“When you need a product to perform a unique function, Kele has it.”

RELAYS & CONTACTORS

Products manufactured in the United States

MADE IN USA

NEW Products that are new to the catalog

Value Line Series pg. 929

RIBL Latching Series pg. 946

FL1 Series pg. 973

Kele®

www.kele.com

MODEL/SERIES — PAGE

Indicates New Products

DESCRIPTION

Value Line general purpose relays are compact in size and available in **SPDT, DPDT, 3PDT**, and **4PDT**. The **VL Series** relays feature an indicator light and a push to test button.

FEATURES

- ***Blade-style connections***
- ***DIN rail mounting***
- ***One-year warranty***
- ***UL recognized, CSA certified, CE certified***

NEW!

JQX-LY1C

JQX-LY3CL

JQX-LY4CL

Value Line

SPECIFICATIONS

COIL RATINGS

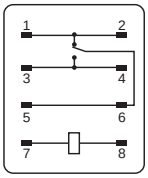
Rated Voltage		Rated Current (mA) 60 Hz SPDT	DPDT	3PDT	4PDT	50 Hz SPDT	DPDT	3PDT	4PDT	Coil Resistance (Ω) SPDT	DPDT	3PDT	4PDT
AC	24	46	46	67	80	54	54	80	93.6	180	180	100	78
	120	9.2	9.2	14.8	16.4	10.8	10.8	17.3	19	4430	4430	2450	2200
DC	12	100	166	-	-	117	194	-	-	160	160	-	-
	24	36.9	36.9	58.6	69	36.9	36.9	58.6	69	650	650	410	350

CONTACT RATINGS

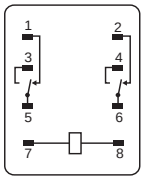
Contact Form	UL Contact Ratings
SPDT	16A @ 250 VAC (inductive) 16A @ 30 VDC (resistive) 1/2 hp @ 120 VAC (motor)
DPDT	10A @ 250 VAC (resistive) 10A @ 30 VDC (inductive) 1/3 hp @ 120 VAC (motor) 1/2 hp @ 240 VAC (motor)
3PDT 4PDT	10A @ 250 VAC (inductive) 10A @ 30 VDC (resistive) 1/2 hp @ 240 VAC (motor)

Minimum operating voltage	≥80% of rated voltage AC ≥75% of rated voltage DC
Maximum continuous applied voltage	110% of rated voltage AC/DC
Drop-out voltage	
AC	30% or more of the rated voltage
DC	10% or more of the rated voltage
Contact material	Silver alloy
Contact resistance	≤100 mΩ
Operating time	≤20 ms
Release time	≤20 ms
Minimum load	100 mA/5 VDC
Operating temperature	-13° to 131°F (-25° to 90°C)
Weight	
SPDT	0.08 lb
DPDT, 3PDT	0.11 lb
4PDT	0.14 lb
Agency approvals	UL-recognized component, (File #E162239) CSA certified CE certified
Warranty	1 year

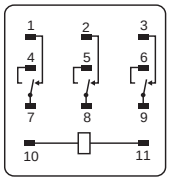
WIRING (Bottom View)



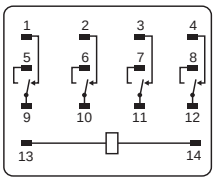
JQX-LY1C



JQX-LY2C



JQX-LY3C



JQX-LY4C

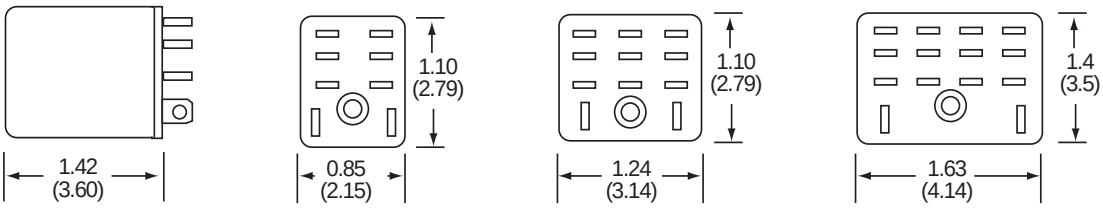
NEW!

RELAYS AND BASES

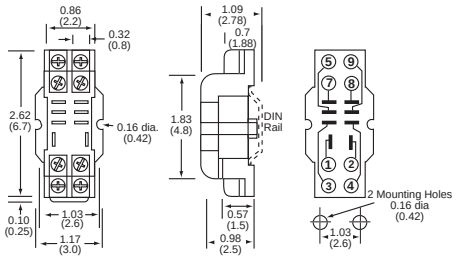
VALUE LINE SERIES RELAYS

DIMENSIONS

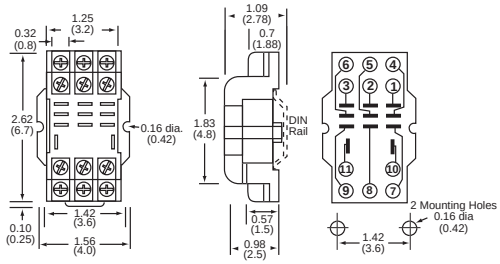
in
(cm)



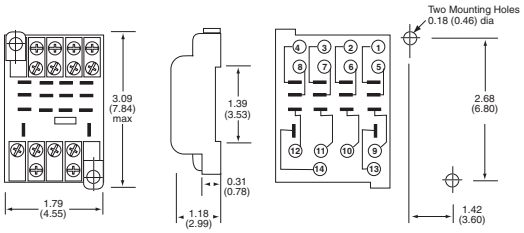
JQX-LY1C **JQX-LY1, 2** **JQX-LY3** **JQX-LY4**



PTF08A-K



PTF11A-K



PTF14A-E

ORDERING INFORMATION

MODEL	DESCRIPTION
JQX-LY1C-A-120VAC	SPDT relay 120 VAC w/ LED indicator and push button
JQX-LY1C-A-12VDC	SPDT relay 12 VDC w/ LED indicator and push button
JQX-LY1C-A-24VAC	SPDT relay 24 VAC w/ LED indicator and push button
JQX-LY1C-A-24VDC	SPDT relay 24 VDC w/ LED indicator and push button
JQX-LY2C-A-120VAC	DPDT relay 120 VAC w/ LED indicator and push button
JQX-LY2C-A-12VDC	DPDT relay 12 VDC w/ LED indicator and push button
JQX-LY2C-A-24VAC	DPDT relay 24 VAC w/ LED indicator and push button
JQX-LY2C-A-24VDC	DPDT relay 24 VDC w/ LED indicator and push button
JQX-LY3C-A-120VAC	3PDT relay 120 VAC w/ LED indicator and push button
JQX-LY3C-A-24VAC	3PDT relay 24 VAC w/ LED indicator and push button
JQX-LY3C-A-24VDC	3PDT relay 24 VDC w/ LED indicator and push button
JQX-LY4C-A-120VAC	4PDT relay 120 VAC w/ LED indicator and push button
JQX-LY4C-A-24VAC	4PDT relay 24 VAC w/ LED indicator and push button
JQX-LY4C-A-24VDC	4PDT relay 24 VDC w/ LED indicator and push button
PTF08A-K	SPDT, DPDT relay socket
PTF11A-K	3PDT relay socket
PTF14A-K	4PDT relay socket

IDEC GENERAL-PURPOSE RELAYS

RH, RJ, RR SERIES

DESCRIPTION

IDEC general-purpose relays are available in the **RH Series** blade-style relays and the **RR Series** pin-style relays and the **RJ Series** compact relays.

The **RH Series** features a 10A switching capacity. They are available in SPDT, DPDT, 3PDT, and 4PDT contact configurations, driven by AC or DC coils, and they have blade terminals for socket mounting.The **RR Series** has a 10A contact rating.

The **RR Series** relays are available in SPDT, DPDT, and 3PDT configurations driven by AC or DC coils, and they have pin or blade terminals for socket mounting.

The **RJ Series** is compact to reduce space requirements. They are available in a 12A SPDT version and an 8A DPDT version. They are driven by AC or DC coils and have blade terminals for socket mounting.

RH, RJ, RR Series

FEATURES

- ***Blade style, pin style, and compact models***
- ***Indicator light and/or check button available***
- ***Surface or DIN rail mount***
- ***UL recognized, CSA certified***

SPECIFICATIONS

COIL RATINGS

RH SERIES

RATED VOLTAGE		RATED CURRENT (mA) ±15% @ 20°C								INRUSH CURRENT (mA)			
		60 Hz				50 Hz							
		SPDT	DPDT	3PDT	4PDT	SPDT	DPDT	3PDT	4PDT	SPDT	DPDT	3PDT	4PDT
AC	12	75	100	140	165	86	118	165	196	120	170	260	310
	24	37	50	70	83	42	59.7	81	98	56	85	130	165
	120	7.5	11	14.2	16.5	8.6	12.9	16.4	19.5	12	16	26	33
	240	3.2	5.5	7.1	8.3	3.7	6.5	8.2	9.8	7	8	12	16
		SPDT		DPDT		3PDT		4PDT		SPDT	DPDT	3PDT	4PDT
DC	12	64		75		120		125		–	–	–	–
	24	32		36.9		60		62		–	–	–	–

RR Series

Rated Voltage		Rated Current (mA) ±15% @ 20°C		INRUSH CURRENT (mA)
		60 Hz	50 Hz	
AC	12	210	245	365
	24	105	121	182
	120	20.5	24	35
	240	10.5	12.1	18
DC	12	120		–
	24	60		–

RJ Series

Coil Sensitivity	Nominal Voltage	Nominal Current	Coil Resistance
DC Coil	24V	25.7 mA	1080Ω
AC Coil (60 Hz)	24V	41.1 mA	243Ω
	120V	8.1 mA	5270Ω

CONTACT RATINGS

RH SERIES (UL ratings)

VOLTAGE	RESISTIVE (A)				INDUCTIVE (A) cosΘ= 0.3				MOTOR LOAD (hp)		
	SPDT	DPDT	3PDT	4PDT	SPDT	DPDT	3PDT	4PDT	SPDT	DPDT	3PDT
240 AC	10	10	–	7.5	7	7	*	5	1/3	1/3	1/3
120 AC	10	10	10	10	7.5	–	–	7.5	1/6	1/6	1/6
30 DC	10	10	10	–	7	7	–	–	–	–	–
28 DC	10	10	10	10	7.5	–	–	7.5	–	–	–

* Note: 6.5A, 20A Total

RR SERIES (UL ratings)

VOLTAGE	RESITIVE (A)	INDUCTIVE (A) cosΘ= 0.3	MOTOR LOAD (hp)
240 AC	10	7	1/3
120 AC	10	7.5	1/4
30 DC	10	7	–

	CONTACT	RJ1S	RJ2S
Resistive Load (Maximum)	N.O.	12A @ 250 VAC/30 VDC	8A @ 250 VAC/30 VDC
	N.C.	12A @ 250 VAC; 6A @ 30 VDC	8A @ 250 VAC; 4A @ 30 VDC
Inductive Load (Maximum)	N.O.	7.5A @ 250 VAC; 6A @ 30 VDC	4A @ 250 VAC; 4A @ 30 VDC
	N.C.	7.5A @ 250 VAC; 3A @ 30 VDC	4A @ 250 VAC; 2A @ 30 VDC

Maximum continuous applied voltage
- **RH, RR** 110% of rated voltage
- **RJ** 140% of rated voltage

Pull-in voltage
- **RH, RR, RJ/AC** 80% of rated voltage
- **RJ, RJ/DC** 70% of rated voltage

Drop-out voltage
- **AC** 30% or more of rated voltage
- **DC** 10% or more of rated voltage

Contact material
- **RH** Silver cadmium oxide
- **RR** Silver
- **RJ** Silver nickel alloy

Contact resistance
- **RH** 50 mΩ maximum
- **RR** 30 mΩ maximum
- **RJ** 50 mΩ maximum

Operate time
- **RH, RR** 25 ms maximum
- **RJ** 15 ms maximum

Release time
- **RH, RR** 25 ms maximum
- **RJ** 10 ms maximum

Min load
- **RH** 24 VDC/30 mA, 5 VDC/100 mA
- **RR** 24 VDC/10 mA, 5 VDC/20 mA
- **RJ** 5 VDC/100 mA

Operating temp -22° to 158°F (-30° to 70°C)

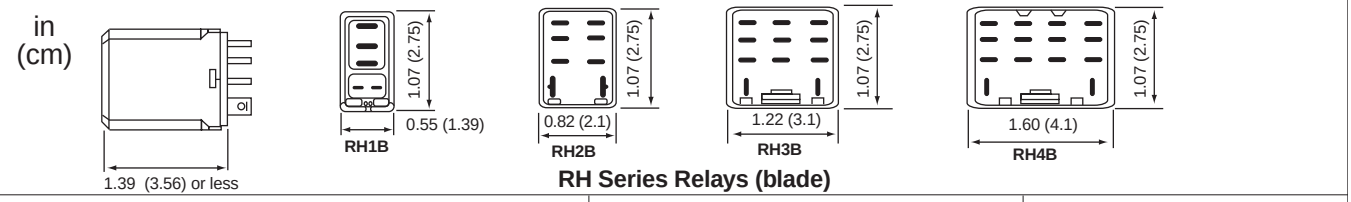
Agency approvals UL-recognized component, **(RH, RR):** File #E66043, **(RJ):** File #E55996 CSA certified, File #LR35144; CE certified (not RR blade style)

Warranty 1 year

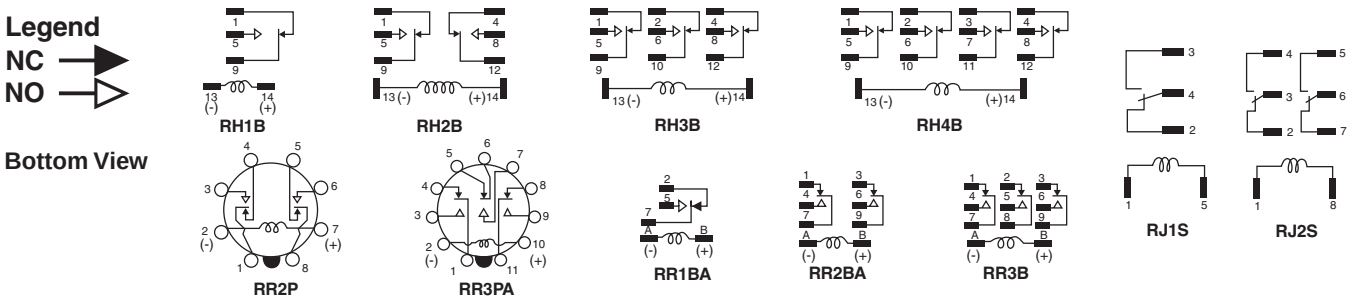
IDEC GENERAL-PURPOSE RELAYS

RH, RJ, RR SERIES

DIMENSIONS



WIRING



ORDERING INFORMATION

MODEL	DESCRIPTION
RH1B	Relay, SPDT, blade (use SH1B-05 socket)
RH2B	Relay, DPDT, blade (use SH2B-05 socket)
RH3B	Relay, 3PDT, blade (use SH3B-05 socket)
RH4B	Relay, 4PDT, blade (use SH4B-05 socket)

U	Standard relay
UL	Indicator light
ULC	Indicator light and check button

AC12V	12 VAC coil voltage
AC24V	24 VAC coil voltage
AC120V	120 VAC coil voltage
AC240V	240 VAC coil voltage
DC12V	12 VDC coil voltage
DC24V	24 VDC coil voltage

RH1B	U	AC24V

MODEL	DESCRIPTION
RR2P	Relay, DPDT, 8 pin (use SR2P-05 or SR2P-06)
RR3PA	Relay, 3PDT, 11 pin (use SR3P-06 socket)
RR1BA	Relay, SPDT, 11 blade (use SR3B-05 socket)
RR2BA	Relay, DPDT, 11 blade (use SR3B-05 socket)
RR3B	Relay, 3PDT, 11 blade (use SR3B-05 socket)

U	Standard relay
UL	Indicator light
ULC	Indicator light and check button

AC12V	12 VAC coil voltage
AC24V	24 VAC coil voltage
AC120V	120 VAC coil voltage
AC240V	240 VAC coil voltage
DC12V	12 VDC coil voltage
DC24V	24 VDC coil voltage

RR2P	U	AC24V

Example: **RR2PUAC24V** DPDT relay 8 pin with 24VAC coil

MODEL	DESCRIPTION
RJ1S	Relay, SPDT (use SJ1S-05B socket)
RJ2S	Relay, DPDT (use SJ2S-05B socket)

C	No options
CL	LED indicator

A24	24 VAC coil voltage
A120	120 VAC coil voltage
D24	24 VDC coil voltage

RJ1S	C	A24

RELATED PRODUCTS		PAGE
DINRSTL, DINRALU	DIN rail	229

IDEC RELAY SOCKETS

SH, SJ, SR SERIES

DESCRIPTION

The **SH** and **SR Series** of IDEC relay sockets are for use with the IDEC **RH / RR Series** relays and **RTE Series** timers. The **SH** and **SR Series** include both blade and pin style sockets and are available for one, two, three and four pole relays. The **SH** and **SR** sockets can be DIN rail or surface mounted. The **SJ Series** of IDEC relay sockets are for use with the IDEC **RJ1S** and **RJ2S Series** relays. They can be DIN rail or surface mounted.

FEATURES

- ***Use with IDEC RH / RR / RJ relays and RTE timers***
- ***Screw terminals with captive wire clamp***
- ***Surface or DIN rail mount***
- ***UL recognized, CSA certified and CE approved***

SJ1S, SJ2S

SH1B-05

SH2B-05

SH3B-05

SH4B-05

SR2P-05

SR2P-06

SR3P-06

SR3B-05

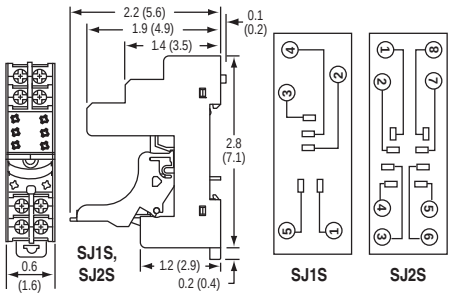
SPECIFICATIONS

Model	Socket Type	Rated Voltage	Rated Current	Hold Down Clip or SpringWire Size	Wire Size	Weight	Approvals
SJ1S-05B	Blade, DIN rail or surface mount	250V	12A	Lever: SJ9Z-C1 (provided)	Two 14 AWG	0.06 lb (0.03 kg)	UL recognized File #E62437, CSA certified File #LR84913, CE
SJ2S-05B	Blade, DIN rail or surface mount	250V	8A	Lever: SJ9Z-C1 (provided)	Two 14 AWG	0.07 lb (0.034 kg)	UL recognized File #E62437, CSA certified File #LR84913, CE
SH1B-05	Blade, DIN rail or surface mount	250V	10A	Spring: SYS-02F1; Clip: SFA-101, SFA-202	Two 12 AWG	0.06 lb (0.03 kg)	UL recognized File #E62437, CSA certified File #LR35144e, CE
SH2B-05	Blade, DIN rail or surface mount	300V	10A	Spring: SY4S-02F1; Clip: SFA-101, SFA-202	Two 12 AWG	0.10 lb (0.05 kg)	UL recognized File #E62437, CSA certified File #LR35144e, CE
SH3B-05	Blade, DIN rail or surface mount	300V	10A	Spring: SH3B05F1; Clip: SFA-101, SFA-202	Two 12 AWG	0.13 lb (0.06 kg)	UL recognized File #E62437, CSA certified File #LR35144e, CE
SH4B-05	Blade, DIN rail or surface mount	300V	10A	Spring: SH4B-02F1; Clip: SFA-101, SFA-202	Two 12 AWG	0.16 lb (0.07 kg)	UL recognized File #E62437, CSA certified File #LR35144e, CE
SR2P-05	8-Pin DIN rail or surface mount	300V	10A	Spring: SR2B-02F1 (RR2P only); Clip: SFA-203 (RTE-P1 only)	Two 12 AWG	0.10 lb (0.05 kg)	UL recognized File #E62437, CSA certified File #LR35144e, CE
SR2P-06	8-Pin, DIN rail or surface mount	300V	10A	Spring: SR2B-02F1 (RR2P only); Clip: SFA-202 (RTE-P1 only)	Two 12 AWG	0.10 lb (0.05 kg)	UL recognized File #E62437, CSA certified File #LR35144e, CE
SR3P-06	11-Pin, DIN rail or surface mount	300V	10A	Spring: SR3B-02F1 (RR only); Clip: SFA-202 (RTE-P2 only)	Two 12 AWG	0.13 lb (0.06 kg)	UL recognized File #E62437, CSA certified File #LR35144e, CE
SR3B-05	Blade, DIN rail or surface mount	300V	10A	Spring: SR3B-02F1 (RR3PA only); Clip: SFA-202 (RTE-P2 only)	Two 12 AWG	0.14 lb (0.06 kg)	UL recognized File #E62437, CSA certified File #LR35144e, CE

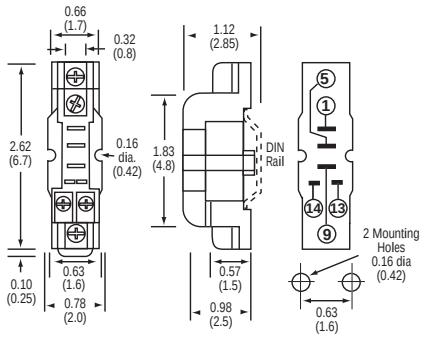
IDEC RELAY SOCKETS

SH, SJ, SR SERIES

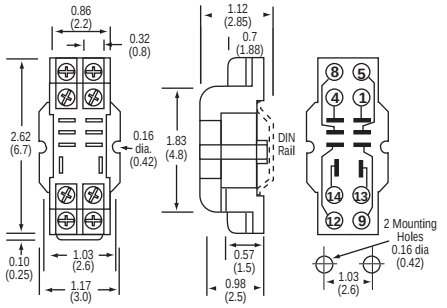
DIMENSIONS



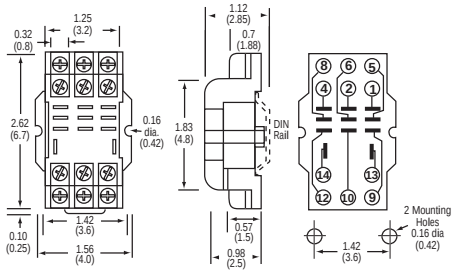
SJ1S, SJ2S



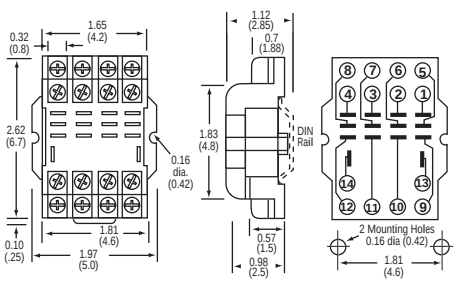
SH1B-05



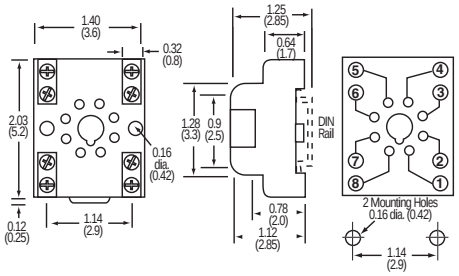
SH2B-05



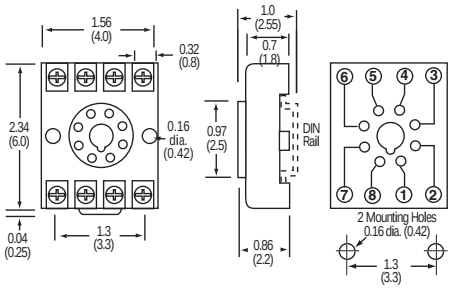
SH3B-05



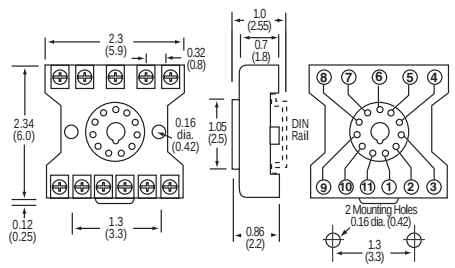
SH4B-05



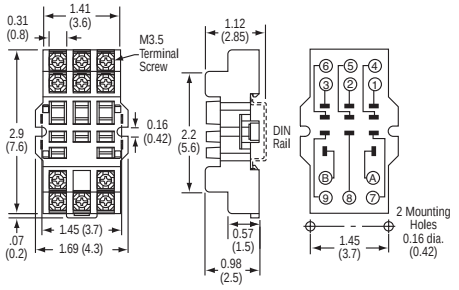
SR2P-05



SR2P-06



SR3P-06



SR3B-05

ORDERING INFORMATION

MODEL	DESCRIPTION
SH1B-05	Relay socket, SPDT blade type, DIN/surface mount
SH1B-05C	SH1B-05QT20 SH2B-05 Relay socket, DPDT blade type, DIN/surface mount
SH2B-05C	SH2B-05QT10 SH3B-05 Relay socket, 3PDT blade type, DIN/surface mount
SH4B-05	Relay socket, 4PDT blade type, DIN/surface mount
SH4B-05C	SJ1S-05B Relay socket, SPDT blade type, DIN/surface mount
SJ2S-05B	Relay socket, DPDT blade type, DIN/surface mount
SR2P-05	Relay socket, DPDT pin type, DIN/surface mount
SR2P-06	Relay socket, DPDT pin type, DIN/surface mount
SR3B-05	Relay socket, three-pole blade type, DIN/surface mount
SR3P-06	Relay socket, 3PDT pin type, DIN/surface mount

OMRON GENERAL-PURPOSE RELAYS

G2R-S, LY, MK SERIES

DESCRIPTION

Omron general-purpose relays are available in the **LY, MK**, and **G2R-S Serie**s. The **LY Series** is available in SPDT, DPDT, 3PDT, and 4PDT contact configurations driven by AC or DC coils. It has up to a 15A switching capacity and blade terminals for socket mounting.

The **MK Series** is available in DPDT and 3PDT configurations driven by AC or DC coils and has up to a 10A switch rating. The **MK Series** has pin-type terminals for socket-mounting and comes standard with a mechanical indicator and push-to-test button.

The **G2R-S Series** is available with SPDT or DPDT contacts rated up to 10A and driven by AC or DC coils. They are socket-mounted, and their small size saves space. They come with a mechanical indicator, optional LED, and lockable test button.

FEATURES

- ***Blade-style, pin-style and compact models***
- ***DIN rail or surface mount***
- ***UL recognized, CSA certified, CE certified***

SPECIFICATIONS

COIL RATINGS

LY SERIES

Rated Voltage		Rated Current (mA) 60 Hz SPDT	DPDT	3PDT	4PDT	50 Hz SPDT	DPDT	3PDT	4PDT	Coil Resistance (Ω) SPDT	DPDT	3PDT	4PDT
AC	24	46	46	67	80	54	54	80	93.6	180	180	100	78
	120	9.2	9.2	14.8	16.4	10.8	10.8	17.3	19	4430	4430	2450	2200
DC	24	36.9		58.6	69	36.9		58.6	69	650	650	410	350

MK SERIES

Rated Voltage		Rated Current (mA) 60 Hz	Coil Resistance (Ω)
AC	24	88	68
	120	18	1578
DC	24	56	430

G2R-S SERIES

Rated Voltage		Rated Current (mA) 60 Hz	Coil Resistance (Ω)
AC	24	37.5	253
	120	7.5	7,286
DC	24	21.8	1,100

Min operating voltage	80% of rated voltage AC/DC
Max continuous applied voltage	110% of rated voltage AC/DC
Drop-out voltage	
AC	30% or more of the rated voltage
DC	10% (**LY**), 15% (**MK, G2R-S**) or more of the rated voltage
Contact material	
LY, G2R-S	Silver cadmium oxide
MK	Silver
Contact resistance	100 mΩ maximum
Operating time	30 ms maximum
Release time	25 ms maximum
Min load	
LY, G2R-S	100 mA/5 VDC
MK	10 mA/1 VDC
Agency approvals	UL-recognized component, File #E41643 (**LY, G2R-S**), #E41515 (**MK**); CSA certified, File #LR31928 (**LY, G2R-S**); #LR41408 (**MK**); CE certified
Warranty	1 year

CONTACT RATINGS

LY SERIES

Contact Form	UL Contact Ratings
SPDT	15A @ 240 VAC (inductive) 15A @ 28 VDC (resistive) 1/2 hp @ 120 VAC (motor)
DPDT	13A @ 120 VAC (resistive) 12A @ 240 VAC (inductive) 10A @ 28 VDC (resistive) 1/2 hp @ 120 VAC (motor)
3PDT 4PDT	10A @ 240 VAC (inductive) 10A @ 28 VDC (resistive) 1/2 hp @ 240 VAC (motor)

MK SERIES

Contact Form	UL Contact Rating
DPDT	10A @ 250 VAC (resistive) 10A @ 28 VDC (resistive) 7A @ 250 VAC (inductive)
3PDT	10A @ 120 VAC (resistive) 10A @ 28 VDC (resistive) 10A @ 250 VAC (resistive) 7A @ 250 VAC (inductive)

G2R-S SERIES

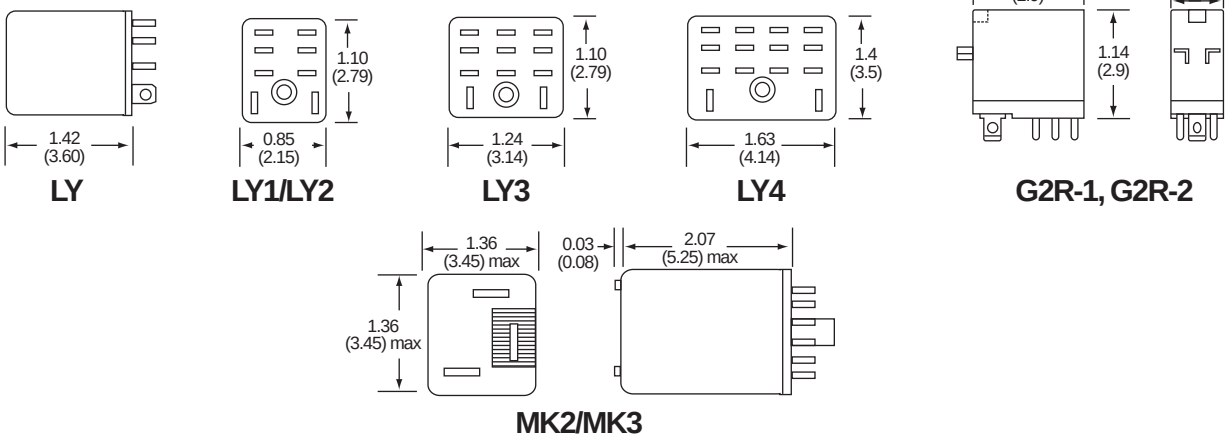
Contact Form	UL Contact Rating
SPDT	10A @ 30 VDC (resistive) 10A @ 250 VAC (general purpose)
DPDT	5A @ 30 VDC (resistive) 5A @ 250 VAC (general purpose)

OMRON GENERAL-PURPOSE RELAYS

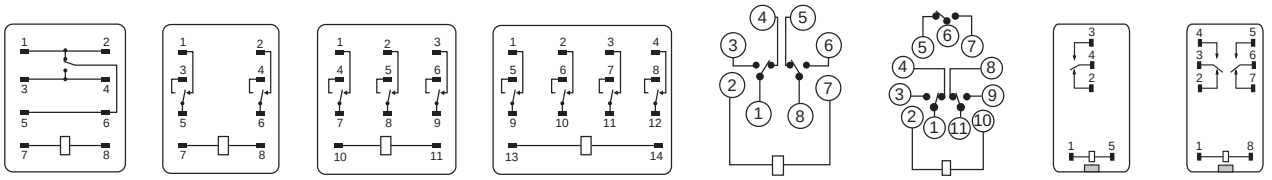
G2R-S, LY, MK SERIES

DIMENSIONS

in (cm)



WIRING



ORDERING INFORMATION

LY SERIES

MODEL	DESCRIPTION
LY	LY Series
1	SPDT contact configuration
2	DPDT contact configuration
3	3PDT contact configuration
4	4PDT contact configuration
I4	Push-to-test button (optional) (two- and four-pole only when combined with N option)
N	LED indicator (optional)
AC24	24 VAC
DC24	24 VDC
AC120	120 VAC

LY | 2 | I4 | N | AC24

Example: **LY2I4NAC24** DPDT relay with push-to-test button, LED indicator, and 24 VAC coil.

Use with PTF Series sockets

MK SERIES

MODEL	DESCRIPTION
MK	MK Series
2	DPDT contact configuration
3	3PDT contact configuration
P	—
N	LED indicator (optional)
—	Two-pole
5	Three-pole
S	Push-to-test button (standard)
AC24	24 VAC
DC24	24 VDC
AC120	120 VAC

MK | 3 | P | N | 5 | S | AC24

Example: **MK3PN5SAC24** 3PDT relay with LED indicator, push-to-test button, and 24 VAC coil.

Use with PF Series sockets

G2R-S SERIES

MODEL	DESCRIPTION
G2R	G2R Series
1	SPDT contact configuration
2	DPDT contact configuration
S	No options
SNI	LED indicator, test button
AC24(S)	24 VAC
DC24(S)	24 VDC
AC120(S)	120 VAC

G2R | 1 | S | AC24(S)

Example: **G2R1SAC24(S)** SPDT relay with 24 VAC coil.

Use with P2RF Series sockets

RELATED PRODUCTS		PAGE
DINRSTL, DINRALU	DIN rail	229
PF, PTF, PRF Series	Relay sockets	937

DESCRIPTION

The **PTF** and **PF Series** of Omron relay sockets are for use with the Omron LY / MK Series Relays. The **P2RF** is for use with the G2R-S relays. The **PTF** and **PF Series** includes both blade and pin style sockets and is available for one, two, three, and four pole relays. The **P2RF** comes with a built-in relay hold down mechanism. All of these sockets can be DIN rail or surface mounted.

FEATURES

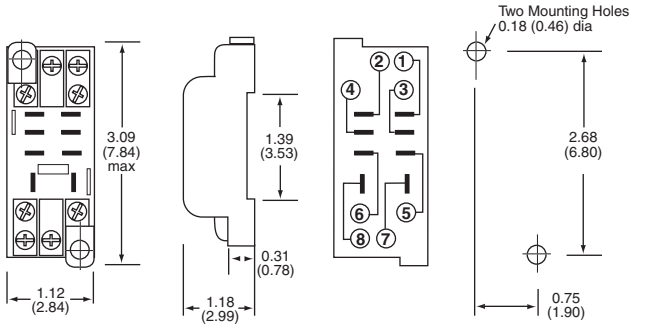
- ***Use with Omron LY / MK / G2R-S relays***
- ***Screw terminals with captive wire clamp***
- ***Surface or DIN rail mount***
- ***UL recognized, CSA certified and CE approved***

GENERAL SPECIFICATIONS

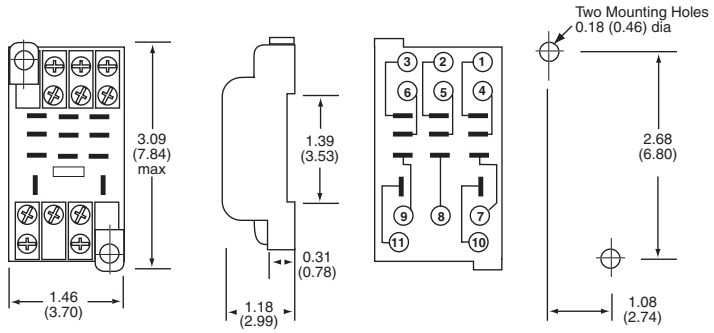
Rated Voltage	250V
Rated Current	10A, 5A, 15A
Terminals	M3.5 screws with captive wire clamps
Dielectric Strength	1500V
Wire Size	Up to two 12 AWG
Materials Of Construction	Polyphenylene
Hold Down Clip or Spring	PFC-A1, PYC-A1
Mounting	DIN rail or surface mount
Approvals	UL-recognized component, File #E87929; CSA certified, File #LR31928; CE certified
Weight	0.13 lb (0.06 kg), 0.11 lb (0.05 kg), 0.17 lb (0.08 kg)

GENERAL SPECIFICATIONS (IN (CM))

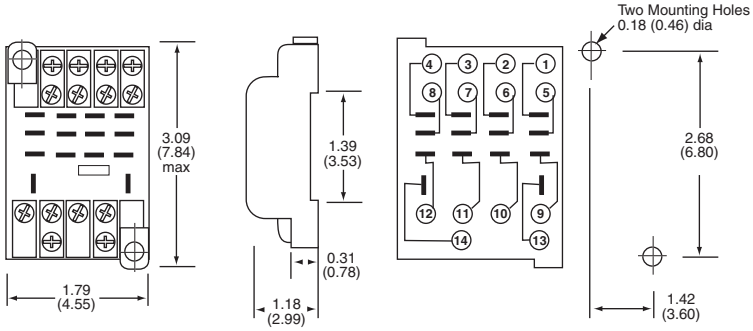
PTF08A-E for use with relay **LY1, LY2**
Hold-down clip: **PYC-A1**
Weight: 0.11 lb (0.05 kg)



PTF11A for use with relay **LY3**
Hold-down clip: **PYC-A1**
Weight: 0.13 lb (0.06 kg)



PTF14A-E for use with relay **LY4**
Hold-down clip: **PYC-A1**
Weight: 0.17 lb (0.08 kg)

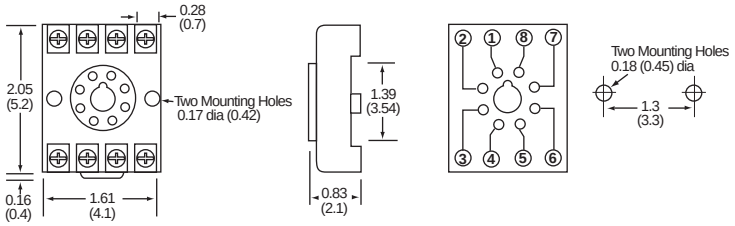


OMRON RELAY SOCKETS

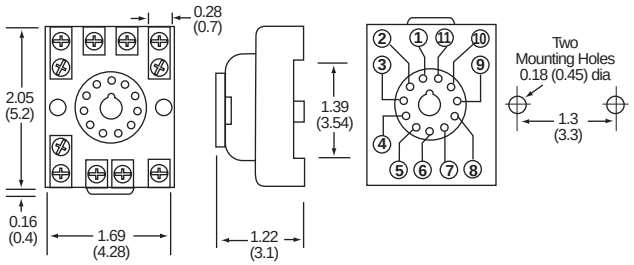
P2RF, PF, PTF SERIES

GENERAL SPECIFICATIONS CONT'D (IN (CM))

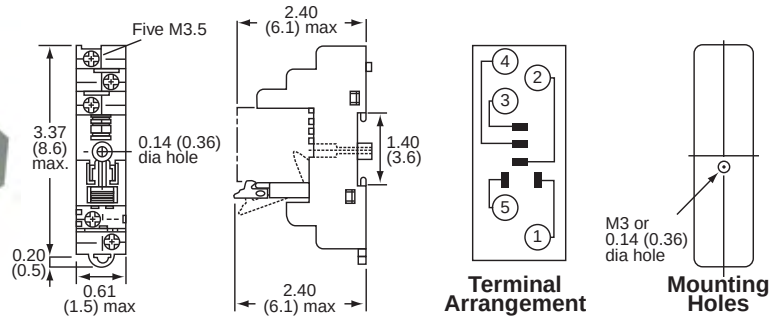
PF083A-E for use with relay **MK2**
Hold-down clip**: PFC-A1**
Weight: 0.01 lb (0.004 kg)



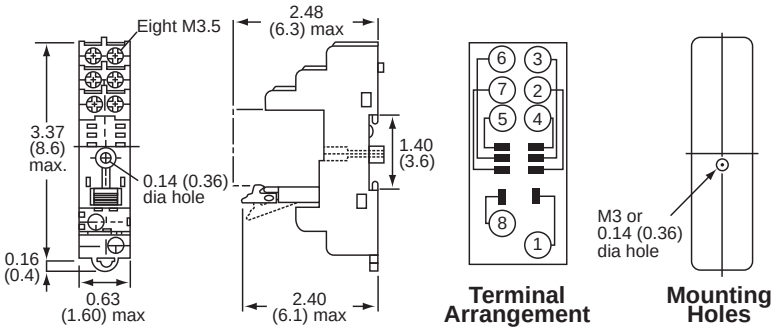
PF113A-E for use with relay **MK3**
Hold-down clip: **PFC-A1**
Weight: 0.11 lb (0.05 kg)



P2RF-05-E for use with relay **G2R-1**
Weight: 0.13 lb (0.06 kg)



P2RF-08-E for use with relay **G2R-2**
Weight: 0.13 lb (0.06 kg)



ORDERING INFORMATION

MODEL	DESCRIPTION
P2RF-05-E	SPDT relay socket, DIN rail/surface mount (G2R-1 relay)
P2RF-08-E	DPDT relay socket, DIN rail/surface mount (G2R-2 relay)
PF083A-E	2PDT pin relay socket, DIN rail/surface mount (MK2 relays)
PF113A-E	3PDT pin relay socket, DIN rail/surface mount (MK3 relays)
PTF08A-E	SPDT and DPDT blade relay socket, DIN rail/surface mount (LY1 and LY2 relays)
PTF11A	3PDT blade relay socket, DIN rail/surface mount (LY3 relays)
PTF14A-E	4PDT blade relay socket, DIN rail/surface mount (LY4 relays)

MAGNECRAFT RELAYS
781, 782, 783, 784 SERIES

DESCRIPTION

The **Magnecraft 781, 782, 783,** and **784 Series** are SPDT, DPDT, 3PDT, and 4PDT plug-in style relays available with common AC and DC coil voltages. They are equipped with a mechanical flag indicator to show relay status in the manual or powered condition. Full-featured versions of these relays also include a bi-polar LED to show coil "on" or "off" status, a push button that allows momentary manual operation without the need for coil power, and a removable lock-down door that can hold the push button and relay contacts in the operate position.

FEATURES

- ***SPDT, DPDT, 3PDT, 4PDT configurations***
- ***Flag indicator***
- ***Optional LED and momentary/maintained pushbutton***
- ***DIN rail/surface mount sockets***
- ***Mating sockets:***

781: 70-781D5-1 ***783: 70-783D-1***
782: 70-782D-1 ***784: 70-784D-1***

SPECIFICATIONS

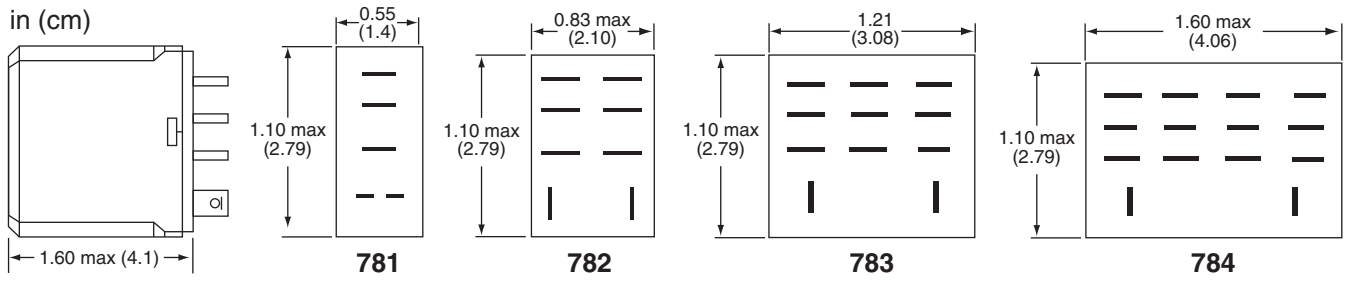
MODEL	781	782	783	784
COIL				
Pull-in Voltage AC (50/60 Hz)	≤85% of nominal	≤85% of nominal	≤85% of nominal	≤85% of nominal
Pull-in Voltage DC	≤80% of nominal	≤80% of nominal	≤80% of nominal	≤80% of nominal
Dropout Voltage AC/DC	≥10% of nominal	≥10% of nominal	≥10% of nominal	≥10% of nominal
Maximum Voltage	110% of nominal	110% of nominal	110% of nominal	110% of nominal
Coil Power AC (60 Hz)	0.9VA	1.2VA	1.5VA	1.5VA
Coil Power DC	0.7W	0.9W	1.7W	2.0W
Duty	Continuous	Continuous	Continuous	Continuous
CONTACTS				
Contact Material	Silver alloy	Silver alloy	Silver alloy	Silver alloy
Contact Rating	15A @ 277 VAC	15A @ 120 VAC	15A @ 120 VAC	15A @ 120 VAC
	10A @ 240 VAC Gen. Purp.	12A @ 277 VAC	12A @ 277 VAC	12A @ 277 VAC
	15A @ 28 VDC	12A @ 28 VDC	15A @ 28 VDC	15A @ 28 VDC
	0.5A @ 220 VDC	0.5A @ 220 VDC	0.5A @ 220 VDC	0.5A @ 220 VDC
	1/2 hp @ 120 VAC	1/2 hp @ 120 VAC	1/2 hp @ 120 VAC	1/2 hp @ 120 VAC
	1 hp @ 250 VAC	1 hp @ 250 VAC	3/4 hp @ 250 VAC	3/4 hp @ 250 VAC
Minimum load	100 mA @ 5 VDC or 0.5W	100 mA @ 5 VDC or 0.5W	100 mA @ 5 VDC or 0.5W	100 mA @ 5 VDC or 0.5W
DIELECTRIC STRENGTH				
Coil To Contacts	2500 Vrms	2500 Vrms	2500 Vrms	2500 Vrms
Across Open Contacts	1500 Vrms	1000 Vrms	1000 Vrms	1000 Vrms
Pole to Pole	—	2500 Vrms	2500 Vrms	2500 Vrms
GENERAL				
Operate Time	20 msec	25 msec	25 msec	20 msec
Release Time	20 msec	20 msec	20 msec	20 msec
Electrical Life @ Rated Load	100,000 operations	200,000 operations	150,000 operations	150,000 operations
Mechanical life @ No Load	10,000,000 operations	10,000,000 operations	10,000,000 operations	10,000,000 operations
Operating Position	Any	Any	Any	Any
Operating Temperature	-40° to 158°F (-40° to 70°C)	-40° to 158°F (-40° to 70°C)	-40° to 158°F (-40° to 70°C)	-40° to 158°F (-40° to 70°C)
Weight	0.064 lb (0.029 kg)	0.08 lb (0.036 kg)	0.13 lb (0.06 kg)	0.18 lb (0.08kg)
Agency Approvals	UL-recognized component File #E43641, CSA certified File 40787, CE: IEC 61810-1	UL-recognized component File #E43641, CSA certified File 40787, CE: IEC 61810-1	UL-recognized component File #E43641, CSA certified File 40787, CE: IEC 61810-1	UL-recognized component File #E43641, CSA certified File 40787, CE: IEC 61810-1
Warranty	1 year	1 year	1 year	1 year

RELAYS & CONTACTORS

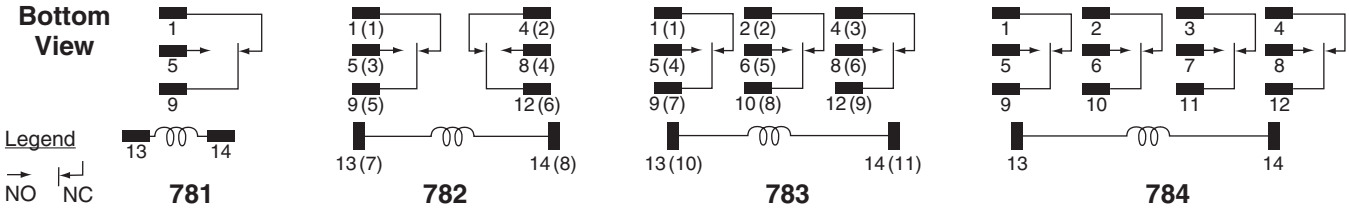
MAGNECRAFT RELAYS

781, 782, 783, 784 SERIES

DIMENSIONS



WIRING



Numbers correspond to Magnecraft socket terminals. Numbers in parentheses correspond to other brand socket terminals.

ORDERING INFORMATION

Model	Description	
KIT	Includes relay and mating socket. Leave **blank** to order the relay **only**.	
	781XAXC	SPDT relay with flag indicator (requires 70-781D5-1 socket)
	782XBXC	DPDT relay with flag indicator (requires 70-782D-1 socket)
	783XCXC	3PDT relay with flag indicator (requires 70-783D-1 socket)
	784XDXC	4PDT relay with flag indicator (requires 70-784D-1 socket)
		12D 12 VDC coil (782XBXC only)
		24D 24 VDC coil
		24A 24 VAC coil
		120A 120 VAC coil
		240A 240 VAC coil (782XBXC only)

KIT - **781XBXC** - **24A** **Example: KIT-782XBXC-24A** DPDT relay with 24 VAC coil and 70-782D-1 socket included.

Model	Description	
781XAXM4L	SPDT relay with flag, LED, momentary/maintained push button (requires 70-781D5-1 socket)	
782XBXM4L	DPDT relay with flag, LED, momentary/maintained push button (requires 70-782D-1 socket)	
783XCXM4L	3PDT relay with flag, LED, momentary/maintained push button (requires 70-783D-1 socket)	
784XDXM4L	4PDT relay with flag, LED, momentary/maintained push button (requires 70-784D-1 socket)	
	12D	12 VDC coil
	24D	24 VDC coil
	24A	24 VAC coil
	120A	120 VAC coil
	240A	240 VAC coil

782XBXM4L - **24A** **Example: 782XBXM4L-24A** DPDT relay with 24 VAC coil, LED, and push button (socket not included).

MAGNECRAFT RELAY SOCKETS

70-781D5-1, 70-782D-1, 70-783D-1, 70-784D-1

DESCRIPTION

These **Relay Sockets** are for use with the Magnecraft 781, 782, 783, and 784 Series relays. These sockets have fingersafe screw terminals and can be DIN rail or surface mounted.

SPECIFICATIONS

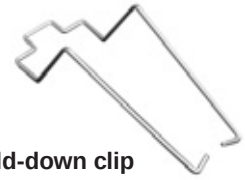
Voltage Rating	300 V
Current Rating	15A
Terminals	M3.5 zinc-plated steel
Dielectric Strength	2000 Vms minimum
Wire Size	20 - 12 AWG
Operating Temperature	-40° to 176°F (-40° to 80°C)
Mounting	DIN rail or surface mount
Flammability Rating	UL 94V-0
Approvals	UL-recognized component, File #E70550, CSA certified File #40787, CE:IEC 61810-1
Weight	
781D5	0.07 lb (0.032 kg)
782D	0.12 lb (0.055 kg)
783D	0.14 lb (0.062 kg)
784D	0.17 lb (0.077 kg)
Warranty	1 year

70-781D5-1

70-782D-1

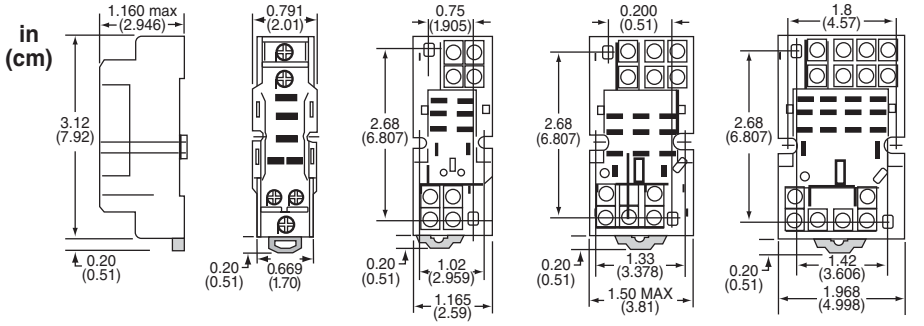
70-783D-1

70-784D-1



Hold-down clip

WIRING



Socket:	**70-781D5-1**	**70-782D-1**	**70-783D-1**	**70-784D-1**
Hold-down clip*:	**16-781SC**	**16-782SC**	**16-783SC**	**16-784SC**

*Order metal hold-down clip and accessory modules separately.

SOCKET ACCESSORY MODULES*

Plugging an accessory module into the socket adds additional features to the relay.

For use with 70-783D-1, 70-784D-1

MOV suppressors	
70-ASMM-24	24 VAC/VDC
70-ASMM-120	120 VAC/VDC
70-ASMM-240	240 VAC/VDC
Protection diodes	
70-ASMD-250	6-250 VDC
Green LEDs	
70-ASMLG-24	24 VAC/VDC
70-ASMLG-120/240	120/240 VAC/VDC

For use with 70-781D5-1, 70-782D-1

MOV suppressors	
70-BSMM-24	24 VAC/VDC
70-BSMM-120	120 VAC/VDC
70-BSMM-240	240 VAC/VDC
Protection diodes	
70-BSMD-250	6-250 VDC
Green LEDs	
70-BSMLG-24	24 VAC/VDC
70-BSMLG-120/240	120/240 VAC/VDC

ORDERING INFORMATION

MODEL	DESCRIPTION
70-781D5-1	Relay socket, SPDT, use with 781 Series relays
70-782D-1	Relay socket, DPDT, use with 782 Series relays
70-783D-1	Relay socket, 3PDT, use with 783 Series relays
70-784D-1	Relay socket, 4PDT, use with 784 Series relays

FUNCTIONAL DEVICES RELAY IN A BOX

RIB, RIBT PILOT SERIES

DESCRIPTION

The **Relay In A Box (RIB) Pilot Series** controls most BAS, HVAC, low-horsepower motor and lighting applications. The relays come mounted and pre-wired in a housing, saving the installer the time, trouble, and expense of buying separate components (relay, socket, mounting rail, and enclosure) and assembling them on the job or at the shop.

The **RIB Pilot Series** has a protruding 1/2" or 3/4" NPT nipple from which all wires exit (except T series). To install, remove a conduit knockout in the equipment, insert the wires and nipple through the hole, tighten the locknut, and connect the wires.

RIB Pilot Series - 10A Relays
The RIB Pilot Series has relay contacts rated for 10A and is used to control light electrical loads, drive power relays/ contactors, or sense the voltage being fed to electrical loads. The **RIB Pilot Series** requires a low coil-drive current and is provided with circuitry to allow powering the relay coil from a wide range of AC or DC voltages.

RIBT Series - High/Low Voltage Separation
The **RIBT Series** is designed to provide physically separate entrances for connections to the relay input coil and output contacts. Relay contact wires exit the housing through a 1/2" or 3/4" NPT nipple. The cover of the **RIBT Series** is removable, and the coil drive wires can enter the housing through one of two convenient openings with star bushings or 1/2" conduit. The coil drive wires are secured to screw terminals within a separate wiring compartment in the **RIBT Series**. Most of the **RIB's** in the **Pilot Series** are also available in the **RIBT Series**.

RIBU1C

RIBU1S

FEATURES

- ***Convenient and economical to use***
- ***Relay status indicator via LED***
- ***Coil uses low current and accepts a wide range of AC and DC voltages***
- ***Closed/Open/Auto switch option available***
- ***Nipple- or screw-mountable***
- ***Compact, gray plastic enclosure***
- ***Color-coded wires for eliminating errors***
- ***UL listed for UL916 Energy Management and UL864 Fire***
- ***Made in the USA***

SPECIFICATIONS - GENERAL

Wire Length	16" (40.6 cm)
Life Rating	10 million cycles minimum mechanical
Relay Status	LED, ON - relay activated
Operating Temperature	-30° to 140°F (-34° to 60°F), -30° to 140°F (-34° to 60°C)
Operating Humidity	5 to 95% non-condensing
Housing Type	Plenum rated, NEMA 1, NEMA 4
Conduit Hub	1/2" NPT, 3/4" NPT
Dimensions	**A size enclosures**: 1.7" H x 2.8" W x 1.5" D (4.32 x 7.11 x 3.81 cm), **B size enclosures**: 4.0" H x 4.0" W x 1.8" D (10.16 x 10.16 x 4.57 cm), **G size enclosures**: 2.3" H x 3.2"W x 1.8" D (5.84 x 8.13 x 4.57 cm)
Approvals	UL listed, UL 916 Energy Management UL 864 Fire, cUL listed, CSFM
Weight	1.0 lb (0.45 kg)
Warranty	1 year

Coil pull-in/drop-out (nominal values)

	PULL-IN		DROP-OUT	
COIL DRIVE	**DC**	**AC**	**DC**	**AC**
10-30 VAC/VDC	10	9	2.8	2.1
24 VAC/VDC	20	18	3.8	3
120 VAC	–	102	–	9
208-277 VAC	–	176	–	13

SPECIFICATIONS - PILOT SERIES

MODEL	TYPE	COIL DRIVE	SIZE/ HUB	OVR SW	RELAY CONTACT RATINGS	RELAY CONTACT WIRING	RELAY COIL DRIVE DATA
RIBU1C* **RIBU1C-N4†**	1-SPDT	10-30 VAC/VDC 120 VAC 50/60 Hz	A-1/2	–	10A resistive 120/240/277 VAC 10A resistive 28 VDC 480 VA pilot duty 240/277 VAC 480 VA ballast 277 VAC 600W tungsten 120 VAC N.O. 240W tungsten 120 VAC N.C. 1/3 hp for N.O. 120/240 VAC 1/6 hp for N.C. 120/240 VAC 1/4 hp for N.O. 277 VAC 1/8 hp for N.C. 277 VAC	**Relay #1** NC (blue) COM (yellow) NO (orange) **Relay #2** (if present) NC (gray) COM (purple) NO (brown)	**Wiring** **Relay #1** Common - White/Yellow wire 10-30 VAC/VDC - White/Blue wire 120 VAC - White/Black wire 208-277 VAC - White/Brown wire **Relay #2** (if present) Common - White/Purple wire 10-30 VAC/VDC - Gray/White wire 120 VAC - White/Red wire 208-277 VAC - White/Orange wire **Input Current** 30 mA @ 10 VAC 32 mA @ 12 VAC 42 mA @ 24 VAC 50 mA @ 30 VAC 25 mA @ 120 VAC 35 mA @ 208-277 VAC 12 mA @ 10 VDC 14 mA @ 12 VDC 16 mA @ 24 VDC 18 mA @ 30 VDC
RIBU2C*	2-SPDT		G-3/4	–			
RIBH1C* **RIBH1C-N4†**	1-SPDT	10-30 VAC 208-277 VAC 50/60 Hz	A-1/2	–			
RIBH2C*	2-SPDT		G-3/4	–			
RIBU1SC*	1-SPDT	10-30 VAC/VDC 120 VAC 50/60 Hz	G-1/2	Yes-2		Auto Manual (yellow) Common N.C. - Closed Open (blue) N.C. N.O. - Closed (orange) N.O.	
RIBH1SC*	1-SPDT	10-30 VAC 208-277 VAC 50/60 Hz	G-1/2	Yes-2			
RIBU1S*	1-SPST-NO**	10-30 VAC/VDC 120 VAC 50/60 Hz	G-1/2	Yes	10A resistive 277 VAC 480 VA pilot duty 277 VAC 480 VA ballast 277 VAC 600W tungsten 120 VAC N.O. 240W tungsten 120 VAC N.C. 1/3 hp for N.O. 120-240 VAC 1/6 hp for N.C. 120-240 VAC 1/4 hp for N.O. 277 VAC 1/8 hp for N.C. 277 VAC	**Relay #1** (orange) (orange) Closed Open Auto **Relay #2 of RIBU2S2** Closed (brown) Open (brown) Auto **Relay #2 of RIBU2SC** NC (gray) COM (purple) NO (brown) **STATUS** = 2nd Pole of switch of **RIBU1SM**, **RIBH1SM** Closed (brown) Open (purple) Auto (gray)	
RIBU2SC	1-SPST-NO** 1-SPDT		G-3/4	Yes			
RIBU2S2	2-SPST-NO**		B-3/4	Yes-2			
RIBU1SM	1-SPST-NO**		G-1/2	Yes + Status			
RIBH1S*	1-SPST-NO**	10-30 VAC/VDC 208-277 VAC 50/60 Hz	G-1/2	Yes	Status Contact on **RIBU1SM** and **RIBH1SM**: 5A max @ 277 VAC		
RIBH1SM	1-SPST-NO**		G-1/2	Yes + Status			
RIB2401D* **RIB2401D-N4†**	1-DPDT	24 VAC/VDC 120 VAC 50/60- Hz	A-1/2	–	10A resistive 30 VDC 10A resistive 277 VAC 1/2 hp for N.O. 120/240 VAC 1/3 hp for N.C. 120/240 VAC	NC (blue) COM (yellow) NO (orange)	**Wiring** Common - White/Yellow wire 24 VAC/VDC - White/Blue wire 120 VAC - White/Black wire 208-277 VAC - White/Brown wire **Input Current** 24 mA @ 18 VAC 20 mA @ 20 VDC 32 mA @ 24 VAC 24 mA @ 30 VDC 40 mA @ 30 VAC 36 mA @ 30 VDC 31 mA @ 120 VAC (RIB2401D) 36 mA @ 208-277 VAC (RIB2402D)
RIB2402D **RIB2402D-N4†**	1-DPDT	24 VAC/VDC 208-277 VAC 50/60 Hz	A-1/2	–	10A resistive 30 VDC 10A resistive 277 VAC 180 VA pilot duty 120 VAC 1/8 hp for N.C. 120 VAC	NC (gray) COM (purple) NO (brown)	
RIBL3C	3-SPST-NO	10-30 VAC/VDC 50/60 Hz	B-1/2	–	10A resistive 120-277 VAC 10A resistive 28 VDC 480 VA pilot duty 240-277 VAC 480 VA ballast 277 VAC 600W tungsten 120 VAC N.O. 240W tungsten 120 VAC N.C. 1/3 hp for N.O. 120-240 VAC 1/6 hp for N.C. 120-240 VAC 1/4 hp for N.O. 277 VAC 1/8 hp for N.C. 277 VAC	**Relay #1** (black) (black) **Relay #2** (blue) (blue) **Relay #3** (yellow) (yellow) **Relay #4 (if present)** NC (gray) COM (purple) NO (brown)	**Wiring** Common - White/Red wire Relay#1 - White/Black wire Relay#2 - White/Blue wire Relay#3 - White/Yellow wire Relay#4 - White/Brown wire (if present) **Input Current** 30 mA @ 10 VAC 12 mA @ 10 VDC 32 mA @ 12 VAC 14 mA @ 12 VDC 42 mA @ 24 VAC 16 mA @ 24 VDC 50 mA @ 30 VAC 18 mA @ 30 VDC
RIBL4C	3-SPST-NO 1-SPDT		B-1/2	–			
SIB02S	SPDT Manual Switch	–	A-1/2	Yes	Switch ratings 20A 277 VAC	(blue) (yellow) (orange)	No Relay Switch Only

ORDERING INFORMATION

Order by model number

* Models may be ordered in **RIBT Series** with high/low voltage separation.
** Can be ordered normally closed by adding **- NC** after model number.
† **N4** has NEMA 4 housing

FUNCTIONAL DEVICES RELAY IN A BOX

RIB, RIBT POWER SERIES

DESCRIPTION

The **Relay In a Box (RIB) Power Series** controls most BAS, HVAC, low-horsepower motor and lighting applications. The relays come mounted and pre-wired in a housing, saving the installer the time, trouble and expense of buying separate components (relay, socket, mounting rail, and enclosure) and assembling them on the job or at the shop.

The **RIB Power Series** has a protruding 1/2" or 3/4" NPT nipple from which all wires exit (except **T series**). To install, remove a conduit knockout in the equipment, insert the wires and nipple through the hole, tighten the locknut, and connect the wires.

RIB Power Series - 20, 30A Relays
The **RIB Power Series** has relay contacts rated for 20 and 30A. They require modest coil drive current and are used for direct switching and control of heavy electrical circuits, such as large resistive, motor, and lighting loads.

RIBT Series - High/Low Voltage Separation
The **RIBT Series** is designed to provide physically separate entrances for connections to the relay input coil and output contacts. Relay contact wires exit the housing through a 1/2" or 3/4" NPT nipple. The cover of the **RIBT Series** is removable and, with star bushings or 1/2" conduit, the coil drive wires can enter the housing through one of two convenient openings.
The coil drive wires are secured to screw terminals within a separate wiring compartment in the **RIB**T. Most of the **RIBs** in the **Power Series** are also available in the **T Series**.

RIB, RIBT Power Series

FEATURES

- ***Convenient and economical to use***
- ***Relay status indicator via LED***
- ***Coil uses low current and accepts a wide range of AC and DC voltages***
- ***Closed/Open/Auto switch option available***
- ***Nipple or screw mountable***
- ***Compact, gray plastic enclosure***
- ***Color-coded wires for eliminating errors***
- ***UL listed for UL916 Energy Management and UL864 Fire***
- ***Made in the USA***

SPECIFICATIONS - GENERAL

Frequency	50/60 Hz
Wire Length	16" (40.6 cm)
Life Rating	10 million cycles minimum mechanical
Relay Status	LED, ON - relay activated
Operating Temperature	-30° to 140°F (-34° to 60°C)
Operating Humidity	5% to 95% non-condensing
Housing Type	NEMA 1, plenum rated
Conduit Hub	1/2" NPT, 3/4" NPT
Dimensions	**A and G size enclosures**: 2.3" H x 3.2" W x 1.8" D (5.84 x 8.13 x 4.57 cm), **B size enclosures**: 4" H x 4" W x 1.8" D (10.16 x 10.16 x 4.57 cm)
Approvals	UL listed, UL 916 Energy Management, UL 864 Fire, cUL listed, CSFM
Weight	1 lb (0.45 kg)
Warranty	1 year

Coil pull-in/drop-out (nominal values)

COIL DRIVE	PULL-IN		DROP-OUT	
	DC	AC	DC	AC
24 VAC/VDC	22	18	3.8	3
120 VAC	–	85	–	35
208-277 VAC	–	160	–	60
480 VAC	–	340	–	140

RELAYS & CONTACTORS

FUNCTIONAL DEVICES RELAY IN A BOX

RIB, RIBT POWER SERIES

SPECIFICATIONS - POWER SERIES

MODEL	TYPE	COIL DRIVE	SIZE-HUB	OVR SW	RELAY CONTACT RATINGS	RELAY CONTACT WIRING	RELAY COIL DRIVE DATA
RIB2401B*	1-SPDT	24 VAC/VDC 120 VAC	G-1/2	–	20A resistive 277 VAC 1 hp 120 VAC 2 hp 277 VAC 20A ballast N.O. 120/277 VAC 10A ballast N.C. 120/277 VAC 10A tungsten N.O. 120 VAC 770 VA pilot duty 120 VAC 1110 VA pilot duty 277 VAC	(blue) N.C. (yellow) Common (orange) N.O.	**Wiring** Common - White/Yellow wire 24 VAC/VDC - White/Blue wire 120 VAC - White/Black wire 208-277 VAC - White/Brown wire **Input Current** 75 mA @ 24 VAC 32 mA @ 24 VDC 42 mA @ 120 VAC 62 mA @ 208/277 VAC
RIB2402B*	1-SPDT	24 VAC/VDC 208 - 277 VAC	G-1/2	–			
RIB2401SB*	1-SPST-NO	24 VAC/VDC 120 VAC	G-1/2	Yes	20A resistive 277 VAC 1 hp 120 VAC 2 hp 277 VAC 20A ballast N.O. 120/277 VAC 10A ballast N.C. 120/277 VAC 10A tungsten N.O. 120 VAC 770 VA pilot duty 120 VAC 1110 VA pilot duty 277 VAC	(orange) Closed (orange) Open Auto For normally closed, add **-NC** after model number when ordering.	
RIB2402SB*	1-SPST-NO	24 VAC/VDC 208 - 277 VAC	G-1/2	Yes			
RIB01P	1-DPDT	120 VAC	B-1/2	–	20A resistive 300 VAC 20A resistive 28 VDC, 15 VDC 15A resistive 600 VAC 1 hp 120 VAC 2 hp 240-277 VAC 3 hp 480-600 VAC 20A ballast 277-480 VAC 770 VA pilot duty 120 VAC 1,158 VA pilot duty 240 VAC 1,110 VA pilot duty 277 VAC 1,640 VA pilot duty 480 VAC	(blue) (yellow) (orange) N.C. Common N.O. (gray) (purple) (brown) N.C. Common N.O.	**Wiring** 120 VAC - White/Black wires 208-277 VAC - White/Brown wires 480 VAC - White/Green wires **Input Current** 100 mA @ 120-480 VAC
RIB02P	1-DPDT	208-277 VAC	B-1/2	–			
RIB04P	1-DPDT	480 VAC	B-1/2	–			
RIB24P*	1-DPDT	24 VAC/VDC	G-1/2	–			**Wiring** 24 VAC White/Yellow wires **Input Current** 125 mA @ 24 VAC 50 mA @ 24 VDC
RIB2401SBC*	1-SPDT	24 VAC/VDC 120 VAC	G-1/2	Yes-2	20A resistive 277 VAC 1 hp 120 VAC 2 hp 277 VAC 20A ballast N.O. 120/277 VAC 10A ballast N.C. 120/277 VAC 10A tungsten N.O. 120 VAC 770 VA pilot duty 120 VAC 1110 VA pilot duty 277 VAC	Auto Manual N.C. - Closed Open N.O. - Closed (yellow) Common (blue) N.C. (orange) N.O.	**Wiring** Common - White/Yellow wire 24 VAC/VDC - White/Blue wire 120 VAC - White/Black wire 208-277 VAC - White/Brown wire **Input Current** 75 mA @ 24 VAC 32 mA @ 24 VDC 42 mA @ 120 VAC
RIB2402SBC*	1-SPDT	24 VAC/VDC 208 - 277 VAC	G-1/2	Yes-2			
RIB24S2*	1-DPST-NO	24 VAC/VDC	B-1/2	Yes Double Pole	20A resistive 277 VAC 1 hp 120 VAC 2 hp 240-277 VAC 10A tungsten 120 VAC 20A ballast 277-480 VAC 770 VA pilot duty 120 VAC 1,110 VA pilot duty 277 VAC	**Double Pole Switch** Relay Pole #1 Relay Pole #2 (orange) Closed (brown) (orange) Open (brown) Auto For normally closed, add **-NC** after model number when ordering.	**Wiring** 24 VAC/VDC White/Yellow wires 120 VAC White/Black wires 208-277 VAC White/Brown wires 480 VAC White/Green wires **Input Current** 125 mA @ 24 VAC 50 mA @ 24 VDC 75 mA @ 120 VAC 95 mA @ 208-277 VAC 95 mA @ 480 VAC
RIB01S2		120 VAC					
RIB02S2		208-277 VAC					
RIB04S2		480 VAC					
RIB243P*	1-3PST-NO	24 VAC/VDC	B-1/2	–	20A resistive 300 VAC 20A resistive 28 VDC 15A resistive 600 VAC 1 hp 120 VAC, 1 PH 2 hp 240-277 VAC, 1 PH 3 hp 480-600 VAC 1 PH 5 hp 240 VAC, 3 PH 7.5 hp 480 VAC 3 PH 20A ballast 277-480 VAC 1466 VA 240 VAC, 3 PH 2112 VA 480 VAC, 3 PH	(blue) (blue) N.O. (yellow) (yellow) N.O. (orange) (orange) N.O. For normally closed, add **-NC** after model number when ordering.	**Wiring** 24 VAC/VDC - White/Yellow wires 120 VAC - White/Black wires 208-277 VAC - White/Brown wires 480 VAC - White/Green wires **Input Current** 190 mA @ 24 VAC 140 mA @ 30 VDC 140 mA @ 120 VAC 170 mA @ 208-277 VAC 120 mA @ 480 VAC
RIB013P	1-3PST-NO	120 VAC	B-1/2	–			
RIB023P	1-3PST-NO	208-277 VAC	B-1/2	–			
RIB043P	1-3PST-NO	480 VAC	B-1/2	–			
RIB24P30	1-DPDT	24 VAC/VDC	A-3/4	–	30A resistive 300 VAC 25A resistive 28 VDC 15A resistive 600 VAC 1 hp 120 VAC 2 hp 240-277 VAC 3 hp 480-600 VAC 20A ballast 277-480 VAC 770 VA pilot duty 120 VAC 1,158 VA pilot duty 240 VAC 1,110 VA pilot duty 277 VAC 1,640 VA pilot duty 480 VAC	(blue) (yellow) (orange) N.C. Common N.O. (gray) (purple) (brown) N.C. Common N.O.	**Wiring** 24 VAC/VDC - White/Yellow wires **Input Current** 125 mA @ 24 VAC 50 mA @ 24 VDC

ORDERING INFORMATION

Order by model number

* Models may be ordered in **RIBT Series** with high/low voltage separation.

** Can be ordered normally closed by adding - **NC** after the model number.

† N4 has NEMA 4 housing

RELAY IN A BOX LATCHING RELAY SERIES

RIBL LATCHING SERIES

NEW!

Functional Devices, Inc.

DESCRIPTION

The Latching Series RIB relays are activated by pulse commands from a controller. The relay contacts are mechanically latched in the closed position and the load will remain on in the event of a control panel failure period. If power is completely lost the contacts will remain in their last state and the load will activate upon the return of normal power or emergency power.

FEATURES

- ***NEMA 1 Plastic enclosure***
- ***UL Listed***
- ***Energy efficient (no coil draw when relay is active)***
- ***Optional override switch***
- ***Optional status LED***
- ***Optional auxilary contacts for status control***

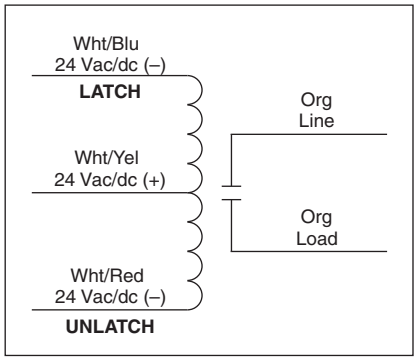
RIBL12B

RIBL24SBM

SPECIFICATIONS

Life Expectancy	1 million cycles minimum mechanical
Operate Time	50 ms
Operating Temperature	-30° to 140°F (-34° to 60°C)
Operating Humidity	5 to 95% RH non-condensing
Housing Type	NEMA 1, plenum rated
Dimensions	1.7" x 2.8" x 1.5" (4.32 x 7.11 x 3.81 cm) 2.3" x 3.2" x 1.8" (5.84 x 8.13 x 4.57 cm)
Approvals	UL listed, UL508, C-UL, CE, RoHS
Wire Type	16" (41 cm), 600V rated
Pulse Length	30 seconds (maximum)
Conduit Hub	0.5" NPT nipple, 0.75" nipple

WIRING



RELAY IN A BOX LATCHING RELAY SERIES

RIBL LATCHING SERIES

ORDERING INFORMATION

Model	Coil Voltage	Coil Current	Latch / Unlatch Voltage	Contact Arrangement	Contact Rating	LED Indication
RIBL12B	12 VAC/ DC	182 mA @ 10 VAC 250 mA @ 12 VAC 165 mA @ 10 VDC 198 mA @ 12 VDC 250 mA @ 15 VDC	Latch / unlatch: 10 VDC/11 VAC minimum	One SPST latching relay, dual coil	20A resistive @ 120-277 VAC 20A ballast @ 120-277 VAC 16A electronic ballast @ 120-277 VAC 5540 W tungsten @ 277 VAC 720 VA @ 120-277 VAC 2 HP @ 277 VAC 3 HP @ 240 VAC 1.5 HP @ 120 VAC	None
RIBL12BM	12 VAC/ DC	182 mA @ 10 VAC 250 mA @ 12 VAC 165 mA @ 10 VDC 198 mA @ 12 VDC 250 mA @ 15 VDC	Latch / unlatch: 10 VDC/11 VAC minimum	One SPST latching relay, dual coil	20A resistive @ 120-277 VAC 20A ballast @ 120-277 VAC 16A electronic ballast @ 120-277 VAC 5540 W tungsten @ 277 VAC 720 VA @ 120-277 VAC 2 HP @ 277 VAC 3 HP @ 240 VAC 1.5 HP @ 120 VAC	ON = Voltage dectected (contact closed)
RIBL12SB	12 VAC/ DC	182 mA @ 10 VAC 250 mA @ 12 VAC 165 mA @ 10 VDC 198 mA @ 12 VDC 250 mA @ 15 VDC	Latch / unlatch: 10 VDC/11 VAC minimum	One SPST latching relay, dual coil	20A resistive @ 120-277 VAC 20A ballast @ 120-277 VAC 16A electronic ballast @ 120-277 VAC 5540 W tungsten @ 277 VAC 720 VA @ 120-277 VAC 2 HP @ 277 VAC 3 HP @ 240 VAC 1.5 HP @ 120 VAC	None
RIBL12SBM	12 VAC/ DC	182 mA @ 10 VAC 250 mA @ 12 VAC 165 mA @ 10 VDC 198 mA @ 12 VDC 250 mA @ 15 VDC	Latch / unlatch: 10 VDC/11 VAC minimum	One SPST latching relay, dual coil	20A resistive @ 120-277 VAC 20A ballast @ 120-277 VAC 16A electronic ballast @ 120-277 VAC 5540 W tungsten @ 277 VAC 720 VA @ 120-277 VAC 2 HP @ 277 VAC 3 HP @ 240 VAC 1.5 HP @ 120 VAC	ON = Voltage dectected (contact closed)
RIBL24B	24 VAC/ DC	175 mA @ 20 VAC 210 mA @ 24 VAC 92 mA @ 20 VDC 110 mA @ 24 VDC 138 mA @ 30 VDC	Latch / unlatch: 20 VDC/22 VAC minimum	One SPST latching relay, dual coil	20A resistive @ 120-277 VAC 20A ballast @ 120-277 VAC 16A electronic ballast @ 120-277 VAC 5540 W tungsten @ 277 VAC 720 VA @ 120-277 VAC 2 HP @ 277 VAC 3 HP @ 240 VAC 1.5 HP @ 120 VAC	None
RIBL24BM	24 VAC/ DC	175 mA @ 20 VAC 210 mA @ 24 VAC 92 mA @ 20 VDC 110 mA @ 24 VDC 138 mA @ 30 VDC	Latch / unlatch: 20 VDC/22 VAC minimum	One SPST latching relay, dual coil	20A resistive @ 120-277 VAC 20A ballast @ 120-277 VAC 16A electronic ballast @ 120-277 VAC 5540 W tungsten @ 277 VAC 720 VA @ 120-277 VAC 2 HP @ 277 VAC 3 HP @ 240 VAC 1.5 HP @ 120 VAC	ON = Voltage dectected (contact closed)
RIBI24SB	24 VAC/ DC	175 mA @ 20 VAC 210 mA @ 24 VAC 92 mA @ 20 VDC 110 mA @ 24 VDC 138 mA @ 30 VDC	Latch / unlatch: 20 VDC/22 VAC minimum	One SPST latching relay, dual coil	20A resistive @ 120-277 VAC 20A ballast @ 120-277 VAC 16A electronic ballast @ 120-277 VAC 5540 W tungsten @ 277 VAC 720 VA @ 120-277 VAC 2 HP @ 277 VAC 3 HP @ 240 VAC 1.5 HP @ 120 VAC	None
RIBL24SBM	24 VAC/ DC	175 mA @ 20 VAC 210 mA @ 24 VAC 92 mA @ 20 VDC 110 mA @ 24 VDC 138 mA @ 30 VDC	Latch / unlatch: 20 VDC/22 VAC minimum	One SPST latching relay, dual coil	20A resistive @ 120-277 VAC 20A ballast @ 120-277 VAC 16A electronic ballast @ 120-277 VAC 5540 W tungsten @ 277 VAC 720 VA @ 120-277 VAC 2 HP @ 277 VAC 3 HP @ 240 VAC 1.5 HP @ 120 VAC	ON = Voltage dectected (contact closed)

FUNCTIONAL DEVICES RELAY IN A BOX DRY CONTACT INPUT SERIES

RIB01BDC, RIB01SBDC, RIB02BDC, RIB02SBDC, RIB21CDC

DESCRIPTION

The dry contact input **RIB Series** is controlled by Class 2 circuits with a dry contact from a BAS controller, thermostat, switch, another relay, or a solid-state switch. The power to energize the **RIB Series** comes from the load being controlled or a local power source near the relay. The relay contacts are isolated from the input power and the dry contact input.

RIB01SBDC

RIB21CDC

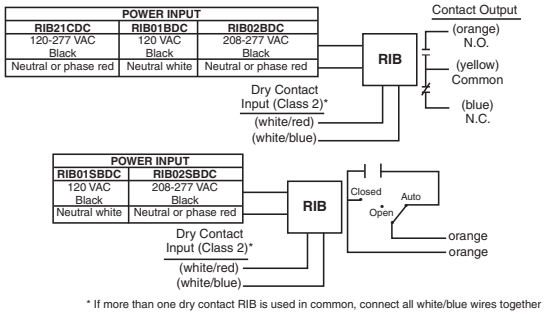
FEATURES

- ***Remote power input, dry contact control***
- ***LED indication***
- ***UL listed***
- ***Optional override switch***

SPECIFICATIONS

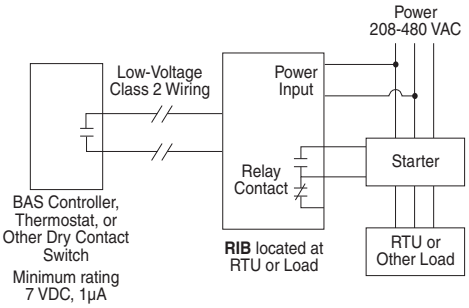
Supply Voltage	120 VAC, 208-277 VAC, 120-277 VAC
Supply Current	42 mA, 62 mA, 50 mA
Contact Rating	20A resistive @ 277 VAC 1110 VA pilot duty @ 277 VAC 770 VA pilot duty @ 120 VAC 20A ballast 277 VAC N.O. 10A ballast 277 VAC N.C 240W tungsten 120 VAC N.C. 2 hp 277 VAC 1 hp 120 VAC, 10A general use @ 250 VAC 10A resistive @ 30 VDC 1/2 hp 125-250 VAC 470 VA pilot duty 120-240 VAC
Controlling Contact	SPST, 7 VDC, 1µA minimum
Output Type	SPDT, SPST-NO
Wire Length	16" (40.6 cm)
Operating Temperature	-30° to 140°F (-34.4° to 60°F), -30° to 140°F (-34.4° to 60°C)
Housing Type	NEMA 1, plemum, NEMA 1, plenum
Conduit Hub	1/2" NPT
Dimensions	
RIB01, RIB02	2.3" H x 3.2" W x 1.8" D (5.8 x 8.1 x 4.6 cm)
RIB21CDC	1.7" H x 2.8" W x 1.5" D (4.3 x 7.1 x 3.8 cm)
Warranty	1 year

WIRING



* If more than one dry contact RIB is used in common, connect all white/blue wires together

INSTALLATION



ORDERING INFORMATION

MODEL	DESCRIPTION
RIB01BDC	Dry contact input RIB, 120 VAC, SPDT, 20A
RIB01SBDC	Dry contact input RIB, 120 VAC, SPST-NO, 20A, override switch
RIB02BDC	Dry contact input RIB, 208-277 VAC, SPDT, 20A
RIB02SBDC	Dry contact input RIB, 208-277 VAC, SPST-NO, 20A, override switch
RIB21CDC	Dry contact input RIB, 120-277 VAC, SPDT, 10A
RIB21CDC-N4	Dry contact input RIB, 120-277 VAC, SPDT, 10A, NEMA 4 housing

AIR PRODUCTS AND CONTROLS MULTI-VOLTAGE CONTROL RELAYS

MR SERIES

DESCRIPTION

The **MR Series** multi-voltage control relays offer SPDT or DPDT contacts which may be operated by multiple input control voltages.Each relay section contains a red LED, which indicates the relay coil is energized. Relay sections may be snapped apart from standard four- or eight-section assemblies and used independently.These relays are ideal for applications where local or remote contacts are required for control of electrical loads and general-purpose switching. They are suitable for use with HVAC, temperature control, fire alarm, security, building automation, and lighting control systems.

MR-101/T

MR-601/T

MR-801/S

FEATURES

- ***Multi-voltage input, SPDT or DPDT control relays***
- ***LED indication when relay is energized***
- ***Snap-apart relay sections from standard four or eight-section assemblies***
- ***Track, spacer, or enclosed mounting options***
- ***Dust-proof housing with LED viewing holes on enclosed models***
- ***Relays rated for 10 million mechanical operations***

MR-

MR-104/T

SPECIFICATIONS

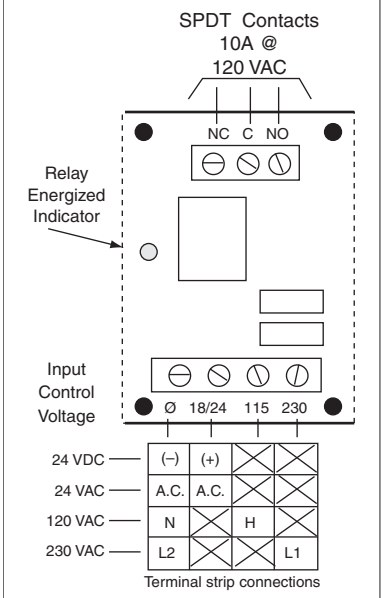
	SERIES			
	MR-100	**MR-200**	**MR-600**	**MR-800**
Relay sections (snap-apart)	1 or 4		1, 4, or 8	
Voltage input	24 VDC @ 18 mA 24 VAC @ 18 mA 120 VAC @ 18 mA 230 VAC @ 18 mA	24 VDC @ 40 mA 24 VAC @ 40 mA 120 VAC @ 40 mA 230 VAC @ 40 mA	24 VAC, 24 VDC @15 mA	24 VDC @ 22 mA 24 VAC @ 60 mA 120 VAC @ 20 mA
Contact type	SPDT	DPDT	SPDT	
Contact rating	10A resistive @ 120 VAC 7A resistive @ 230 VAC/28 VDC N.O.: 1/6 hp @ 120 VAC N.C.: 1/8 hp @ 120 VAC		10A @ 120 VAC 7A @ 24 VDC	10A @ 120 VAC 7A @ 30 VDC/277 VAC 1/4 hp @ 120 VAC 1/3 hp @ 230 VAC
Temperature	32° to 120°F (0° to 49°C)		32° to 120°F (0° to 49°C)	
Indication	LED			
Mounting	Track or enclosed		Track	Track or spacer
Wiring	Solid or stranded, 12 to 22 AWG terminals			
Enclosure option	18-gauge metal back, ABS-94VO plastic cover 1/2" knockouts		–	
Manual override	–		On/Auto/Off Switch	–
Dimensions	3.25"H x 2.13"W x 1.5"D (8.25 x 5.39 x 3.81 cm)		3.5"H x 2.13"W x 1.38"D (8.9 x 5.4 x 3.5 cm)	
Enclosure dimensions	5.13"H x 3.13"W x 2.5"D (13 .46 x 7.95 x 6.35 cm) or 5.13"H x 9.5"W x 2.5"D (13.46 x 24.13 x 6.35 cm)		–	
Agency approvals	UL-recognized component, File #S3403 Enclosed model UL listed, File #S3403		UL-recognized component, File #S3403	

* Specifications are for each relay section.

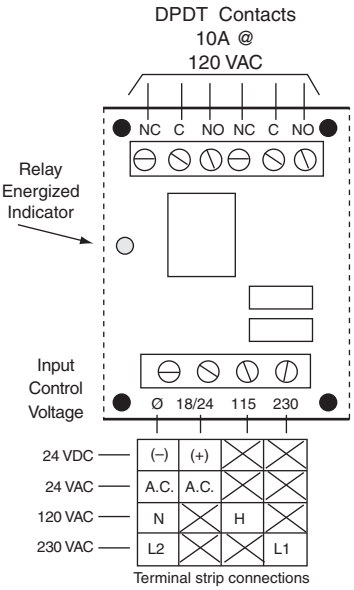
AIR PRODUCTS AND CONTROLS MULTI-VOLTAGE CONTROL RELAYS

MR SERIES

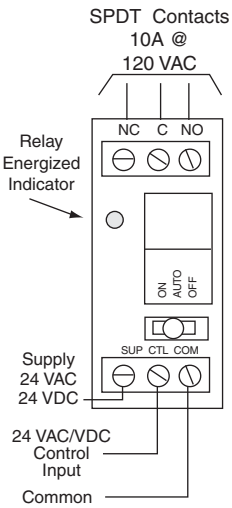
WIRING



MR-101, -104

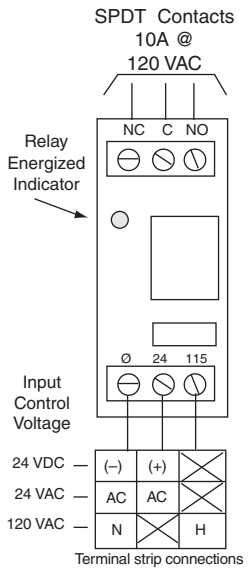


MR-201, -204



Note: Multisection relays **MR-604** and **MR-608** have all supply and all common terminals factory jumpered together.

MR-601, -604, -608



MR-801, -804, -808

ORDERING INFORMATION

MODEL	COIL VOLTAGE				SECTIONS		MOUNTING			SWITCH	AGENCY APPROVALS		
	24 VDC	24 VAC	120 VAC	230 VAC	SPDT (10A)	DPDT (10A)	Track (included)	Spacers (included)	Enclosure (included)	Manual Override On/Auto/Off	UL	MEA	CSFM
MR-101/T	X	X	X	X	1		X				Recognized		X
MR-101/C	X	X	X	X	1		X		X		Listed	X	X
MR-104/T	X	X	X	X	4		X				Recognized		X
MR-104/C	X	X	X	X	4		X		X		Listed	X	X
MR-201/T	X	X	X	X		1	X				Recognized		X
MR-201/C	X	X	X	X		1	X		X		Listed	X	X
MR-204/T	X	X	X	X		4	X				Recognized		X
MR-204/C	X	X	X	X		4	X		X		Listed	X	X
MR-601/T	X	X			1		X			X	Recognized		
MR-604/T	X	X			4		X			X	Recognized		
MR-608/T	X	X			8		X			X	Recognized		
MR-801/T	X	X	X		1		X				Recognized		
MR-801/S	X	X	X		1			X			Recognized		
MR-804/T	X	X	X		4		X				Recognized		
MR-804/S	X	X	X		4			X			Recognized		
MR-808/T	X	X	X		8		X				Recognized		
MR-808/S	X	X	X		8			X			Recognized		

FUNCTIONAL DEVICES MODULAR PANEL RELAYS

RIB M SERIES

DESCRIPTION

The **RIB M Series** modular relay system allows the installer to mount a combination of relays in an attractive metal enclosure. Models are available to control most BAS, HVAC, low-horsepower motors and lighting applications. The relay modules snap into a 4" (10.16 cm) wide plastic track. This system provides a convenient and cost-saving method of mixing and matching relays of different ratings to suit the requirements of the application.Connections to the modules are made by wiring to screw terminals. Input connections can be grouped on one side of the enclosure and output connections on the other to separate high-voltage and low-voltage wires. Plenty of room is provided within the enclosure for wire runs, and the housings can be stacked vertically or horizontally. The relay modules can be snap-track mounted inside the housing as pictured or mounted into an available space in other equipment. The track is available in 2" (5.08 cm) lengths for mounting one module or in 12" (30.5 cm) lengths for mounting several modules.

RIBM Pilot Series - 10A, 15A modular relays
These pilot modular relays have contacts rated up to 15A and are used to control light electrical loads, drive power relays/ contactors or to sense the voltage fed to electrical loads. The pilot modular relays require a low coil drive current and are provided with circuitry to allow powering the relay coil from a wide range of AC or DC voltages.

RIBM Power Series - 30A modular relays
The power modular relays have contacts rated up to 30A. They require modest coil drive current and are used for direct switching and control of heavy electrical circuits such as large resistive, motor, or lighting loads.

RIB M Series

FEATURES

- ***Convenient and economical to use***
- ***Handy, track-mounted modules***
- ***Attractive, stackable metal enclosure***
- ***Relay status indicator via LED***
- ***Coil uses low current and accepts wide range of AC & DC voltages***
- ***Closed/Open/Auto switch option available***
- ***High density relay packaging***
- ***UL listed enclosure and relay modules***

SPECIFICATIONS

Frequency	50/60 Hz
Life Rating	10 million cycles minimum mechanical
Relay Status	LED, ON - relay activated
Operating Temperature	-30° to 140°F (-34° to 60°C)
Operating Humidity	5% to 95% non-condensing
Dimensions	
C	1.75"H x 4"W x 1.25"L (4.45 x 10.16 x 3.18 cm)
D	1.75"H x 4"W x 2"L (4.45 x 10.16 x 5.08 cm)
F	1.75"H x 4"W x 2.45"L (4.45 x 10.16 x 6.22 cm)
H	175"D x 2.25"W x 1.25"L (4.45 x 6.99 x 3.18 cm)
I	1.75"D x 2.25"W x 1.7"L (4.45 x 6.99 x 4.32 cm)
J	1.75"D x 4"W x 1.5"L (4.45 x 10.16 x 3.85 cm)
K	1.75"D x 2.25"W x 2.5"L (4.45 x 6.99 x 6.35 cm)
L	1.75"D x 2.75"W x 1.25"L (4.45 x 6.99 x 8.64 cm)
MH1000	14.5"H x 7.7"W x 3.9"D (36.83 x 19.56 9.91 cm)
MH3500	24.5"H x 10.25"W x 3.9"D (62.23 x 26.04 x 9.91 cm)
MH38000	24.5"H x 12.5"W x 6.5"D (62.23 x 31.75 x 16.5 cm)
Approvals	UL listed, UL 916 Energy Management, UL 864 Fire, cUL listed, CSFM
Warranty	1 year

Coil pull-in/drop-out (nominal values)

	PULL-IN		DROP-OUT	
COIL DRIVE	**DC**	**AC**	**DC**	**AC**
10-30 VAC/VDC	10	9	2.8	2.1
24 VAC/VDC	22	18	3.8	3
120 VAC	–	85	–	35
208-277 VAC	–	160	–	60

RELAYS & CONTACTORS

FUNCTIONAL DEVICES MODULAR PANEL RELAYS

RIB M SERIES

SPECIFICATIONS - PILOT RELAY MODULES

MODEL	TYPE	COIL DRIVE	SIZE*	OVR	CONTACT RATINGS	CONTACT WIRING	COIL DRIVE DATA
RIBM24C	1-SPDT	24 VAC/VDC 50-60 Hz	C	–	15A general use 125 VAC 10A general use 250 VAC 10A resistive 30 VDC 1/2 hp 125/250 VAC 470 VA pilot duty 120/240 VAC	**24C** NC COM NO **24S** Closed Open Auto * *Cut appropriate jumper to select N.C. or N.O.	**Wiring** 24 VAC/VDC **Current Input** 24 mA @ 20 VAC 13 mA @ 20 VDC 28 mA @ 24 VAC 16 mA @ 24 VDC 44 mA @ 35 VAC 25 mA @ 35 VDC
RIBMN24C			H				
RIBM24S	1-SPST		C	Yes			
RIBMN24S			H				
RIBMU1C	1-SPDT	10-30 VAC/VDC 120 VAC 50-60 Hz	C	–	10A resistive 120/240/277 VAC 15A resistive 150 VAC, 28 VDC 15A inductive 150 VAC 480 VA pilot duty 240/277 VAC 480 VA ballast 277 VAC 600W tungsten 120 VAC N.O. 240W tungsten 120 VAC N.C. 1/3 hp for N.O. 120/240 VAC 1/6 hp for N.C. 120/240 VAC 1/4 hp for N.O. 277 VAC 1/8 hp for N.C. 277 VAC	**Relay Without Override Switch** **Relay #1** NC COM NO **Relay #2** (if present) NC COM NO **Relay With Override Switch** Auto Manual Common N.C. - Closed Open N.O. - Closed N.C. N.O.	**Wiring** **Relay #1 (and #2 if present)** either 208-277 VAC or 120 VAC 10-30 VAC/VDC Common **Current Input** 30 mA @ 10 VAC 12 mA @ 10 VDC 32 mA @ 12 VAC 14 mA @ 12 VDC 42 mA @ 24 VAC 16 mA @ 24 VDC 50 mA @ 30 VAC 18 mA @ 30 VDC 25 mA @ 120 VAC 35 mA @ 208-277 VAC
RIBMU1SC			J	Yes-2			
RIBMNU1C			I	–			
RIBMU2C	2-SPDT		F	–			
RIBMH1C	1-SPDT	10-30 VAC/VDC 208-277 VAC 50-60 Hz	C	–			
RIBMH1SC			J	Yes-2			
RIBMNH1C			I	–			
RIBMH2C	2-SPDT		F	–			
RIBMU1S	1-SPST-NO	10-30 VAC/VDC 120 VAC 50-60 Hz	C	Yes	10A resistive 277 VAC 15A resistive 150 VAC 480 VA pilot duty 277 VAC 480 VA ballast 277 VAC 600W tungsten 120 VAC N.O. 240W tungsten 120 VAC N.C. 1/3 hp for N.O. 120/240 VAC 1/6 hp for N.C. 120/240 VAC 1/4 hp for N.O. 277 VAC 1/8 hp for N.C. 277 VAC	**U1S and H1S** **For normally closed contacts, specify NC after model number Closed Open Auto ** **U1SM and H1SM** Closed Open Auto Closed Open Auto STATUS 50 VAC/VDC max and 0.25 A max	
RIBMNU1S			K				
RIBMU1SM	1-SPST-NO		D	Yes + Status			
RIBMNU1SM			L				
RIBMH1S	1-SPST-NO	10-30 VAC/VDC 208-277 VAC 50-60 Hz	C	Yes			
RIBMNH1S			K				
RIBMH1SM	1-SPST-NO		D	Yes+ Status			
RIBMNH1SM			L				

* See Specification on previous page for dimensions.

SPECIFICATIONS - POWER RELAY MODULES

RIBM2401B	1-SPDT	24 VAC/VDC 120 VAC 50/60 Hz	C	–	20A resistive 277 VAC 1 hp 120 VAC 2 hp 277 VAC 20A ballast N.O. 120-277 VAC 10A ballast N.C. 120-277 VAC 10A tungsten N.O. 120 VAC 770 VA pilot duty 120 VAC 1,110 VA pilot duty 277 VAC	**Relay Without Override Switch** NC COM NO **Relay With Override Switch** Auto Manual Common N.C. - Closed Open N.O. - Closed N.C. N.O.	**Wiring** either - 208-277 VAC or - 120 VAC 24 VAC/VDC Common **Current Input** 45 mA @ 18 VAC 30 mA @ 22 VDC 75 mA @ 24 VAC 32 mA @ 24 VDC 42 mA @ 120 VAC 42 mA @ 30 VDC 62 mA @ 208-277 VAC
RIBM2401SBC			F	Yes-2			
RIBM2402B		24 VAC/VDC 208-277 VAC 50/60 Hz	C	–			
RIBM2402SBC			F	Yes-2			
RIBM2401SB	1-SPST-NO	24 VAC/VDC 120 VAC	D	Yes		Closed Open Auto Position of yellow jumper selects N.O. vs N.C.	
RIBM2402SB		24 VAC/VDC 208-277 VAC					
RIBM24PL	DPST-NO	24 VAC/VDC	F	–	20A resistive 300 VAC, 28 VDC 15A resistive 600 VAC 1 hp 120 VAC 2 hp 240-277 VAC 3 hp 480-600 VAC 20A ballast 277-480 VAC 770 VA pilot duty 120 VAC 1,158 VA pilot duty 240 VAC 1,110 VA pilot duty 277 VAC 1,640 VA pilot duty 480 VAC 24ZL and 24ZN: 30A res.@ 300 VAC	NO	**Wiring** 24 VAC/VDC COMMON **Current Input** 100 mA @ 20 VAC 50 mA @ 24 VDC 125 mA @ 24 VAC 70 mA @ 30 VDC
RIBM24ZL	DPST-NO						
RIBM24ZN	DPDT	24 VAC/VDC	F	–		NC COM NO	

ORDERING INFORMATION

ACCESSORIES

MH1000	Screw-cover housing
MH3500	Hinge-cover housing
MH3800	Hinge-cover housing
MT212-12	Relay track, 12" x 2.75" (30.48 x 6.99 cm)
MT212-2	Relay track, 2" x 2.75" (5.08 x 6.99 cm)
MT4-12	Relay track, 12" x 4" (30.48 x 10.16 cm)
MT4-2	Relay track, 2" x 4" (5.08 x 10.16 cm)

AIR PRODUCTS AND CONTROLS MULTI-VOLTAGE RELAY MODULES

PAM-1, PAM-4

DESCRIPTION

PAM series relays are small encapsulated multi-voltage modules that provide 10A Form C contacts. These devices are ideal for applications where remote relays are required for control or status feedback. They are suitable for use with HVAC, temperature control, fire alarm, security, building automation, and lighting control systems.

PAM series relays may be mounted by using double-sided adhesive tape (provided), a self-drilling screw, or they may be loosely placed in a handy box.

PAM-1

PAM-4

FEATURES

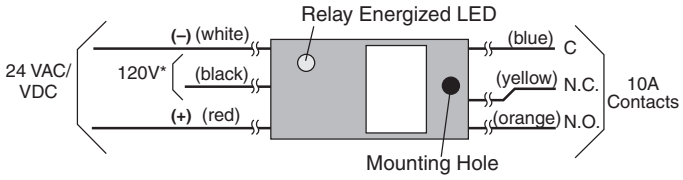
- ***Multi-voltage input***
- ***Small size***
- ***Multiple mounting options***
- ***Wirenuts, mounting screw, and tape included***
- ***LED indication (PAM-1 only)***

SPECIFICATIONS

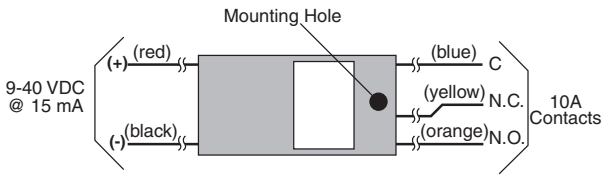
Supply Voltage	
PAM-1	24 VAC @ 31 mA, 24 VDC @ 15 mA, 120 VAC @ 19 mA
PAM-4	9-40 VDC @ 15 mA
Contact Rating	SPDT, Form C, 10A @120 VAC, 7A @ 24 VDC, 250µA @ 5 VDC
Wire Size	12" (30.5 cm), 18 AWG

Operating Temperature	-58° to 185°F (-50° to 85°C)
Mounting	Pre-drilled mounting screw hole and mounting screw provided; double-sided tape also provided
Dimensions	1.5" H x 1" W x 0.88" D (3.81 x 2.54 x 2.2 cm)
Approvals	UL listed File #S3403, CSFM, MEA
Weight	0.15 lb (0.068 kg)

WIRING



PAM-1



PAM-4

* May not be suitable for continuous duty use at 120 VAC for extended periods of time.

ORDERING INFORMATION

MODEL	DESCRIPTION
PAM-1	Multi-voltage relay module, 24 VAC/VDC, 120 VAC
PAM-4	Multi-voltage relay module, 9-40 VDC

AIR PRODUCTS AND CONTROLS MULTI-VOLTAGE RELAY MODULES

RIC SERIES

DESCRIPTION

The **RIC Series** multi-voltage relays provide Form C contacts rated for up to 10A. These devices are ideal for applications where remote relays are required for control or status feedback. The red LED indicates the relay coil is energized. The **RIC Series** is suitable for use with HVAC, temperature control, fire alarm, security, building automation, and lighting control systems.

RIC-1

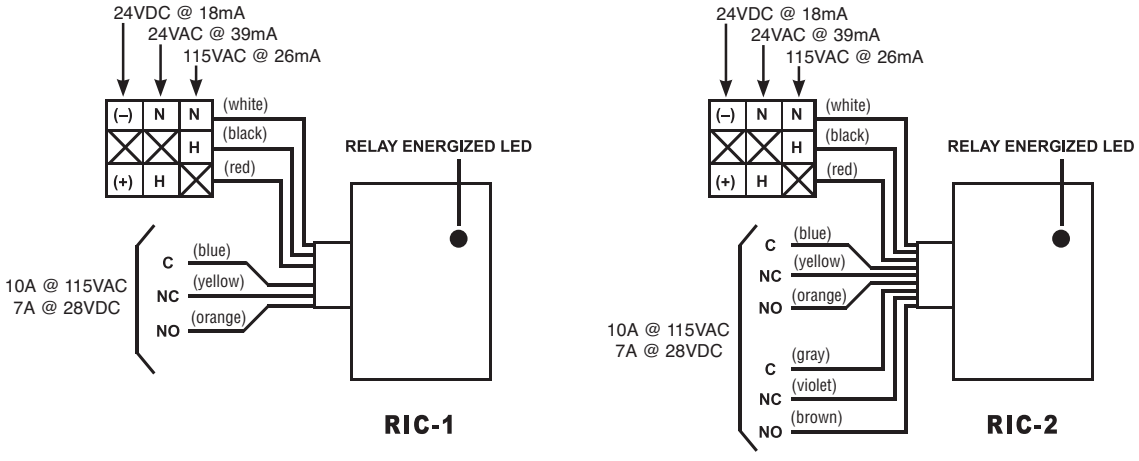
FEATURES

- ***Multi-voltage input***
- ***Small size***
- ***Wire nuts are included***
- ***LED indication***

SPECIFICATIONS

Supply Voltage	24 VAC @ 39 mA, 24 VDC @ 18 mA, 115 VAC @ 26 mA	**Operating Temperature**	32° to 120°F (0° to 49°C)
Contact Rating		**Mounting**	Hub mounting through 1/2" conduit knockout
RIC-1	SPDT, Form C, 10A @ 115 VAC, 7A @ 28 VDC,	**Dimensions**	2.5" H x 1.75" W x 1.3" D (6.3 x 4.4 x 3.3 cm)
RIC-2	DPDT, Form C, 10A @ 115 VAC, 7A @ 28 VDC	**Approvals**	UL listed File #S3403, CSFM, MEA
Wire Size	12" (30.5 cm), 18 AWG	**Weight**	0.15 lb (0.068 kg)

WIRING



ORDERING INFORMATION

MODEL	DESCRIPTION
RIC-1	Multi-voltage relay module, 24 VAC/VDC, 115 VAC, SPDT
RIC-2	Multi-voltage relay module, 24 VAC/VDC, 115 VAC, DPDT

RELAYS & CONTACTORS

POWER RELAYS
KE375, KE900 SERIES

DESCRIPTION

The **KE375** and **KE900 Series** of **30A relays** are heavy duty power relays commonly used for energy management, refrigeration, and HVAC control applications. High power handling capability and small size make these power relays particularly suited for motor control, heater loads, and lighting control. The **KE900 Series** features an open frame construction, and the **KE375** is encased in a clear polycarbonate cover.

KE900D

KE900S

KE375

FEATURES

- ***Small size***
- ***High-power handling capability***
- ***One-, two-, and three-pole models***
- ***24 VAC, 24 VDC & 120 VAC coils***

SPECIFICATIONS

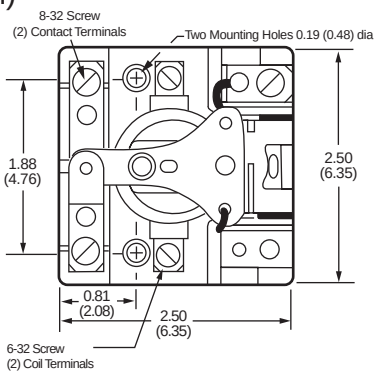
	KE900	KE375
Coil voltage	24 VAC/60 Hz, 120 VAC/60 Hz, or 24 VDC	
Coil power	AC: 9.5 VA sealed DC: 2.0W	AC: 4.6 VA DC: 2.6W
Pull-in voltage	AC: 85% or less of nominal DC: 75% or less of nominal	
Contact ratings	30A or 1-1/2 hp @ 120 or 240 VAC 20A or 2 hp @ 600 VAC 30A @ 28 VDC, resistive 3600W @ 120 or 240V (ballast)	30A @ 300 VAC, 80% PF 15A @ 600 VAC, 80% PF 30A @ 28 VDC 1 hp @ 120 VAC 2 hp @ 240 VAC / 277 VAC 3 hp @ 480/600 VAC, 100,000 cycles 20A @ 277/480 VAC ballast, 6000 cycles
Mounting	3/16" dia mounting holes	Top-mount cover with slotted tabs
Terminals	Screw terminals	0.25" x 0.032" quick connects
Contact material	Silver cadmium oxide	
Dielectric strength	2200V RMS between contacts 2200V RMS between other elements	2200V RMS between contacts 3750V RMS between other elements
Operate/Release time	30 ms	15 ms
Weight	10 oz (283g)	3.5 oz (99g)
Agency approvals	UL/cUL listed, File #E37066	UL/cUL-recognized component, File #E37066; CE certified

POWER RELAYS

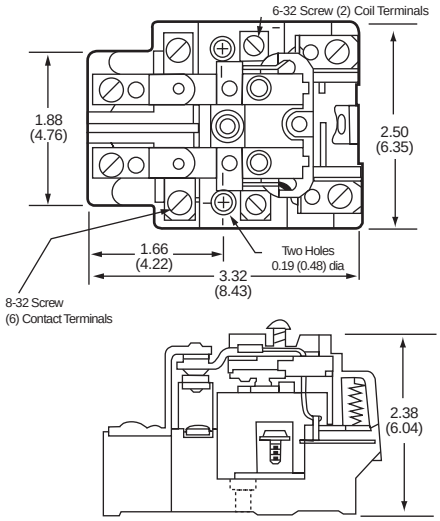
KE375, KE900 SERIES

DIMENSIONS

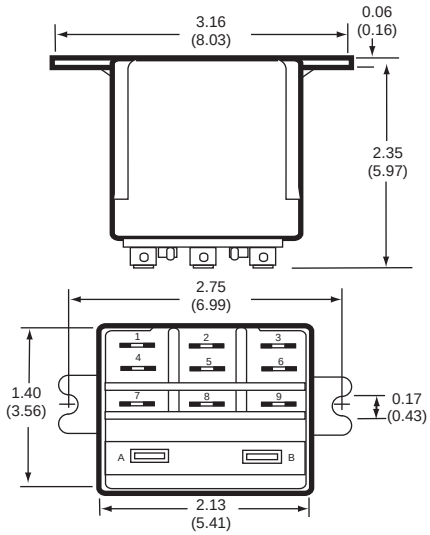
in
(cm)



KE900S

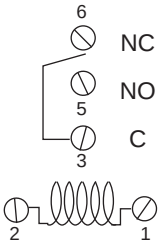


KE900D

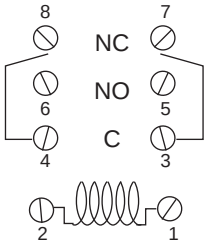


KE375T

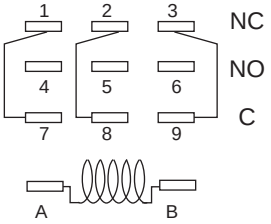
WIRING



KE900S



KE900D



KE375T

ORDERING INFORMATION

MODEL	DESCRIPTION
KE375T120VAC	3PDT Power relay 120 VAC coil
KE375T24VAC	3PDT Power relay 24 VAC coil
KE375T24VDC	3PDT Power relay 24 VDC coil
KE900S120VAC	SPDT Power relay 120 VAC coil
KE900S24VAC	SPDT Power relay 24 VAC coil
KE900S24VDC	SPDT Power relay 24 VDC coil
KE900D120VAC	DPDT Power relay 120 VAC coil
KE900D24VAC	DPDT Power relay 24 VAC coil
KE900D24VDC	DPDT Power relay 24 VDC coil

DESCRIPTION

G7L Series relays are heavy duty power relays commonly used for controlling refrigeration, HVAC equipment, heater loads, and lighting controls. High-power handling capability up to 30A, small size, and low cost characterize these relays. They are available in single and double pole models and are surface mounted or DIN rail mounted with the PL7F-06 socket.

FEATURES

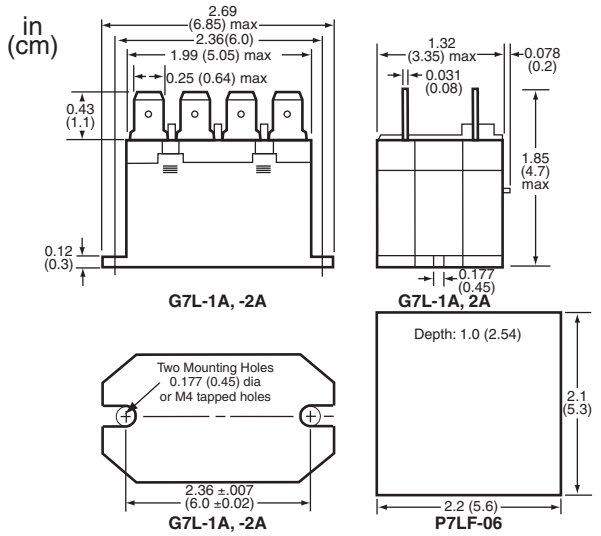
- ***High power capability***
- ***Small size***
- ***Low cost***
- ***Push-to-test button***
- ***Optional DIN rail screw terminal socket***

G7L Series

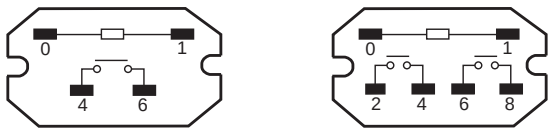
SPECIFICATIONS

Coil Voltage	24V, 26.4V maximum,120V 50/60 Hz.132V maximum
Coil Power	AC:2.5 VA, DC: 2.0W
Pull In Voltage	75 V, 18 V
Drop Out Voltage	18 V, 3.6 V, 18V
Contact Rating	
G7L-1A	
Resistive	30A, 277 VAC
General purpose	25A, 277 VAC 30A 120 VAC
Tungsten	1.5 kW, 120 VAC
Horsepower	1.5 hp, 120 VAC 3 hp, 277 VAC
G7L-2A	
Resistive	25A, 277 VAC
General purpose	25A, 277 VAC 25A 120 VAC
Tungsten	1.3 kW, 120 VAC
Horespower	1 hp, 120 VAC 2 hp, 277 VAC
Contact Resistance	50 mΩ maximum
Terminals	0.25" x 0.031" quick connects
Contact Material	Silver cadmium oxide
Dielectric Strength	2000 VAC between contacts, 4000 VAC between coil and contacts
Operate Time	30 ms maximum
Release Time	30 ms maximum
Operating Temperature	-4° to 185°F (-20° to 85°C)
Mounting	Top-mount cover with slotted tabs or DIN rail surface-mount socket with screw terminals
Approvals	UL-recognized component, File #E41643: CSA certified, File #LR35535: CE certifed
Weight	0.2 lb (0.091 kg)
Warranty	1 year

DIMENSIONS



WIRING



ORDERING INFORMATION

MODEL	DESCRIPTION
G7L-1A-TUBJ-CB-24VAC	SPST-N.O. Power relay 24 VAC
G7L-1A-TUBJ-CB-24VDC	SPST-N.O. Power relay 24 VDC
G7L-1A-TUBJ-CB-120VAC	SPST-N.O. Power relay 120 VAC
G7L-2A-TUBJ-CB-24VAC	DPST-N.O. Power relay 24 VAC
G7L-2A-TUBJ-CB-24VDC	DPST-N.O. Power relay 24 VDC
G7L-2A-TUBJ-CB-120VAC	DPST-N.O. Power relay 120 VAC

RELATED PRODUCTS

P7LF-06	DIN rail/surface mount socket

DEFINITE PURPOSE CONTACTORS

DPC SERIES

DESCRIPTION

The **DPC Series** is an economical line of definite-purpose contactors designed to control electrical loads such as air conditioning, refrigeration compressor, motors, and resistance heaters.

Two-pole | Three-pole | Four-pole

FEATURES

- ***Two-, three-, and four-pole models***
- ***Contact ratings from 30-60 FLA***
- ***Optional auxiliary contacts on select models***

CONTACT RATINGS

MODEL	POLES	FULL-LOAD AMP (FLA)	LOCKED-ROTOR AMP (LRA)	RESISTIVE	HP, SINGLE PHASE	HP, THREE PHASE
DPC24A2D30 **DPC01A2D30** **DPC02A2D30**	2 DPST-N.O.	30 FLA @ 240-600 VAC	180 LRA @ 240/277 VAC 150 LRA @ 480 VAC 120 LRA @ 600 VAC	40A @ 240-600 VAC	2 hp @ 120 VAC 3 hp @ 240 VAC	— — —
DPC24A2D40 **DPC01A2D40**	2 DPST-N.O.	40 FLA @ 240-600 VAC	240 LRA @ 240/277 VAC 200 LRA @ 480 VAC 160 LRA @ 600 VAC	50A @ 240-600 VAC	2 hp @ 120 VAC 3 hp @ 240 VAC	— — —
DPC24A3C30 **DPC01A3C30**	3 3PST-N.O.	30 FLA @ 240-600 VAC	180 LRA @ 240/277 VAC 150 LRA @ 480 VAC 120 LRA @ 600 VAC	40A @ 240-600 VAC	2 hp @ 120 VAC 5 hp @ 240/277 VAC	10 hp @ 200/208 VAC 10 hp @ 240/277 VAC 15 hp @ 480 VAC 20 hp @ 600 VAC
DPC24A3C40 **DPC01A3C40**	3 3PST-N.O.	40 FLA @ 240-600 VAC	240 LRA @ 240/277 VAC 200 LRA @ 480 VAC 160 LRA @ 600 VAC	50A @ 240-600 VAC	3 hp @ 120 VAC 7.5 hp @ 240/277 VAC	10 hp @ 200/208 VAC 10 hp @ 240/277 VAC 20 hp @ 480 VAC 25 hp @ 600 VAC
DPC24A3B50 **DPC01A3B50**	3 3PST-N.O.	50 FLA @ 240-600 VAC	300 LRA @ 240 VAC 250 LRA @ 480 VAC 200 LRA @ 600 VAC	65A @ 240-600 VAC	3 hp @ 120 VAC 7.5 hp @ 200/208 VAC 10 hp @ 240 VAC	15 hp @ 200/208 VAC 15 hp @ 240 VAC 25 hp @ 480/600 VAC
DPC24A3B60 **DPC01A3B60**	3 3PST-N.O.	60 FLA @ 240-600 VAC	360 LRA @ 240 VAC 300 LRA @ 480 VAC 240 LRA @ 600 VAC	75A @ 240-600 VAC	3 hp @ 120 VAC 7.5 hp @ 200/208 VAC 10 hp @ 240 VAC	25 hp @ 200/208 VAC 25 hp @ 240 VAC 30 hp @ 480/600 VAC
DPC24A4A30 **DPC01A4A30**	4 4PST-N.O.	30 FLA @ 240-600 VAC	180 LRA @ 240/277 VAC 150 LRA @ 480 VAC 120 LRA @ 600 VAC	40A @ 240-600 VAC	2 hp @ 120 VAC 5 hp @ 240/277 VAC	10 hp @ 200/208 VAC 10 hp @ 240/277 VAC 15 hp @ 480 VAC
DPC24A4A40 **DPC01A4A40**	4 4PST-N.O.	40 FLA @ 240-600 VAC	240 LRA @ 240/277 VAC 200 LRA @ 480 VAC 160 LRA @ 600 VAC	50A @ 240-600 VAC	3 hp @ 120 VAC 7.5 hp @ 240/277 VAC	10 hp @ 200/208 VAC 10 hp @ 240/277 VAC 10 hp @ 480 VAC

COIL RATINGS

MODEL	COIL VOLTAGE (VAC)	INRUSH @ 50 Hz (VA)	SEALED @ 50 Hz (VA)	INRUSH @ 60 Hz (VA)	SEALED @ 60 Hz (VA)	PULL-IN (VAC)	DROP-OUT RANGE (VAC)
DPC24A2D30, 40	24	31	6	28	5	18	6-15
DPC01A2D30, 40	120	31	6	28	5	88	20-70
DPC02A2D30	208/240	35	7	32	6	177	40-140
DPC24A3C30, 40	24	65	7.5	60	6	18	6-15
DPC01A3C30, 40	120	65	7.5	60	6	88	20-70
DPC24A3B50, 60	24	140	20	132	14	18	6-15
DPC01A3B50, 60	120	140	20	132	14	93	20-70
DPC24A4A30, 40	24	68	14	60	9	19.2	6-15
DPC01A4A30, 40	120	68	14	60	9	88	20-70

SPECIFICATIONS

Line Load Terminals	Box lug or dual 0.25" quick connects	**Operating Temperature**	-40° to 149°F (-40° to 65°C)
Coil Terminals	Dual 0.25" quick connects	**Approvals**	UL recognized, File #E246810, CE certified
Auxiliary Contacts	10A, 1/3 hp @ 120/250 VAC 4A @ 120 VAC for lamp load	**Weight**	2 lb (0.91 kg)
Wire Size	14-4 AWG	**Warranty**	1 year

ORDERING INFORMATION

MODEL	CONTACT AMP RATING		NUMBER OF POLES	COIL VOLTAGE (VAC)	DIMENSIONS in (cm)			
	Inductive Full Load	Resistive			Length	Width	Height	Optional Aux. Switch
DPC24A2D30	30	40	2	24	3.29 (8.36)	2.0 (5.08)	2.61 (6.63)	No
DPC01A2D30	30	40	2	120	3.29 (8.36)	2.0 (5.08)	2.61 (6.63)	No
DPC02A2D30	30	40	2	208/240	3.29 (8.36)	2.0 (5.08)	2.61 (6.63)	No
DPC24A2D40	40	50	2	24	3.29 (8.36)	2.0 (5.08)	2.61 (6.63)	No
DPC01A2D40	40	50	2	120	3.29 (8.36)	2.0 (5.08)	2.61 (6.63)	No
DPC24A3C30	30	40	3	24	3.30 (8.38)	2.90 (7.37)	3.0 (7.62)	Yes
DPC01A3C30	30	40	3	120	3.30 (8.38)	2.90 (7.37)	3.0 (7.62)	Yes
DPC24A3C40	40	50	3	24	3.30 (8.38)	2.90 (7.37)	3.0 (7.62)	Yes
DPC01A3C40	40	50	3	120	3.30 (8.38)	2.90 (7.37)	3.0 (7.62)	Yes
DPC24A3B50	50	65	3	24	4.06 (10.3)	3.19 (8.10)	3.56 (9.04)	No
DPC01A3B50	50	65	3	120	4.06 (10.3)	3.19 (8.10)	3.56 (9.04)	No
DPC24A3B60	60	75	3	24	4.06 (10.3)	3.19 (8.10)	3.56 (9.04)	No
DPC01A3B60	60	75	3	120	4.06 (10.3)	3.19 (8.10)	3.56 (9.04)	No
DPC24A4A30	30	40	4	24	3.42 (8.69)	2.75 (7.0)	3.03 (7.7)	Yes
DPC01A4A30	30	40	4	120	3.42 (8.69)	2.75 (7.0)	3.03 (7.7)	Yes
DPC24A4A40	40	50	4	24	3.42 (8.69)	2.75 (7.0)	3.03 (7.7)	Yes
DPC01A4A40	40	50	4	120	3.42 (8.69)	2.75 (7.0)	3.03 (7.7)	Yes

RELATED PRODUCTS

CN1C Auxiliary contact, (1) SPDT

IDEC SOLID STATE RELAY

RSSDN

DESCRIPTION

The **Model RSSDN** is a photo-isolated solid state relay. The 4-32 VDC input voltage allows the relay to be used on analog or digital outputs. While solid-state relays provide reliable switching and long-life operation, careful application is required as excessive temperature, high inrush currents, or induced currents can affect solid state relay operation.

FEATURES

- ***Photo isolation***
- ***4000V optical isolation***
- ***Zero voltage turn-on***
- ***Input status LED***
- ***High surge capability***
- ***Dual SCR output***

RSSDN

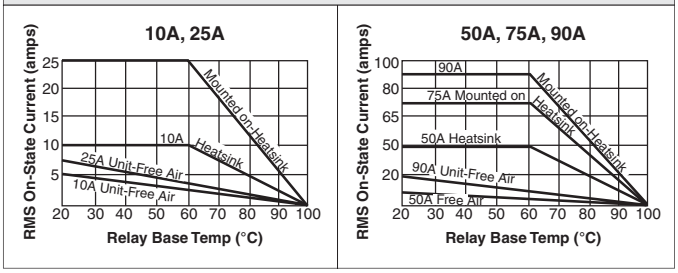
SPECIFICATIONS

Input Current	Regulated 10 mA
Frequency Range	47-80 Hz
Pick Up Voltage	4 VDC
Drop Out Voltage	1 VDC
Voltage Range	4-32 VDC
Contact Type	1 Form A, SPST-N.O.
Off State Leakage	20 mA @ rated voltage (maximum)
Minimum Current	**10A, 25A models**: (holding) 50 mA, **50A, 75A, 90A models**: (holding) 100 mA
Output Current Limit	10 A, 25 A, 50 A, 75 A, 90 A
Output Voltage	48-660 VAC
Over Voltage Rating	1200 PIV
Voltage Drop	1.6V (maximum) @ rated current
Capacitance	8 pF
Dielectric Strength	400 Vrms minimum
Surge Current	1-Cyle 150A, 1-Second 30A, 1-Cyle 300A, 1-Second 75A, 1-Cyle 750A, 1-Second 150A, 1-Cyle 1000A, 1-Second 225A, 1-Cyle 1200A, 1-Second 300A
Reverse Voltage Protection	Yes (-32 VDC)
Zero Voltage Switching	Yes
Turn Off Time	1/2 cycle @ 60 Hz
Turn On Time	1/2 cycle @ 60 Hz
Dimensions	2.25" H x 1.75" W x 0.94" D (5.72 x 4.45 x 2.38 cm)
Approvals	UL-recognized component, File #E194577: CE certified
Weight	0.22 lb (0.10 kg)
Warranty	1 year

WIRING

Observe the polarity of input terminals. Failure to do so may cause damage to the solid-state relays.

FIGURE 1. CURRENT DERATING CURVES



INSTALLATION

- Install solid-state relays in dry, well-ventilated areas away from excessive heat.
- Use #6-32 screws, flat washers, and lock washers to secure mounting on heat sinks.
- Vertical mounting is recommended to allow air to flow unimpeded.
- A small-capacity load may not turn off due to the leakage current present after the solid-state relay has turned off. In this case, use a resistor in parallel with the load to shunt the leakage current.
- When the input signal contains a ripple voltage, the lowest ripple amplitude should exceed the minimum pick-up voltage of 4V.

Heat sinks are required to achieve the full output current rating. The recommended heat sink dimensions and materials are shown in the Table 1 below.

TABLE 1. RECOMMENDED HEAT SINK DIMENSIONS / MATERIALS

Output Rating	Dimensions in (cm)	Material
10A	12 x 12 x 1/8 (30.5 x 30.5 x 0.3)	Aluminum (black anodized)
25A	15 x 15 x 1/8 (38.1 x 38.1 x 0.3)	Aluminum (black anodized)
50A	15 x 15 x 1/8 (38.1 x 38.1 x 0.3)	Aluminum (black anodized)
75A	17 x 17 x 1/8 (43.2 x 43.2 x 0.3)	Aluminum (black anodized)
90A	17 x 17 x 1/8 (43.2 x 43.2 x 0.3)	Aluminum (black anodized)

It is recommended to use a thermal compound (for example, Kele part number TCC-12) between the base of the solid-state relay and the heat sink for heat dissipation.

APPLICATION INFORMATION

Heater Loads

When using solid-state relays for driving heaters where the load is switched on and off rapidly and continuously, severe thermal stress will result. In such cases, use an solid-state relay at no more than 75% of the rating.

RECOMMENDED HEATER LOADS

SSR Rating	@ 120 VAC	@ 240 VAC
10A	1 kW	2 kW
25A	2 kW	4 kW
50A	3 kW	6 kW

Lamp Loads

Zero-voltage switching is ideal for driving incandescent lamps since the cold fillament will not be subjected to a large inrush current. Using a zero-switched solid-state relay will reduce inrush current and prolong lamp life.

RECOMMENDED LAMP LOADS

SSR Rating	@ 120 VAC	@ 240 VAC
10A	1 kW	2 kW
25A	2 kW	4 kW
50A	3 kW	6 kW

Solenoid Valves and Contactors

Solid-state relays use high-noise immunity circuitry with a snubber to handle the electrical noise generated by inductive loads.

RECOMMENDED LOADS

SSR Rating	@ 120 VAC	@ 240 VAC
10A	900W	1800W
25A	2100W	4200W
50A	3800W	7500W

Motor Loads

UL MOTOR LOAD RATINGS (hp)

SSR Rating	@ 120 VAC	@ 240 VAC	@ 480 VAC
10A	1/2	3/4	3/4
25A	1/2	3/4	3/4
50A	3/4	1-1/2	1-1/2
75A	3/4	5	5
90A	3/4	5	5

ORDERING INFORMATION

MODEL	DESCRIPTION
RSSDN-10A	Solid-state relay, 10A continuous output current
RSSDN-25A	Solid-state relay, 25A continuous output current
RSSDN-50A	Solid-state relay, 50A continuous output current
RSSDN-75A	Solid-state relay, 75A continuous output current
RSSDN-90A	Solid-state relay, 90A continuous output current

IDEC SOLID STATE RELAYS

RSC SERIES

DESCRIPTION

The **RSC Series** solid-state relays accept a 4-32 VDC control input and offer optical isolation between the input and output. The **RSC Series** is designed for DIN or panel mounting and features zero switching voltage, built-in transient protection, and LED indication. The built-in heat sink maximizes current output capabilities-ideal for controlling inductive loads, lamps, motors, and transformers.

FEATURES

- ***Built-in heat sink***
- ***4200V optical isolation***
- ***Zero-voltage switching***
- ***Built-in transient protection***
- ***Dual SCR output***
- ***Input status LED***

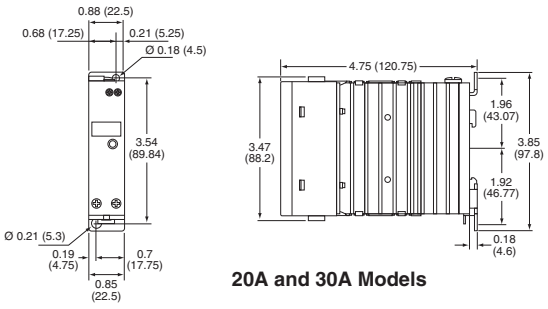
RSCDN Series

SPECIFICATIONS

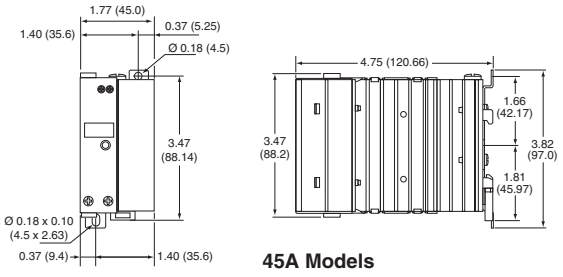
Input Current	16 mA minimum
Frequency Range	47 - 63 HZ
Drop Out Voltage	1 VDC
Voltage Range	4 - 32 VDC
Contact Type	SPST-N.O.
Off State Leakage	120 µA @ 32 VDC
Isolation	4200 Vrms
Minimum Current	100 mA
Output Current	20A, 30A, 45A
Output Voltage	48 - 600 VAC
Voltage Drop	1.2V @ rated current (maximum)
Dielectric Strength	4000 Vrms minimum
Zero Voltage Switching	Yes

Wire Size	
Input	16 - 24 AWG
Output	8 - 16 AWG
Turn Off Time	10 ms @ 50 Hz; 8.33 ms @ 60Hz
Turn On Time	10 ms @ 50 Hz; 8.33 ms @ 60Hz
Operating Temperature	-4° to 176°F (-20° to 80°C)
Materials Of Construction	
Heat sink	Anoodized black aluminum
Housing	Polycarbonate UL94-10
Approvals	UL-recognized component, File #E194577; CSA CE certified
Weight	
20A, 30A models	0.5 lb (0.225 kg)
45A model	0.88 lb (0.4 kg)
Warranty	1 Year

DIMENSIONS



20A and 30A Models



45A Models

ORDERING INFORMATION

MODEL	DESCRIPTION
RSCDN-20A	Solid state relay with built-in heat sink, 20A
RSCDN-30A	Solid state relay with built-in heat sink, 30A
RSCDN-45A	Solid state relay with built-in heat sink, 45A

FUNCTIONAL DEVICES BACNET RELAY IN A BOX

RIBTW2401B-BC

DESCRIPTION

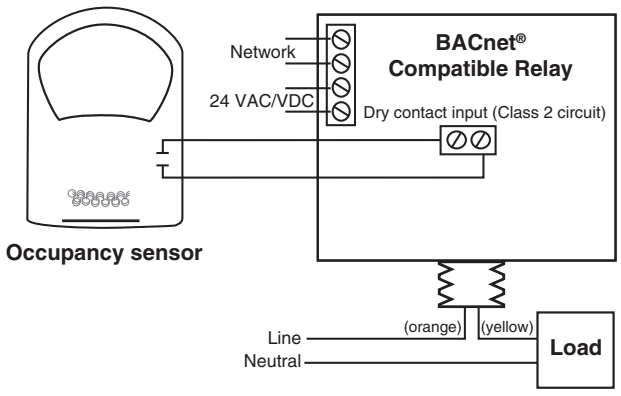
The **Model RIBTW2401B-BC** is an open-protocol relay controlled from a remote location using a BACnet network. The relay is powered locally, and communication with the network is over a twisted pair of wires. Using standard BACnet objects, the relay can be commanded on and off over the network and the relay state communicated back. A separate digital input is provided to conveniently allow the state of a status feedback signal from a current switch (or other switched feedback device) to be communicated on the BACnet network.

FEATURES

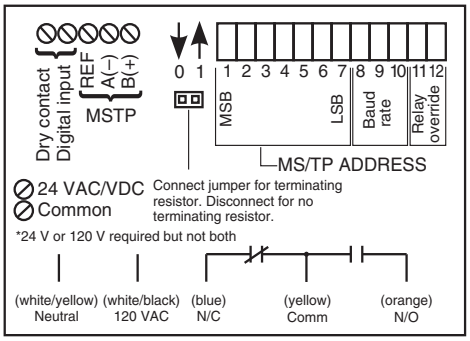
- ***Enclosed BACnet relay with 20A contacts***
- ***Additional dry contact input (powered by Class 2 circuit)***
- ***LED indication of network status and relay status***
- ***UL listed and BACnet compatible, CE***

RIBTW2401B-BC

APPLICATION



WIRING



NOTE: When using 120 VAC, there will be residual voltage on 24V terminals; this is not to be used for powering external devices.

SPECIFICATIONS

Frequency	50/60 Hz
Input	24 VAC @ 11 mA, 24 VDC @ 81 mA, 120 VAC @ 96 mA
Contact Rating	20A resistive @ 277 VAC, 20A ballast N.O. @ 120/277 VAC, 10A ballast N.C. @ 277 VAC, 10A tungsten N.O. @ 120 VAC, 1110 VA pilot duty @ 277 VAC, 770 VA pilot duty @ 120 VAC, 2 hp @ 277 VAC, 1 hp @ 120 VAC
Relay Type	SPDT
Duty	Continuous duty
Life Expectancy	10 million cycles minimum
Baud Rate	9600, 19200, 38400, 57600, 76800, and 115200
LED Indication	Green: network status, Red: relay status
Operating Temperature	-30° to 140°F (35° to 60°C)
Housing Type	NEMA 1, plenum rated
Conduit Hub	1/2" NPT
Dimensions	4" H x 4" W x 1.8" D (10.2 x 10.2 x 4.6 cm)
Approvals	UL listed, CE certified, BACnet certified
Warranty	1 year

ORDERING INFORMATION

MODEL	DESCRIPTION
RIBTW2401B-BC	BACnet RIB relay, SPDT, 24 VAC/VDC or 120 VAC power input

FUNCTIONAL DEVICES LONWORKS RELAY IN A BOX

RIBTW SERIES

DESCRIPTION

The **RIBTW Series** of general-purpose power relays are controlled from a remote location using a LONWorks network. The relay is powered locally and communication with the network is over a twisted pair of wires. Using standard network variables (SNVTs) the relay can be commanded on and off over the network and the relay state is communicated. A separate digital input is provided to conveniently allow the state of a status feedback signal from a current switch (or other switched feedback device) to be communicated on the LONWorks network.

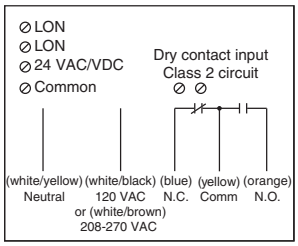
FEATURES

- ***Enclosed LonWorks relay with 20A contacts***
- ***Additional dry contact input (powered by Class 2 circuit)***
- ***Models with manual override switch***
- ***LED indication of network status, relay status and service status***
- ***UL listed and LonMark certified, CE***

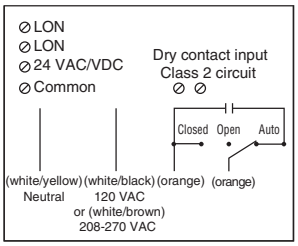
SPECIFICATIONS

Frequency	50/60 Hz
Input	24 VAC @ 111 mA 24 VDC @ 81 mA 120 VAC @ 96 mA 24 VAC @ 111 mA 24 VDC @ 81 mA 208-277 VAC @ 105 mA
Contact Rating	20 A resitive @ 277 VAC 20 A ballast N.O. @ 120/277 VAC 10 A ballast N.C. @120/277 VAC 10 A tungsten N.O. @ 120 VAC 1110 VA piot duty @ 277 VAC 770 VA pilot duty @ 120 VAC 2 hp @ 277 VAC 1 hp @ 120 VAC
Relay Type	SPDT, SPST-NO
Duty	Continous
Transceiver Type	FTT-10A
LED Indication	
Green	Network status
Red	Relay status
Yellow	Service status
Operating Temperature	-30° to 140°F (35° to 60°C)
Housing Type	NEMA 1, plenum rated
Conduit Hub	1/2' NPT
Dimensions	4" H x 4" W x 1.8" D (10.2 x 10.2 x 4.6 cm)
Approvals	UL listed, CE certified, LonMark 3.3 certified
Warranty	1 year

WIRING



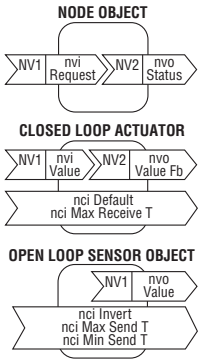
RIBTW2401B, RIBTW2402B



RIBTW2401SB, RIBTW2402SB

NOTE: When using 120, 200, or 277 VAC, there will be residual voltage on 24V terminals; this is not intended to power external devices.

APPLICATION



DESCRIPTION	SNVT NAME	SNVT TYPE
Command to open/close relay	nvi Value	SNVT_switch
Command status of relay	nvo Fb Value	SNVT_switch
Default state of relay on/off	nci Default	SNVT_switch
Communication timer	nci Max Receive T	SNVT_elapsed_tm
Invert status of Digital-In	nci Invert	SNVT_lev_disc
Max time between updates	nci Max Send T	SNVT_elapsed_tm
Min time between updates	nci Min Send T	SNVT_elapsed_tm

The relay will go to the default state when the communication timer times out. Setting the timer value to zero will cause the communication to never time out.

ORDERING INFORMATION

MODEL	DESCRIPTION
RIBTW2401B-LN	LonWorks RIB relay, SPDT, 24 VAC/VDC or 120 VAC power input
RIBTW2402B-LN	LonWorks RIB relay, SPDT, 24 VAC/VDC or 208-277 VAC power input
RIBTW2401SB-LN	LonWorks RIB relay, SPST-NO with manual override switch, 24 VAC/VDC or 120 VAC power input
RIBTW2402SB-LN	LonWorks RIB relay, SPST-NO with manual override switch, 24 VAC/VDC or 208-277 VAC power input

DESCRIPTION

The **RIBW Series** wireless control relays are enclosed and offer easy installation without the expense of traditional hard wiring. The control relays are used in tandem with the wireless transmitter **Model RIBWE24TDC-EN**. Relays can be mounted up to 100 ft (30 m) from the transmitter.

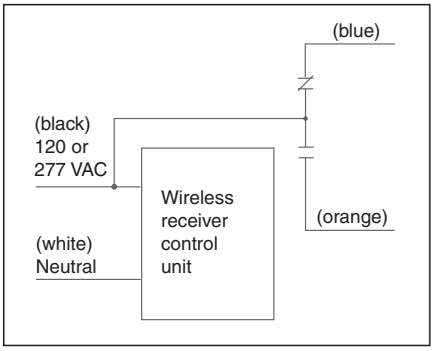
RIBW01B-EN

RIBW277B-EN

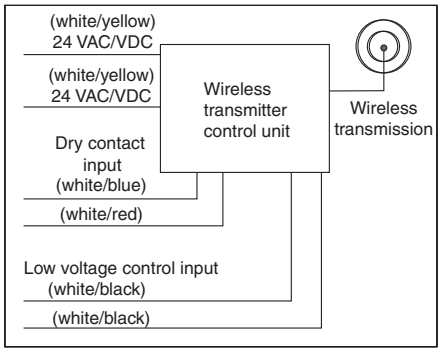
FEATURES

- ***Enclosed wireless relay with 20A contacts***
- ***Eliminates hard wiring***
- ***LED indication of relay status***
- ***Continuous duty coil***

WIRING



Relay Wiring



Transmitter Wiring

SPECIFICATIONS

Relay Type	SPDT, continuous duty
Input Power	RIBW01B-EN: 120 VAC @ 73 mA, RIBW227B-EN: 277 VAC @ 80 mA
Frequency	50/60 Hz
Contact Rating	20A resistive @ 120/277 VAC, 20A ballast N.O. @ 120/277 VAC, 10A ballast N.C. @120 VAC, 1110 VA pilot duty @ 120 VAC, 2 HP @ 277 VAC, 1 HP @ 120 VAC
Life Expectancy	10 million cycles minimum
LED Indication	Red: on = energized
Operating Temperature	-30° to 140°F (35° to 60°C)
Dimensions	2.3"H x 3.2"W x 1.8"D (5.8 x 8.1 x 4.6 cm) with 0.5" (1.27 cm) NPT nipple
Housing Type	NEMA 1, plenum rated
Approvals	UL listed, CE
Warranty	1 year
TRANSMITTER	
Input	24 VAC @ 42 mA; 24 VDC @ 38 mA, 50/60 Hz
Frequency	315 mHz
Transmission Power	10mW EIRP, maximum
LED Indication	On: input activated; slow blink: input deactivated; fast blink: transmitting
Operating Temperature	-30° to 140°F (35° to 60°C)
Dimensions	1.7"H x 2.8"W x 1.5"D (4.3 x 7.1 x 3.8)
Housing Type	NEMA 1, plenum rated
Wire Length	16" (46 cm) L, 600V rated, 6" (46 cm) L, 600V rated
Warranty	1 year

ORDERING INFORMATION

MODEL	DESCRIPTION
RIBW01B-EN	Wireless RIB relay, SPDT, 120 VAC power input
RIBW277B-EN	Wireless RIB relay, SPDT, 277 VAC power input
RIBWE24TDC-EN	Wireless transmitter, 24 VAC/VDC power input

SPECIAL VOLTAGE RELAYS
20307 SERIES

DESCRIPTION

The **20307 Series** plug-in style relays offer the flexibility of using 208 VAC or 277 VAC single-phase voltages for relay control. These relays are DPDT and plug into a standard three-pole general purpose relay socket.

20307

SR3B-05

FEATURES

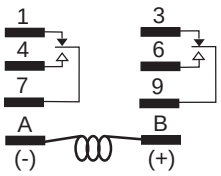
- ***208 VAC and 277 VAC coils***
- ***13A contact rating***
- ***UL recognized***
- ***Socket mounting***
- ***Heavy-duty construction***

SPECIFICATIONS

Coil Voltage	208 VAC @ 60 Hz 277 VAC @ 60 Hz
Coil Power	2.2 VA
Contact Arrangement	DPDT (2 form C)
Contact Rating	13A, 1/3 hp @ 120 VAC 13A, 1/2 hp @ 277 VAC 3A, 3/4 hp @ 600 VAC 10A @ 28 VDC
Dimensions	1.37" H x 1.5" W x 3.4" D (3.5 x 3.8 x 8.6 cm)
Approvals	UL recognized
Weight	0.5 lb (0.23 kg)
Warranty	1 year

NOTE: SR3B-05 socket is rated for 10 A, 300 V max

WIRING



Bottom View

ORDERING INFORMATION

MODEL	DESCRIPTION
20307-86	Relay, 208 VAC coil, DPDT
20307-87	Relay, 277 VAC coil, DPDT

RELATED PRODUCTS		PAGE
SR3B-05	Relay socket, three-pole blade type, DIN/surface mount	**934**

ALTERNATING RELAY
ALT

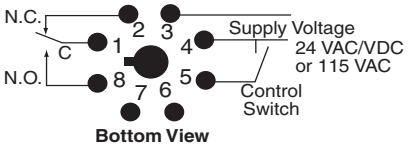
DESCRIPTION

The **Model ALT** alternating relay is commonly used to alternate between two loads to equalize run-time. When an external control switch opens, the **Model ALT's** output contacts transfer from one state to the other. When an external control switch closes, the output contacts remain in their current state. The **SW** option offers an override potentiometer switch on top of the relay that allows manual override control of either load or automatic operation.

FEATURES

- ***Alternation between two loads to equalize run time***
- ***Two LEDs to indicate the energized load***
- ***Optional override switch***
- ***Debounce time delay***

WIRING



Bottom View

SPECIFICATIONS

Supply Voltage	115 VAC, 24 VAC/VDC
Supply Current	40 mA
Contact Rating	SPDT, 480 VA @ 240 VAC
Control Signal	115 VAC, 2 mA, 24 VAC/VDC, 2 mA
Debounce Time Delay	0.5 sec
Warranty	5 years

ORDERING INFORMATION

MODEL	DESCRIPTION
ALT-115-S-SW	Alternating relay, 115 VAC, override switch
ALT-24-S-SW	Alternating relay, 24 VAC/VDC, override switch

RELATED PRODUCTS	
OT08PC	Octal relay socket for Model ALT

DELAY ON MAKE / INTERVAL TIMERS

438USA, 438USA-INT

DESCRIPTION

The **Model 438USA** universal switch-adjustable time capsule is an all solid state timer that provides delay on make (ON-Delay) control of a load device operating from 19-288 VAC/DC. The **Model 438USA** controls up to a 1A load, such as a relay or solenoid.

The **Model 438USA-INT** universal switch-adjustable time capsule is an all solid-state timer that provides interval timing control of a load device operating from 24 to 240 VAC. The **438USA-INT** controls up to a 1A load, such as a relay or solenoid.

438USA

438USA-INT

FEATURES

- ***Encapsulated digital-timing circuitry***
- ***Switch-selectable delay***
- ***Low cost***
- ***Transient protected***
- ***1A output rating***

OPERATION

General

Timing is set via a binary-coded DIP switch and is adjustable from 1 to 1024 seconds. With all switches closed, there is an internal, one-second delay; with all switches open, there is a 1024-second delay time. Prior to applying power to the timer, set the switches to the correct position for the desired time.

438USA - Delay-on-Make (ON-Delay)

When power is applied, the **Model 438USA** remains in the off state, allowing only leakage current to flow. Once the preset time period elapses, the unit switches on, allowing full current to flow and the load to energize. The load remains energized as long as power is applied. When power is removed, the unit resets and is ready for another timing period.

438USA-INT - Interval

When voltage is applied, the **Model 438USA-INT** turns on, permitting full load current to flow. At the end of the preset timing period, the unit turns off and permits only leakage current to flow through the load. To recycle, the operating voltage must be removed and reapplied.

SPECIFICATIONS

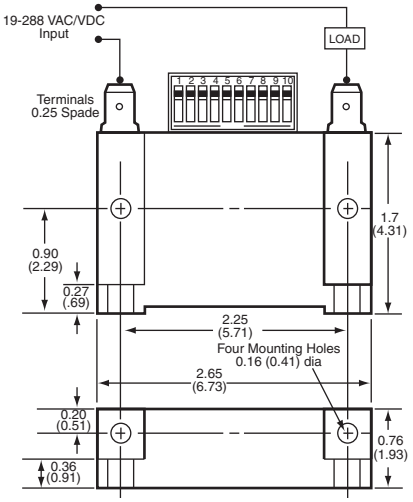
Control Signal	24-240 VAC (50/60 Hz), 19-288 VAC (50/60 Hz) or VDC
Leakage Current	**438USA-INT**: Off State: 1 mA maximum @ 240V **438USA**: Off State: 0.6 mA @ 24V 1.8 mA @ 48 V 5.4 mA @ 120V 11.4 mA @240 V
Output	10 mA to 1A inductive; inrush current to 25A for 8 ms
Range	1 to 1024 seconds, 1-second increments
Transient Protection	6000V for 8.3 ms
Voltage Drop	4V maximum, ON state
Accuracy	±10% of setpoint
Adjustments	10-position DIP switch
Recycle Time	100 ms, 50 ms after timing cycle, 200 ms during timing cycle
Repeatability	±1% nominal
Timing	Interval timer, Delay on make (ON-Delay)
Operating Temperature	-4° to 185°F (-20° to 85°C), -4°C to 185°F (-20° to 85°C)
Storage Humidity	95% non-condensing
Approvals	UL-recognized component, File #E47858; CSA certified, File #LR31931-3
Weight	0.2 lb (0.091 kg)
Warranty	1 year

DELAY ON MAKE / INTERVAL TIMERS

438USA, 438USA-INT

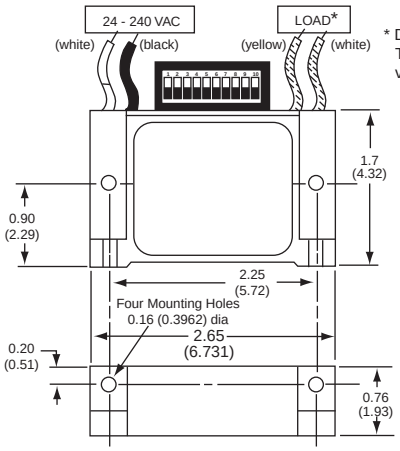
DIMENSIONS / WIRING

in
(cm)



438USA

Four 20 AWG wire (two for operating voltage and two for load circuit)

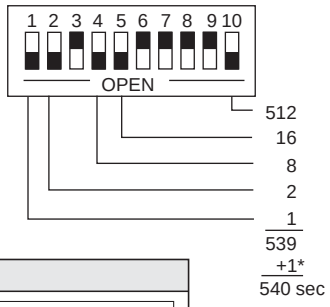


* Do not apply voltage to load wires. The load is powered from the input voltage.

438USA-INT

TIME SETTINGS

To delay 540-second interval



To delay 60-second interval

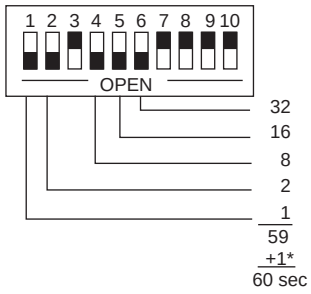
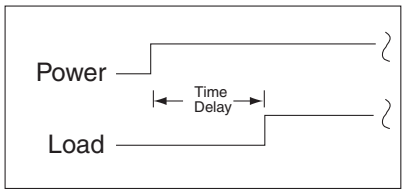
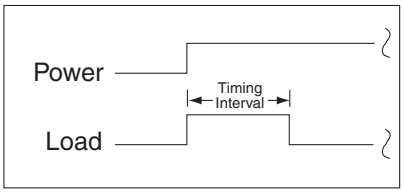


FIGURE 1. TIMING



438USA



438USA-INT

ORDERING INFORMATION

MODEL	DESCRIPTION
438USA-INT	Universal switch-adjustable time capsule, interval timer
438USA	Universal switch-adjustable time capsule, delay on make (ON-delay) timer

DESCRIPTION

The **RTE Series** multi-function electronic timers are socket-mounted adjustable time delay relays available in two function groups. The timer functions and time ranges are easily selected by setting external switches. The knob on the front of the timer is used to set the precise delay period within the selected time range.

Timer Functions

RTE-B1/RTE-P1 (Power-Triggered)
-ON-Delay, Interval, OFF-Cycle, ON-Cycle
RTE-B2/RTE-P2 (Signal-triggered)
-ON-Delay, OFF-Cycle, OFF-Delay, ON-Cycle, Single-Shot

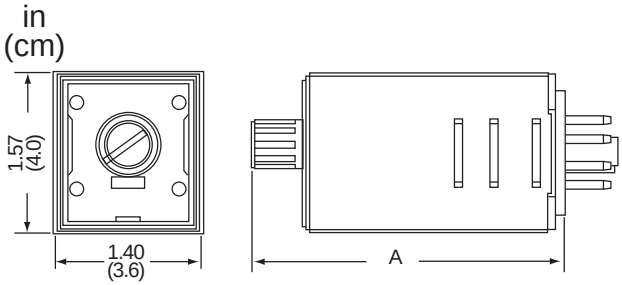
FEATURES

- ***Selectable 10 timing functions and 20 time ranges***
- ***Time delay settings from 0.1 second to 600 hours***
- ***Two Form C delayed output contacts***
- ***Space-saving package***
- ***High repeat accuracy of ±0.2%***
- ***On and timing out LED indicators***
- ***Standard 8-pin, 11-pin, or 11-blade relay socket***
- ***UL Listed, CE certified***

SPECIFICATIONS

Time Delay Settings	0.1 sec to 600 hours
Contact Configuration	2 Form C, DPDT (delay outputs)
Load Type	10A resistive @ 240 VAC, 30 VDC; 7A inductive @ 240 VAC, 30 VDC; 1/6 hp @ 120 VAC; 1/3 hp @ 240 VAC
Input	
AD models:	24 VAC/VDC (3.5 VA/1.7W)
AF models:	120VAC (6.6 VA)
Operating Temperature	-4° to 149°F (-20° to 65°C)
Operating Humidity	35% to 85% RH
Accuracy	±%, ±20 ms
Setting Error	±10% maximum
Insulation Resistance	100 MΩ minimum (500 VDC)
Dielectric Strength	2000 VAC, 1 minute (excpet 1000 VAC between contacts of same pole)
Input	24 VAC/VDC (3.5 VA/1.7W), 120VAC (6.6 VA)
Electrical Life	500,000 operations
Mechanical Life	50 million operations
Weight	0.2 lb (0.091 kg)
Approvals	UL listed, File #E66043, CE
Warranty	1 year

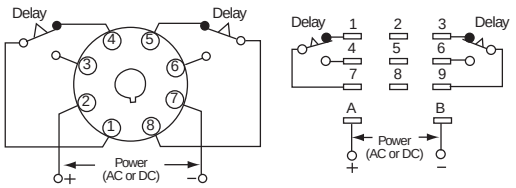
DIMENSIONS



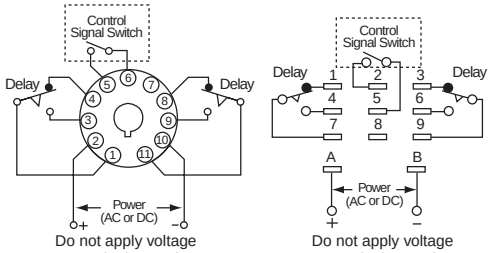
RTE-P 8/11 Pin: A = 3.06 (7.79)
RTE-B 11 Blade: A = 2.95 (7.49)

WIRING

Bottom View



RTE-B1/RTE-P1



RTE-B2/RTE-P2

IDEC MULTIFUNCTION ELECTRONIC TIMERS

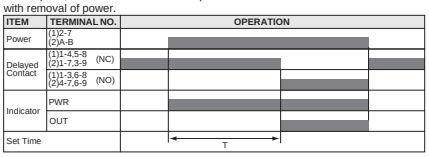
RTE SERIES

OPERATION

RTE-P1, -B1

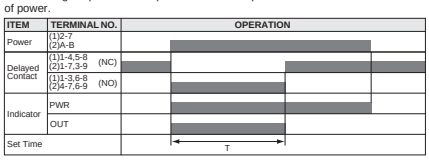
A: ON-Delay 1 (power start)

Set timer for desired delay, apply power to coil. Contacts transfer after preset time has elapsed, and remain in transferred position until timer is reset. Reset occurs with removal of power.



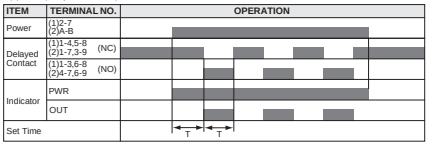
B: Interval (power start)

Set timer for desired delay, apply power to coil. Contacts transfer immediately, and return to original position after preset time has elapsed. Reset occurs with removal of power.



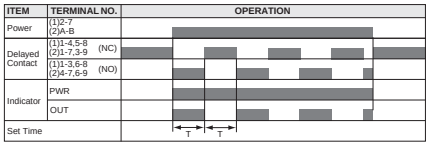
C: Cycle 1 (power start, OFF first)

Set timer for desired delay, apply power to coil. First transfer of contacts occurs after preset delay has elapsed, after the next elapse of preset delay contacts return to original position. The timer now cycles between on and off as long as power is applied (duty ratio 1:1).



D: Cycle 3 (power start, ON first)

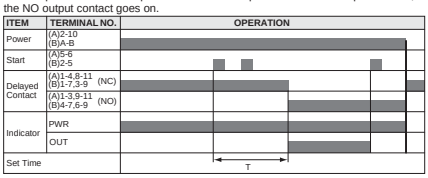
Functions in same manner as Mode C, with the exception that first transfer of contacts occurs as soon as power is applied. The ratio is 1:1. Time On = Time Off



RTE-P2, -B2

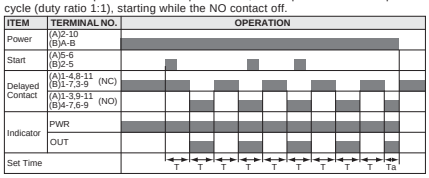
A: ON-Delay 2 (signal start)

When a preset time has elapsed after the start input turned on while power is on, the NO output contact goes on.



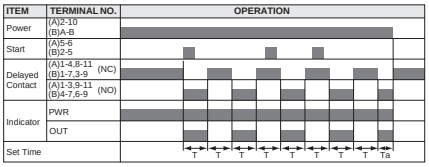
B: Cycle 2 (signal start, OFF first)

When the start input turns on while power is on, the output oscillates at a preset cycle (duty ratio 1:1), starting while the NO contact off.



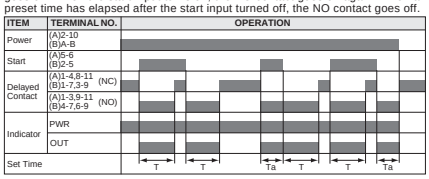
C: Cycle 4 (signal start, ON first)

When the start input turns on while power is on, the NO contact goes on. The output oscillates at a preset cycle (duty ratio 1:1).



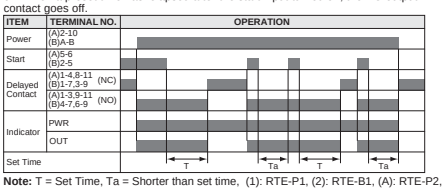
D: Signal ON/OFF-Delay

When the start input turns on while power is on, the NO output contact goes on. When a preset time has elapsed while the start input remains on, the output contact goes off. When the start input turns off, the NO contact goes on again. When a preset time has elapsed after the start input turned off, the NO contact goes off.



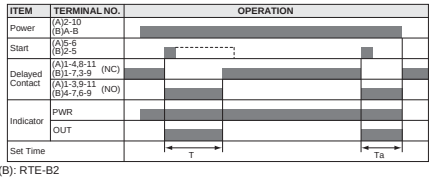
E: Signal OFF-Delay

When power is turned on while the start input is on, the NO output contact goes on. When a preset time has elapsed after the start input turned off, the NO output contact goes off.



F: One-Shot (signal start)

When the start input turns on while power is on, the NO output contact goes on. When a preset time has elapsed, the NO output contact goes off.



Note: T = Set Time, Ta = Shorter than set time, (1): RTE-P1, (2): RTE-B1, (A): RTE-P2, (B): RTE-B2

ORDERING INFORMATION

MODEL	DESCRIPTION
RTE-B1AD24	11 Blade 24 VAC/VDC On-delay, interval, off-cycle, on-cycle SR3B-05
RTE-B1AF20	11 Blade 100-240 VAC On-delay, interval, off-cycle, on-cycle SR3B-05
RTE-B2AD24	11 Blade 24 VAC/VDC On-delay, off-cycle, off-delay, on-cycle, single shot SR3B-05
RTE-B2AF20	11 Blade 100-240 VAC On-delay, off-cycle, off-delay, on-cycle, single shot SR3B-05
RTE-P1AD24	8 Pin 24 VAC/VDC On-delay, interval, off-cycle, on-cycle SR2P-06
RTE-P1AF20	8 Pin 100-240 VAC On-delay, interval, off-cycle, on-cycle SR2P-06
RTE-P2AD24	11 Pin 24 VAC/VDC On-delay, off-cycle, off-delay, on-cycle, single shot SR3P-06
RTE-P2AF20	11 Pin 100-240 VAC On-delay, off-cycle, off-delay, on-cycle, single shot SR3P-06

RELATED PRODUCTS

SR3B-05	Relay socket, three-pole blade type, DIN/surface mount
SR3P-06	Relay socket, 3PDT pin type, DIN/surface mount
SR2P-06	Relay socket, DPDT pin type, DIN/surface mount

MAGNECRAFT TIME DELAY RELAYS

821TD10H, TDRSOXP, TDRSRXP

DESCRIPTION

The **Magnecraft 821TD10H, TDRSOXP,** and **TDRSRXP** are adjustable time delay relays available with various timing functions. The **821TD10H** is a DIN rail mounted product offering multiple timing functions, multiple timing scales, and universal voltage input. The **TDRSOXP** and **TDRSRXP** are dual function, low cost time delay relays used with DIN/ surface mount sockets.

Timing Functions

821TD10H - On-delay, Interval, Off-delay, One-shot, Repeat cycle, Pulse, On & Off-delay, Memory latch
TDRSOXP - On-delay, Interval
TDRSRXP - Off-delay, Retriggerable One-shot

821TD10H, TDRSOXP, TDRSRXP

FEATURES

- ***Adjustable timing ranges from 0.1 second to 10 days***
- ***Selectable timing functions***
- ***Indication LEDs show power, timing (821TD10H) and relay energized***
- ***The compact model 821TD10H DIN rail mounts without a socket***
- ***Models TDRSOXP and TDRSRXP DIN rail or surface mount with industry standard sockets***

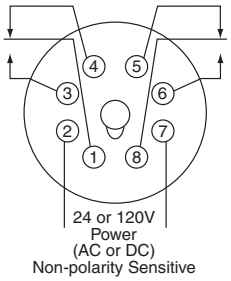
SPECIFICATIONS

Input	12 to 240 VAC/VDC (-15%, +10%), 3VA, 1.7 W maximum, 120 VAC/VDC (-20%, +10%) 5 VA, 2.5W maximum, 24 VAC/VDC (-20%, +10%) 5 VA, 2.5W maximum
Contact Type	SPDT, DPDT
Contact Rating	15A @ 240 VAC, 15A @ 24 VDC (resistive), 12A @ 240VAC, 12A @ 24 VDC (resistive)
Input Pulse Time	50 ms minimum
Minimum Load	500 mW
Transient Protection	Yes
Contact Material	Silver-nickel, Silver alloy
Electrical Life	70,000 operations @ full load, 100,000 operations @ full load
Reverse Polarity	Protected
Wire Size	14 AWG maximum, 20-12 AWG with socket
Mechanical Life	10 million operations @ no load
Setting Error	±5%, ±10%
Time Delay Adjust	Potentiometer, Removeable knob
Time Range	0.1 sec to 10 days
Repeatability	0.2%
Reset Time	150 ms maximum
Timing Functions	On-delay, interval, Off-delay, One-shot, Repeat cycle, Pulse, On and Off-delay, Retriggerable memory latch, On-delay, interval , Off-delay, one-shot
LED Indication	
Green	Input
Red	Blinks = timing, on = energized
Operating Temperature	-4° to 131°F (-20° to 55°C), -4° to 131°F (-20° to 55°C)
Mounting	DIN rail/surface mount , DIN rail/ surface mount socket
Dimensions	
TDRSOXP w/socket:	2.02" x 1.6" x 0.83" (5.1 x 4.1 x 2.1 cm)
TDRSRXP w/socket:	2.05" x 2.32" x 0.97" (5.2 x 5.0 x 2.5 cm)
821TD10H:	3.5" x 0.69" x 2.55" (9 x 1.8 x 6.5 cm)
TDRSOXP/TDRSRXP:	1.73" x 1.42" x 2.8" (4.5 x 3.6 x 7.1 cm)
Approvals	UL recognized, File #E70550, CE, UL listed, CE, UL recognized, File #E43641, CE
Weight	0.2 lb (0.09 kg)
Warranty	1 year

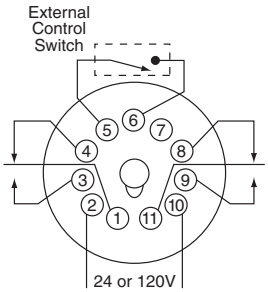
MAGNECRAFT TIME DELAY RELAYS

821TD10H, TDRSOXP, TDRSRXP

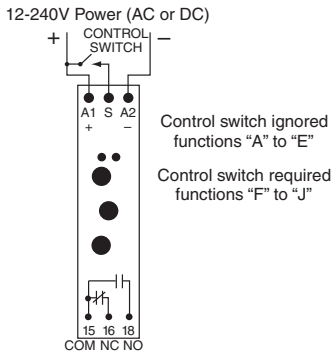
WIRING



TDRSOXP

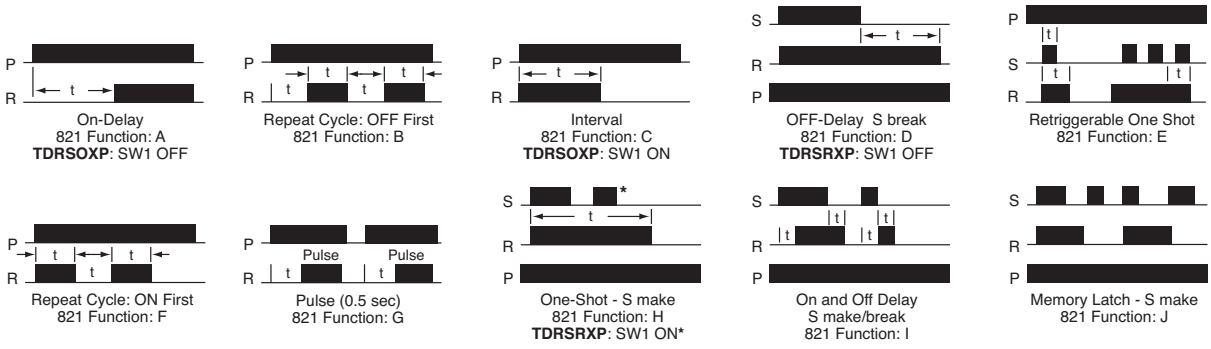


TDRSRXP

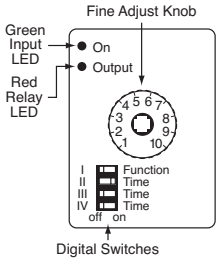


821TD10H

OPERATION



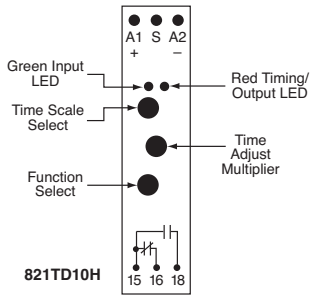
P - Power **R** - Relay Output **S** - Control Switch **t** - Time Delay * Retriggerable: time delay period restarts any time the control switch is opened and closed.



TDRSOXP
TDRSRXP

Time Range	Digital Switch Position		
	II	III	IV
0.1sec-1sec	OFF	OFF	OFF
1sec-10sec	OFF	OFF	ON
10sec-100sec	OFF	ON	OFF
0.1min-1min	OFF	ON	ON
1min-10min	ON	OFF	OFF
10min-100min	ON	OFF	ON
0.1hr-1hr	ON	ON	OFF
1hr-10hr	ON	ON	ON

TDRSOXP/TDRSRXP
Time Range Selection



821TD10H

Time Scale Selection	Time Adjust Multiplier
1 sec	0.1
10 sec	0.2
1 min	0.3
10 min	0.4
1 hr	0.5
10 hr	0.6
1 day	0.7
10 day	0.8
Always ON	0.9
Always OFF	1.0

ORDERING INFORMATION

MODEL	DESCRIPTION
70-464-1	Relay socket, eight-pin, use with TDRSOXP time delay relay
70-465-1	Relay socket, 11-pin, use with TDRSRXP time delay relay
821TD10H-UNI	Time-delay relay, SPDT, multifunction, 12-240 VAC/VDC, 0.1 sec to 10 days
TDRSOXP-120	Time-delay relay, on-delay/interval, 120 VAC/VDC, 0.1 sec to 10 hours
TDRSOXP-24	Time-delay relay, on-delay/interval, 24 VAC/VDC, 0.1 sec to 10 hours
TDRSRXP-120	Time-delay relay, off-delay/single-shot, 120 VAC/VDC, 0.1 sec to 10 hours
TDRSRXP-24	Time-delay relay, off-delay/single-shot, 24 VAC/VDC, 0.1 sec to 10 hours

IDEC MULTIFUNCTION ELECTRONIC TIMER/COUNTER

FL1 SERIES

DESCRIPTION

The **FL1 Series** multifunction electronic timers are DIN rail or surface mounted adjustable time delay relays. The **FL1 Series** can be used with expansion modules to extend input/output capabilities or use the LonWorks communication module for interfacing with the network. An external text display can be used to monitor, view, and troubleshoot from outside of the panel. Models are available in a variety of supply voltages and with or without a display.

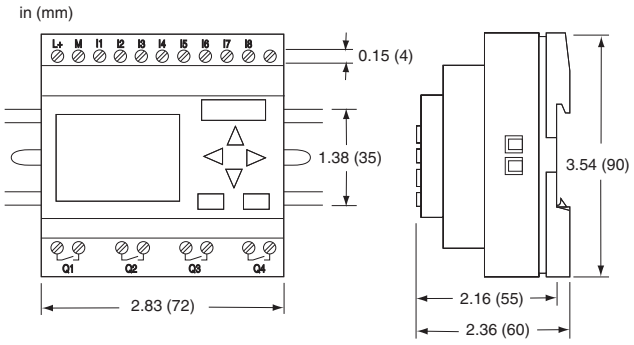
FEATURES

- ***8 basic plus 31 special function blocks***
- ***On/off delay, latching, and time delay***
- ***Four Form C delayed output contacts***
- ***Space-saving package***
- ***PI control and dual-stage ramp functions***
- ***Analog multiplexer***
- ***Math functions for basic arithmetic operations***
- ***Password protection***

NEW!

FL1 Relay, FL1 Text Display

INSTALLATION



SPECIFICATIONS

Timing Functions	On-delay, off-delay, on/off-delay, retentive, interval, edged triggered, latching relay, current impulse, 7-day time, 12 month time, counter
Time Delay Settings	0.1 sec to 100 hours
Other Functions	See function table
Output	4 Form C relays, SPDT
Contact Rating	10A resistive @ 24 VAC/VDC, 120 and 240 VAC; 3A inductive @ 120 and 240 VAC
Input Voltage	24 VAC/VDC ir 100-240 VAC/VDC (50/60 Hz), depending on model
Operating Temperature	32° to 131°F (0° to 55°C)
Operating Humidity	10% to 95% RH
Clock Accuracy	±2 sec/day, maximum
Clock Backup	80 hours
Input Points	8 digital
Input Impedance	24 VAC/VDC: 4.8 kΩ; 100-240 VAC/VDC: 840 kΩ
Input ON Time	24 VAC/VDC: 1.5 ms; 100 VAC: 50 ms; 240 VAC: 30 ms, 100 VDC: 25 ms; 240 VDC: 15 ms
Input OFF Time	24 VAC/VDC: 15ms; 100 VAC: 65 ms; 240 VAC: 105 ms; 100 VDC: 95 ms: 240 VDC: 125 ms
Dielectric Strength	2500 VAC, 1min. 500 VDC

Power Consumption	
AC	0.9-2.7 VA @ 24 VAC, 1.1-4.6 VA @100 VAC
DC	0.4-1.8 W @ 24 VAC, 0.5-2.9 W @ 100 VAC
Display	Optional 48 character, backlit LCD
Mechanical Life	10 million operations
Electrical Life	100,000 operations
Weight	6.7 oz (190 g)
Approvals	UL listed File # E211795, CE, FM approved non-incendive for Class 1, Division II locations
Warranty	1 year

TEXT DISPLAY (sold separately)

Input Voltage	24 VAC, 50/60 Hz, 12 or 24 VDC
Power Consumption	90 mA @ 24 VAC, 40 mA @ 24 VDC, 65 mA @ 12 VDC
Data Transmission	19200 baud
Display	128 columns X 64 rows, LED backlight
Weight	7.7 oz (220 g)

NEW!

IDEC MULTIFUNCTION ELECTRONIC TIMER/COUNTER

FL1 SERIES

FUNCTION BLOCK OPERATION

Function Blocks

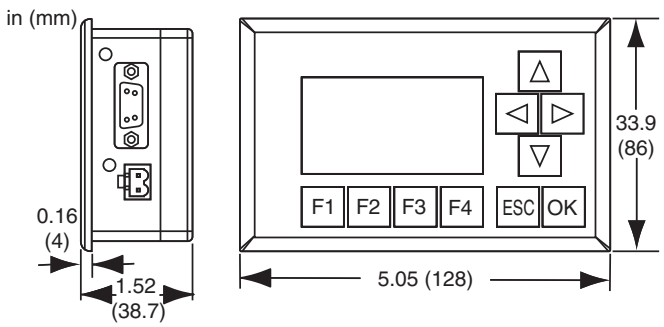
GENERAL

AND	Series connection of normally open contacts
AND (Edge)	Edge detection with edge evaluation (pos. edge)
NAND	Parallel connection of normally closed contacts
NAND (Edge)	Edge detection with edge evaluation (pos. edge)
OR	Parallel connection of normally open contacts
NOR	Series connection of normally closed contacts
XOR	Double changeover contact
NOT	Connection of closed contact

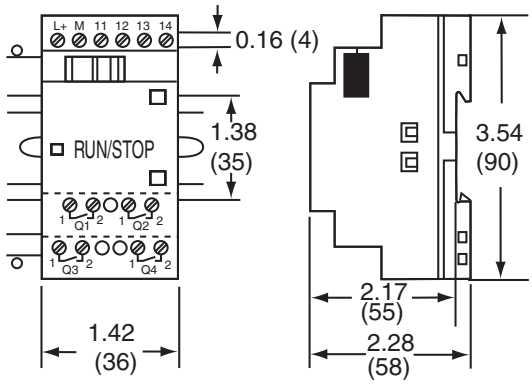
SPECIAL

On-delay	
Off-delay	
On-/Off-delay	
Retentive on-delay	
Latching Relay	
Current impulse relay	
Interval time-delay relay/Pulse output	
Edge-triggered interval time-delay relay	
Seven-day time switch	
Twelve-month time switch	
Up/down counter	
Analog differential trigger	
Analog value monitor	
Operating hours counter	
Asynchro-nous pulse generator	
Random generator	
Frequency trigger	
Analog trigger	
Analog compara-tor	
Stairwell light switch	
Dual-function switch	
Message texts	
Softkey	
Analog amplifier	
Shift register	
PI control	
Analog ramp control	
Analog multiplexer	
Pulse width modulator (PWM)	
Analog math	
Analog math error detection	

FUNCTION BLOCK OPERATION



TEXT DISPLAY



EXPANSION MODULES

ORDERING INFORMATION

MODEL	DESCRIPTION
FL1E-B12RCA	24 VAC/VDC Multifunction electronic timer/counter, no display
FL1E-B12RCC	100-240 VAC/VDC Multifunction electronic timer/counter, no display
FL1E-H12RCA	24 VAC/VDC Multifunction electronic timer/counter with display
FL1E-H12RCC	100-240 VAC/VDC Multifunction electronic timer/counter with display
SMARTSTART-BAC-E	100-240 VAC/VDC FL1E-B12RCC with software and cable, no display
SMARTSTART-HAC-E	100-240 VAC/VDC FL1E-H12RCC with software, cable, and display

	ACCESSORIES
FL1A-PC1	Serial programming cable
FL1B-CL1C12	LonWorks communication module, 24 VAC/VDC
FL1B-J2B2	Analog input module, 0-10V, 4-20 mA input, 24 VAC/VDC
FL1B-M08C2R2	Combination I/O module, PNP input, relay output, 100-240 VAC/VDC
FL1B-M08D2R2	Combination I/O module, NPN/PNP input, relay output, 24 VAC/VDC
FL1E-PG1	Memory and battery combination cartridge
FL1E-RD1	Text display for FL1 Series, 24 VAC/VDC
FL9Y-LP1CDW	Programming software

NEW!

KELE MOTOR STARTER INTERFACE

PIL-2

DESCRIPTION

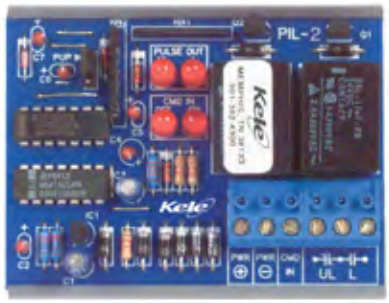
The **PIL-2** is designed to provide momentary contact closures to control motor starters with momentary start/stop push buttons. The **PIL-2** acts as a remote start/stop station using a single maintained contact from a controller, switch, or relay.

FEATURES

- ***LED indicators: Pulse out: latch/unlatch, Command in: off/on***
- ***24 VAC/DC power***
- ***Selectable power-up state (PUP)***
- ***Snap-track mounting for easy installation***

OPERATION

The **Model PIL-2** is operated by a single maintained N.C. or N.O. contact from a switch, relay, or controller. Closing the input contact causes the N.O. latch output to close momentarily for 300 ms to start a motor. Opening the input contact causes the N.C. unlatch output to open momentarily for 300 ms to stop a motor. A power-up feature allows the selection of either an immediate pulse out (PUP position), based on the current state of the input contact, or a pulse out only when the input contact changes state. LEDs indicate input state and output latch or unlatch pulses.

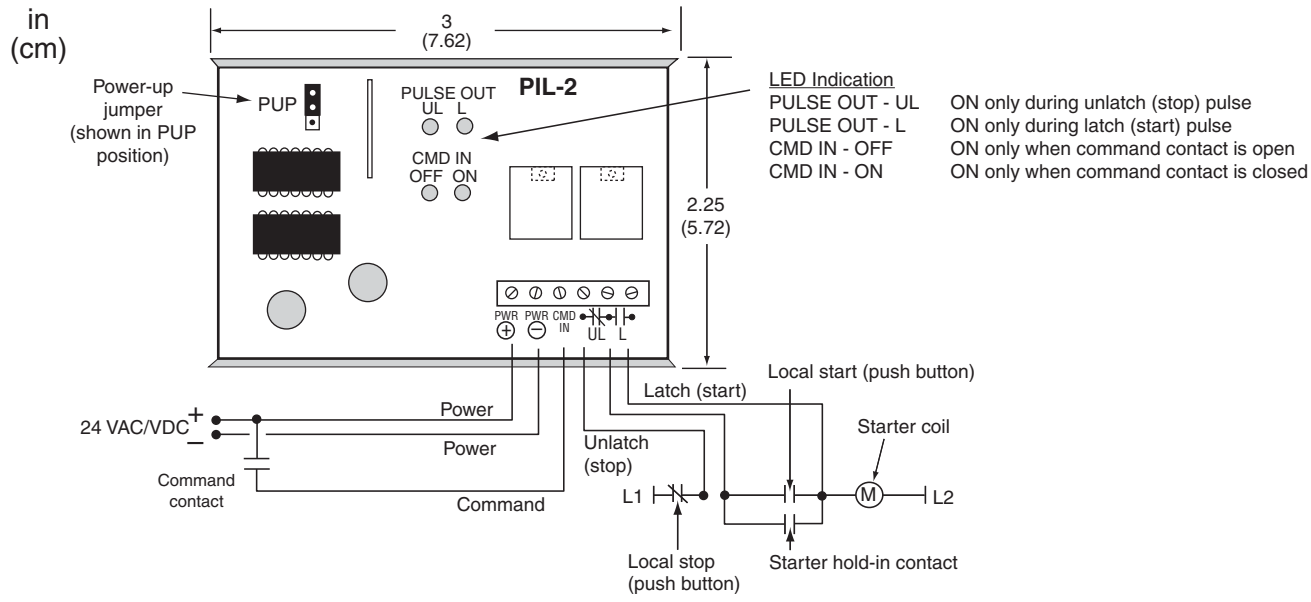


PIL-2

SPECIFICATIONS

Supply Voltage	24 VAC/VDC @ 50 mA
Input	SPST switch or relay
Output	One N.O. contact rated 120 VAC, 5A; one N.C. contact rated 120 VAC, 5A
Output Pulse Time	300 ms (contact Kele for special pulse time requiements, 5 sec maximum)
Weight	0.25 lb (0.11 kg)
Warranty	18 months

DIMENSIONS



ORDERING INFORMATION

MODEL	DESCRIPTION
PIL-2	Motor starter interface, 300 ms pulse
PIL-2-C	Motor starter interface, special pulse (specify when ordering)