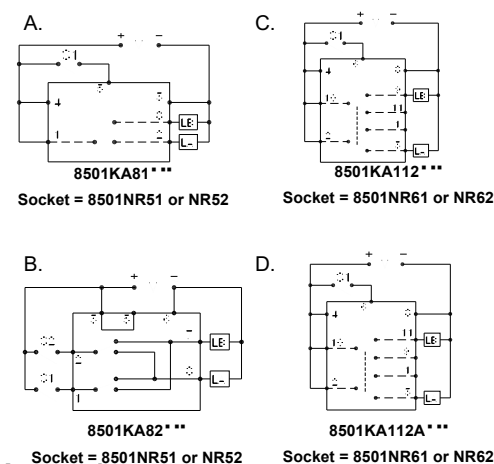
Table 23.44: Contact Ratings

| Type | AC | | | | DC | |
|-------------|----------|-------------------|-----|------------|----------|-------------------|
| | AC Volts | Resistive Amperes | HP | Pilot Duty | DC Volts | Resistive Amperes |
| 8501KA81*** | 120 | 12 | 1/3 | — | 30 | 12 |
| | 240 | 12 | 1/2 | B300 | | |

Table 23.45: Alternating Functions

| Diagram | Toggle Switch Position | Detail | S1 = Control Switch 1 | S2 = Control Switch 2 | LA = Load 1 | LB = Load 2 |
|----------|---|--|-----------------------|-----------------------|-------------|-------------|
| A, C & D | Alternate | Closing S1 alternates the loads between LA and LB. | | | | |
| | Lock 1 | LA is ON and LB is OFF. S1 is not used in this mode. | | | | |
| | Lock 2 | LA is OFF and LB is ON. S1 is not used in this mode. | | | | |
| B | Alternate | Closing S1 alternates the loads between LA and dLB. S2 will only control LA. | | | | |
| | Lock 1 | S1 will control LA and S2 will control LB | | | | |
| | Lock 2 | S1 will control LB and S2 will control LA. | | | | |
| | The cross wired option allows extra system load capacity through simultaneous operation of both motors when needed (LA and LB energize simultaneously when both S1 and S2 are closed—relay contacts are not isolated) | | | | | |
| ALL | Input voltage must applied at all times for proper alternation. Use of a solid state control switch for S1 or S2 may not initiate alternation correctly. S1 or S2 voltage must be from the same supply as the unit's input voltage (see wiring diagrams). Loss of input voltage resets the unit; LA becomes the lead load for the next operation. | | | | | |

Wiring Diagrams and Dimensions



Approvals



File Class E78351 NLDX



File Class E78351 NLDX2



File Class 242675 3211-07



IEC 61810-1

**Square D™ Miniature Plug-in Relays**

8501R miniature plug-in relays have a 10 A resistive rating, the same as the Type K plug-in relays, but are much smaller. 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
- Manual operator/ green LED pilot light options
- Silver tin oxide contacts

Table 23.46: Contact Ratings
(Contact material is Silver Tin Oxide)

| Type | Voltage | Resistive Rating | Voltage | General Use Rating | Horsepower Rating |
|------------|---------|------------------|---------|--------------------|-------------------|
| 8501RS41 ▲ | 120 Vac | 15 | 120 Vac | 10 | 1/3 @ 120 Vac |
| | 240 Vac | 12 | 240 Vac | 10 | 1/3 @ 240 Vac |
| 8501RSD41▲ | 28 Vdc | 15 | 28 Vdc | 15 | — |
| 8501RS42▲ | 120 Vac | 10 | 120 Vac | 10 | 1/3 @ 120 Vac |
| | 240 Vac | 10 | 240 Vac | 10 | 1/2 @ 240 Vac |
| 8501RSD42▲ | 30 Vdc | 10 | 28 Vdc | 10 | — |
| 8501RS43▲ | 120 Vac | 10 | 150 Vac | 10 | — |
| | 277 Vac | 10 | 250 Vac | 6.6 | — |
| 8501RSD43▲ | 28 Vdc | 10 | 28 Vdc | 10 | — |
| 8501RS44▲ | 120 Vac | 10 | 150 Vac | 7.5 | — |
| | 277 Vac | 10 | 250 Vac | 5 | — |
| 8501RSD44▲ | 28 Vdc | 10 | 28 Vdc | 10 | — |

▲ Relays have a B300 rating with UL.

Table 23.47: Voltage Codes and Stocked Relays

| Type | AC Voltage 50/60 Hz | | | | | Type | DC Voltage | | | | |
|--------------|---------------------|-----|-----|-----|-----|--------------|------------|-----|-----|-----|--|
| | 6 | 12 | 24 | 120 | 240 | | 6 | 12 | 24 | 110 | |
| Voltage Code | V35 | V36 | V14 | V20 | V24 | Voltage Code | V50 | V51 | V53 | V60 | |
| RS41 | | | S | S | | RSD41 | | S | S | | |
| RS41M1 | | | | | | RSD41M1 | | | | | |
| RS41P14 | | | S | S | | RSD41P14 | | | S | | |
| RS41M1P14 | | | S | S | | RSD41M1P14 | | | S | | |
| RS42 | | S | S | S | S | RSD42 | | S | S | | |
| RS42M1 | | | | | | RSD42M1 | | | | | |
| RS42P14 | | | S | S | | RSD42P14 | | S | S | | |
| RS42M1P14 | | | | S | | RSD42M1P14 | | | S | | |
| RS43 | | | S | S | | RSD43 | | | S | | |
| RS43M1 | | | | | | RSD43M1 | | | | | |
| RS43P14 | | | | S | | RSD43P14 | | | | | |
| RS43M1P14 | | | | S | | RSD43M1P14 | | | | | |
| RS44 | | | S | S | S | RSD44 | | S | S | | |
| RS44M1 | | | | | | RSD44M1 | | | | | |
| RS44P14 | | | | S | | RSD44P14 | | | S | | |
| RS44M1P14 | | | | S | | RSD44M1P14 | | | | | |

Note: S = Stocked.

Factory order items require a **minimum** order quantity of 25 and have a lead time of 12 weeks.**Table 23.52: Application Data**

| Class 8501 Type | | RS41 | RSD41 | RS42 | RSD42 | RS43 | RSD43 | RS44 | RSD44 |
|-----------------|-----------------------|---|---------------------|--------|---------------|---------|-----------|---------------|-----------|
| Operating Data | Pick-Up Time | 20 ms Maximum | | | 25 ms Maximum | | | 20 ms Maximum | |
| | Drop-Out Time | 20 ms Maximum | | | | | | | |
| | Operating Temperature | -40°C to +70°C (-40°F to +158°F) | | | | | | | |
| Coil | Duty Cycle | Continuous | | | | | | | |
| | Voltage Range | AC coils +10%, -15% of nominal DC coils +10%, -20% of nominal | | | | | | | |
| | AC Coils–Inrush | 9 VA | — | 6.2 VA | — | 10.3 VA | — | 11.9 VA | — |
| | AC Coils–Sealed | 1.5 VA | — | 1.2 VA | — | 1.7 VA | — | 2.1 VA | — |
| | DC Coils | — | 0.9 watts | — | 0.9 watts | — | 1.4 watts | — | 1.5 watts |
| | UR | File CCN | E78351 NLDX2, NLDX8 | | | | | | |
| CSA | File Class | 211268 3218 07 | | | | | | | |
| CE marked | | yes | | | | | | | |
| RoHS Compliant | | yes | | | | | | | |
| UL Listed | File CCN | E78351 ♦ NLDX, NLDX7 | | | | | | | |

♦ When used with the appropriate 8501NR socket.

For sockets and accessories, see page 23-14.
For track, see page 24-16.**Table 23.48: SPDT with Silver Tin Oxide Contacts**


| | Input Voltage | Options | Type | \$ Price |
|---|---------------|---------------------------------|-------------|----------|
|  | AC 50/60 Hz | None | RS41■ | 29.60 |
| | | Manual Operator | RS41M1■ | 31.70 |
| | | Pilot Light | RS41P14■ | 37.20 |
| | | Manual Operator and Pilot Light | RS41M1P14■ | 39.30 |
| | DC | None | RSD41■ | 29.60 |
| | | Manual Operator | RSD41M1■ | 31.70 |
| | | Pilot Light | RSD41P14■ | 37.20 |
| | | Manual Operator and Pilot Light | RSD41M1P14■ | 29.60 |

Table 23.49: DPDT with Silver Tin Oxide Contacts


| | Input Voltage | Options | Type | \$ Price |
|---|---------------|---------------------------------|-------------|----------|
|  | AC 50/60 Hz | None | RS42■ | 35.00 |
| | | Manual Operator | RS42M1■ | 37.10 |
| | | Pilot Light | RS42P14■ | 43.10 |
| | | Manual Operator and Pilot Light | RS42M1P14■ | 45.20 |
| | DC | None | RSD42■ | 35.00 |
| | | Manual Operator | RSD42M1■ | 37.10 |
| | | Pilot Light | RSD42P14■ | 43.10 |
| | | Manual Operator and Pilot Light | RSD42M1P14■ | 45.20 |

Table 23.50: 3PDT with Silver Tin Oxide Contacts



| | Input Voltage | Options | Type | \$ Price |
|--|---------------|---------------------------------|-------------|----------|
|  | AC 50/60 Hz | None | RS43■ | 39.30 |
| | | Manual Operator | RS43M1■ | 41.40 |
| | | Pilot Light | RS43P14■ | 47.60 |
| | | Manual Operator and Pilot Light | RS43M1P14■ | 49.90 |
| | DC | None | RSD43■ | 39.30 |
| | | Manual Operator | RSD43M1■ | 41.40 |
| | | Pilot Light | RSD43P14■ | 47.60 |
| | | Manual Operator and Pilot Light | RSD43M1P14■ | 49.90 |

Table 23.51: 4PDT with Silver Tin Oxide Contacts

| | Input Voltage | Options | Type | \$ Price |
|---|---------------|---------------------------------|-------------|----------|
|  | AC 50/60 Hz | None | RS44■ | 44.30 |
| | | Manual Operator | RS44M1■ | 46.20 |
| | | Pilot Light | RS44P14■ | 52.30 |
| | | Manual Operator and Pilot Light | RS44M1P14■ | 54.50 |
| | DC | None | RSD44■ | 44.30 |
| | | Manual Operator | RSD44M1■ | 46.20 |
| | | Pilot Light | RSD44P14■ | 52.30 |
| | | Manual Operator and Pilot Light | RSD44M1P14■ | 54.50 |

■ Voltage code must be specified to order this product. Refer to standard voltage codes listed in Table 23.47 and insert as shown in Table 23.53: How to Order.

Table 23.53: How to Order

| To Order Specify: | Catalog Number | | |
|----------------------------------|----------------|------|--------------|
| • Class Number | Class | Type | Voltage Code |
| • Type Number | | | |
| • Voltage Code (see Table 23.47) | | | |
| | 8501 | RS42 | V20 |

Square D™ Miniature Plug-in 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. Fine silver (gold flashed) and bifurcated crossbar (gold overlay silver) are suitable for high contact reliability and low level switching requirements. Silver tin oxide is best suited for inductive loads. Class I Division II sealed relays can be used in specified hazardous locations.

- 1, 3, or 5 A versions
- 4PDT
- Complete socket line
- Horsepower rated
- AC or DC operation
- Manual operator/pilot light options

Table 23.54: 5 A Version

| 5 A | Input Voltage | Options | Type | \$ Price |
|-------------------------------|---------------|---------------------------------|-------------|----------|
| For switching inductive loads | AC 50/60 Hz | None | RS14▲ | 32.70 |
| | | Manual Operator | RS14M1▲ | 35.00 |
| | | Pilot Light | RS14P14▲ | 40.90 |
| | | Manual Operator and Pilot Light | RS14M1P14▲ | 43.10 |
| Contacts: Silver Tin Oxide | DC | None | RSD14▲ | 27.70 |
| | | Manual Operator | RSD14M1▲ | 30.80 |
| | | Pilot Light | RSD14P14▲ | 36.80 |
| | | Manual Operator and Pilot Light | RSD14M1P14▲ | 39.00 |

Table 23.55: 3 A Version

| 3 A | Input Voltage | Options | Type | \$ Price |
|--------------------------------------|---------------|---------------------------------|------------|----------|
| For low level switching | AC 50/60 Hz | None | RS4▲ | 32.70 |
| | | Manual Operator | RS4M1▲ | 35.00 |
| | | Pilot Light | RS4P14▲ | 40.90 |
| | | Manual Operator and Pilot Light | RS4M1P14▲ | 43.10 |
| Contacts: Fine Silver (Gold Flashed) | DC | None | RSD4▲ | 28.70 |
| | | Manual Operator | RSD4M1▲ | 30.80 |
| | | Pilot Light | RSD4P14▲ | 36.80 |
| | | Manual Operator and Pilot Light | RSD4M1P14▲ | 39.00 |

Table 23.56: 1 A Version

| 1 A | Input Voltage | Type | \$ Price |
|---|---------------|--------|----------|
| Best for Low Level Switching Bifurcated Silver Gold-Plated Contacts | AC 50/60 Hz | RS24▲ | 53.00 |
| | DC | RSD24▲ | 53.00 |

Table 23.57: 5 A Version, Class I Division II

| 5 A, Hermetically Sealed | Input Voltage | Type | \$ Price |
|--|---------------|--------|----------|
| 5 Ampere Resistive Silver Tin Oxide Contacts Suitable for Class I Division 2 Locations | AC 50/60 Hz | RS34▲ | 53.00 |
| | DC | RSD34▲ | 53.00 |

- ▲ Voltage code must be specified to order this product. Refer to standard voltage codes shown in Table 23.59.
- Do not ground the frame.

Table 23.61: Application Data

| Class 8501 Type | | RS4 | RSD4 | RS14 | RSD14 | RS24 | RSD24 | RS34 | RSD34 |
|-----------------|-----------------------------|---|----------|------------------|----------|--------|----------|----------------------------------|----------|
| Operating Data | Pick-Up Time | 20 ms Maximum | | | | | | 13 ms Max. | |
| | Drop-Out Time | 20 ms Maximum | | | | | | 6 ms Max. | |
| | Operating Temperature Range | -40°C to +70°C (-40°F to +158°F) | | | | | | -40°C to +70°C (-40°F to +158°F) | |
| Coil | Duty Cycle | Continuous | | | | | | | |
| | Voltage Range | AC coils +10%, -15% of nominal and DC coils +10%, -20% of nominal | | | | | | | |
| | AC Coils—Sealed | 1.2 VA | — | 1.2 VA | — | 1.2 VA | — | 1.2 VA | — |
| | AC Coils—Inrush | 6.2 VA | — | 6.2 VA | — | 6.2 VA | — | 6.0 VA | — |
| | DC Coils | — | 0.9 watt | — | 0.9 watt | — | 0.9 watt | — | 0.9 watt |
| Approvals | UR | File: E197072 CCN: NRNT2 | | | | | | N/A | |
| | C UR US | File: E197072 CCN: NRNT8 (Approved but not marked) | | | | | | File: E196809 CCN: NQMJ2, NQMJ8 | |
| | CSA | File: 211268 Class: 3218 07 | | | | | | File: 211268 Class: 3218 06 | |
| | CE marked | Yes | | | | | | | |
| | RoHS Compliant | Yes | | | | | | | |
| | UL Listed | File E78351 | | CCN NLDX, NLDX7★ | | | | | |

★ When used with the appropriate 8501 NR Socket.

For sockets and accessories, see page 23-14.

Pilot Light Option

An internal green **pilot light** is available in both AC and DC versions for positive indication of power to the coil.

Manual Operation Option

To speed circuit testing, a manual operator (test button) can be provided. The relay can be manually switched to simulate normal operation.

NOTE: All Type R relays with a manual operator must be used on circuits of the same polarity.

Table 23.58: Contact Ratings
(Contact material is Silver Tin Oxide)

| Type | Voltage | Continuous Current Rating | Horsepower Rating |
|------------------|-----------------------|---------------------------|---------------------|
| RS4 ♦ RSD4♦ | 120/240 Vac 30 Vdc | 3 | 1/10 — |
| RS14 ♦ RSD14♦ | 120/240 Vac 28 Vdc | 5 | 1/6 — |
| RS24 RSD24 | 120/240 Vac 30 Vdc | 1 | 1/16 (2.8 FLA) — |
| RS34 RSD34 | 120/240 Vac 30 Vdc | 5 | — — |

♦ RS4/RSD4, RS14/RSD14 have NEMA C300 pilot duty rating.

Table 23.59: AC Voltage Codes and Stocked Relays

| Type | AC Voltage 50/60 Hz | | | | | |
|--------------|---------------------|-----|-----|-----|-----|-----|
| | 6 | 12 | 24 | 48 | 120 | 240 |
| Voltage Code | V35 | V36 | V14 | V17 | V20 | V24 |
| RS4 | | | S | | S | |
| RS4M1 | | | | | S | |
| RS4P14 | | | | | S | |
| RS4M1P14 | | | | | S | |
| RS14 | | S | S | | S | |
| RS14M1 | | | | | S | |
| RS14P14 | | | | | S | |
| RS14M1P14 | | | | | S | S |
| RS24 | | | | | S | |
| RS34 | | | | | S | |

Table 23.60: DC Voltage Codes and Stocked Relays

| Type | DC Voltage | | | | |
|--------------|------------|-----|-----|-----|-----|
| | 6 | 12 | 24 | 48 | 110 |
| Voltage Code | V50 | V51 | V53 | V56 | V60 |
| RSD4 | | S | S | | |
| RSD4M1 | | | | | |
| RSD4P14 | | | S | | |
| RSD4M1P14 | | | S | | |
| RSD14 | | S | S | | S |
| RSD14M1 | | | S | | |
| RSD14P14 | | S | S | | S |
| RSD14M1P14 | | S | S | | |
| RSD24 | | | S | | |
| RSD34 | | S | S | | |

Note: S = Stocked.

Factory Order items require a **minimum** order quantity of 25 and have a lead time of 12 weeks.

Square D™ Sockets

8501NR sockets are designed for use with plug-in Class 8501 Type K, KA, and R relays, and 9050JCK timers. The 8501NR45 screw terminal sockets have pressure wire clamps that accept 1 or 2 #16–22 wires. All other sockets have pressure clamps that will accept 1 or 2 #12–22 wires.

The recommended tightening torque for all terminals is 7-8 lb-in.

- All devices stocked in central warehouse
- DIN track mount or direct panel mount
- Tubular sockets available in easy-to-wire single tier or double tier versions
- RoHS compliant



8501NR51



8501NR61



8501NR52



8501NR62



8501NR82



8501NR45



8501NR41



8501NR42

Table 23.62: Snapmount Sockets

| For Use With Class: | | Description | Socket Rating | | Type | \$ Price ea. | Std. Qty.▲ |
|--|--|---|----------------------------|-------------|-----------------|----------------|------------|
| | | | UL | CSA | | | |
| 8501 Type KP12 KPD12 KA81 KA82 | 9050 Type JCK11–19 JCK31–39 JCK51–59 JCK60 JCK1 F JCK3 F JCK5 F | 8 Pin Tubular Single Tier Screw Terminal | 600 V, 10 A 300 V, 15 A | 300 V, 10 A | NR51 NR51B | 12.30 10.20 | 1 10 |
| | | 8 Pin Tubular Double Tier Screw Terminal | 600 V, 5 A 300 V, 16 A | 300 V, 10 A | NR52■ NR52B■ | 12.30 10.20 | 1 10 |
| | | 11 Pin Tubular Single Tier Screw Terminal | 600 V, 5 A 300 V, 15 A | 300 V, 10 A | NR61 NR61B | 18.50 16.50 | 1 10 |
| | | 11 Pin Tubular Double Tier Screw Terminal | 600 V, 5 A 300 V, 16 A | 300 V, 10 A | NR62■ NR62B■ | 18.50 16.50 | 1 10 |
| KL KU | — | 11 Pin Spade Double Tier Screw Terminal | 300 V, 15 A | 300 V, 15 A | NR82 NR82B | 20.60 18.50 | 1 10 |
| | | 5 Pin Spade Double Tier Screw Terminal | 300 V, 15 A | 300 V, 15 A | NR41■ NR41B■ | 28.70 26.70 | 1 10 |
| RS41 RSD41 | — | 8 Pin Spade Double Tier Screw Terminal | 300 V, 10 A | 300 V, 10 A | NR42 NR42B | 28.70 26.70 | 1 10 |
| RS43 RSD43 | — | 11 Pin Spade Double Tier Screw Terminal | 300 V, 10 A | 300 V, 10 A | NR43 NR43B | 26.70 26.70 | 1 10 |
| RS44 RSD44 | — | 14 Pin Spade Double Tier Screw Terminal | 300 V, 10 A | 300 V, 10 A | NR34 NR34B | 28.70 26.70 | 1 10 |
| RS4 RSD4 RS14 RSD14 RS24 RSD24 RS34 RSD34 | — | 14 Pin Spade Double Tier Screw Terminal | 300 V, 10 A | 300 V, 10 A | NR45 NR45B | 28.70 26.70 | 1 10 |

▲ Must be ordered in multiples of the quantity listed. Units provided in standard quantity of one are individually packaged; devices with B suffix have a standard quantity of 10 per bulk pack.

■ Finger Safe

For DIN 3 mounting track and end clamps, see page 24-16, or refer to:

- NEMA Style terminal block section of catalog 9080CT9601
- IEC Style terminal block section of catalog 9080CT9901

Table 23.63: Socket Accessories

| Socket | For Use With | Description | Type | \$ Price ea. | Std. Pack ♦ |
|----------|--|------------------|----------------------------------|--------------|-------------|
| 8501NR51 | 8501KP12, KPD12 | Hold Down Clip | NH51 | 1.00 | 10 |
| | 9050JCK | Hold Down Spring | NH7 | 8.30 | 1 |
| 8501NR52 | 8501KP12, KPD12 | Hold Down Clip | NH52 | 1.00 | 10 |
| | 9050JCK | Hold Down Spring | NH7 | 8.30 | 1 |
| 8501NR61 | 8501KP13, KPD13 | Hold Down Clip | NH61 | 1.00 | 10 |
| | 9050JCK | Hold Down Spring | NH7 | 8.30 | 1 |
| 8501NR62 | 8501KP13, KPD13 | Hold Down Clip | NH52 | 1.00 | 10 |
| | 9050JCK | Hold Down Spring | NH7 | 8.30 | 1 |
| 8501NR82 | 8501KU and KL | Hold Down Clip | NH82 | 1.00 | 10 |
| 8501NR41 | 8501RS41, RSD41 | Hold Down Clip | Supplied with socket as standard | — | — |
| 8501NR42 | 8501RS42, RSD42 | Hold Down Clip | 8501NH42 | 1.00 | 10 |
| 8501NR43 | 8501RS43, RSD43 | Hold Down Clip | 8501NH42 | 1.00 | 10 |
| 8501NR34 | 8501RS44, RSD44 | Hold Down Clip | 8501NH42 | 1.00 | 10 |
| 8501NR45 | 8501RS4, RSD4 8501RS14, RSD14 8501RS24, RSD24 8501RS34, RSD34 | Hold Down Clip | 8501NH45 | 1.00 | 10 |

♦ Must be ordered in multiples of the quantity listed.



8501NH7



8501NR34



8501NR43

How to Order

| To Order Specify: | Catalog Number | |
|-------------------|----------------|-------|
| • Class Number | Class | Type |
| • Type Number | 8501 | NR51B |

Approvals:



File
CCN E66924
SW1V2



File
Class 211268
3211 07



RoHS
Compliant as of date
code 0639



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 23.64: Selection Table and Application Data

| Selection Table | | | | | | | Application Data | | | | | | | |
|---------------------|--------------------------|------|----------------------------|----------|----------------------------|----------|-------------------------|--|-------|---------------------------------|-------|-------|--------------------------------|---------|
| Contact Arrangement | Number of Fixed Contacts | | AC Operated Coil Open Type | | DC Operated Coil Open Type | | Maximum Contact Voltage | Resistive Ampere Rating 75% Power Factor | | Maximum Single Phase Horsepower | | | Maximum Coil Power Consumption | |
| | N.O. | N.C. | Type | \$ Price | Type | \$ Price | | 277 Vac | 600 V | 120 V | 230 V | 600 V | AC Coil | DC Coil |
| AC Rated Contacts | | | | | | | | | | | | | | |
| SPST | 1 | 0 | CO6▲ | 32.70 | CDO6▲ | 32.70 | 600 | 40 | 10 | 2 | 2 | 2 | 10 VA | 4 W |
| DPST | 2 | 0 | CO7▲ | 51.30 | CDO7▲ | 51.30 | 600 | 40 | 5 | 1.5 | 1.5 | 1.5 | 10 VA | 4 W |
| SPST | 0 | 1 | CO8▲ | 32.70 | CDO8▲ | 32.70 | 600 | 40 | 10 | 2 | 2 | 2 | 10 VA | 4 W |
| SPDT | 1 | 1 | CO15▲ | 57.30 | CDO15▲ | 57.30 | 600 | 40 | 5 | 1.5 | 1.5 | 1.5 | 10 VA | 4 W |
| DPDT | 2 | 2 | CO16▲ | 69.60 | CDO16▲ | 69.60 | 600 | 40 | 5 | 1.5 | 1.5 | 1.5 | 10 VA | 4 W |
| DC Rated Contacts | | | | | | | | 110 V | 220 V | | | | | |
| SPST | 1 | 0 | CO21▲ | 71.70 | CDO21▲ | 71.70 | 500 | 20 | 8 | N.A. | | | 10 VA | 4 W |
| DPDT | 2 | 2 | CO22▲ | 84.00 | CDO22▲ | 84.00 | 325 | 10 | 4 | | | | 10 VA | 4 W |

▲ Voltage codes must be specified to order this product. Refer to standard voltage codes listed in Table 23.66 and insert as shown in Table 23.68: How to Order.

Table 23.65: Operating Data

| | |
|--------------------------------------|--|
| Operating Voltages/ Voltage Range | AC coils – 6 through 480 volts, + 10/-15% of nominal at 25 °C DC coils – 6 through 110 volts, + 10/-20% of nominal at 25 °C |
| Coil Duty | Continuous duty rated coils. (Non-replaceable) |
| Operating Temp. Range | AC: -67 °F to +131 °F (-55 °C to +55 °C) DC: -67 °F to +131 °F (-55 °C to +55 °C) |
| Storage Temp. Range | -67 °F to +212 °F (-55 °C to +100 °C) |

Approvals:



File E78351
CCN NLDX



File 218139
Class 3211 04



IEC 60947-4-1

Table 23.66: Voltage Codes and Stocked Relays

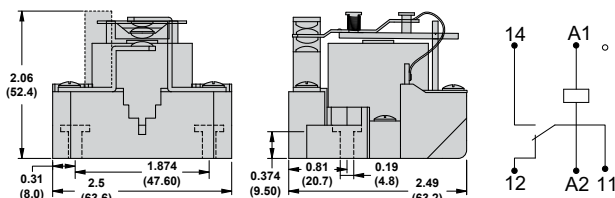
| Class 8501 Type | AC Voltage—50/60 Hz | | | | | | | | Class 8501 Type | DC Voltage | | | |
|-----------------|---------------------|-----|-----|-----|-----|-----|-----|-----|-----------------|------------|-----|-----|-----|
| | 6 | 12 | 24 | 120 | 208 | 240 | 277 | 480 | | 6 | 12 | 24 | 110 |
| Voltage Code | V35 | V36 | V14 | V20 | V08 | V24 | V04 | V29 | Voltage Code | V50 | V51 | V53 | V60 |
| CO6 | | S | S | S | S | S | S | S | CDO6 | | S | S | |
| CO7 | | S | S | S | S | S | S | S | CDO7 | | S | S | |
| CO8 | | | S | S | | S | S | S | CDO8 | | | | |
| CO15 | | | S | S | S | S | S | S | CDO15 | | | S | |
| CO16 | | S | S | S | S | S | S | S | CDO16 | | S | S | S |
| CO21 | | | | S | | | | | CDO21 | | | S | S |
| CO22 | | | | S | | | | | CDO22 | | | S | S |

Note: S = Stocked.

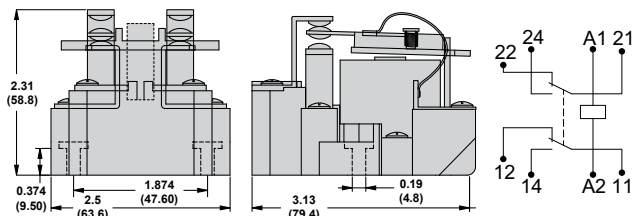
Factory order items require a **minimum** order quantity of 25 and have a lead time of 12 weeks.

Approximate Dimensions and Wiring Diagrams

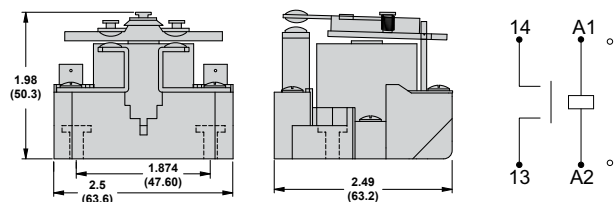
8501CO15, 8501CDO15 (SPDT)



8501CO16, 8501CDO16, 8501CO22, 8501CDO22 (DPDT)



8501CO6, 8501CDO6, 8501CO8, 8501CDO8, 8501CO21, 8501CDO21 (SPST)



8501CO7, 8501CDO7 (DPST)

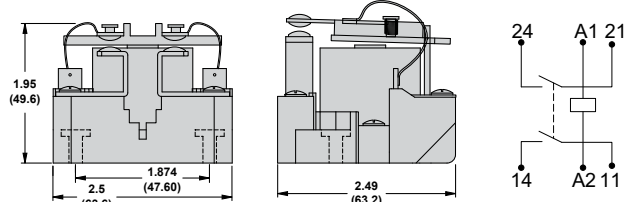


Table 23.67: Class 9991 Enclosure

| Type | Description | \$ Price |
|------|------------------------------|----------|
| UE1 | NEMA 1 sheet steel enclosure | 29.60 |

Table 23.68: How to Order

| To Order Specify: | | | Catalog Number | | |
|-------------------|-------------|--------------|----------------|------|--------------|
| Class Number | Type Number | Voltage Code | Class | Type | Voltage Code |
| 8501 | CO6 | V20 | 8501 | CO6 | V20 |

TeSys™ D IEC Style Relays

These 600 volt relays are approved for use around the world. TeSys D relays are usually mounted on 35 mm DIN 3 track, but can also be mounted directly to a panel. The fixed contacts in these relays have a 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 of this relay are available for use with low level DC 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 volt control circuits. Special auxiliary contacts are available for switching low power down to 5 volts at 10 mA. Timer and mechanical latch attachments are available.



CAD32



CAD503



CAD323

Table 23.69: Instantaneous Control Relays

| Terminal Type | Number of Contacts | Contact Composition | | Catalog Number | \$ Price | |
|-----------------|--------------------|---------------------|-----------------|----------------|----------|----------------------------|
| | | Normally Open | Normally Closed | | AC Coil | DC or Low Consumption Coil |
| Screw Clamp | 5 | 5 | 0 | CAD50▲ | 62.00 | 110.00 |
| | | 3 | 2 | CAD32▲ | 62.00 | 110.00 |
| Spring Terminal | 5 | 5 | 0 | CAD503▲ | 62.00 | 110.00 |
| | | 3 | 2 | CAD323▲ | 62.00 | 110.00 |
| Ring Tongue | 5 | 5 | 0 | CAD506▲ | 62.00 | 110.00 |
| | | 3 | 2 | CAD326▲ | 62.00 | 110.00 |

▲ Add the proper voltage code from Table 23.72 to the end of catalog number (for example, CAD50B7).

Table 23.70: 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 | \$ Price |
|--------------------|---|----------------------------|------------------|---------------------|-----------------|----------------|----------|
| | Front | Left Side Only | | Normally Open | Normally Closed | | |
| 2 | 1 | — | Screw Clamp | 2 | 0 | LADN20 | 20.70 |
| | | | | 1 | 1 | LADN11 | 20.70 |
| | | | | 0 | 2 | LADN02 | 20.70 |
| | | | Spring Terminal | 2 | 0 | LADN203 | 20.70 |
| | | | | 1 | 1 | LADN113 | 20.70 |
| | | | | 0 | 2 | LADN023 | 20.70 |
| | — | 1 Not for DC devices | Screw Clamp | 2 | 0 | LAD8N20 | 20.70 |
| | | | | 1 | 1 | LAD8N11 | 20.70 |
| | | | | 0 | 2 | LAD8N02 | 20.70 |
| | | | | 0 | 2 | LAD8N02 | 20.70 |
| 4 ■ | 1 | — | Screw Clamp | 4 | 0 | LADN40 | 41.50 |
| | | | | 3 | 1 | LADN31 | 41.50 |
| | | | | 2 | 2 | LADN22 | 41.50 |
| | | | | 1 | 3 | LADN13 | 41.50 |
| | | | | 0 | 4 | LADN04 | 41.50 |
| | | | Spring Terminal | 4 | 0 | LADN403 | 41.50 |
| | | | | 3 | 1 | LADN313 | 41.50 |
| | | | | 2 | 2 | LADN223 | 41.50 |
| | | | | 1 | 3 | LADN133 | 41.50 |
| | | | | 0 | 4 | LADN043 | 41.50 |
| 4 ■ | 1 | — | Screw Clamp | 2 ♦ | 2 ♦ | LADC22 | 41.50 |
| | | | Spring Terminal | 2 ♦ | 2 ♦ | LADC223 | 41.50 |

■ Auxiliary contact blocks with four contacts cannot be used on relays with low consumption coils.

♦ Includes 1 N.O. and 1 N.C. overlapping contact.

Table 23.71: Instantaneous Auxiliary Contacts with Dust and Damp Protected Contacts
(for use in particularly harsh industrial environments)

| Number of Contacts | Maximum Number per Device | Contact Composition | | | | | Catalog Number | \$ Price |
|--------------------|---------------------------|---------------------|---|--------|--------|--------|----------------|----------|
| | | Sealed | ★ | Normal | Normal | Normal | | |
| 2 | 1 | 2 | — | — | — | — | LA1DX20 | 65.00 |
| | | — | — | — | — | — | LA1DX02 | 65.00 |
| | | 2 | 2 | — | — | — | LA1DY20 | 77.00 |
| 4 ▼ | 1 | 2 | — | — | 2 | — | LA1DZ40 | 82.00 |
| | | 2 | — | — | 1 | 1 | LA1DZ31 | 82.00 |

★ Grounding terminal points (2 terminals jumpered together; see diagram on page 8 of Catalog 8501CT0101).

▼ Auxiliary contact blocks with four contacts cannot be used on relays with low consumption coils.

Table 23.72: Coil Voltage Codes △

| AC 50/60 Hz Coil (for additional voltage code options see page 7 of Catalog 8501CT0101). | | | | | | | | | | | |
|--|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| Volts | 12 | 24 | 48 | 120 | 208 | 240 | 277 | 480 | 600 | | |
| Code | J7 | B7 | E7 | G7 | LE7 | U7 | W7 | T7 | X7 | | |
| DC Coil (coils have built in suppression as standard) | | | | | | | | | | | |
| Volts | 12 | 24 | 36 | 48 | 60 | 72 | 110 | 125 | 220 | 250 | 440 |
| Code | JD | BD | CD | ED | ND | SD | FD | GD | MD | UD | RD |
| DC Low Consumption Coil (coils have built in suppression as standard) | | | | | | | | | | | |
| Volts | 5 | 12 | 24 | 48 | 72 | | | | | | |
| Code | AL | JL | BL | EL | SL | | | | | | |

△ Add the proper voltage code to the end of catalog number.

For replacement AC coils, see page 18-16. DC coils are not replaceable.

Approvals:



File E164353
CCN NKCR



File LR43364
Class 3211 03



TeSys™ D IEC Style

Table 23.73: Time Delay Auxiliary Contact Blocks

| Number and Type of Contacts | Maximum Number per Device Front Mounting | Time Delay Type | Termination Type | Range | Catalog Number | \$ Price |
|--|---|-----------------|------------------|-----------|----------------|----------|
| 1 N.C. and 1 N.O. | 1 | On-Delay | Screw Clamp | 0.1–3 s ▲ | LADT0 | 131.00 |
| | | | | 0.1–30 s | LADT2 | 131.00 |
| | | | | 10–180 s | LADT4 | 131.00 |
| | | | | 1–30 s ■ | LADS2 | 131.00 |
| | | Off-Delay | Spring Terminal | 0.1–3 s ▲ | LADT03 | 131.00 |
| | | | | 0.1–30 s | LADT23 | 131.00 |
| | | | | 10–180 s | LADT43 | 131.00 |
| | | | | 1–30 s ■ | LADS23 | 131.00 |
| Off-Delay | Screw Clamp | 0.1–3 s ▲ | LADR0 | 131.00 | | |
| | | 0.1–30 s | LADR2 | 131.00 | | |
| | | 10–180 s | LADR4 | 131.00 | | |
| | | Off-Delay | Spring Terminal | 0.1–3 s ▲ | LADR03 | 131.00 |
| 0.1–30 s | LADR23 | | | 131.00 | | |
| (Lockout Cover, See page 7 of Catalog 8501CT0101.) | | | 10–180 s | LADR43 | 131.00 | |

(Lockout Cover, See page 7 of Catalog 8501CT0101.)

▲ With extended scale from 0.1 to 0.6 s.

■ With switching time of 40 ms ± 15 ms between opening of the N.C. contact and closing of the N.O. contact.

Table 23.74: Mechanical Latch Blocks ♦

| Unlatching Control | Maximum Number per Device | Catalog Number | \$ Price |
|----------------------|---------------------------|----------------|----------|
| | Front mounting | | |
| Manual or electrical | 1 | LA6DK10 ▼★ | 77.00 |
| | | LAD6K10 ▼ | 77.00 |

♦ 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 ≤ 100 ms.

★ Repair part for the preceding version (non-TeSys) of this product. Not for use on CAD devices.

▼ Complete the catalog number by adding coil voltage code from Table 23.76. (for example, LA6DK10B)

Table 23.75: 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 | \$ Price |
|------------------|---------------------|----------------|----------|
| CAD (Vac) | 24 to 48 Vac | LAD4RCE | 26.20 |
| | 110 to 240 Vac | LAD4RCU | 26.20 |

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 | 26.20 |
| | 50 to 127 Vac | LAD4VG | 26.20 |
| | 110 to 250 Vac | LAD4VU | 26.20 |

Bidirectional Peak Limiting Diode

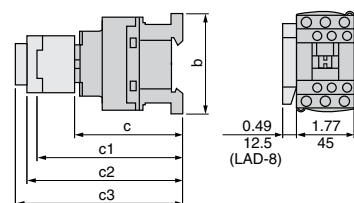
- Protection provided by limiting the transient voltage value to 2 Uc maximum.
- Maximum reduction of transient voltage peaks.

| | | | |
|-----------|--------|--------|-------|
| CAD (Vac) | 24 Vac | LAD4TB | 26.20 |
| | 72 Vac | LAD4TS | 26.20 |

Table 23.76: Coil Voltage Codes

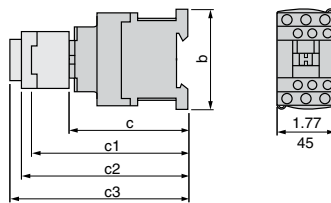
| Voltage | 24 Vac/Vdc | 32/36 Vac/Vdc | 42/48 Vac/Vdc | 60/72 Vac/Vdc | 100 Vac/Vdc | 110/127 Vac/Vdc | 220/240 Vac/Vdc | 256/277 Vac/Vdc | 380/415 Vac/Vdc |
|--------------|------------|---------------|---------------|---------------|-------------|-----------------|-----------------|-----------------|-----------------|
| Voltage Code | B | C | E | EN | K | F | M | U | Q |

CAD (Vac Coil)



| CAD | in. (mm) | |
|-----|-----------|------------|
| | 32 50 | 323 503 |
| b | 3.03 (77) | 3.90 (99) |
| c | 3.31 (84) | 3.31 (84) |
| c | 3.39 (86) | 3.39 (86) |

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



| CAD | in. (mm) | |
|-----|-----------|------------|
| | 32 50 | 323 503 |
| b | 3.03 (77) | 3.90 (99) |
| c | 3.66 (93) | 3.66 (93) |
| c | 3.74 (95) | 3.74 (95) |

TeSys™ D IEC Style Relays

Table 23.77: Cabling Accessory

| Description | | Catalog Number | \$ Price |
|--|--------------------------|----------------|----------------|
| Mounting Adaptor For adapting existing wiring to a new product | Without coil suppression | LAD4BB | 23.00 |
| | With coil suppression | 24 to 48 Vac | LAD4BBVE 23.00 |
| | | 50 to 127 Vac | LAD4BBVG 23.00 |
| | | 110 to 250 Vac | LAD4BBVU 23.00 |

Table 23.78: Electronic Serial Timer Modules ▲

- Mounted using adaptor LAD4BB, to be ordered separately, see listing above.

| On-delay Type | | | |
|---------------------|-------------|----------------|----------|
| Operational Voltage | Time Delay | Catalog Number | \$ Price |
| 24 to 250 Vac | 0.1 to 2 s | LA4DT0U | 82.00 |
| | 1.5 to 30 s | LA4DT2U | 82.00 |
| | 25 to 500 s | LA4DT4U | 82.00 |

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

Table 23.79: 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 | \$ Price |
|---------------------|----------------|----------|
| 24 to 100 Vac | LA4DMK | 35.00 |

Table 23.80: Accessories (ordered separately)

| For Connection | | | | |
|---|------------------------------|----------------------------------|----------------|--------------|
| Description | For Mounting On: | Must be Ordered in Multiples of: | Catalog Number | \$ Price ea. |
| For Marking | | | | |
| Sheet of 64 self-adhesive blank labels 8 x 33 | CAD, LAD (4 contacts), LA6DK | 10 | LAD21 | 5.20 |
| Sheet of 112 self-adhesive blank labels 8 x 12 | LAD (2 contacts), LADT | 10 | LAD22 | 5.20 |
| For Protection | | | | |
| Lockout cover | LADT, LADR | 1 | LA9D901 | 5.50 |
| Relay cover preventing access to the moving contact carrier | CAD | 1 | LAD9ET1 | 5.20 |

Table 23.81: 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 68 | "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 |

TeSys™ K IEC Style Relays

Table 23.82: 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

| Control Circuit | | Type of Termination | Contact Configuration | | Catalog Number ▲ | \$ Price |
|-----------------|--------|---|-----------------------|------|------------------|----------|
| | | | N.O. | N.C. | | |
| AC | 4.5 VA | Screw clamp | 4 | 0 | CA2KN40** | 35.50 |
| | | | 3 | 1 | CA2KN31** | 35.50 |
| | | | 2 | 2 | CA2KN22** | 35.50 |
| | | Spring Termination | 4 | 0 | CA2KN403** | 35.50 |
| | | | 3 | 1 | CA2KN313** | 35.50 |
| | | | 2 | 2 | CA2KN223** | 35.50 |
| | | Faston 1 x 6.35 or 2 x 2.8 | 4 | 0 | CA2KN407** | 35.50 |
| | | | 3 | 1 | CA2KN317** | 35.50 |
| | | | 2 | 2 | CA2KN227** | 35.50 |
| | | Solder pins for printed circuit board | 4 | 0 | CA2KN405** | 35.50 |
| | | | 3 | 1 | CA2KN315** | 35.50 |
| | | | 2 | 2 | CA2KN225** | 35.50 |
| DC | 3 W | Screw clamp | 4 | 0 | CA3KN40** | 49.20 |
| | | | 3 | 1 | CA3KN31** | 49.20 |
| | | | 2 | 2 | CA3KN22** | 49.20 |
| | | Spring Termination | 4 | 0 | CA3KN403** | 49.20 |
| | | | 3 | 1 | CA3KN313** | 49.20 |
| | | | 2 | 2 | CA3KN223** | 49.20 |
| | | Faston 1 x 6.35 or 2 x 2.8 | 4 | 0 | CA3KN407** | 49.20 |
| | | | 3 | 1 | CA3KN317** | 49.20 |
| | | | 2 | 2 | CA3KN227** | 49.20 |
| | | Solder pins for printed circuit board | 4 | 0 | CA3KN405** | 49.20 |
| | | | 3 | 1 | CA3KN315** | 49.20 |
| | | | 2 | 2 | CA3KN225** | 49.20 |

▲ Complete catalog number by adding proper voltage code from Table 23.84 or Table 23.85 (for example, CA2KN40G7).

Table 23.83: Low Consumption Control Relays

Compatible with programmable controller outputs.

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

| | | | | | | |
|----|-------|---|---|---|-------------|-------|
| DC | 1.8 W | Screw clamp | 4 | 0 | CA4KN40*** | 64.00 |
| | | | 3 | 1 | CA4KN31*** | 64.00 |
| | | | 2 | 2 | CA4KN22*** | 64.00 |
| | | Spring Termination | 4 | 0 | CA4KN403*** | 64.00 |
| | | | 3 | 1 | CA4KN313*** | 64.00 |
| | | | 2 | 2 | CA4KN223*** | 64.00 |
| | | Faston 1 x 6.35 or 2 x 2.8 | 4 | 0 | CA4KN407*** | 64.00 |
| | | | 3 | 1 | CA4KN317*** | 64.00 |
| | | | 2 | 2 | CA4KN227*** | 64.00 |
| | | Solder pins for printed circuit board | 4 | 0 | CA4KN405*** | 64.00 |
| | | | 3 | 1 | CA4KN315*** | 64.00 |
| | | | 2 | 2 | CA4KN225*** | 64.00 |

▲ Complete catalog number by adding proper voltage code from Table 23.86 (for example, CA4KN40BW3).

Table 23.84: Coil Voltage Codes for CA2K Control Relays (0.8–1.15 U_c) (0.85–1.1 U_c)

| Vac 50/60 Hz | 12 | 24 | 36 | 42 | 48 | 110 | 120 | 127 | 208 | 220/ 230 | 230 | 230/ 240 | 380/ 400 | 400 | 400/ 415 | 440 | 480 | 500 | 660/ 690 |
|-----------------|----|----|----|----|----|-----|-----|-----|-----|-------------|-----|-------------|-------------|-----|-------------|-----|-----|-----|-------------|
| Voltage Code | J7 | B7 | C7 | D7 | E7 | F7 | G7 | FC7 | L7 | M7 | 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. (Price Adder 9.50)

Table 23.85: Coil Voltage Codes for CA3K Control Relays (0.8–1.15 U_c)

| Vdc | 12 | 20 | 24 | 36 | 48 | 60 | 72 | 100 | 110 | 125 | 200 | 220 | 230 | 240 | 250 |
|--------------|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| Voltage Code | JD | ZD | BD | CD | ED | ND | SD | KD | FD | GD | LD | MD | MPD | MUD | UD |

Note: Coil with integral suppression device available: add 3 to the code required. Example: JD3. (Price Adder 9.50)

Table 23.86: Coil Voltage Codes for CA4K, Low Consumption Control Relays (Wide Range Coil: 0.7–1.3 U_c)

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

Approvals:



File 164353
CCN NKCR





File LR43364
Class 3211 03



TeSys™ K IEC Style Relays

Table 23.87: Instantaneous Auxiliary Contact Blocks ■♦

Clip-on Front Mounting, 1 Block Per Control Relay

| Type of Connection | Contact Configuration | | Catalog Number | \$ Price |
|----------------------------------|---|---|----------------|----------|
| |  |  | | |
| | N.O. | N.C. | | |
| Screw Clamp | 2 | 0 | LA1KN20 | 14.20 |
| | 0 | 2 | LA1KN02 | 14.20 |
| | 1 | 1 | LA1KN11 | 14.20 |
| | 4 | 0 | LA1KN40▲ | 27.30 |
| | 3 | 1 | LA1KN31▲ | 27.30 |
| | 2 | 2 | LA1KN22▲ | 27.30 |
| | 1 | 3 | LA1KN13▲ | 27.30 |
| Spring Termination | 0 | 4 | LA1KN04▲ | 27.30 |
| | 2 | 0 | LA1KN203 | 14.20 |
| | 1 | 1 | LA1KN113 | 14.20 |
| | 0 | 2 | LA1KN023 | 14.20 |
| | 4 | 0 | LA1KN403▲ | 27.30 |
| | 3 | 1 | LA1KN313▲ | 27.30 |
| | 2 | 2 | LA1KN223▲ | 27.30 |
| Faston 1 x 6.35 or 2 x 2.8 | 1 | 3 | LA1KN133▲ | 27.30 |
| | 0 | 4 | LA1KN043▲ | 27.30 |
| | 2 | 0 | LA1KN207 | 14.20 |
| | 0 | 2 | LA1KN027 | 14.20 |
| | 1 | 1 | LA1KN117 | 14.20 |
| | 4 | 0 | LA1KN407▲ | 27.30 |
| | 3 | 1 | LA1KN317▲ | 27.30 |
| | 2 | 2 | LA1KN227▲ | 27.30 |
| | 1 | 3 | LA1KN137▲ | 27.30 |
| | 0 | 4 | LA1KN047▲ | 27.30 |

- ▲ Not to be used on CA4KN relays.
 ■ Clip-on front mounting, 1 block per control relay.
 ♦ Auxiliary contact module not suitable for safety circuits.

Table 23.88: Electronic Time Delay Contact Blocks

| | |
|--|--|
| Relay output, with common point changeover contact | 240 Vac/Vdc, 2 A maximum |
| Control voltage | 0.85–1.1 U _c |
| 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. |

Table 23.89: Clip-on front mounting, 1 block per control Relay

| Voltage (V) | Type | Timing Range, s | Composition C.O. | Catalog No. | \$ Price |
|---------------------|----------|-----------------|------------------|-------------|----------|
| AC or DC / 24 to 48 | On-delay | 1 to 30 | 1 | LA2KT2E | 32.80 |
| AC / 110 to 240 | | | | LA2KT2U | |

Note: For other electronic timers see Type RE7 and 9050 Type JCK, pages 23-28 and 23-30.

Table 23.90: Accessories (supplied separately)

| Description | | | Sold in lots of | Catalog No. | \$ Price ea. |
|--|---|--|-----------------|-------------|--------------|
| Marker holder□ | Clips on front of relay | | 100 | LA9D90 | 0.06 |
| Clip-on markers□ | 4 maximum per device | Strip of 10 identical numbers, 0 to 9 | 25 | AB1R□ | 0.70 |
| | | Strip of 10 identical capital letters A to Z | | AB1G□ | |
| Suppressor modules with incorporated LED indicator | Clips onto front of relay with locating device. No tools required for connection. | For AC and DC voltages 12 to 24 V (varistor) | 5 | LA4KE1B★ | 9.80 |
| | | For AC and DC voltages 32 to 48 V (varistor) | | LA4KE1E★ | |
| | | For AC and DC voltages 50 to 129 V (varistor) | | LA4KE1FC★ | |
| | | For AC and DC voltages 130 to 250 V (varistor) | | LA4KE1UG ★ | |
| | | For DC voltages 12 to 24 V (diode + Zener diode) | | LA4KC1B▼ | |
| | | For DC voltages 32 to 48 V (diode + Zener diode) | | LA4KC1E▼ | |
| | | For AC voltages 220 to 250 V (RC) | | LA4KA1UΔ | |

- ★ Protection by the limitation of the transient voltage to 2 U_c maximum. Maximum reduction of the transient voltage peaks. Slight time delay on drop-out (1.1 to 1.5 times normal).
 ▼ No overvoltage or oscillation frequency. Polarized component. Slight time delay on drop-out (1.1 to 1.5 times normal).
 Δ Protection by limitation of the transient voltage to 3 U_c max. and limitation of the oscillation frequency. Slight time delay on drop-out (1.2 times to twice normal).
 □ See "Clip-in Marker Strips" in Catalog 8501CT0101 for information on completing the catalog number.

Table 23.91: 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) |
| Maximum operating altitude | Without derating | 6562 ft (2000 m) |



LA1KN20

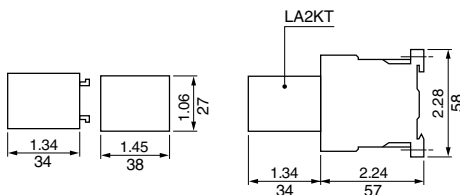


LA1KN40

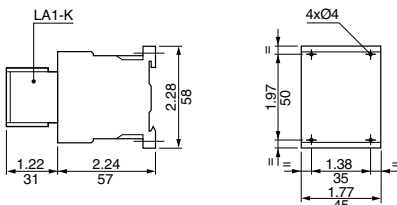


LA1KN403

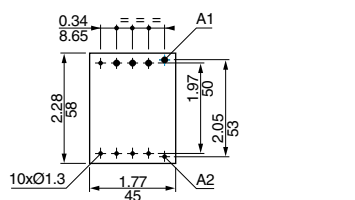
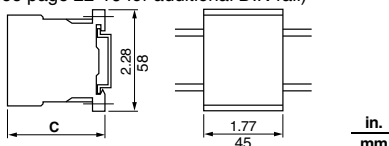
LA2KT electronic time delay contact blocks

Approximate dimensions
for CA2, CA3, CA4K control relays

On panel



On printed circuit board

AM1DP200 or AM1DE200 mounting rail—35 mm DIN rail
(see page 22-16 for additional DIN rail)

| C | | Product |
|------|----|----------|
| in. | mm | |
| 2.22 | 59 | AM1DP200 |
| 2.60 | 66 | AM1DE200 |

TeSys™ SK IEC Style Relays

Table 23.92: IEC Style Industrial Control Relays

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

| Control Circuit Supply | Consumption | Type of Termination | Contact Configuration | | Catalog Number | \$ Price |
|------------------------|-------------|---------------------|-----------------------|------|----------------|----------|
| | | | N.O. | N.C. | | |
| AC | 4.2 VA | Screw clamp | 1 | 1 | CA2SK11●▲ | 43.70 |
| | | | 2 | 0 | CA2SK20●▲ | |
| DC | 2.2 W | | 1 | 1 | CA3SK11●▲ | 51.00 |
| | | | 2 | 0 | CA3SK20●▲ | |

▲ Use the appropriate voltage code to complete the catalog number (for example: CA2SK11G7)

Table 23.93: Contact Adder Decks (for CA2SK20 only)

| Type of Termination | Contact Configuration | | Catalog Number | \$ Price |
|---------------------|-----------------------|------|----------------|----------|
| | N.O. | N.C. | | |
| Screw clamp | 2 | 0 | LA1SK20 | 16.90 |
| | 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 23.94: Transient Suppressor Module

| Control Circuit Voltage | Catalog Number | \$ Price |
|-----------------------------------|----------------|----------|
| 24–48 Vac 50/60 Hz, 24–48 Vdc | LA4SKEIE | 21.80 |
| 110–250 Vac 50/60 Hz, 110–250 Vdc | LA4SKEIU | |

Table 23.95: Coil Voltage Codes for Control Relays

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

■ Alternating relays CA2SKE available in these voltages only. No other voltages are available.

Alternating Relays, CA2SKE

Refer to Catalog 8501CT9701

These 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.

Approvals: UL File: E164353 CCN: NKCR; CSA File: LR43364 Class: 3211 03.

Table 23.96: Alternating Relays

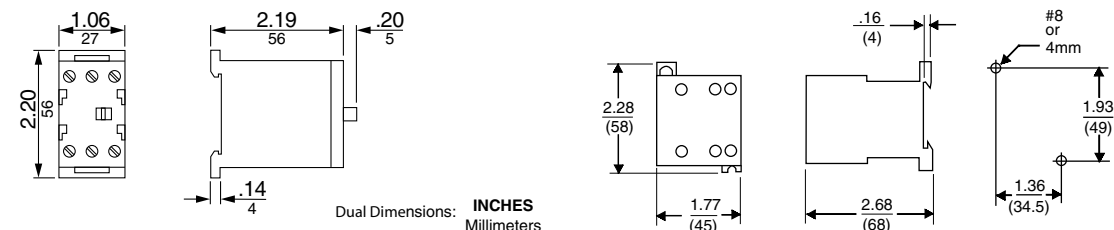
| Coil Voltage (Voltage-Hz) | Type | \$ Price |
|---------------------------|------------|----------|
| 24–50/60 | CA2SKE20●▲ | 120.00 |

▲ Use the appropriate voltage code to complete the catalog number (for example, CA2SK11G7). Only available with voltages indicated above.

Table 23.97: Contact Ratings for CA2SK, CA3SK, AND CA2SKE20 Relays

| AC | | | | | | | | DC | |
|-------|------------------|------|------|-------|-----|--------------------|-----------------------------------|-------|--------------------|
| Volts | Inductive 35% PF | | | | | Resistive 75% PF | | Volts | Continuous Amperes |
| | NEMA Rating | Make | | Break | | Continuous Amperes | Make, Break and Continuos 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



Approvals:



File E164353
CCN NKCR



File LR43364
Class 3211 03





Type XMO40
Control Relay

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 23.98: AC Control Relays

| Normally Open Convertible Instantaneous Contacts | Control Relay ▲ | |
|--|-----------------|----------|
| | Type ♦ | \$ Price |
| 0 | XO00 | 98.00 |
| 2 | XO20 | 144.00 |
| 3 | XO30 | 169.00 |
| 4 | XO40 | 192.00 |
| 6 | XO60 | 242.00 |
| 8 | XO80 | 288.00 |
| 10 | XO1000 | 336.00 |
| 12 | XO1200 | 385.00 |

▲ A maximum of 8 N.C. contacts is allowed on 9–12 pole relays.



Type XMO40
Master Relay

AC Master Relays

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

Table 23.99: AC Master Relays

| Number of N.O. 20 Ampere Convertible Contacts | Open Type ■ | |
|---|-------------|----------|
| | Type ♦ | \$ Price |
| 2 | XMO20 | 204.00 |
| 4 | XMO40 | 336.00 |
| 6 | XMO60 | 457.00 |

■ Attachments not permitted on this relay.

AC Timing Relays

- Easily convertible On Delay or Off Delay
- Two adjustable timing ranges
- Repeat accuracy well above $\pm 10\%$
- 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 23.100: AC Timing Relays

| Timing Mode | N.O. Convertible Instantaneous Contacts | Timed Convertible Contacts | | Timing Relay | | \$ Price |
|-------------|---|----------------------------|------|--------------------|-------------------|----------|
| | | N.O. | N.C. | 0.2–60 s Type ♦ | 5–180 s Type ♦ | |
| On Delay | 0 | 1 | 1 | XO00XTE1 | XO00XTE2 | 432.00 |
| | 2 | 1 | 1 | XO20XTE1 | XO20XTE2 | 480.00 |
| | 4 | 1 | 1 | XO40XTE1 | XO40XTE2 | 529.00 |
| Off Delay | 0 | 1 | 1 | XO00XTD1 | XO00XTD2 | 432.00 |
| | 2 | 1 | 1 | XO20XTD1 | XO20XTD2 | 480.00 |
| | 4 | 1 | 1 | XO40XTD1 | XO40XTD2 | 529.00 |

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 23.101: AC Latching Relays

| N.O. Convertible Instantaneous Contacts | Latching Relay | |
|---|----------------|----------|
| | Type ♦ | \$ Price |
| 2 | XO20XL | 313.00 |
| 3 | XO30XL | 336.00 |
| 4 | XO40XL | 360.00 |
| 6 | XO60XL | 408.00 |
| 8 | XO80XL | 457.00 |

♦ Voltage Code must be specified to order these products. Refer to Table 23.104 and insert the code as shown in Table 23.107: How to Order.

Approvals:



File E78403
CCN NKCR



File 060905
Class 3211 03



IEC 60947-1

Table 23.102: AC Contact Ratings

(for DC ratings, see page 23-23)

| Type of Cartridge | V | Inductive 35% Power Factor | | | | | | Resistive 75% Power Factor |
|-------------------------|--------------------------|-------------------------------|----------------------|------|----------------------|-----|--------------------|------------------------------------|
| | | NEMA Rating | Make | | Break | | Continuous Amperes | Make, Break and Continuous Amperes |
| | | | A | VA | A | VA | | |
| Standard or Overlapping | 120 240 480 600 | A600 | 60 30 15 12 | 7200 | 6 3 1.5 1.2 | 720 | 10 | 1.0 |

Master★ — A600 Same as standard cartridge above except substitute 20 A for the continuous ampere rating

Logic Reed — — 150 Vac, 150 mA, 8 W Maximum

★ Maximum of six 8501 Type XC4 Master Cartridges may be used on only 7 and 8 pole AC Devices

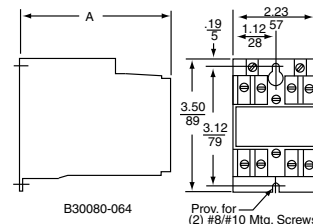
Table 23.103: Average Operating Time (ms)

| Device | Pick-Up | Drop-Out |
|-------------------|---------|----------|
| AC Relay | 15 | 16 |
| AC Latching Relay | 15 | 13 |

Table 23.104: 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 |

AC Control Relays and AC Master Relays



Dual Dimensions: INCHES
Millimeters

Table 23.105: Dimensions and Weight

| 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 Latching Relay Dimensions

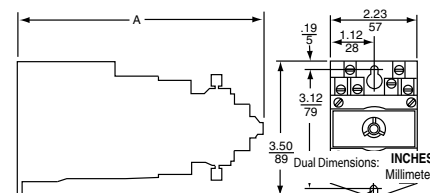


Table 23.106: Dimensions and Weight

| 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 page 23-24.

Table 23.107: How to Order

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

DC Control Relays



Type XDO40
Control Relay

- Replaceable, highly reliable pure DC power plant: no economizing resistors, overlapping contacts or dual-wound coil.
- Utilizes 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 23.108: DC Control Relays

| Normally Open Convertible Instantaneous Contacts | Control Relay | |
|--|---------------|----------|
| | Type | \$ Price |
| 0 | XDO00 ▼ | 216.00 |
| 2 | XDO20 ▼ | 264.00 |
| 4 | XDO40 ▼ | 313.00 |
| 6 | XDO60 ▼ | 360.00 |
| 8 | XDO80 ▼ | 408.00 |

DC Control Relay Utility Auxiliary Relay

Table 23.109: Dimensions

| 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



Type XDO40XTE2
Timing Relay

- 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 23.110: DC Timing Relays

| Timing Mode | Normally Open Convertible Instantaneous Contacts | Timed Convertible Contacts | | Timing Relay | | \$ Price |
|-------------|--|----------------------------|------|--------------|-------------|----------|
| | | N.O. | N.C. | 0.2-60 s | 5-180 s | |
| On Delay | 0 | 1 | 1 | XDO00XTE1 ▼ | XDO00XTE2 ▼ | 522.00 |
| | 2 | 1 | 1 | XDO20XTE1 ▼ | XDO20XTE2 ▼ | 601.00 |
| | 4 | 1 | 1 | XDO40XTE1 ▼ | XDO40XTE2 ▼ | 648.00 |
| Off Delay | 0 | 1 | 1 | XDO00XTD1 ▼ | XDO00XTD2 ▼ | 522.00 |
| | 2 | 1 | 1 | XDO20XTD1 ▼ | XDO20XTD2 ▼ | 601.00 |
| | 4 | 1 | 1 | XDO40XTD1 ▼ | XDO40XTD2 ▼ | 648.00 |

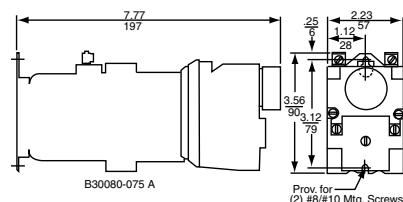


Table 23.111: DC Contact Ratings (for AC ratings, see page 23-22)

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

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

DC Latching Relays



Type XDO40XDL
Latching Relay

- 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 23.112: DC Latching Relays

| Normally Open Convertible Instantaneous Contacts | Latching Relay | |
|--|----------------|----------|
| | Type | \$ Price |
| 2 | XDO20XDL ▼ | 485.00 |
| 4 | XDO40XDL ▼ | 534.00 |
| 6 | XDO60XDL ▼ | 582.00 |
| 8 | XDO80XDL ▼ | 629.00 |

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.

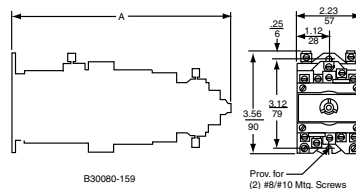


Table 23.113: Dimensions

| 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



Type XUDO40
Utility Relay

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 23.114: DC Utility Relays

| Number of Convertible Contacts | | Open Type | |
|--------------------------------|---------|--------------------------|----------|
| N.O. | N.C. | Type | \$ Price |
| 4 0 | 0 4 | XUDO40 ▼ XUDO04 ▼ | 390.00 |
| 8 0 | 0 8 | XUDO80 ▼ XUDO08 ▼ | 510.00 |
| 12 0 | 0 12 | XUDO1200 ▼ XUDO0012 ▼ | 629.00 |

Table 23.115: Average Operating Times (in ms)

| Device | Pick-Up | Drop-Out |
|-------------------|---------|----------|
| DC Relay | 37 | 21 |
| DC Latching Relay | 37 | 45 |

Table 23.116: 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 |

▼ Voltage code must be specified to order these products. Refer to Table 23.116 and insert the appropriate code as shown in Table 23.117: How to Order.










Table 23.117: How to Order

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

For Replacement coils, see page 23-24

For UL and CSA approvals, see page 23-22

Table 23.118: Type X™ Relays

| | Description | Type | \$ Price |
|---|--|---|---|
|  | 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. AC Latch Attachment DC Latch Attachment | XL▲ XDL▲ | 169.00 222.00 |
|  | 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. Off Delay 0.2–60 seconds 5–180 seconds On Delay 0.2–60 seconds 5–180 seconds | XTD1 XTD2 XTE1 XTE2 | 336.00 336.00 336.00 336.00 |
|  | 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 | 9.00 |
|  | 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 With 4 N.O. contact cartridges | XB20 XB40 | 48.00 98.00 |
|  | 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. 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. May be ordered factory installed: <ul style="list-style-type: none"> Substitute 1 N.O. and 1 N.C. overlapping cartridges for 2 standard cartridges. Substitute 2 N.O. and 2 N.C. overlapping cartridges for 4 standard cartridges. Substitute 3 N.O. and 3 N.C. overlapping cartridges for 6 standard cartridges. Substitute 4 N.O. and 4 N.C. overlapping cartridges for 8 standard cartridges. 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. Logic Reed Cartridge —See logic reed adder deck above. | XC1 XC2 Form Y1591 Y1592 Y1593 Y1594 XC4 | 24.20 24.20 Add 24.20 Add 24.20 Add 24.20 Add 24.20 60.00 |
|  | 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. 9 in. long for 4 relays 18 in. long for 8 relays 27 in. long for 12 relays 36 in. long for 16 relays | XM4 XM8 XM12 XM16 | 19.70 29.80 36.40 42.90 |
|  | 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 | 6.10 |
|  | 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 | 48.00 |
|  | 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. 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 | 29.60 |

▲ See Mechanical Latch Attachment Voltage Codes table below:

Table 23.119: 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 | 115/125 230/250 | V62 V66 |

Table 23.120: How to Order

| To Order Specify: | Catalog Number | |
|--|----------------|------|
| <ul style="list-style-type: none"> Class Number Type Number Voltage Code for mechanical latch attachment Form for factory installed overlapping contacts | Class | Type |
| | 8501 | XTE1 |

Table 23.121: Relay Coil Selection and Pricing

| Device Type | 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 | \$ Price |
|-------------|--------------------------|---------|--------------------------------|---|--|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-----------|-------|-----------|----------|-------------------|----------|
| | 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 | | | |
| DC | 8501 | XD | 9998 XD | — | 19 | 28 | 34 | 37 | 40 | 46 | 49 | 52 | 55 | — | 58 | — | 67 | 18 | 168.00 | |
| | | XDL | 9998 XDL | — | 19 | 28 | 34B | 37B | 40B | 46B | 49B | 52B | 55B | — | 58B | — | 67B | 50 | 216.00 | |
| | | XUD | 9998 XUD | — | 19 | 28 | — | 37 | — | 46 | — | — | — | — | 58★ | — | 67♦ | 16 | 168.00 | |
| Device Type | Equipment To Be Serviced | | Coil Prefix or Class and Type | Coil Volt-Amperes | | | | | | | | | | | | | | \$ Price | | |
| | Class | Type | | — <th>24 V</th> <th>110-115 V</th> <th>120 V</th> <th>208 V</th> <th>220 V</th> <th>240 V</th> <th>277 V</th> <th>380 V</th> <th>440 V</th> <th>480 V</th> <th>550 V</th> <th>600 V</th> <th>In-rush</th> <th>Sealed</th> | 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 | |
| AC | 8501 | XO, XMO | 9998 X ■ | 60 | 23 | — | 44 | 51 | 52 | 53 | 55 | — | — | 62 | — | 65 | 148 | 23 | 69.00 | |
| | | | | 50 | 24 | 44 | — | 52 | 53 | — | — | — | 62 | — | 65 | — | 143 | 25 | | |

■ 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.

♦ Not dual rated—250 Vdc only

★ 125 Vdc only



SSRPCDS25A1



SSRDCDS10A1



SSRDCDS45A1



SSRAH1



SSRAT1

Schneider Electric Solid State Relays

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

Key features include:

- Input voltage range 3 to 32 Vdc, 90 to 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 (>10⁹ operations)

Table 23.122: Solid State Relays

| Switching | Voltage Range | | Load Current Range | Catalog Number | \$ Price ea. |
|--------------------------------------|---------------|-------------|--------------------|----------------|--------------|
| | Input | Output | | | |
| | V | V | A | | |
| Panel Mounted | | | | | |
| SCR Output Zero voltage switching | 3***32 DC | 24***280 AC | 10 | SSRPCDS10A1 | 40.60 |
| | | | 25 | SSRPCDS25A1 | 41.90 |
| | | | 50 | SSRPCDS50A1 | 59.00 |
| | 4***32 DC | 48***530 AC | 75 | SSRPCDS75A2 | 100.00 |
| | | | 90 | SSRPCDS90A3 | 114.00 |
| | | | 125 | SSRPCDS125A3 | 144.00 |
| | 90***280 AC | 24***280 AC | 10 | SSRPP8S10A1 | 43.10 |
| | | | 25 | SSRPP8S25A1 | 45.70 |
| | | | 50 | SSRPP8S50A1 | 53.00 |
| | | 48***530 AC | 75 | SSRPP8S75A2 | 114.00 |
| | | | 90 | SSRPP8S90A3 | 117.00 |
| | | | 125 | SSRPP8S125A3 | 134.00 |
| MOSFET Output Instant switching | 3.5***32 DC | 0***100 DC | 12 | SSRPCDM12D5 | 66.00 |
| | | | 25 | SSRPCDM25D5 | 82.00 |
| | | | 40 | SSRPCDM40D5 | 114.00 |
| DIN Rail Mounted | | | | | |
| SCR Output Zero voltage switching | 4***32 DC | 24***280 AC | 10 | SSRDCDS10A1 | 58.00 |
| | | | 20 | SSRDCDS20A1 | 81.00 |
| | | | 30 | SSRDCDS30A1 | 85.00 |
| | 3***32 DC | 24***280 AC | 45 | SSRDCDS45A1 | 100.00 |
| | | | 10 | SSRDP8S10A1 | 61.00 |
| | 90***280 AC | 24***280 AC | 20 | SSRDP8S20A1 | 70.00 |
| | | | 30 | SSRDP8S30A1 | 78.00 |
| | 90***140 AC | 24***280 AC | 45 | SSRDF8S45A1 | 106.00 |

Table 23.123: Accessories For Panel Mount Solid State Relays

| Description | For Use With Relays | Load Current Range | Catalog Number | \$ Price ea. |
|--|---------------------|--------------------|----------------|--------------|
| Heat Sink | SSRPP8S*** | up to 50 A | SSRAH1 | 26.00 |
| | SSRPCDS*** | | | |
| Pre-Cut Thermal Transfer Pad (sold in pack of 10) | SSRPP8S*** | up to 125 A | SSRAT1 | 2.30 |
| | SSRPCDS*** | | | |

Zelio™ IEC Style—17.9 mm wide

Table 23.124: RE11 Modular Timers—17.9 mm wide (Multi-range timers offering 7 selectable ranges)

| Output 1 C/O contact | | | | |
|--|--------------------|---|--------------------------|----------|
| Functions | Supply Voltages | Rated Current | Catalog Number | \$ Price |
| On delay | 24 Vdc, 24–240 Vac | 8A | RE11RAMU | 42.90 |
| Interval | 24 Vdc, 24–240 Vac | 8A | RE11RHMU | 42.90 |
| Asymmetrical repeat cycle | 24 Vdc, 24–240 Vac | 8A | RE11RLMU | 53.00 |
| Asymmetrical repeat cycle | 12 Vac/Vdc | 8A | RE11RLJU | 75.00 |
| One shot | 24 Vdc, 24–240 Vac | 8A | RE11RBMU | 52.00 |
| Off delay with control start | 24 Vdc, 24–240 Vac | 8A | RE11RCMU | 52.00 |
| Multi-function ▲ | 24 Vdc, 24–240 Vac | 8A | RE11RMMU | 62.00 |
| Multi-function ▲ | 12–240 Vac/Vdc | 8A | RE11RMMW | 75.00 |
| Multi-function ▲ | 12–240 Vac/Vdc | 8A | RE11RMMWS | 75.00 |
| Multi-function ▲ | 12 Vac/Vdc | 8A | RE11RMJU | 75.00 |
| Multi-function ■ | 24 Vdc, 24–240 Vac | 8A | RE11RMEMU | 75.00 |
| Multi-function ▲ | 24 Vdc, 24–240 Vac | 8A | RE11RMXMU | 75.00 |
| ▲ Timing ranges: 0.1–1 s, 1–10 s, 0.1–10 min, 1–10 min, 0.1–1 hr, 1–10 hr, 10–100 hr | | | | |
| ■ Timing ranges: 0.1–1 s, 1–10 s, 0.1–10 min, 1–10 min, 0.1–1 hr, 1–10 hr | | | | |
| Conforming to standards | | IEC 61812-1, EN 50081-1/2, EN 50082-1/2, LV directives (73/23/EEC + 93/68/EEC (CE marking) + EMC directive (89/336/EEC + IEC 60669-2-3) | | |
| Approvals | | cULus File: E173076 CNN: NRNT | | |
| | | File: E173076 CNN: NRNT7 | | |
| | | CSA File: 217698 Class 3211 07 | | |
| | | CE | | |
| | | GL except RE11 RMX MU and RE11 RME MU | | |
| Ambient air temperature around the device | Storage | °F (°C) | –22 to +140 (–30 to +60) | |
| | Operation | °F (°C) | –4 to +140 (–20 to +60) | |



RE11RLMU



RE11LHBM

Table 23.125: RE11 Modular Timers—17.9 mm wide (Multi-function, dual function or single function)

| Functions | Supply Voltages | Rated Current | Catalog Number | \$ Price |
|--|-----------------|---|-------------------------|----------|
| Solid state output | | | | |
| On delay | 24–240 Vac/Vdc | 0.7A | RE11LAMW | 45.40 |
| Interval | 24–240 Vac | 0.7A | RE11LHBM | 42.90 |
| Off delay with control contact | 24–240 Vac | 0.7A | RE11LCBM | 52.00 |
| Asymmetrical repeat cycle | 24–240 Vac | 0.7A | RE11LLBM | 75.00 |
| Multi-function | 24–240 Vac | 0.7A | RE11LMBM | 62.00 |
| Timing ranges: 0.1–1 s, 1–10 s, 0.1–10 min, 1–10 min, 0.1–1 hr, 1–10 hr, 10–100 hr | | | | |
| Conforming to standards | | IEC 61812-1, EN 50081-1/2, EN 50082-1/2, LV directives (73/23/EEC + 93/68/EEC (CE marking) + EMC directive (89/336/EEC + IEC 60669-2-3) | | |
| Approvals | | cULus File: E173076 CNN: NRNT | | |
| | | File: E173076 CNN: NRNT7 | | |
| | | CSA File: 217698 Class: 3211 07 | | |
| | | CE | | |
| Ambient air temperature around the device | Storage | °F (°C) | –22 to 140 (–30 to +60) | |
| | Operation | °F (°C) | –4 to 140 (–20 to +60) | |

Table 23.126: RE48 Panel Mount Timers (For required socket, refer to the catalog section)

| Functions | Supply Voltages | Rated Current | Catalog Number | \$ Price |
|---|-----------------|---|-------------------------|----------|
| Single function: on delay, two relay outputs | 24–240 Vac/Vdc | 2 x 5 A | RE48ATM12MW | 73.00 |
| Repeat cycle: two relay outputs | 24–240 Vac/Vdc | 2 x 5 A | RE48ACV12MW | 88.00 |
| Multi-function: on delay, one shot, off delay, repeat cycle | 24–240 Vac/Vdc | 2 x 5 A | RE48AML12MW | 86.00 |
| Multi-function: on delay and interval, two relay outputs, of which one selectable and instantaneous | 24–240 Vac/Vdc | 2 x 5 A | RE48AMH13MW | 86.00 |
| Conforming to standards | | IEC 61812-1, EN 50081-1/2, EN 50082-1/2, LV directives (73/23/EEC + 93/68/EEC (CE marking) + EMC directive (89/336/EEC + IEC 60669-2-3) | | |
| Approvals | | cURus File: E173076 CNN: NRNT2 | | |
| | | File: E173076 CNN: NRNT8 | | |
| | | CSA File: 217698 Class: 3211 070 | | |
| | | CE, C-Tick, GL | | |
| | | RoHS compliant as of date code 0625 | | |
| Ambient air temperature around the device | Storage | °F (°C) | –40 to 158 (–40 to +70) | |
| | Operation | °F (°C) | –4 to 122 (–20 to +50) | |



RE48A TM12MW

Table 23.127: REXL Miniature Plug-in Timers (For required socket, refer to the catalog section)

| | | 4 pole | | | 2 pole | | |
|----------------------------|--|---------------|----------------|----------|---------------|----------------|----------|
| Function | Supply Voltages | Rated Current | Catalog Number | \$ Price | Rated Current | Catalog Number | \$ Price |
| Single function (On-Delay) | 12 Vdc | 3A | REXL4TMJD | 56.00 | 5A | REXL2TMJD | 53.00 |
| | 24 Vdc ♦ | 3A | REXL4TMBD | 56.00 | 5A | REXL2TMBD | 53.00 |
| | 24 Vac 50/60 Hz ♦ | 3A | REXL4TMB7 | 56.00 | 5A | REXL2TMB7 | 53.00 |
| | 120 Vac 50/60 Hz | 3A | REXL4TMF7 | 56.00 | 5A | REXL2TMF7 | 53.00 |
| | 230 Vac 50/60 Hz | 3A | REXL4TMP7 | 56.00 | 5A | REXL2TMP7 | 53.00 |
| Timing Ranges | 0.1–1 s, 1–10 s, 0.1–1 min, 1–10 min, 0.1–1 hr, 1–10 hr, 10–100 hr | | | | | | |



REXL2TMJD

Approvals:



File CCN E173076
NRNT2
File CCN E173076
NRNT8



File Class 217698
321107



IEC 61812-1

RoHS Compliant as of date code 0625



RE7ML

Zelio™ IEC Style—22.5 mm

These timers offer multi range timing from 0.05 to 300 hours, in 10 timing ranges.

Table 23.128: RE7M 6 Function and 8 Function Timers

| Function | Supply Voltages | Relay Output | Catalog Number | \$ Price |
|---|--|-----------------|----------------|----------|
| 6 Function Timer | | | | |
| On-Delay Timer Off-Delay Timer Interval Timer • start on energization • start on opening of remote control contact Repeat Cycle Timer with start during the OFF period. Repeat Cycle Timer with start during the ON period External control possible for: • start of time delay • partial stop of time delay • adjustment of time delay | 24 Vdc or Vac 42–48 Vdc or Vac 110–240 Vac | 1 C/O, SPDT | RE7ML11BU | 226.00 |
| 8 Function Timer | | | | |
| Same as 6 Function Timer ▲ plus Timer for star-delta starting • with double On-Delay timing • with changeover contact to star connection | 24 Vdc or Vac 110–240 Vac | 2 C/O, DPDT | RE7MY13BU | 252.00 |
| | 24–240 Vdc or Vac | 2 C/O, DPDT | RE7MY13MW | 277.00 |

▲ Except control of partial stop of time delay for RE7MY13BU.

Table 23.129: RE7T On-Delay Timers

| Functions | Supply Voltages | Relay Output | Catalog Number | \$ Price |
|---|--|-------------------|----------------|----------|
| On-Delay Timer | 24 Vdc or Vac 110–240 Vac | 1 C/O, SPDT | RE7TL11BU | 138.00 |
| On-Delay Timer External control possible for: • start of time delay • partial stop of time delay • adjustment of time delay ■ | 24 Vdc or Vac 42–48 Vdc or Vac 110–240 Vac | 1 C/O, SPDT | RE7TM11BU | 177.00 |
| On-Delay Timer Remote control possible for: adjustment of time delay ■ | 24 Vdc or Vac 42–48 Vdc or Vac 110–240 Vac | 2 C/O ♦, DPDT | RE7TP13BU | 189.00 |

Table 23.130: RE7M Symmetrical and Asymmetrical Timers

| Functions | Supply Voltages | Relay Output | Catalog Number | \$ Price |
|---|--|-------------------|----------------|----------|
| Symmetrical Timers: On and Off delay times are equal. | | | | |
| On-Delay and Off-Delay Timer External control possible for: • partial stop of time delay • adjustment of time delay ■ Start control via external contact only | 24 Vdc or Vac 42–48 Vdc or Vac 110–240 Vac | 1 C/O, SPDT | RE7MA11BU | 194.00 |
| On-Delay and Off-Delay Timer Start control via external contact only | 24 Vdc or Vac 42–48 Vdc or Vac 110–240 Vac | 2 C/O ♦, DPDT | RE7MA13BU | 208.00 |
| Asymmetrical Timers: On and Off delay times are adjusted separately. | | | | |
| On-Delay and Off-Delay Timer External control possible for: • partial stop of time delay • adjustment of time delay ■ Start control via external contact only | 24 Vdc or Vac 42–48 Vdc or Vac 110–240 Vac | 1 C/O, SPDT | RE7MV11BU | 214.00 |

■ By external potentiometer, to be ordered separately (see page 3 of Catalog 9050CT0001 for specifications). If external potentiometer is used, the internal potentiometer is automatically disconnected.
♦ A switch on the front face of the timer allows the second contact to be used in instantaneous mode.

Table 23.131: Output Circuit Specifications for RE7

| | | | |
|---|--------------------|--|-------|
| Current Limit, Ith | 8 A | | |
| Rated Operational Limits at 70°C | 24 V | 115 V | 250 V |
| Conforming to IEC60947-5-1/1991 and VDE 060 | AC-15 N.C. contact | 3 A | 3 A |
| | AC-15 N.O. contact | 5 A | 5 A |
| | DC-13 N.O. contact | 2 A | 0.2 A |
| UL and CSA Current | Resistive Rating | 5A | |
| NEMA / UL B300 | Inductive Rating | 3600 VA Make, 360 VA Break, 5 A Carry | |

Table 23.132: Output Circuit Specifications for RE8

| | | | |
|---|--|-------|-------|
| Maximum Switching Voltage | 250 Vac/Vdc | | |
| Current Limit Ith | 8 A | | |
| Rated Operational Limits at 150°F (70°C) | 24 V | 115 V | 250 V |
| Conforming to IEC 60947-5-1/1991 and VDE 0660 | AC-15 | 3 A | 3 A |
| | DC-13 | 2 A | 0.2 A |
| UL and CSA Current Ratings (Resistive) | 5 A | | |
| NEMA / UL B300 Ratings (Inductive) | 3600 VA Make, 360 VA Break, 5 A Carry | | |

RE7, RE8, and RE9 Timers comply to the following:

| | | | | |
|-------------------------|---|----------------------------------|--|-------------|
| Conforming to Standards | IEC 61812-1, EN 61812-1 | | | |
| Product Approvals | File E164353 NKCR | File 089150 Class 3211-07 | | IEC 61812-1 |
| CE Marking | RE7, RE8, and RE9 Timers conform to European regulations relating to CE Marking | | | |
| Ambient Air Temperature | Storage | -40°F to +185°F (-40°C to +85°C) | | |
| | Operation | -4°F to +140°F (-20°C to +60°C) | | |

Zelio™ IEC Style—22.5 mm

Table 23.133: RE7R Timers Off-Delay Timers

| Functions | Supply Voltages | Relay Output | Catalog Number | \$ Price |
|---|--|---------------|----------------|----------|
| On De-energization, Adjustable from 0.05 s to 10 min, in 7 Ranges | | | | |
| Off-Delay Timer (Times without power) | 24–240 Vdc or Vac | 1 C/O SPDT | RE7RB11MW▲ | 189.00 |
| Off-Delay Timer Remote control possible for: • adjustment of time delay ■ | 24–240 Vdc or Vac | 2 C/O DPDT | RE7RB13MW▲ | 214.00 |
| On Opening of External Control Contact, Adjustable from 0.05 s to 300 h, in 10 Ranges | | | | |
| Off-Delay Timer External control possible for: • partial stop of time delay • adjustment of time delay ■ | 24 Vdc or Vac 42–48 Vdc or Vac 110–240 Vac | 1 C/O SPDT | RE7RA11BU | 164.00 |
| On opening of Low Level External Control Contact, Adjustable from 0.05 s to 300 h, in 10 Ranges | | | | |
| Off-Delay Timer External control possible for: • partial stop of time delay • adjustment of time delay ■ | 24 Vdc or Vac 42–48 Vdc or Vac 110–240 Vac | 1 C/O SPDT | RE7RM11BU | 177.00 |
| Off-Delay Timer | 24 Vdc or Vac 42–48 Vdc or Vac 110–240 Vac | 2 C/O ♦, DPDT | RE7RL13BU | 189.00 |

▲ If the device has been stored de-energized for more than a month, it must be energized for about 15 seconds to activate it. Subsequently, a time of > 1 s is enough to activate the time delay.

Note: If this time is not complied with, the relay will remain energized indefinitely.

Table 23.134: RE7P Interval Timers

| Functions | Supply Voltages | Relay Output | Catalog Number | \$ Price |
|--|--|-----------------|----------------|----------|
| Start on Energization | | | | |
| Interval Timer | 24 Vdc or Vac 110–240 Vac | 1 C/O SPDT | RE7PE11BU | 151.00 |
| Interval Timer External control possible for: • adjustment of time delay ■ | 24 Vdc or Vac 42–48 Vdc or Vac 110–240 Vac | 2 C/O ♦ DPDT | RE7PP13BU | 189.00 |
| Start on Opening of External Control Contact | | | | |
| Interval Timer External control possible for: • partial stop of time delay • adjustment of time delay ■ | 24 Vdc or Vac 42–48 Vdc or Vac 110–240 Vac | 1 C/O SPDT | RE7PM11BU | 151.00 |
| Interval Timer | 24 Vdc or Vac 42–48 Vdc or Vac 110–240 Vac | 2 C/O ♦ DPDT | RE7PD13BU | 189.00 |

Table 23.135: RE7C Timers Symmetrical and Asymmetrical Relays

| Functions | Supply Voltages | Relay Output | Catalog Number | \$ Price |
|---|--|-----------------|----------------|----------|
| Symmetrical Relays with Start during Off Period | | | | |
| Repeat Cycle Timer | 24 Vdc or Vac 110–240 Vac | 1 C/O SPDT | RE7CL11BU | 164.00 |
| Repeat Cycle Timer External control possible for: • adjustment of time delay ■ | 24 Vdc or Vac 42–48 Vdc or Vac 110–240 Vac | 2 C/O ♦ DPDT | RE7CP13BU | 202.00 |
| Asymmetrical, with Separate Adjustment of On-Delay and Off-Delay | | | | |
| Repeat Cycle Timer External control possible for: • start period • adjustment of time delays ■ • partial stop | 24 Vdc or Vac 42–48 Vdc or Vac 110–240 Vac | 1 C/O SPDT | RE7CV11BU | 214.00 |

■ By external potentiometer, to be ordered separately (see page 3 of Catalog 9050CT0001 for specifications). If external potentiometer is used, the internal potentiometer is automatically disconnected.

♦ A switch on the front face of the timer allows the second contact to be used in instantaneous mode.

For conformance to standards, see page 23-32

RoHS Compliant as of date code 0626



RE7R



RE7P



RE7C

Zelio™ IEC Style—22.5 mm

Table 23.136: On-Delay (timing starts on energization), TDE




| Relay Output | Supply Voltages | Timing Range ▲ | Catalog Number | Standard Pack Quantity ■ | \$ Price |
|---|------------------------------|----------------|----------------|--------------------------|----------|
|  SPDT | 24 Vdc or Vac 110–240 Vac | 0.1–3 s | RE8TA61BUTQ | 10 | 75.00 |
| | | 0.1–10 s | RE8TA11BUTQ ★ | 10 | 75.00 |
| | | 0.3–30 s | RE8TA31BUTQ ★ | 10 | 75.00 |
| | | 3–300 s | RE8TA21BUTQ ★ | 10 | 75.00 |
| | | 20 s–30 min | RE8TA41BUTQ | 10 | 75.00 |

Table 23.137: Off-Delay (timing starts on de-energization), TDD

| Control Contact | | | | | |
|---|------------------------------|-------------|---------------|----|--------|
| <div>1 C/O</div> <div></div> <div>SPDT</div> | 24 Vdc or Vac | 0.1–10 s | RE8RA11BTQ ★ | 10 | 95.00 |
| | | 0.3–30 s | RE8RA31BTQ | 10 | 95.00 |
| | | 3–300 s | RE8RA21BTQ ★ | 10 | 95.00 |
| | 110–240 Vac | 0.1–10 s | RE8RA11FUTQ ★ | 10 | 95.00 |
| | | 0.3–30 s | RE8RA31FUTQ | 10 | 95.00 |
| | | 3–300 s | RE8RA21FUTQ ★ | 10 | 95.00 |
| | | 20 s–30 min | RE8RA41FUTQ | 10 | 95.00 |
| Self-Powered (Times without power) | | | | | |
| <div>1 C/O</div> <div></div> <div>SPDT</div> | 24 Vdc or Vac 110–240 Vac | 0.05–0.5 s | RE8RB51BUTQ | 10 | 105.00 |
| | | 0.1–10 s | RE8RB11BUTQ | 10 | 105.00 |
| | | 0.3–30 s | RE8RB31BUTQ | 10 | 105.00 |

★ Also available in pack of one; delete TQ from the end of the catalog number. Example: RE8TA11BU.

Table 23.138: Repeat Cycle Timer





| Relay Output | Supply Voltages | Timing Range ▲ | Catalog Number | Standard Pack Quantity ■ | \$ Price |
|---|------------------------------|----------------|----------------|--------------------------|----------|
|  SPDT | 24 Vdc or Vac 110–240 Vac | 0.1–10 s | RE8CL11BUTQ | 10 | 105.00 |

Table 23.139: Interval Timer

| On Energization | | | | | |
|--|------------------------------|----------|-------------|----|--------|
| <div>1 C/O</div>  <div>SPDT</div> | 24 Vdc or Vac 110–240 Vac | 0.1–10 s | RE8PE11BUTQ | 10 | 87.00 |
| | | 0.3–30 s | RE8PE31BUTQ | 10 | 87.00 |
| | | 3–300 s | RE8PE21BUTQ | 10 | 87.00 |
| By Control Contact | | | | | |
| <div>1 C/O</div>  <div>SPDT</div> | 24 Vdc or Vac | 0.1–10 s | RE8PD11BTQ | 10 | 101.00 |
| | | 0.3–30 s | RE8PD31BTQ | 10 | 101.00 |
| | | 3–300 s | RE8PD21BTQ | 10 | 101.00 |
| | 110–240 Vac | 0.1–10 s | RE8PD11FUTQ | 10 | 101.00 |
| | | 0.3–30 s | RE8PD31FUTQ | 10 | 101.00 |
| | | 3–300 s | RE8PD21FUTQ | 10 | 101.00 |
| On De-Energization | | | | | |
| <div>1 C/O</div>  <div>SPDT</div> | 24 Vdc or Vac 110–240 Vac | 0.05–1 s | RE8PT01BUTQ | 10 | 107.00 |

▲ For easier adjustment, it is preferable to set the time delay between the maximum value in the range and one tenth of this value. Example: RE8TA11BUTQ timing range 0.1–10 s, recommended use 1–10 s.

■ Orders must specify standard pack quantity or multiples of that quantity.

For technical information, refer to page 23-32.

Table 23.140: On-Delay Timer (Solid State Output)

| Power Supply Circuit | Function | Timing Range ♦ | Catalog Number | \$ Price |
|----------------------|----------|----------------|----------------|----------|
| 24–240 Vac or Vdc | On-Delay | 0.1–10 s | RE9TA11MW | 87.00 |
| | | 0.3–30 s | RE9TA31MW | 87.00 |
| | | 3–300 s | RE9TA21MW | 87.00 |
| | | 40 s–60 min | RE9TA51MW | 87.00 |

Table 23.141: Off-Delay Timer (Solid State Output)

| Power Supply Circuit | Function | Timing Range ♦ | Catalog Number | \$ Price |
|----------------------|-----------|----------------|----------------|----------|
| 24–240 Vac | Off-Delay | 0.1–10 s | RE9RA11MW7 | 126.00 |
| | | 0.3–30 s | RE9RA31MW7 | 126.00 |
| | | 3–300 s | RE9RA21MW7 | 126.00 |
| | | 40 s–60 min | RE9RA51MW7 | 126.00 |

♦ For easier adjustment, it is preferable to set the time delay between the maximum value in the range and one tenth of this value. Example: RE9TA11MW timing range 0.1–10 s, recommended use 1–10 s.

RoHS Compliant as of date code 0626

For technical information, refer to catalog 9050CT0001.



RE8TA



RE8PE



RE9TA

Square D™ General Purpose Plug-In



9050JCK46V20

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

- Up to $\pm 0.1\%$ repeat accuracy
- Timing from 0.05 seconds to 999 hours
- Available in 5 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 23.142: Variable Time Delay

| Knob Adjustable Timing Range | On Delay | \$ Price | Off Delay ▢ | \$ Price | Off Delay Power Trigger | \$ Price | Interval | \$ Price | One Shot ▢ | \$ Price | One Shot Power Trigger | \$ Price | Repeat Cycle ▲ | \$ Price |
|------------------------------|----------|----------|-------------|----------|-------------------------|----------|----------|----------|------------|----------|------------------------|----------|----------------|----------|
| 0.1–10 seconds | JCK11△ | 78.00 | JCK21△ | 98.00 | JCK21PT△ | 98.00 | JCK31△ | 78.00 | JCK41△ | 98.00 | JCK41PT△ | 98.00 | JCK51△ | 140.00 |
| 0.3–30 seconds | JCK12△ | 78.00 | JCK22△ | 98.00 | JCK22PT△ | 98.00 | JCK32△ | 78.00 | JCK42△ | 98.00 | JCK42PT△ | 98.00 | JCK52△ | 140.00 |
| 0.6–60 seconds | JCK13△ | 78.00 | JCK23△ | 98.00 | JCK23PT△ | 98.00 | JCK33△ | 78.00 | JCK43△ | 98.00 | JCK43PT△ | 98.00 | JCK53△ | 140.00 |
| 1.2–120 seconds | JCK14△ | 78.00 | JCK24△ | 98.00 | JCK24PT△ | 98.00 | JCK34△ | 78.00 | JCK44△ | 98.00 | JCK44PT△ | 98.00 | JCK54△ | 140.00 |
| 1.8–180 seconds | JCK15△ | 78.00 | JCK25△ | 98.00 | JCK25PT△ | 98.00 | JCK35△ | 78.00 | JCK45△ | 98.00 | JCK45PT△ | 98.00 | JCK55△ | 140.00 |
| 0.1–10 minutes | JCK16△ | 87.00 | JCK26△ | 107.00 | JCK26PT△ | 107.00 | JCK36△ | 87.00 | JCK46△ | 107.00 | JCK46PT△ | 107.00 | JCK56△ | 147.00 |
| 0.3–30 minutes | JCK17△ | 87.00 | JCK27△ | 107.00 | JCK27PT△ | 107.00 | JCK37△ | 87.00 | JCK47△ | 107.00 | JCK47PT△ | 107.00 | JCK57△ | 98.00 |
| 0.6–60 minutes | JCK18△ | 87.00 | JCK28△ | 107.00 | JCK28PT△ | 107.00 | JCK38△ | 87.00 | JCK48△ | 107.00 | JCK48PT△ | 107.00 | JCK58△ | 98.00 |
| 1.2–120 minutes | JCK19△ | 87.00 | JCK29△ | 107.00 | JCK29PT△ | 107.00 | JCK39△ | 87.00 | JCK49△ | 107.00 | JCK49PT△ | 107.00 | JCK59△ | 98.00 |

- ▲ Two dials are provided for independently adjustable repeat cycle timing ranges.
 ▢ Initiating contact can be up to 50 feet from the timer.

Table 23.143: Fixed Time Delay

| Timing Mode | Type | Timing Range (seconds) | \$ Price |
|------------------------------|----------------|------------------------|----------|
| On Delay | JCK1F(XXX)◆△ | 0.1 to 180 | 78.00 |
| | | 181 to 3600 | 87.00 |
| Off Delay ▼ | JCK2F(XXX)◆△ | 0.1 to 180 | 98.00 |
| | | 181 to 3600 | 107.00 |
| Off Delay with Power Trigger | JCK2F(XXX)PT◆△ | 0.1 to 180 | 98.00 |
| | | 181 to 3600 | 107.00 |
| Interval | JCK3F(XXX)◆△ | 0.1 to 180 | 78.00 |
| | | 181 to 3600 | 87.00 |
| One Shot▼ | JCK4F(XXX)◆△ | 0.1 to 180 | 98.00 |
| | | 181 to 3600 | 107.00 |
| One Shot with Power Trigger | JCK4F(XXX)PT◆△ | 0.1 to 180 | 98.00 |
| | | 181 to 3600 | 107.00 |
| Repeat Cycle | JCK5F(XXX)◆★△ | 0.1 to 180 | 140.00 |
| | | 181 to 3600 | 147.00 |

- ◆ (XXX) denotes the timing period in seconds.
 Example: Class 9050 Type JCK1F60 is an On Delay timer fixed at 60 seconds.
 ★ Fixed repeat cycle timers can be supplied with the same or different On-Time and Off-Time.
 ▼ Initiating contact can be up to 50 feet from the timer.
 △ Voltage code must be specified to order this product. Refer to standard voltage codes listed below and insert as shown in How To Order.

Class 8501 Sockets

For sockets, see page 23-14
 For DIN rail, see page 24-16

For all 9050JCK timers:

With appropriate 8501NR Socket:



File E78351
CCN NLDX



File 214768
Class 3211 07

Without Socket



File E78351
CCN NLDX2



IEC 60947-1 RoHS Compliant as of date code 9050JCK1-5 = 0627 9050JCK6070=0648

Table 23.144: 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 23.145: Contact Ratings

| AC Volts | AC Amperes | | | | hp | DC Volts | DC Amperes | | |
|----------|--------------------|-------|------------|--|-----|----------|------------|-------|--------------------------------|
| | Inductive 35% P.F. | | | Res. 75% P.F. Make Break and Continuous | | | Inductive | | Res. Make Break and Continuous |
| | Make | Break | Continuous | | | | Make | Break | |
| 120 | 30 | 3 | 10 | 10 | 1/3 | 28 | 3 | 3 | 10 |
| 240 | 15 | 1.5 | 10 | 10 | 1/2 | | | | |

AC15 / B300 (NO/NC)

DC13 / R300 (NO)

Type JCK60

This On Delay timer uses a 5 position rotary switch to select the timing range. The three pushbutton thumbwheels are used to select the time value.

Table 23.146: Selection and Pricing

| Timing Modes | Timing Ranges | Type | \$ Price |
|--------------|---------------|--------|----------|
| On Delay | .01s | JCK60△ | 152.00 |
| | 0.1s | | |
| | S | | |
| | 0.1m | | |
| | M | | |
| | 0.1h | | |
| | H | | |



Type JCK70

Two 5 position rotary switches are used to select the timing mode and timing range. The three pushbutton thumbwheels are used to select the time value.

Table 23.147: Selection and Pricing

| Timing Modes | Timing Range | Type | \$ Price |
|------------------------|---------------|--------|----------|
| On Delay | Same as JCK60 | JCK70△ | 173.00 |
| Off Delay | | | |
| Interval | | | |
| One Shot Repeat Cycle□ | | | |

- The repeat cycle mode utilizes the same on-time and off-time.



Table 23.148: Class 8501 Hold Down Spring

| For use on Class 9050 Type JCK Timers | Class | Type | \$ Price ea. |
|--|-------|------|--------------|
| Hold down spring holds timer in socket during heavy vibration. (See 9050JCK with 8501NH7 photo at the top of this page.) | 8501 | NH7 | 8.30 |

Table 23.149: How to Order

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



REG24PTP1RHU



REG48PUN1RHU



REG96PUN1RHU

Zelio™ Temperature Controllers

The new 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 23.150: Zelio Temperature Controllers

| Input Type | Supply Voltage | Number and Type of Outputs | Alarms | Communication on Modbus | Catalog Number | \$ Price | | |
|---|--|--|-------------|----------------------------------|-------------------------------|------------------|-------------------------------|------------------|
| 28 x 48 Size — 1/32 DIN Standard | | | | | | | | |
| Thermocouple PT100 Probe | 100/240 Vac | 1 electromechanical relay | No | Yes | REG24PTP1RHU | 209.00 | | |
| | | 1 electromechanical relay | 1 | Yes | REG24PTP1ARHU | 186.00 | | |
| | | 1 solid state relay | No | Yes | REG24PTP1LHU | 216.00 | | |
| | | 1 solid state relay | 1 | No | REG24PTP1ALHU | 192.00 | | |
| | | 1 analog interface (4–20 mA) | No | Yes | REG24PTP1JHU | 219.00 | | |
| | 24 Vac/Vdc | 1 electromechanical relay | No | Yes | REG24PTP1RLU | 209.00 | | |
| | | 1 solid state relay | No | Yes | REG24PTP1LLU | 216.00 | | |
| | | 1 analog interface (4–20 mA) | No | Yes | REG24PTP1JLU | 219.00 | | |
| | | Voltage/current | 100/240 Vac | 1 electromechanical relay | No | Yes | REG24PUJ1RHU | 209.00 |
| | | | | 1 solid state relay | No | Yes | REG24PUJ1LHU | 216.00 |
| | 24 Vac/Vdc | | | 1 electromechanical relay | No | Yes | REG24PUJ1RLU | 219.00 |
| | | | | 1 solid state relay | No | Yes | REG24PUJ1LLU | 216.00 |
| | | | | 48 x 48 Size — 1/16 DIN Standard | | | | |
| | | Universal | 100/240 Vac | 1 electromechanical relay | 2 | Yes No | REG48PUN1RHU REG48PUNL1RHU | 252.00 226.00 |
| | | | | 2 electromechanical relays | 2 | Yes | REG48PUN2RHU | 292.00 |
| 1 solid state relay | 2 | | | Yes No | REG48PUN1LHU REG48PUNL1LHU | 258.00 234.00 | | |
| 1 solid state relay + 1 electromechanical relay | 2 | | | Yes | REG48PUN2LRHU | 295.00 | | |
| 1 analog interface (4–20 mA) | 2 | | | Yes | REG48PUN1JHU | 260.00 | | |
| 24 Vac/Vdc | 1 solid state relay + 1 analog interface (4–20 mA) | | 2 | Yes | REG48PUN2LJHU | 298.00 | | |
| | 1 electromechanical relay | | 2 | Yes | REG48PUN1RLU | 252.00 | | |
| | 2 electromechanical relays | | 2 | Yes | REG48PUN2RLU | 292.00 | | |
| | 1 solid state relay | | 2 | Yes | REG48PUN1LLU | 258.00 | | |
| | 1 solid state relay + 1 electromechanical relay | | 2 | Yes | REG48PUN2LRLU | 295.00 | | |
| | 1 analog interface (4–20 mA) | 2 | Yes | REG48PUN1JLU | 260.00 | | | |
| | | 1 solid state relay + 1 analog interface (4–20 mA) | 2 | Yes | REG48PUN2LJLU | 298.00 | | |
| | | 98 x 48 Size — 1/8 DIN Standard | | | | | | |
| | | Universal | 100/240 Vac | 1 electromechanical relay | 3 | Yes No | REG96PUN1RHU REG96PUNL1RHU | 336.00 311.00 |
| | | | | 2 electromechanical relays | 3 | Yes | REG96PUN2RHU | 381.00 |
| 1 solid state relay | 3 | | | Yes No | REG96PUN1LHU REG96PUNL1LHU | 343.00 317.00 | | |
| 1 solid state relay + 1 electromechanical relay | 3 | | | Yes | REG96PUN2LRHU | 383.00 | | |
| 1 analog interface (4–20 mA) | 3 | | | Yes | REG96PUN1JHU | 345.00 | | |
| 24 Vac/Vdc | 1 solid state relay + 1 analog interface (4–20 mA) | | 3 | Yes | REG96PUN2LJHU | 385.00 | | |
| | 1 electromechanical relay | | 3 | Yes | REG96PUN1RLU | 336.00 | | |
| | 2 electromechanical relays | | 3 | Yes | REG96PUN2RLU | 381.00 | | |
| | 1 solid state relay | | 3 | Yes | REG96PUN1LLU | 343.00 | | |
| | 1 solid state relay + 1 electromechanical relay | | 3 | Yes | REG96PUN2LRLU | 384.00 | | |
| | 1 analog interface (4–20 mA) | 3 | Yes | REG96PUN1JLU | 345.00 | | | |
| | | 1 solid state relay + 1 analog interface (4–20 mA) | 3 | Yes | REG96PUN2LJLU | 385.00 | | |

Table 23.151: Temperature Controller Accessories

| Description | For Use With Relays | Sold In Lots Of | Catalog Number | \$ Price |
|----------------------------------|-----------------------|-----------------|----------------|----------|
| Bracket for mounting on DIN rail | 24 x 48 mm (1/32 DIN) | 4 | REG24PSOC | 21.90 |
| Terminal block cover | 48 x 48 mm (1/16 DIN) | 2 | REG48PCOV | 30.30 |
| | 96 x 48 mm (1/8 DIN) | 2 | REG96COV | 37.10 |

Zelio™ Current Measurement Relays

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

RM17JC Current Control Relay

- Monitors a.c. currents
- Designed to monitor overcurrent
- Equipped with an integrated current transformer

RM35JA Current Control Relays

- Selection between overcurrent or undercurrent
- Automatic d.c. or a.c. recognition
- Selectable memory function

Table 23.152:

| Supply Voltage | Measurement Range | | Output 5Amps | Width | | Catalog Number | \$ Price |
|----------------|-------------------|-----------|--------------|--------|-------|----------------|----------|
| | Range▲ | Terminals | | Inches | mm | | |
| 24–240 Vac/dc | 2–20 A | N/A | 1 C/O | 0.69 | 17.50 | RM17JC00MW | 130.00 |
| | 2–20 mA | E1-M | 2 C/O | 1.38 | 35.00 | RM35JA31MW | 148.00 |
| | 10–100 mA | E2-M | | | | | |
| | 50–500 mA | E3-M | | | | RM35JA32MW | 177.00 |
| | 0.15–1.5 A | E1-M | | | | | |
| | 0.5–5 A | E2-M | | | | | |
| | 1.5–15 A | E3-M | | | | | |

▲ Above 15A, a current transformer can be connected (for RM35JA3•MW). See page 57 of the catalog for suggested wiring.

Table 23.153: 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 | 500ms | 300ms | |
| 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:



File
CNN

E173076
NRNT



File
Class

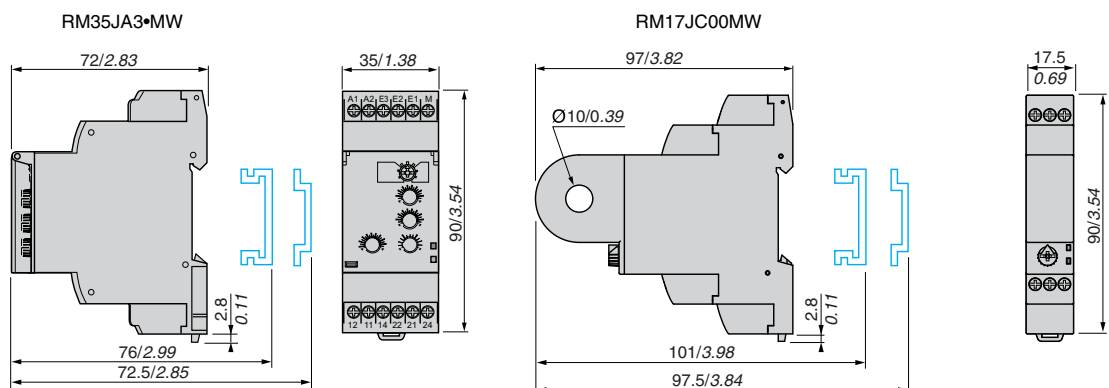
217698
3211 07



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

GL, C-Tick, GOST,
RoHS

Approximate Dimensions



Dual Dimensions: **INCHES**
Millimeters

RM17JC00MW

RM35JA31MW

RM35JA32MW

1 C/O =

2 C/O =



RM17TG•0



RM17TA00



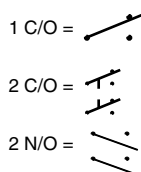
RM17TE00



RM35TM•MW



RM35TF30



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.

Table 23.154: 3-Phase supply control relays

| Supply Voltage | Detection Threshold | Output 5 Amps | Width | | Catalog Number | \$ Price |
|----------------|---------------------|---------------|--------|-------|----------------|----------|
| | | | inches | mm | | |
| 208–480 Vac | <100 Vac | 1 C/O | 0.69 | 17.50 | RM17TG00 | 114.00 |
| 208–440 Vac | | 2 C/O | | | RM17TG20 | 125.00 |

Table 23.155: Multifunction 3-phase supply control relays

| Supply Voltage | Voltage Range | Output 5 Amps | Width | | Catalog Number | \$ Price |
|----------------|--|---------------|-------|-------|----------------|----------|
| | | | inch | mm | | |
| 208–480 Vac | Selectable voltages: 208, 220, 380, 400, 415, 440, 480 | 1 C/O | 0.69 | 17.50 | RM17TT00 | 136.00 |
| | | | | | RM17TA00 | 177.00 |
| | | | | | RM17TU00 | 131.00 |
| | | | | | RM17TE00 | 217.00 |

Table 23.156: 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 23.157: 3-phase supply and motor temperature control relays

| Supply Voltage | Measurement Range | Output 5 Amps | Width | | Catalog Number | \$ Price |
|----------------|-------------------|---------------|-------|-------|----------------|----------|
| | | | inch | mm | | |
| 220–480 Vac | 208–480 Vac | 2 N.O. | 1.38 | 35.00 | RM35TM50MW | 221.00 |
| | | | | | RM35TM250MW | 231.00 |

Table 23.158: 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 23.159: Multifunction 3-phase supply control relays

| Supply Voltage | Measurement Range | Output 5 Amps | Width | | Catalog Number | \$ Price |
|----------------|-------------------|---------------|-------|-------|----------------|----------|
| | | | inch | mm | | |
| 220–480 Vac | 194–528 Vac | 2 C/O | 1.38 | 35.00 | RM35TF30 | 273.00 |

Approvals:



File
CNN E173076
NRNT



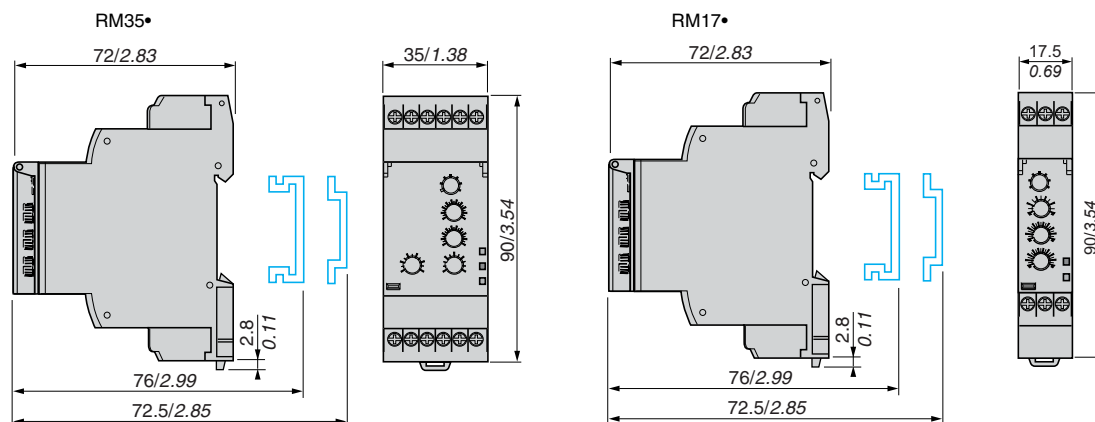
File
Class 217698
3211 07



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

GL, C-Tick, GOST,
RoHS

Approximate Dimensions



Dual Dimensions: **INCHES**
Millimeters



RM17UB310



RM35UB3...



RM17UAS...



RM35UA1•MW

Zelio™ Voltage Measurement Relays

Zelio Voltage Measurement Relays are DIN rail mountable and relay status is indicated by an LED.

Single phase and d.c. voltage measurement and control relays RM17UAS•• and RM17UBE•• monitor:

- Overvoltage
- Undervoltage
- Overvoltage and undervoltage (window mode)
- Nominal voltages

Table 23.160: Single-phase and d.c. voltage control relays

| Supply Voltage | Ranges Controlled | Output 5 A | Width | | Catalog Number | \$ Price |
|-----------------|-------------------|------------|-------|-------|----------------|----------|
| | | | in. | mm | | |
| 12 Vdc | 9–15 Vdc | 1 C/O | 0.69 | 17.50 | RM17UAS14▲ | 138.00 |
| 24–48 Vac/Vdc | 20–80 Vac/Vdc | | | | RM17UAS16▲ | 138.00 |
| 110–240 Vac/Vdc | 65–260 Vac/Vdc | | | | RM17UAS15▲ | 138.00 |
| 24–48 Vac/Vdc | 20–80 Vac/Vdc | | | | RM17UBE16■ | 146.00 |
| 110–240 Vac/Vdc | 65–260 Vac/Vdc | | | | RM17UBE15■ | 146.00 |

▲ Provides overvoltage or undervoltage protection.

■ Provides overvoltage and undervoltage protection in window mode.

Multifunction voltage control relays RM35UA1•MW monitor both a.c. and d.c. voltages.

- Automatic Vdc or Vac recognition
- Selection between overvoltage and undervoltage

Table 23.161: Multifunction voltage control relays

| Supply Voltage | Measurement Range | | Output 5 A | Width | | Catalog Number | \$ Price |
|----------------|-------------------|-----------|------------|-------|-------|----------------|----------|
| | Range★ | Terminals | | in. | mm | | |
| 24–240 Vac/Vdc | 0.05–0.5 V | E1-M | 2 C/O | 1.38 | 35.00 | RM35UA11MW | 157.00 |
| | 0.3–3 V | E2-M | | | | | |
| | 0.5–5 | E3-M | | | | | |
| | 1–10 | E1-M | | | | | |
| | 5–50 | E2-M | | | | RM35UA12MW | 157.00 |
| | 10–100 | E3-M | | | | | |
| | 15–150 | E1-M | | | | | |
| | 30–300 | E2-M | | | | | |
| | 60–600 | E3-M | | | | RM35UA13MW | 157.00 |

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 23.162: Three-phase voltage control relays

| Rated 3-Phase Supply Voltage Vac | Measurement Range | Output 5 A | Width | | Catalog Number | \$ Price |
|----------------------------------|-------------------|-------------------------------|-------|-------|----------------|----------|
| | | | in. | mm | | |
| 220–480 phase-phase | 195–528 Vac | 1 C/O + 1 C/O 1 per threshold | 1.38 | 35.00 | RM35UB330♦ | 229.00 |
| 120–277 phase-neutral | 183–528 Vac | 1 C/O | 0.69 | 17.50 | RM17UB310♦ | 189.00 |
| 120–277 phase-neutral | 114–329 Vac | 1 C/O + 1 C/O 1 per threshold | 1.38 | 35.00 | RM35UB3N30★ | 254.00 |

♦ Provides overvoltage and undervoltage protection between phases.

★ Provides overvoltage and undervoltage protection between phases and neutral and absence of neutral.

Approvals:

File
CN N

E173076
NRNT



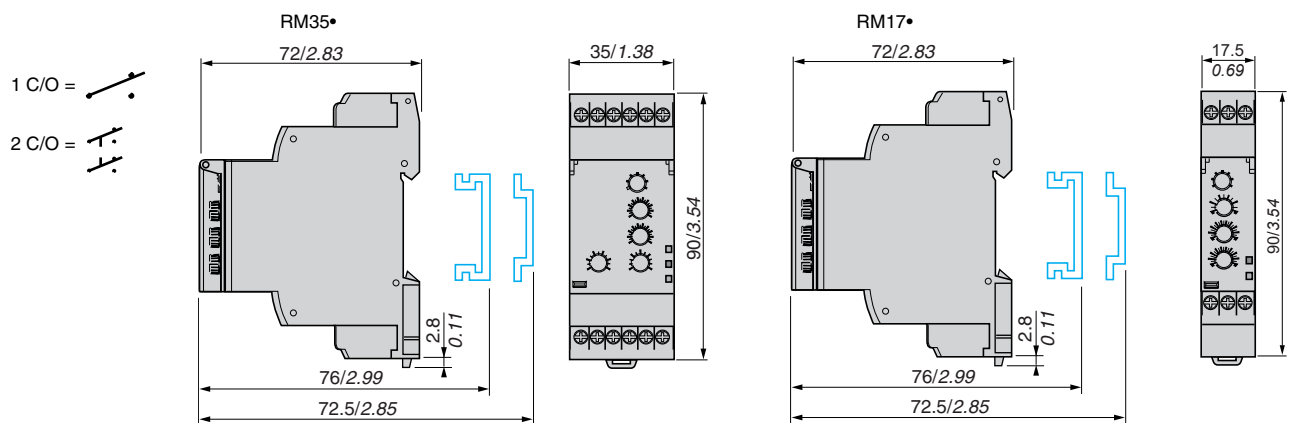
File
Class

217698
3211 07



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

GL, C-Tick,
GOST, RoHS

Approximate Dimensions

Dual Dimensions: INCHES
Millimeters



RM35LM33MW



RM35LV14MW



RM79696043



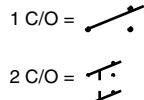
LA9RM201



RM79696006



RM35BA10



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%)

- Liquids in the food-processing industry: milk, beer, coffee, etc.

Application examples for RM35LV:

- Chemically pure water
- Fuels, liquid gasses (inflammable)
- Oil, concentrated alcohol (>40%)
- Ethylene, glycol, paraffin, varnish and paints

Table 23.163: Level Control Relays

| Time Delay on Crossing the Threshold | Function | Output Relay | Supply Voltage 50/60 Hz | Measurement Ranges | Catalog Number | \$ Price |
|--------------------------------------|-------------------------------|--------------|-------------------------|--------------------|----------------|----------|
| 0.1–5 seconds, 0 + 10% | Detection by resistive probes | 2 C/O, 5A | 24–240 Vac/Vdc | 250 Ω–5 k Ω | RM35LM33MW | 115.00 |
| | | | | 5 k Ω–100 k Ω | | |
| | | | | 50 k Ω–1 M Ω | | |
| | Detection by discrete sensors | 1 C/O, 5A | | — | RM35LV14MW | 146.00 |

Table 23.164: Probes

| Application | No. of probes | Operating temperature | | Maximum pressure kg/cm ² | Catalog Number | \$ Price |
|--|---------------|-----------------------|----|-------------------------------------|----------------|----------|
| | | °F | °C | | | |
| Recommended for drink vending machines and where installation space is limited (stainless steel)▲ | 3 | 176 | 80 | 2 | RM79696044 | 78.00 |
| Suitable for boilers, pressure vessels, and under high temperature conditions (1) (304 stainless steel)▲ | 1 | 392 | 25 | 200 | RM79696014 | 95.00 |

▲ 3/8" BSP mounting thread with hexagonal head. Use a 24mm spanner for tightening.

Table 23.165: Probes

| Description | Catalog Number | \$ Price |
|--|----------------|----------|
| Protected probe for mounting by suspension, protective shell PUC (S7) Electrode: stainless steel | RM79696043 | 57.00 |
| Liquid level control probe, suspended by cable, maximum operating temperature 212°F/100°C■ | LA9RM201 | 83.00 |

■ 3/8" BSP mounting head.

Table 23.166: Electrode Holders

| Description | Material | Catalog Number | \$ Price |
|---------------------------------------|-------------------------------------|----------------|----------|
| Electrode for use up to 662°F (350°C) | Stainless steel isolated by ceramic | RM79696006 | 62.00 |

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
- Phase presence control
- Single or three phase

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
- Level relay
- Pressure sensor
- Push button

Table 23.167: Pump Control Relay

| Description | Current Range Controlled | Supply Voltage | Output | Catalog Number | \$ Price |
|--------------------|--------------------------|----------------------|-----------|----------------|----------|
| Pump Control Relay | 1–10 A | 208–480 Vac, 3 phase | 1 C/O 5 A | RM35BA10 | 284.00 |
| | | 230, single-phase | | | |

Approvals:



File
CNN E173076
NRNT



File
Class 217698
3211 07

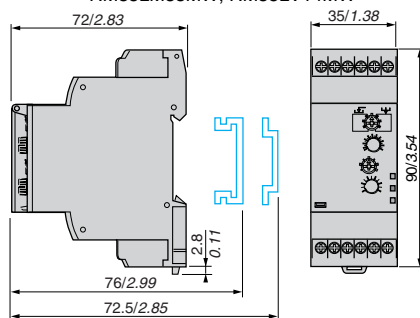


CE: 73/23/EEC and
EMC 89/336/EEC

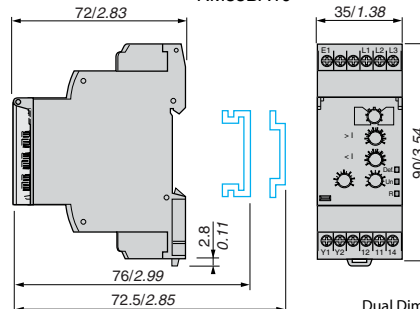
GL, C-Tick, GOST,
RoHS

Approximate Dimensions

RM35LM33MW, RM35LV14MW



RM35BA10



Dual Dimensions: INCHES
Millimeters



RM35S0MW

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

Zelio speed control relay RM35SOMW monitors underspeed and overspeed, 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 0.05s to 10m. Power-on inhibition time is adjustable from 0.6 to 60s. 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.

Table 23.168: Speed Control Relay

| Function | Time Delay | Measurement Input | Supply | Output | Catalog Number | \$ Price |
|------------|-------------|---|----------------|-------------|----------------|----------|
| Underspeed | 0.05s–10min | 3-wire PNP or NPN proximity sensor | 24–240 Vac/Vdc | 1 C/O 5A | RM35S0MW | 217.00 |
| Overspeed | | Namur proximity sensor 0–30 V voltage Volt-free contact | | | | |



RM35HZ21FM

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 23.169: Frequency Control Relay

| Function | Controlled | Supply Voltage | Output | Catalog Number | \$ Price |
|--|--|----------------|---------------------|----------------|----------|
| 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 5A | RM35HZ21FM | 222.00 |

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

Table 23.170: Temperature Control Relays

| Function | Supply Voltage | Vac | Output | Catalog Number | \$ Price |
|--|----------------|-----------|------------|----------------|----------|
| Over temperature 93 to 114°F (34 to 46°C) | 24–240 Vac/Vdc | — | 1 C/O 5A | RM35ATL0MW | 141.00 |
| Under temperature 30 to 51°F (-1 to 11°C) | | — | 2 N.O. 5A | RM35ATR5MW | 151.00 |
| Over temperature 93 to 114 °F (34 to 46°C) | 208–480 Vac | 2 N.O. 5A | RM35ATW5MW | 237.00 | |
| Under temperature 30 to 51°F (-1 to 11°C) | | | | | |
| Phase sequence Phase failure | | | | | |



RM35AT0MW

Approvals:



File
CNN

E173076
NRNT



File
Class

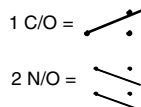
217698
3211 07



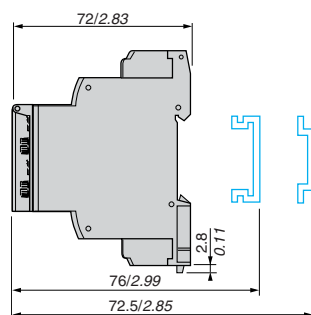
CE: 73/23/EEC and
EMC 89/336/EEC

GL, C-Tick, GOST,
RoHS

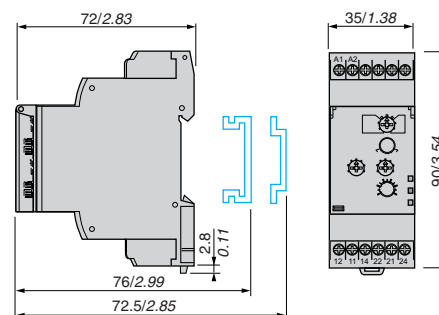
Approximate Dimensions



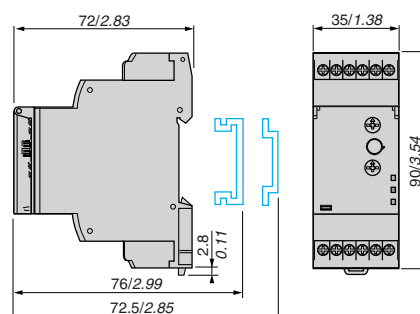
RM35S0MW



RM35HZ21FM



RM35AT0MW



Dual Dimensions: **INCHES**
Millimeters

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 8440CT0601/08, 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 23.171: Modular, Single Phase

Meets all the needs of simple automation systems with power ratings from 7 to 60 W and an output voltage of 5 Vdc, 12 Vdc, or 24 Vdc.

| Input Voltage (Vac) | Output Voltage (Vdc) | Nominal Current (I) | Protection Reset | Catalog Number | \$ Price |
|---------------------|----------------------|---------------------|------------------|----------------|----------|
| 100–240 | 5 | 4 | Auto | ABL8MEM05040 | 128. |
| | 12 | 2 | | ABL8MEM12020 | 132. |
| | 24 | 0.3 | | ABL8MEM24003 | 71. |
| | | 0.6 | | ABL8MEM24006 | 105. |
| | | 1.2 | | ABL8MEM24012 | 141. |
| | | 2.5 | | ABL7RM24025 | 180. |



ABL8MEM12020



ABL8REM24030

Table 23.172: Optimum, Single Phase

The low-cost solution for applications supplied at 12 Vdc, 24 Vdc, or 48 Vdc and requiring currents between 3 and 5 A.

| Input Voltage (Vac) | Output Voltage (Vdc) | Nominal Current (I) | Protection Reset | Catalog Number | \$ Price |
|---------------------|----------------------|---------------------|------------------|----------------|----------|
| 100–240 | 12 | 5 | Auto | ABL7RP1205 | 360. |
| | 24 | 3 | | ABL8REM24030 | 195. |
| | | 5 | | ABL8REM24050 | 300. |
| | 48 | 3 | | ABL7RP4803 | 225. |

Table 23.173: Universal, Single Phase

Adapts to the majority of power distribution systems with power ratings from 72 to 480 W at 24 Vdc. The same power supply can be connected phase-to-neutral (N-L1) or phase-to-phase (L1-L2) for line supplies ranging from 100 to 500 Vac. Energy reserve, diagnostics, and choice of manual or auto reset are integrated into these units.

| Input Voltage (Vac) | Output Voltage (Vdc) | Nominal Current (I) | Auto-Protection Reset | Catalog Number | \$ Price |
|---------------------|----------------------|---------------------|-----------------------|----------------|----------|
| 100–120 / 200–500 | 24 | 3 | Auto/Manual | ABL8RPS24030 | 270. |
| | | 5 | | ABL8RPS24050 | 360. |
| | | 10 | | ABL8RPS24100 | 525. |
| 100–120 / 200–240 | | 20 | | ABL8RPM24200 | 716. |



ABL8RPS24100

Table 23.174: Universal, Three Phase

This three-phase, 480 to 960 W, 24 Vdc output offering is particularly suited for complex machines and processes. Energy reserve, diagnostics and choice of manual or auto reset are integrated into these units.

| Input Voltage (Vac) | Output Voltage (Vdc) | Nominal Current (I) | Auto-Protection Reset | Catalog Number | \$ Price |
|---------------------|----------------------|---------------------|-----------------------|----------------|----------|
| 380–500 | 24 | 20 | Auto/Manual | ABL8WPS24200 | 735. |
| | | 40 | | ABL8WPS24400 | 1173. |



ABL8WPS24200

Table 23.175: Dedicated, Single Phase

Designed for integration into repetitive equipment with power ratings from 60 to 240 W and an output voltage of 12 Vdc or 24 Vdc.

| Input Voltage (Vac) | Output Voltage (Vdc) | Nominal Current (I) | Protection Reset | Catalog Number | \$ Price |
|---------------------|----------------------|---------------------|------------------|----------------|--------------|
| 100–240▲ | 12 | 5 | Auto | ABL1REM12050 | 113. |
| | 24 | 2.5 | | ABL1REM24025 | 93. |
| | | 4.2 | | ABL1REM24042 | 132. |
| 100–120 / 200–240■ | 24 | 6.2 | | ABL1REM24062 | 143. |
| | | 10 | | ABL1REM24100 | 206. |
| | 100–240▲ | 12 | 8.3 | Auto | ABL1RPM12083 |
| 24 | | 4.2 | ABL1RPM24042 | | 158. |
| 100–120 / 200–240■ | 24 | 6.2 | ABL1RPM24062 | | 173. |
| | | 10 | ABL1RPM24100 | | 270. |

▲ Compatible input voltage 120–370 Vdc not indicated on the product.

■ Compatible input voltage 180–370 Vdc not indicated on the product.



ABL1RPM24042



ABL1RPM24100

Approvals:



File E164867,
CCN NMTR, NMTR7



File E164867,
CCN NMTR2, NMTR8



File 238438
Class 5311-87
Class 5311-07



RoHS
Compliant

SEMI F47
Compliant
for most
units

See www.Schneider-Electric.us for UL and CSA compliances.
For additional information, refer to Catalog #8440CT0601R1/08.

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

| Type | Temperature Range | | Switchable Output Signals | Catalog Number | \$ Price |
|--------|-------------------|--------|---------------------------|----------------|----------|
| | °F | °C | | | |
| Type J | 32–302 | 0–150 | 0–10 V, 0–20 mA, 4–20 mA | RMTJ40BD | 141.00 |
| | 32–572 | 0–300 | 0–10 V, 0–20 mA, 4–20 mA | RMTJ60BD | 141.00 |
| | 32–1112 | 0–600 | 0–10 V, 0–20 mA, 4–20 mA | RMTJ80BD | 141.00 |
| Type K | 32–1112 | 0–600 | 0–10 V, 0–20 mA, 4–20 mA | RMTK80BD | 141.00 |
| | 32–2192 | 0–1200 | 0–10 V, 0–20 mA, 4–20 mA | RMTK90BD | 141.00 |

Table 23.177: Converters for Universal Pt100 probes—supply voltage 24 Vdc ± 20%, non-isolated

| Type | Temperature Range | | Switchable Output Signals | Catalog Number | \$ Price |
|--|-------------------|-----------|---------------------------|----------------|----------|
| | °F | °C | | | |
| Pt100 2-wire, 3-wire, and 4-wire | - 40–104 | - 40–40 | 0–10 V, 0–20 mA, 4–20 mA | RMPT10BD | 141.00 |
| | - 148–212 | - 100–100 | 0–10 V, 0–20 mA, 4–20 mA | RMPT20BD | 141.00 |
| | 32–212 | 0–100 | 0–10 V, 0–20 mA, 4–20 mA | RMPT30BD | 141.00 |
| | 32–482 | 0–250 | 0–10 V, 0–20 mA, 4–20 mA | RMPT50BD | 141.00 |
| | 32–932 | 0–500 | 0–10 V, 0–20 mA, 4–20 mA | RMPT70BD | 141.00 |

Table 23.178: Converters for Optimum Pt100 probes▲—supply voltage 24 Vdc ± 20%, non-isolated

| Type | Temperature Range | | Switchable Output Signals | Catalog Number | \$ Price |
|--|-------------------|-----------|---------------------------|----------------|----------|
| | °F | °C | | | |
| Pt100 2-wire, 3-wire, and 4-wire | - 40–104 | - 40–40 | 0–10 V or 4–20 mA | RMPT13BD | 113.00 |
| | - 148–212 | - 100–100 | 0–10 V or 4–20 mA | RMPT23BD | 113.00 |
| | 32–212 | 0–100 | 0–10 V or 4–20 mA | RMPT33BD | 113.00 |
| | 32–482 | 0–250 | 0–10 V or 4–20 mA | RMPT53BD | 113.00 |
| | 32–932 | 0–500 | 0–10 V or 4–20 mA | RMPT73BD | 113.00 |

▲ Converters dedicated to Zelio Logic smart relays.

Table 23.179: Universal Voltage/Current Converters

| Type | Input signal | Output signal | Catalog Number | \$ Price |
|---|--|--|----------------|----------|
| Supply voltage 24 Vdc ± 20%, non-isolated | 0–10 V or 4–20 mA | 0–10 V or 4–20 mA | RMCN22BD | 95.00 |
| 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 | 141.00 |
| | 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 | 154.00 |
| | 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 | 154.00 |

Approvals:



File
CCN E164353
NKCR



File
Class 089150_S_000
3211 07



IEC 60947-1

RoHS
Compliant

Table 23.180: How to Order

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



RMTJ40BD



RMTK90BD



RMPT70BD



RMPT13BD





RMCN22BD

Zelio™ Logic 2 Smart Relays



Zelio Logic 2 smart relays meet the demands of applications that require more flexibility than a simple relay, timer, or counter, but are too small or simple for the smallest Nano PLC. The Zelio Logic SR2 range is an exact replacement for the obsolete SR1 range, but with an expanded feature set. Designed to accept control outputs just like a relay, Zelio Logic 2 features dual language capability, using either Function Block Diagramming (FBD) or Ladder Logic Programming (LL), and can be programmed easily by using either the front panel or by using ZelioSoft software.

Table 23.181: Compact Smart Relays with Display, DC Power Supply

| | | | | | | | | |
|----------------------------|---|------------------|--|-----------|--------------|------------------|-----------|--------------|
| |  | |  | | | | | |
| Supply voltage | 12 Vdc | | 24 Vdc | | | | | |
| Number of inputs/outputs | 12 | 20 | 10 | 12 | 12 | 20 | 20 | 20 |
| Number of inputs | Discrete inputs | | 6 | 8 | 8 | 12 | 12 | 12 |
| | Including 0-10 V analog inputs | | — | 4 | 4 | 2 | 6 | 6 |
| Number of outputs | 4 relay | 8 relay | 4 relay | 4 relay | 4 transistor | 8 relay | 8 relay | 8 transistor |
| Dimensions, W x D x H (mm) | 71.2x59.5x107.6 | 124.6x59.5x107.6 | 71.2x59.5x107.6 | | | 124.6x59.5x107.6 | | |
| Clock | yes | yes | no | yes | yes | no | yes | yes |
| Catalog Number | SR2B121JD | SR2B201JD | SR2A101BD ♦ | SR2B121BD | SR2B122BD | SR2A201BD ♦ | SR2B201BD | SR2B202BD |
| \$ Price | 282.00 | 398.00 | 232.00 | 282.00 | 276.00 | 358.00 | 398.00 | 392.00 |



- ▲ Programming of smart relay in LADDER language only.
- Please consult Schneider Electric representative for list prices.

Table 23.182: Compact Smart Relays with Display, AC Power Supply

| | | | | | | |
|----------------------------|--|------------------|--|-----------|----------------------|-----------|
| |  | |  | | | |
| Supply voltage | 24 Vac | | 100–240 Vac | | | |
| Number of inputs/outputs | 12 | 20 | 10 | 12 | 20 | 20 |
| Number of inputs | Discrete inputs | | 6 | 8 | 12 | 12 |
| Number of outputs | 4 relay | 8 relay | 4 relay | 4 relay | 8 relay | 8 relay |
| Dimensions, W x D x H (mm) | 71.2x59.5x107.6 | 124.6x59.5x107.6 | 71.2 x 59.5 x 107.6 | | 124.6 x 59.5 x 107.6 | |
| Clock | yes | yes | no | yes | no | yes |
| Catalog Number | SR2B121B | SR2B201B | SR2A101FU ▲ | SR2B121FU | SR2A201FU ▲ | SR2B201FU |
| \$ Price | 282.00 | 398.00 | 258.00 | 288.00 | 374.00 | 408.00 |

- ♦ Programming of smart relay in LADDER language only.


Table 23.183: Compact Smart Relays without Display and without Buttons, DC and AC Power Supply

| | | | | | | |
|----------------------------|---|-------------|------------------|---|-----------|------------------|
| |  | | |  | | |
| Supply voltage | 24 Vdc | | | 100–240 Vac | | |
| Number of inputs/outputs | 12 | 20 | 20 | 10 | 12 | 20 |
| Number of inputs | Discrete inputs | | | 6 | 8 | 12 |
| | Including 0-10 V analog inputs | | | — | — | — |
| Number of outputs | 4 relay | 4 relay | 8 relay | 4 relay | 4 relay | 8 relay |
| Dimensions, W x D x H (mm) | 71.2 x 59.5 x 107.6 | | 124.6x59.5x107.6 | 71.2 x 59.5 x 107.6 | | 124.6x59.5x107.6 |
| Clock | no | yes | yes | no | yes | yes |
| Catalog Number | SR2D101BD ★ | SR2E121BD ■ | SR2E201BD ■♦ | SR2D101FU ★ | SR2E121FU | SR2E201FU ♦ |
| \$ Price | 214.00 | 222.00 | 338.00 | 218.00 | 226.00 | 344.00 |

- ★ Programming of smart relay in LADDER language only.
- ▼ To order a smart relay for a **24 Vac supply** (no analog inputs), delete the letter **D** from the end of the catalog number (**SR2E121B** and **SR2E201B**).
- △ To order a smart relay without a clock, replace the letter **E** with the letter **D** (Example: SR2D201BD and SR2D201FU) (these units can only be programmed in LADDER language).

Zelio™ Logic 2 Smart Relays

Table 23.184: Modular Smart Relays ▲ with Display, DC and AC Power Supply



| | | | | | | | |
|----------------------------|--|-----------------|-----------------|-----------------|------------------|-----------------|------------------|
| |  | | | | | | |
| Supply voltage | 12 Vdc | 24 Vdc | | 24Vac | | 100-240 Vac | |
| Number of inputs/outputs | 26 | 10 | 26 | 10 | 26 | 10 | 26 |
| Number of inputs | Discrete inputs | 16 | 6 | 16 | 6 | 16 | 16 |
| | Including 0-10 V analog inputs | 6 | 4 | 6 | — | — | — |
| Number of outputs | | 10 relay | 4 relay | 10 relay | 4 relay | 10 relay | 4 relay |
| Dimensions, W x D x H (mm) | 124.6x59.5x107.6 | 71.2x59.5x107.6 | 24.6x59.5x107.6 | 71.2x59.5x107.6 | 124.6x59.5x107.6 | 71.2x59.5x107.6 | 124.6x59.5x107.6 |
| Clock | yes | yes | yes | yes | yes | yes | yes |
| Catalog Number | SR3B261JD | SR3B10pBD ■◆ | SR3B26pBD ■◆ | SR3B101B | SR3B261B | SR3B101FU | SR3B261FU |
| \$ Price | 380.00 | — | — | 282.00 | 476.00 | 292.00 | 486.00 |

▲ The modular base can be fitted with one I/O extension module. The 24 Vdc modular base can be fitted with one communication module and/or one I/O extension module.

■ Replace the p by the number 1 to order a smart relay with **relay output** or by 2 for a smart relay with **transistor output** (Example: SR3B101BD).

◆ Please consult local Schneider Electric representative for list prices.

Table 23.185: Extension Modules for Zelio Logic 2 SR3B.....▲

| | | | | | | | | | |
|----------------------------|---------------------------------|--|----------|--|----------|---|----------|--|----------|
| | |  | |  | |  | |  | |
| | | Communication | | Discrete Inputs/Outputs | | | | Analog Inputs/Outputs | |
| Application | | MODBUS network | | — | | | | — | |
| Number of inputs/outputs | | — | | 6 | | 10 | | 14 | |
| Number of inputs | Discrete inputs | — | | 4 | | 6 | | 8 | |
| | Analog (0–10 V, 0–20 mA, PT100) | — | | — | | — | | 2■ | |
| Number of outputs | Relay | — | | 2relay | | 4 relay | | 6 relay | |
| | Analog (0-10 V) | — | | — | | — | | — | |
| Dimensions, W x D x H (mm) | | 35.5x59.5x107.6 | | 35.5x59.5x107.6 | | 72x59.5x107.6 | | 72x59.5x107.6 | |
| | | Cat. No. | \$ Price | Cat. No. | \$ Price | Cat. No. | \$ Price | Cat. No. | \$ Price |
| Voltage | 12 Vdc | — | — | SR3XT61JD | 80.00 | SR3XT101JD | 100.00 | SR3XT141JD | 140.00 |
| | 24 Vdc | SR3MBU01BD | 200.00 | SR3XT61BD | 106.00 | SR3XT101BD | 126.00 | SR3XT141BD | 164.00 |
| | 24 Vac | — | — | SR3XT61B | 106.00 | SR3XT101B | 126.00 | SR3XT141B | 164.00 |
| | 100-240 Vac | — | — | SR3XT61FU | 106.00 | SR3XT101FU | 126.00 | SR3XT141FU | 164.00 |

▲ The power supply of the extension modules is provided via the Zelio Logic 2 modular relays.

■ max. 1 PT 100 input

Table 23.186: Zelio Soft Software and Memory for SR2/SR3

| Multilingual Programming Software | | Connecting Cables | | | | Back-up Memory | | | |
|--|----------|--------------------|----------|--------------------|----------|-----------------|----------|--|----------|
| PCCD-ROM (Windows 98, NT, 2000, XP, ME) ▲ | | PC Serial to Relay | | PC USB to SR2CBL01 | | PC USB to Relay | | EEPROM (< V3.0 ZelioSoft software and firmware) | |
| | | | | | | | | EEPROM (≥ V3.0 ZelioSoft software and firmware) | |
| Cat. No. | \$ Price | Cat. No. | \$ Price | Cat. No. | \$ Price | Cat. No. | \$ Price | Cat. No. | \$ Price |
| SR2SFT01 | 74.00 | SR2CBL01 | 136.00 | SR2CBL06 | 156.00 | SR2USB01 | 160.00 | SR2MEM01 | 38.00 |
| | | | | | | | | SR2MEM02 | 30.00 |

▲ CD-ROM includes Zelio Soft software, application library, self-training manual, installation instructions and user's manual

Table 23.187: Communication interface for SR2/SR3

| Interface, Zelio Logic 2 Alarm Software | Communication Interface ▲ | Alarm Management Software | Zelio Logic GSM Modem |
|---|---------------------------|--------------------------------------|-----------------------|
| Supply voltage | 12-24 Vdc | — | 24 Vdc |
| Description | — | PC CD-ROM (Windows 98, NT, 2000, XP) | GSM modem |
| Dimensions, W x D x H | 72x59.5x107.6 mm | — | — |
| Catalog Number | SR2COM01 | SR2SFT02 | SR2MOD02 |
| \$ Price | 230.00 | 60.00 | 545.00 |

▲ Modems to be supplied by user.

Approvals:

File
CCNE164866
NRAQFile
ClassLR217698
2252 01

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



ABS2EA01EM

Table 23.188: Solid State Interface Input Modules

| | Input Module Catalog Number | | | | | \$ Price ea. |
|--|---|-------------|-------------|--------------|--------------|--------------|
| Input Module Catalog No. | ABS2EC01EA | ABS2EC01EB | ABS2EC01EE | ABS2EA02EF | ABS2EA02EM | 70.00 |
| Dimensions (WxDxH)▲ | Inches: 0.37 x 2.78 x 2.91mm: 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 081630, IEC 60947-1 | | | | | |

Table 23.189: Solid State Interface Output Modules

| | Output Module Catalog No. | | | | \$ Price |
|--------------------------|----------------------------|------------|------------|------------|----------|
| | ABS2SC01EB | — | — | — | 80.00 |
| | — | ABS2SC02EB | — | — | 80.00 |
| | — | — | ABS2SA01MB | — | 90.00 |
| | — | — | — | ABS2SA02MB | 101.00 |
| Dimensions (W x D x H) ▲ | Inches: 0.69 x 2.78 x 2.91 | | | | |

▲ Dimensions mounted on DIN 3 (7.5 mm high) track.

For Mounting Track, see page 24-16.

Table 23.190: How to Order

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



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 23.191: Input Modules

| Coil Voltage | Options | 1 N.O. Contact Catalog Number | 1 C.O. Contact Catalog Number | 2 N.O. Contacts Catalog Number | \$ Price |
|----------------------|------------------------------------|----------------------------------|----------------------------------|-----------------------------------|----------|
| 24 Vac/Vdc | Manual Operator and LED Indication | ABR1E118B▲ | ABR1E318B▲ | ABR1E418B▲ | 68.00 |
| 48 Vac/Vdc | | ABR1E118E▲ | ABR1E318E▲ | ABR1E418E▲ | |
| 110–125 Vdc | | ABR1E112F▲ | ABR1E312F▲ | ABR1E412F▲ | |
| 110–127 Vac 50/60 Hz | | ABR1E111F▲ | ABR1E311F▲ | ABR1E411F▲ | |
| 230–240 Vac 50/60 Hz | | ABR1E111M▲ | ABR1E311M▲ | ABR1E411M▲ | |
| 230–240 Vac 50/60 Hz | Manual Operator | ABR1E101M▲ | ABR1E301M▲ | — | 52.00 |
| 24 Vdc | LED Indication | ABR2E112B | — | — | |
| 48 Vdc | | ABR2E112E | — | — | |
| 120–127 Vac 60 Hz | | ABR2E116F | — | — | |
| 230–240 Vac 50/60 Hz | | ABR2E111M | — | — | |
| 24 Vdc | | — | ABR2EB312B | — | 76.00 |

▲ RoHS Compliant

Table 23.192: 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 | \$ Price |
|----------------------|------------------------------------|----------------------------------|----------------------------------|-----------------------------------|---|----------|
| 24 Vdc | Manual Operator | ABR1S102B■ | ABR1S302B■ | ABR1S402B■ | ABR1S602B■ | 52.00 |
| 24 Vac/Vdc | Manual Operator and LED Indication | ABR1S118B■ | ABR1S318B■ | ABR1S418B■ | ABR1S618B■ | 70.00 |
| 48 Vac/Vdc | | ABR1S118E■ | ABR1S318E■ | ABR1S418E■ | ABR1S618E■ | |
| 110–127 Vac 50/60 Hz | | ABR1S111F■ | ABR1S311F■ | ABR1S411F■ | ABR1S611F■ | |
| 24 Vdc | LED Indication | ABR2S112B | — | — | — | 40.10 |
| 48 Vdc | | — | ABR2SB312B | — | — | 80.00 |
| 24 Vdc | | — | ABR2S102B | — | — | 26.00 |

■ RoHS Compliant

Table 23.193: Coil Data

| Relay | | ABR1E | | | | | ABR2E | | | | ABR2EB | ABR1S | | | | ABR2S | | ABR2SB |
|-----------------------------|----|------------|------------|---------|---------|---------|--------|--------|---------|---------|--------|--------|--------|------------|---------|-------|------|--------|
| Coil Voltage U _e | V | 24 Vac/Vdc | 48 Vac/Vdc | 127 Vdc | 127 Vac | 240 Vac | 24 Vdc | 48 Vdc | 127 Vac | 240 Vac | 24 Vdc | 24 Vdc | 24 Vdc | 48 Vac/Vdc | 127 Vac | 24 | 24 | 24 |
| Maximum Voltage | V | 30 | 53 | 137 | 140 | 255 | 28.8 | 56 | 140 | 264 | 28.8 | 30 | 30 | 53 | 140 | 28.8 | 28.8 | 28.8 |
| Pick-up Voltage | V | 17 | 38 | 97 | 93 | 195 | 16.9 | 37.3 | 97 | 186 | 16.9 | 17 | 17 | 38 | 83 | 16.9 | 16.9 | 16.9 |
| Minimum Sealed Current | mA | 5.2 | 5.4 | 1.5 | 2.4 | 2 | 2 | 2 | 2.5 | 2.5 | 2 | 6.6 | 6.2 | 5.4 | 2.4 | 2 | 2 | 2 |
| Maximum Sealed Current | mA | 62 | 36 | 15 | 8 | 7 | 19.5 | 11 | 16 | 15 | 29 | 62 | 62 | 36 | 8 | 28 | 17 | 29 |

Table 23.194: Contact Ratings

| Relay | | ABR1E | ABR2E | ABR2EB | ABR1S | ABR2S | ABR2SB |
|---------------------------------|-----|-------|-------|--------|-------|-------|--------|
| Rated Voltage U _e | Vac | 250 | 115 | 48 | 250 | 230 | 48 |
| Rated Voltage U _e | Vdc | 125 | 100 | 48 | 125 | 120 | 48 |
| Thermal Current I _{th} | 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 23.195: Dimensions

| Modules | Approximate Dimensions (WxDxH) ♦ | |
|-----------------------|----------------------------------|------------------|
| | 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 |

♦ Dimensions mounted on DIN 3 track (7.5 mm high).

Table 23.196: Approvals

| | |
|--------------|-------------------------------------|
| ABR1E, ABR2E | UL E164353, CSA 081630, IEC 60947-1 |
| ABR1S, ABR2S | UL E164353, CSA 081630, IEC 60947-1 |

ABR1 relays are RoHS compliant as of date code 0610.

For Mounting Track, see page 24-16

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