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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  
Class 240278  
3211 04IEC  
61810-1 RoHS  
Compliant**Approvals for RSLZ sockets:**File  
CCNE172326S  
SWIV2  
SWIV8File  
Class 247510  
3211 07IEC  
61810-1 RoHS  
Compliant

RSL 1PV\*\*

RSL 1PR\*\*



RSL 1AB\*\*

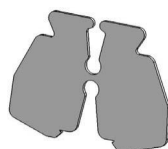


RSL ZVA\*

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.

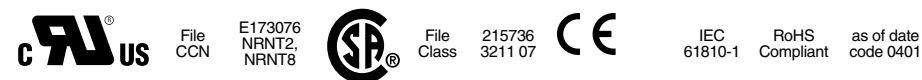
**Table 23.7: Protection modules** (sold in lots of 10)

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

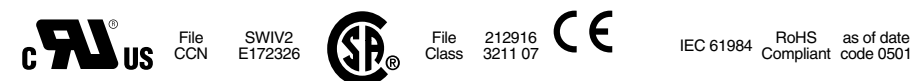
**Table 23.8: Accessories** (sold in lots of 10)

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 (Ith)					
	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 (Ith)					
	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 (Ith)					
	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 (Ith)		
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 (Ith)		
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 (Ith)		
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 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.

CP2 Discount Schedule

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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.
<b>Without LED, with Test Button, and Lock-Down Door</b>				
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
<b>With LED, Test Button, and Lock-Down Door</b>				
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 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

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 CCN E172326 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	RXM040W	1.90
		RPZF2		
		RPZF3	RUW240BD	2.60
		RPZF4		
RC circuit	24–60 Vac	RPZF1	RXM041BN7	1.90
	110–240 Vac	RPZF2		
		RPZF1	RXM041FU7	2.20
		RPZF2		
Varistor	24–60 Vac	RPZF3	RUW241P7	2.20
	6–24 Vac/Vdc	RPZF4		
		RPZF1	RXM021RB	1.90
	24–60 Vac/Vdc	RPZF2		
	110–240 Vac/Vdc	RPZF1	RXM021BN	1.90
		RPZF2		
	24 Vac/Vdc	RPZF1	RXM021FP	1.90
	240 Vac/Vdc	RPZF2		
		RPZF3	RUW242B7	2.70
		RPZF4		
		RPZF3	RUW242P7	2.70
		RPZF4		



**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
	RPM1***	RPZ1DA	0.70
	RPM2***	RXZE2DA	0.70
	RPM3***	RPZ3DA	0.70
DIN rail mounting adapter ■	RPM4***	RPZ4DA	0.70
	RPM1***	RPZ1FA	0.50
	RPM2***	RXZE2FA	0.50
	RPM3***	RPZ3FA	0.50
Panel mounting adapter	RPM4***	RPZ4FA	0.50
	All relays	RXZL520	0.10
ID tags (sheet of 108 tags)			

■ 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	None Available	KLD12★	45.00
	DC	DPDT	None Available	KLD12★	45.00
		DPDT	None Available	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			

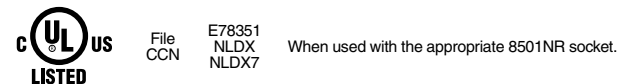
Note: S = Stocked.

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	8501	KP12	V20
(See Stocked Relay Table above)			

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

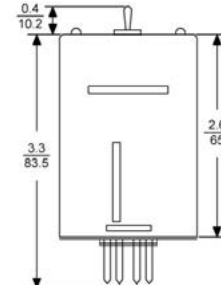
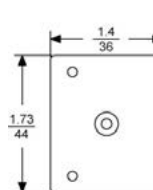
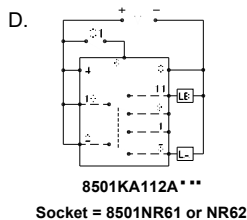
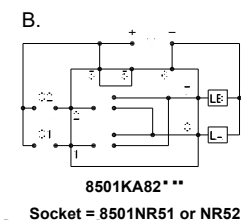
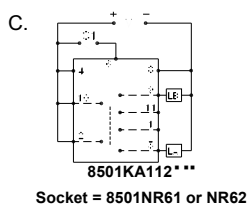
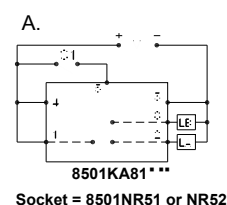
**Table 23.44: Contact Ratings**

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



8501RSD14P14V53

## 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.
8501 Type	9050 Type		UL	CSA			
KP12 KPD12 KA81 KA82	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, 10 A	NR51	12.30	1
			300 V, 15 A		NR51B	10.20	10
		8 Pin Tubular Double Tier Screw Terminal	600 V, 5 A	300 V, 10 A	NR52	12.30	1
			300 V, 16 A		NR52B	10.20	10
KP13 KPD13 KA112	JCK21–29 JCK41–49 JCK70 JCK2F JCK4F	11 Pin Tubular Single Tier Screw Terminal	600 V, 5 A	300 V, 10 A	NR61	18.50	1
			300 V, 15 A		NR61B	16.50	10
		11 Pin Tubular Double Tier Screw Terminal	600 V, 5 A	300 V, 10 A	NR62	18.50	1
			300 V, 16 A		NR62B	16.50	10
KL KU	—	11 Pin Spade Double Tier Screw Terminal	300 V, 15 A	300 V, 15 A	NR82	20.60	1
					NR82B	18.50	10
RS41 RSD41	—	5 Pin Spade Double Tier Screw Terminal	300 V, 15 A	300 V, 15 A	NR41	28.70	1
					NR41B	26.70	10
RS42 RSD42	—	8 Pin Spade Double Tier Screw Terminal	300 V, 10 A	300 V, 10 A	NR42	28.70	1
					NR42B	26.70	10
RS43 RSD43	—	11 Pin Spade Double Tier Screw Terminal	300 V, 10 A	300 V, 10 A	NR43	26.70	1
					NR43B	26.70	10
RS44 RSD44	—	14 Pin Spade Double Tier Screw Terminal	300 V, 10 A	300 V, 10 A	NR34	28.70	1
					NR34B	26.70	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	28.70	1
					NR45B	26.70	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:

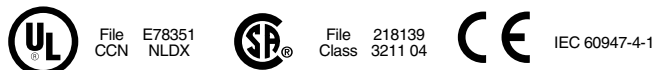


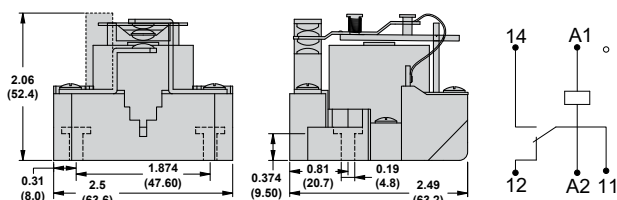
Table 23.66: Voltage Codes and Stocked Relays

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

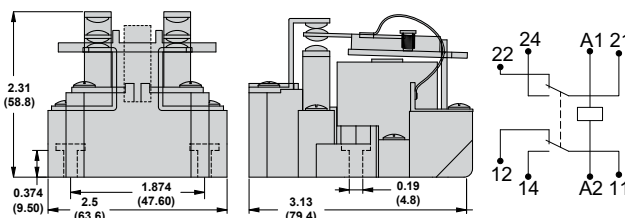
Note: S = Stocked.  
Factory order items require a **minimum** order quantity of 25 and have a lead time of 12 weeks.

### Approximate Dimensions and Wiring Diagrams

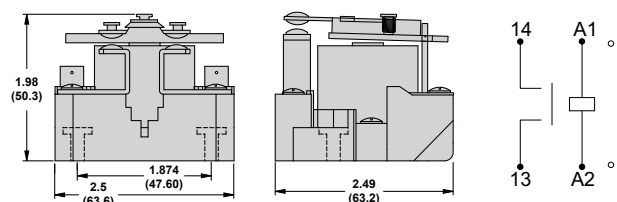
8501CO15, 8501CDO15 (SPDT)



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



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



8501CO7, 8501CDO7 (DPST)

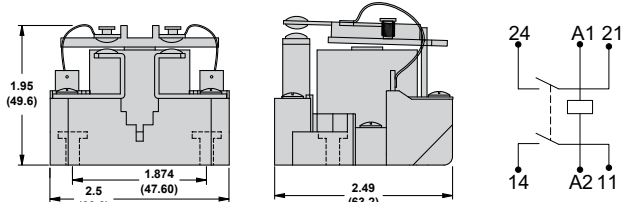


Table 23.67: Class 9991 Enclosure

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
			Spring Terminal	2	0	LAD8N20	20.70
				1	1	LAD8N11	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
(Lockout Cover, See page 7 of Catalog 8501CT0101.)		Off-Delay	Screw Clamp	0.1–3 s ▲	LADR0	131.00
				0.1–30 s	LADR2	131.00
			Spring Terminal	10–180 s	LADR4	131.00
				0.1–3 s ▲	LADR03	131.00
				0.1–30 s	LADR23	131.00
				10–180 s	LADR43	131.00

▲ 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

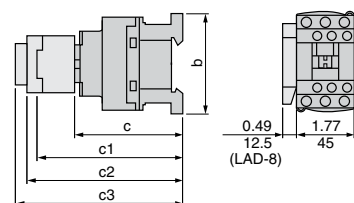
- Protection provided by limiting the transient voltage value to 2 Uc maximum.
- Maximum reduction of transient voltage peaks.

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

**Table 23.76: Coil Voltage Codes**

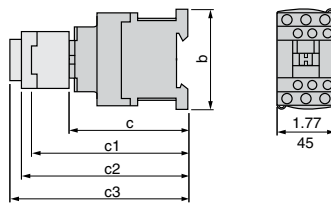
Voltage	24 Vac/Vdc	32/36 Vac/Vdc	42/48 Vac/Vdc	60/72 Vac/Vdc	100 Vac/Vdc	110/127 Vac/Vdc	220/240 Vac/Vdc	256/277 Vac/Vdc	380/415 Vac/Vdc
Voltage Code	B	C	E	EN	K	F	M	U	Q

### 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<sub>c</sub>), 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<sub>c</sub>) (0.85–1.1 U<sub>c</sub>)**

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<sub>c</sub>)**

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<sub>c</sub>)**

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
				
Screw Clamp	N.O.	N.C.		
	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
Spring Termination	1	3	LA1KN13▲	27.30
	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
Faston 1 x 6.35 or 2 x 2.8	2	2	LA1KN223▲	27.30
	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 <sub>c</sub>
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	

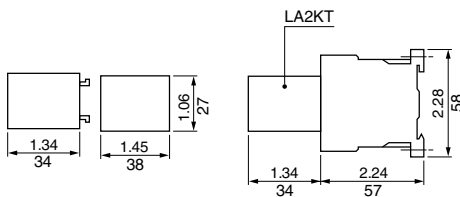
- ★ Protection by the limitation of the transient voltage to 2 U<sub>c</sub> maximum. Maximum reduction of the transient voltage peaks. Slight time delay on drop-out (1.1 to 1.5 times normal).  
 ▼ No overvoltage or oscillation frequency. Polarized component. Slight time delay on drop-out (1.1 to 1.5 times normal).  
 Δ Protection by limitation of the transient voltage to 3 U<sub>c</sub> 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

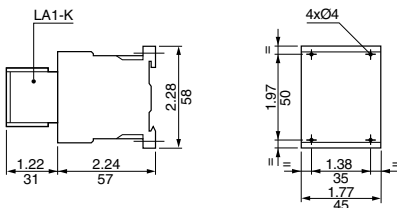
Conforming to Standards		IEC 947, NF C 63-140, VDE 0660, BS 5424, CE
Approvals		UL, CSA, DEMKO, NEMKO, SEMKO, FI
Protective treatment	Conforming to IEC 68 (DIN 50016)	"TC" (Climateproof)
Degree of protection	Conforming to VDE 0106	Protection against direct finger contact
Ambient air temperature	Storage	-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)



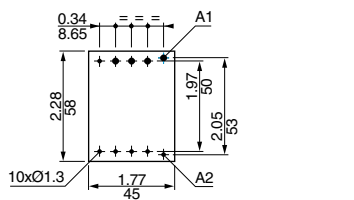
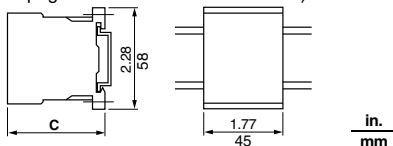
LA2KT electronic time delay contact blocks

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**

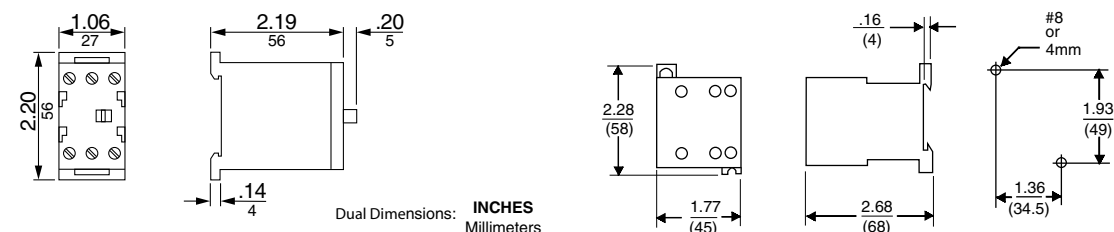
Coil Voltage (Voltage-Hz)	Type	\$ Price
24–50/60	CA2SKE20••▲	120.00

▲ 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	

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

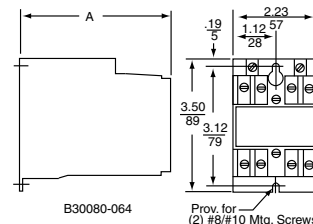
Table 23.103: Average Operating Time (ms)

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

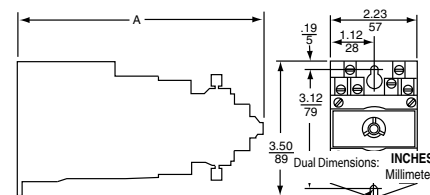


Table 23.106: Dimensions and Weight

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

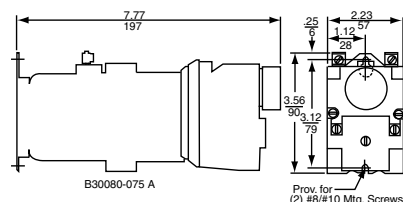


Type XDO40XTE2  
Timing Relay

- 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.	Continuous Amperes	Make and Break Amperes	Continuous Amperes
Standard	125 250	P600	1.1 0.55	5 5	4 0.8	5 5
Overlapping	125	P150	1.1	5	4	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



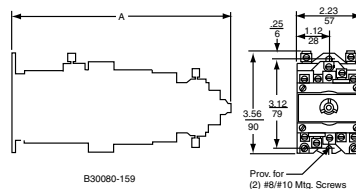
Type XDO40XDL  
Latching Relay

- 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
	<b>Mechanical Latch Attachment</b> —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. <b>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.</b> AC Latch Attachment DC Latch Attachment	XL▲ XDL▲	169.00 222.00
	<b>Pneumatic Timer Attachment</b> —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. <b>Off Delay</b> 0.2–60 seconds 5–180 seconds <b>On Delay</b> 0.2–60 seconds 5–180 seconds	XTD1 XTD2  XTE1 XTE2	336.00 336.00  336.00 336.00
	<b>Timer Lockout Cover</b> —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
	<b>Adder Decks</b> —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
	<b>Contact Cartridges</b> —The Type X relay offers 4 Types of contact cartridges. All are color-coded for visual identification of each Type. <b>Standard Cartridge</b> —The standard cartridge, used for most applications, has a black case. <b>Overlapping Cartridge</b> —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. <b>May be ordered factory installed:</b> <ul style="list-style-type: none"><li>• Substitute 1 N.O. and 1 N.C. overlapping cartridges for 2 standard cartridges.</li><li>• Substitute 2 N.O. and 2 N.C. overlapping cartridges for 4 standard cartridges.</li><li>• Substitute 3 N.O. and 3 N.C. overlapping cartridges for 6 standard cartridges.</li><li>• Substitute 4 N.O. and 4 N.C. overlapping cartridges for 8 standard cartridges.</li></ul> <b>Master Cartridge</b> —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. <b>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.</b> <b>Logic Reed Cartridge</b> —See logic reed adder deck above.	XC1  XC2  Form Y1591 Y1592 Y1593 Y1594	24.20  24.20  Add 24.20 Add 24.20 Add 24.20 Add 24.20
	<b>Mounting Track</b> —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
	<b>Manual Test Tool</b> —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
	<b>Transient Suppressor</b> —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
	<b>NEMA 1 Enclosure</b> —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"> <li>Class Number</li> <li>Type Number</li> <li>Voltage Code for mechanical latch attachment</li> <li>Form for factory installed overlapping contacts</li> </ul>	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		—	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	

■ 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 (>10<sup>9</sup> operations)

**Table 23.122: Solid State Relays**

Switching	Voltage Range		Load Current Range	Catalog Number	\$ Price ea.
	Input	Output			
	V	V			
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
			20	SSRDP8S20A1	70.00
	90***280 AC	24***280 AC	30	SSRDP8S30A1	78.00
			45	SSRDP8S45A1	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)

Function	Supply Voltages	4 pole			2 pole		
		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					
		For 48 Vac supply, additional resistor 390 ohm 4 W / 24 V					
		♦ For 48 Vac supply, additional resistor 560 ohm 2 W / 24 V					



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
<b>6 Function Timer</b>				
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
<b>8 Function Timer</b>				
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
<b>Symmetrical Timers: On and Off delay times are equal.</b>				
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
<b>Asymmetrical Timers: On and Off delay times are adjusted separately.</b>				
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
	0.1 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
<b>On De-energization, Adjustable from 0.05 s to 10 min, in 7 Ranges</b>				
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
<b>On Opening of External Control Contact, Adjustable from 0.05 s to 300 h, in 10 Ranges</b>				
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
<b>On opening of Low Level External Control Contact, Adjustable from 0.05 s to 300 h, in 10 Ranges</b>				
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
<b>Start on Energization</b>				
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
<b>Start on Opening of External Control Contact</b>				
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
<b>Symmetrical Relays with Start during Off Period</b>				
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
<b>Asymmetrical, with Separate Adjustment of On-Delay and Off-Delay</b>				
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 Class 214768  
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](http://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 REG48PUN1LHU	252.00 226.00	
		2 electromechanical relays	2	Yes	REG48PUN2RHU	292.00	
		1 solid state relay	2	Yes No	REG48PUN1LHU REG48PUN1LHU	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	
		1 solid state relay + 1 analog interface (4–20 mA)	2	Yes	REG48PUN2LJHU	298.00	
	24 Vac/Vdc	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 REG96PUN1LHU	336.00 311.00	
		2 electromechanical relays	3	Yes	REG96PUN2RHU	381.00	
		1 solid state relay	3	Yes No	REG96PUN1LHU REG96PUN1LHU	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	
		1 solid state relay + 1 analog interface (4–20 mA)	3	Yes	REG96PUN2LJHU	385.00	
	24 Vac/Vdc	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



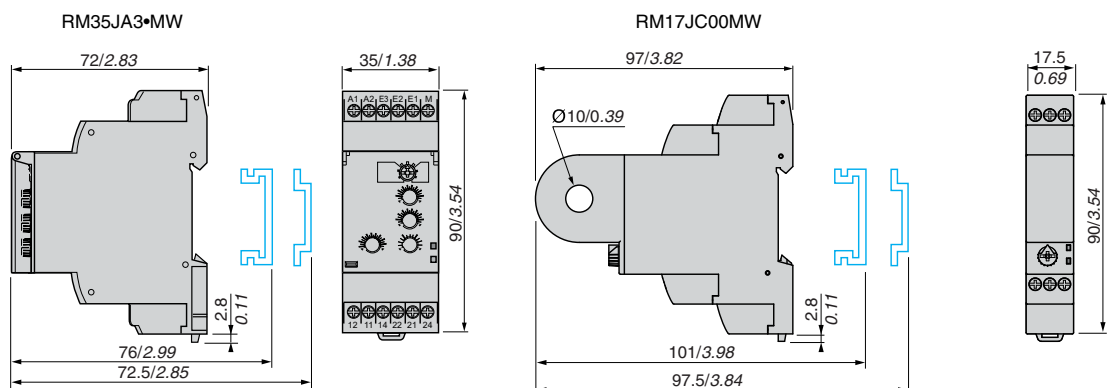
File  
Class 217698  
3211 07



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

GL, C-Tick, GOST,  
RoHS

### Approximate Dimensions



Dual Dimensions: **INCHES**  
Millimeters

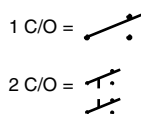
RM17JC00MW



RM35JA31MW



RM35JA32MW





RM17TG•0



RM17TA00



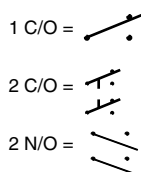
RM17TE00



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

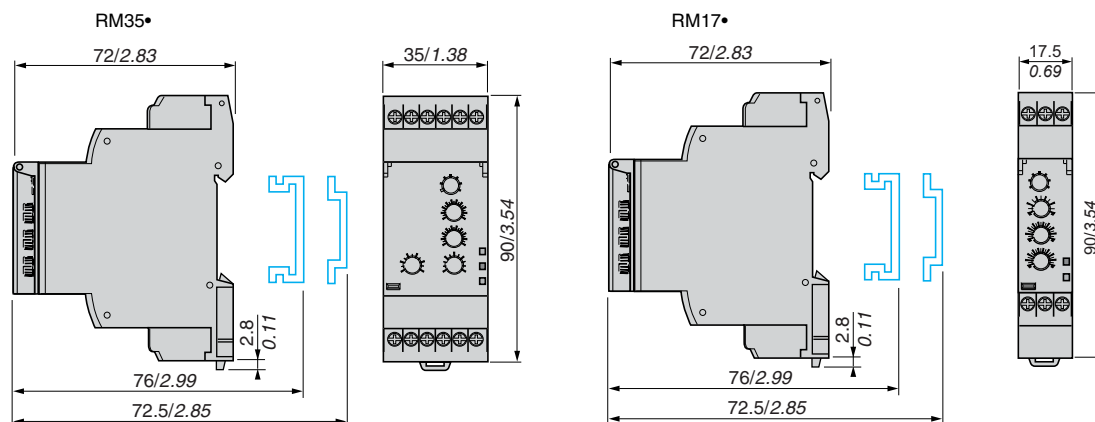


File  
Class 217698  
3211 07



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



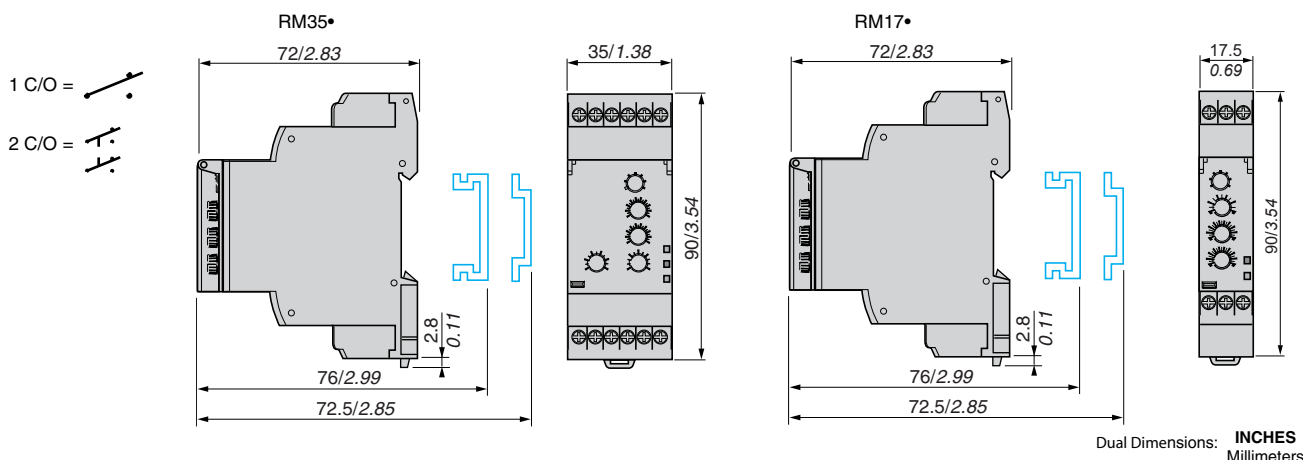
File  
Class

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



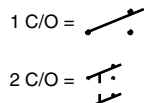
LA9RM201



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		
	Detection by discrete sensors	1 C/O, 5A		50 k Ω–1 M Ω	RM35LV14MW	146.00

**Table 23.164: Probes**

Application	No. of probes	Operating temperature		Maximum pressure kg/cm <sup>2</sup>	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

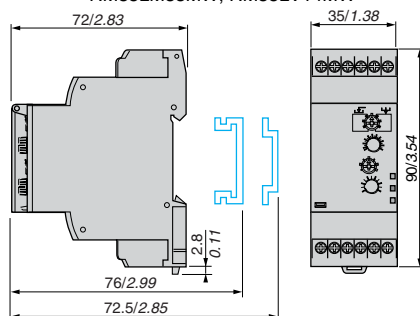


CE: 73/23/EEC and  
EMC 89/336/EEC

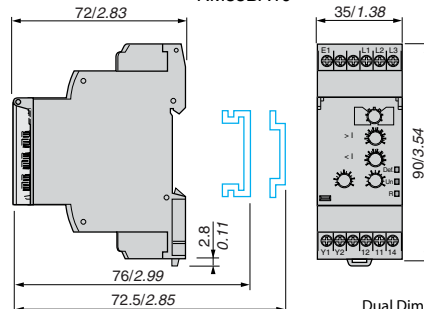
GL, C-Tick, GOST,  
RoHS

## 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

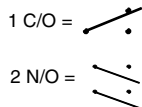
217698  
3211 07



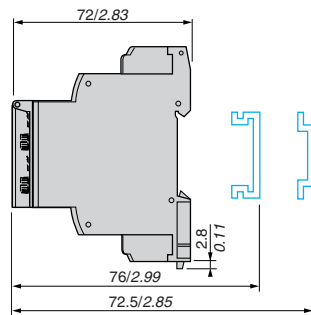
CE: 73/23/EEC and  
EMC 89/336/EEC

GL, C-Tick, GOST,  
RoHS

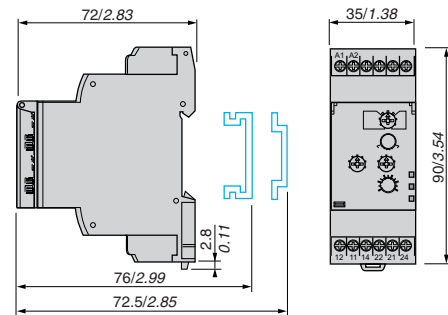
#### Approximate Dimensions



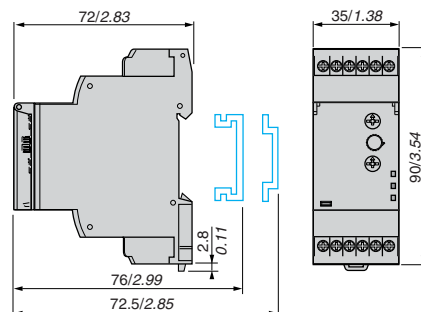
RM35S0MW



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	150.
	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 NMTR7, 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  
CCNE164353  
NKRFile  
Class089150\_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		4	
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)	—		—		—		—		2	
Dimensions, W x D x H (mm)		35.5x59.5x107.6		35.5x59.5x107.6		72x59.5x107.6		72x59.5x107.6		35.5x59.5x107.6	
		Cat. No.	\$ Price	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	SR3XT43BD	220.00
	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	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 2.91mm: 17.5 x 70.5 x 74				
Control Circuit Characteristics					
Rated Voltage Us	24 Vdc	24 Vdc	24 Vdc	24 Vdc	
Maximum Voltage	28.8 Vdc	28.8 Vdc	28.8 Vdc	28.8 Vdc	
Maximum Current at Us	12 mA	12 mA	13.6 mA	13.6 mA	
Internal Protection against reverse polarity	Yes	Yes	Yes	Yes	
Output Circuit Characteristics					
Rated Operational Voltage Ve	5 to 48 Vdc	5 to 48 Vdc	24 to 240 Vac	24 to 240 Vac	
Maximum Voltage	57.6 Vdc	57.6 Vdc	264 Vac	264 Vac	
Internal Protection against reverse polarity	Yes	Yes	Yes	Yes	
External Protection	Against short-circuits for 1k, 1k (Ac) and <100 A (DC) Quick-blow fuse with very high breaking capacity: 3.15 A				
Rated insulation voltage	Conforming to IEC 60947-1: 300 V Conforming to VDE 0110: 250 V group C				
Approvals	UL E164353, CSA 081630, IEC 60947-1				

▲ 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 <sub>e</sub>	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 <sub>e</sub>	Vac	250	115	48	250	230	48
Rated Voltage U <sub>e</sub>	Vdc	125	100	48	125	120	48
Thermal Current I <sub>th</sub>	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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