

INDUSTRIAL RELAYS

Industrial Electromagnetic Relays

Industrial electromagnetic relays are used mainly in industrial and power automation applications, in signaling controls, safety and protection systems and control and electric drives systems.



Features:

- DPDT, 3PDT and 4PDT contact configuration
- DC Coil voltages from 5VDC to 220V DC
- AC coil voltages from 6VAC to 240V AC 50/60 Hz
- Din Rail Plug in Socket are standard
- Rated load current: 5A/250V AC to 16A/250V AC rating
5A/24V DC to 16A/24VDC DC1 rating
- Test button with (K) or without block function (W)
- Built in LED light indicator (L)
- Surge suppression element with diode (D) or varistor (V)
- Approved for railroad applications (DE)
- Silver Nickel (AgNi) cadmium free contact material
- UL and CSA recognized relays
- ROHS2 and REACH compliance

Miniature Electromagnetic Relays

Miniature electromagnetic relays are used in many interface applications, standard automation projects, lighting control systems, emergency lighting applications, building application projects, food processing equipment control and many other electrical system applications.



Features:

- Standard SPDT, DPDT contact configuration
- DC Coil voltages from 3VDC to 110V DC
- AC coil voltages from 12VAC to 240V AC 50/60 Hz
- PCB mounting with socket or direct PCB solder
- Din Rail Plug in Socket are standard
- Rated load current: 8A/250V AC (DPDT) or 16A/250V AC (SPDT) rating;
8A/24V DC (DPDT) or 16A/24VDC (SPDT) DC1 rating
- Silver Nickel (AgNi) cadmium free contact material
- UL and CSA recognized relays
- ROHS2 and REACH compliance

Slimline Interface Relays

Slimline interface relays are used for PLC system and industrial automation applications, panel builders, machinery builders, time relays, office equipment and other applications that require a high switching capability in a small space.



Features:

- Standard SPDT contact configuration
- Standard 5 mm width
- DC Coil voltages from 5VDC to 60V DC
- Vertical or Horizontal configuration
- Sealed for Soldering and cleaning
- Can be used with Din rail socket or PCB mountable
- Rated load current
- 6A / 250V AC or 0.05A / 30V AC gold plated) rating
- 6A / 24V DC or 0.05A / 36V DC gold plated) rating
- 4A max for Solid state relays
- Silver Tin Oxide (AgSnO₂) cadmium free contact material
- Gold plated contact (AgSnO₂/Au 3μm) available
- UL recognized
- ROHS2 and REACH compliance

Subminiature Electromagnetic and Solid State Modules

Subminiature electromagnetic relays are used for PLC systems and industrial automation applications, panel builders, equipment builders and other applications that require a high switching capability in a small space. The Altech slim line interface relays can be used as a universal interface between the controller and the actuator to switch loads between 1 mA and 6A. They are available with electromechanical contacts or solid state configuration. Installation time is greatly reduced when a pre-assembled relays and sockets combination is used. Replacement relays and sockets are available from stock. Additional accessories include colored coded jumpers, spacers and markers (unmarked or marked based on the customer specification) for identification purposes.



Features:

- Standard SPDT contact configuration
- Space-saving 6.2 mm width
- Only 85 mm in height from DIN rail
- DC Coil voltages from 5VDC to 110V DC
- AC coil voltages from 6VAC to 240V AC 50/60 Hz
- Pre-assembled relay and DIN mount socket
- Screw clamp or Spring clamp terminals
- Universal AC/DC socket with built-in surge suppression and green LED
- Rated load current
- 6A / 250V AC or 0.05A / 30V AC gold plated) rating
- 6A / 24V DC or 0.05A / 36V DC gold plated) rating
- 4A max for Solid state relays
- Silver Tin Oxide (AgSnO₂) cadmium free contact material
- Gold plated contact (AgSnO₂/Au 3μm) available
- UL recognized
- ROHS2 and REACH compliance

Relays for Photovoltaic Systems

The Altech photovoltaic relays are suitable to be integrated in the solar converter to switch the DC voltage and current generated by the solar panels supplying the generated electricity to the electrical network. This requires an interface between the solar converter and the power grid. The circuit isolation gap between the converter and the power grid must have a contact gap of $\geq 1.5\text{mm}$ (according to safety standard DIN VDE 0126-1-1). Altech offers two different relays to meet this requirement.



Features:

- Standard DPST (2 NO) contact configuration
- DC Coil voltages from 5VDC to 110V DC
- Rated load current
- 35A / 250V AC or 48A / 250V AC
- 35A / 24V DC or 48A / 24V DC
- Contact gap $>1.75\text{ mm}$; Holding power 1W
- Silver Tin Oxide (AgSnO₂) cadmium free contact material
- Compact size, PCB mounting
- UL recognized
- ROHS2 and REACH compliance

MOUNTING OPTIONS					COIL			TYPE OF RELAY	NUMBER AND TYPE OF CONTACTS							RATED CURRENT [A]							
Direct PCB mounting	With plug-in socket PCB mounting	Panel mounting	35 mm rail mount acc. To PN-EN 60715	Others	AC	DC	AC/DC		SPDT	SPST(1NO)	SPST(1NC)	DPDT	DPST(2NO)	DPST(2NC)	3PDT	3PST(3NO)	4PDT	5	10	15	20	25	30

Industrial Electromagnetic Relays

					AC	DC	AC/DC	R2										12					
					AC	DC	AC/DC	R3										10					
					AC	DC	AC/DC	R4										6					
					AC	DC	AC/DC	RY2										12					
					AC	DC	AC/DC	R2M										5					
					AC	DC	AC/DC	RUC										16					
					AC	DC	AC/DC	R15 - DPDT										10					
					AC	DC	AC/DC	R15 - 3PDT										10					
					AC	DC	AC/DC	R15 - 4PDT										10					

Miniature Electromagnetic Relays

					AC	DC	AC/DC	RM40										5/8*					
					AC	DC	AC/DC	RM50										12					
					AC	DC	AC/DC	RM84										9					
					AC	DC	AC/DC	RM85										16					
					AC	DC	AC/DC	RM87										12					

Slimline Interface Relays

					AC	DC	AC/DC	RM699B										6					
					AC	DC	AC/DC	RSR30-...-D1-24-010-1										1					
					AC	DC	AC/DC	RSR30-...-A1-24-020-1										2					
					AC	DC	AC/DC	RSR30-...-D1-04-025-1										2.5					
					AC	DC	AC/DC	RSR30-...-D1-02-040-1										4					

Subminiature Electromagnetic and Solid State Modules

					AC	DC	AC/DC	PI6-1P										6					
					AC	DC	AC/DC	PI6-1T										1					
					AC	DC	AC/DC	PI6-1OC										1					
					AC	DC	AC/DC	PIR6W-1PS-...										max 6 ***					
					AC	DC	AC/DC	PIR6WB-1PS-...**										max 6 ***					

Relay Socket Combinations

					AC	DC	AC/DC	PI84 with socket GZT80										8					
					AC	DC	AC/DC	PI85 with socket GZT80										16					
					AC	DC	AC/DC	PI84 with socket GZM80										8					
					AC	DC	AC/DC	PI85 with socket GZM80										16					
					AC	DC	AC/DC	PIR2 with socket GZM2										12					
					AC	DC	AC/DC	PIR3 with socket GZM3										10					
					AC	DC	AC/DC	PIR4 with socket GZM4										6					
					AC	DC	AC/DC	PIR2M with socket GZ2										5					

* SPDT 5 A; SPST (1NO) 8A. **spring clamp socket. *** for more information see data sheet.

R15

Industrial Electromagnetic Relays



- Contacts AgNi
- For plug-in sockets, 35 mm rail mount or on panel mounting.
- Cadmium-free contacts-R15 DPDT, R15 3PDT, R15 4PDT relays
- WT (mechanical indicator and lockable front test button) - standard features of R15 DPDT, R15 3PDT relays in cover, for plug-in sockets.
- Relays may be provided with the test buttons (no latching) and plugs (see page 115).
- AUCOTEAM, GmbH Berlin - railway standards.



Contact Data

Number and type of contacts		DPDT	3PDT	4PDT
Contact material		AgNi	AgNi	AgCdO
Rated / max. switching voltage AC		250 V / 440 V	250 V / 440 V	250 V / 440 V
Min. switching voltage		10 V	10 V	10 V
Rated load (capacity)	AC1	10 A / 250 V AC; 10 A / 277 V AC UL 508	10 A / 250 V AC; 10 A / 277 V AC UL 508	10 A / 250 V AC; 10 A / 277 V AC UL 508
	AC15	3 A / 120 V; 1.5 A / 240 V (B300)	3 A / 120 V; 1.5 A / 240 V (B300)	3 A / 120 V; 1.5 A / 240 V (B300)
	AC3	370 W (single-phase motor. 1/2 HP / 240 V AC UL 508)	370 W (single-phase motor. 1/2 HP / 240 V AC UL 508)	370 W (single-phase motor. 1/2 HP / 240 V AC UL 508)
	DC1	10 A / 24 V DC (see Fig. 3)	10 A / 24 V DC (see Fig. 3)	10 A / 24 V DC (see Fig. 3)
	DC13	0.22 A / 120 V; 0.1 A / 250 V (R300)	0.22 A / 120 V; 0.1 A / 250 V (R300)	0.22 A / 120 V; 0.1 A / 250 V (R300)
Min. switching current		5 mA	5 mA	10 mA
Max. inrush current		20 A	20 A	20 A
Rated current		10A	10A	10A
Max. breaking capacity	AC1	2500 VA	2500 VA	2500 VA
Min. breaking capacity		0.3 W	0.3 W	0.5 W
Contact resistance		≤ 100 mΩ	≤ 100 mΩ	≤ 100 mΩ
Max. operating frequency				
• at rated load	AC1	1200 cycles/hour	1200 cycles/hour	1200 cycles/hour
• no load		12000 cycles/hour	12000 cycles/hour	12000 cycles/hour

Coil Data

Rated voltage	50/60 Hz AC	6 ... 240 V	6 ... 240 V	6 ... 240 V
	DC	6 ... 220 V	6 ... 220 V	6 ... 220 V
Must release voltage		AC: ≥ 0.15 U _n ; DC: ≥ 0.1 U _n	AC: ≥ 0.15 U _n ; DC: ≥ 0.1 U _n	AC: ≥ 0.15 U _n ; DC: ≥ 0.1 U _v
Operating range of supply voltage		see page 68	see page 68	see page 68
Rated power consumption		AC: 2.8 VA 50 Hz; 2.5 VA 60 Hz; DC: 1.5 W	AC: 2.8 VA 50 Hz; 2.5 VA 60 Hz; DC: 1.5 W	AC: 2.8 VA 50 Hz; 2.5 VA 60 Hz; DC: 1.5 W

Insulation

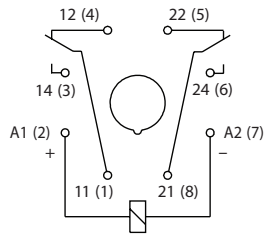
Insulation rated voltage		250 V AC	250 V AC	250 V AC
Rated surge voltage		2500 V 1.2 / 50 μs	2500 V 1.2 / 50 μs	2500 V 1.2 / 50 μs
Overvoltage category		III	III	III
Insulation pollution degree		3	3	3
Dielectric strength				
• between coil and contacts		2500 V AC type of insulation: basic	2500 V AC type of insulation: basic	2500 V AC type of insulation: basic
• contact clearance		1500 V AC type of clearance: micro-disco.	1500 V AC type of clearance: micro-disco.	1500 V AC type of clearance: micro-disco.
• pole - pole		2000 V AC type of insulation: basic	2000 V AC type of insulation: basic	2000 V AC type of insulation: basic
Contact - coil distance				
• clearance		≥ 3 mm	≥ 3 mm	≥ 3 mm
• creepage		≥ 4.2 mm	≥ 4.2 mm	≥ 3.2 mm

General Data

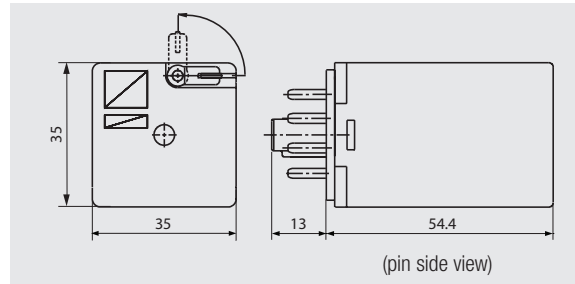
Operating / release time (typical)		AC: 12 ms / 10 ms; DC: 18 ms / 7 ms	AC: 12 ms / 10 ms; DC: 18 ms / 7 ms	AC: 12 ms / 10 ms; DC: 18 ms / 7 ms
Electrical life				
• resistive AC1		> 2 x 10 ⁵ ; 10 A. 250 V AC	> 2 x 10 ⁵ ; 10 A. 250 V AC	> 2 x 10 ⁵ ; 10 A. 250 V AC
• cos		see Fig. 2	see Fig. 2	see Fig. 2
Mechanical life (cycles)		> 2 x 10 ⁷	> 2 x 10 ⁷	> 2 x 10 ⁷
Dimensions (L x W x H)		35 x 35 x 54.4 mm	35 x 35 x 54.4 mm	35 x 42.5 x 54.5 mm
Weight		83 g	83 g	95 g
Ambient temperature				
• storage		-40...+85 °C	-40...+85 °C	-40...+85 °C
• operating		AC: -40...+55 °C DC: -40...+70 °C	AC: -40...+55 °C DC: -40...+70 °C	AC: -40...+55 °C DC: -40...+70 °C
Cover protection category		IP 40 PN-EN 60529	IP 40 PN-EN 60529	IP 40 PN-EN 60529
Environmental protection		RTI PN-EN 116000-3	RTI PN-EN 116000-3	RTI PN-EN 116000-3
Shock resistance		10 g	10 g	10 g
Vibration resistance		5 g 10...150 Hz	5 g 10...150 Hz	5 g 10...150 Hz
Solder bath temperature		max. 270 °C	max. 270 °C	max. 270 °C
Soldering time		max. 5 s	max. 5 s	max. 5 s

DPDT

CONNECTION DIAGRAM

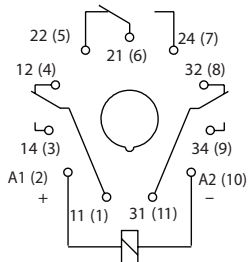


DIMENSIONS

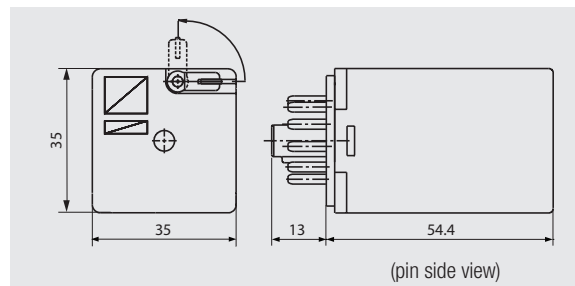


3PDT

CONNECTION DIAGRAM

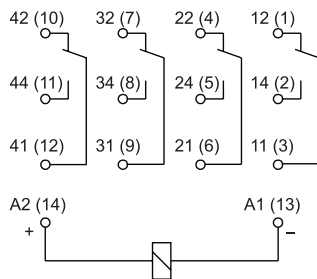


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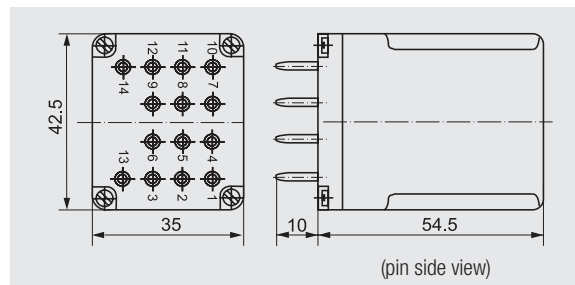


4PDT

CONNECTION DIAGRAM

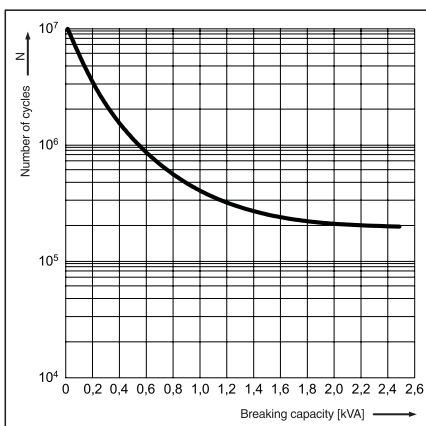


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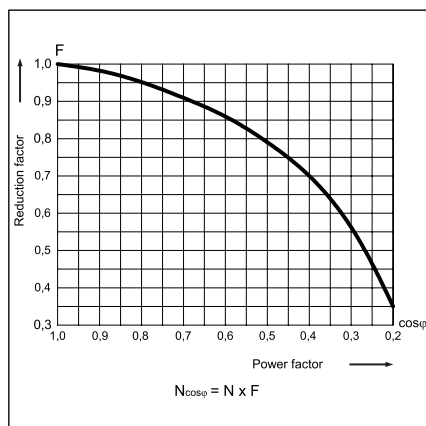


LOAD CHARTS

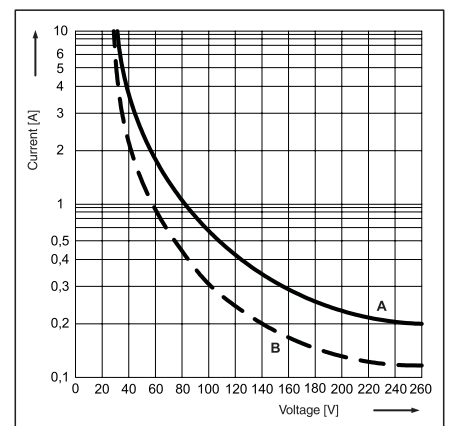
Electrical life at AC resistive load. Switching frequency: 1200 cycles/hour Fig. 1



Electrical life reduction factor at AC inductive load Fig. 2



Max. DC breaking capacity A - resistive load DC1 B - inductive load L/R = 40 ms Fig. 3



R15

Industrial Electromagnetic Relays

R15 DPDT AC 50/60Hz & DC coil

Part Number	Coil Voltage (V)	Coil Type	Coil resistance at 20 °C in Ω	Coil operating range		Options*		
				min. (at 20°C)	max. (at 55°C)	-	WT	WTL
▶ R15-2012-23-1012	12	DC	110	9.6	13.2	x		
R15-2012-23-1012-WT	12	DC	110	9.6	13.2		x	
R15-2012-23-1012-WTL	12	DC	110	9.6	13.2			x
▶ R15-2012-23-1024	24	DC	430	19.2	26.4	x		
R15-2012-23-1024-WT	24	DC	430	19.2	26.4		x	
▶ R15-2012-23-1024-WTL	24	DC	430	19.2	26.4			x
R15-2012-23-1110	110	DC	9200	88.0	121.0	x		
R15-2012-23-1110-WT	110	DC	9200	88.0	121.0		x	
R15-2012-23-1110-WTL	110	DC	9200	88.0	121.0			x
▶ R15-2012-23-5024	24	AC 50/60Hz	75	19.2	26.4	x		
R15-2012-23-5024-WT	24	AC 50/60Hz	75	19.2	26.4		x	
R15-2012-23-5024-WTL	24	AC 50/60Hz	75	19.2	26.4			x
▶ R15-2012-23-5120	120	AC 50/60Hz	1910	96.0	132.0	x		
R15-2012-23-5120-WT	120	AC 50/60Hz	1910	96.0	132.0		x	
▶ R15-2012-23-5120-WTL	120	AC 50/60Hz	1910	96.0	132.0			x
▶ R15-2012-23-5230	230	AC 50/60Hz	7080	184.0	253.0	x		
R15-2012-23-5230-WT	230	AC 50/60Hz	7080	184.0	253.0		x	
R15-2012-23-5230-WTL	230	AC 50/60Hz	7080	184.0	253.0			x

R15 3PDT AC 50/60Hz & DC coil

Part Number	Coil Voltage (V)	Coil Type	Coil resistance at 20 °C in Ω	Coil operating range		Options*		
				min. (at 20°C)	max. (at 55°C)	-	WT	WTL
▶ R15-2013-23-1012	12	DC	110	9.6	13.2	x		
R15-2013-23-1012-WT	12	DC	110	9.6	13.2		x	
R15-2013-23-1012-WTL	12	DC	110	9.6	13.2			x
▶ R15-2013-23-1024	24	DC	430	19.2	26.4	x		
R15-2013-23-1024-WT	24	DC	430	19.2	26.4		x	
▶ R15-2013-23-1024-WTL	24	DC	430	19.2	26.4			x
R15-2013-23-1110	110	DC	9200	88.0	121.0	x		
R15-2013-23-1110-WT	110	DC	9200	88.0	121.0		x	
R15-2013-23-1110-WTL	110	DC	9200	88.0	121.0			x
▶ R15-2013-23-5024	24	AC 50/60Hz	75	19.2	26.4	x		
R15-2013-23-5024-WT	24	AC 50/60Hz	75	19.2	26.4		x	
R15-2013-23-5024-WTL	24	AC 50/60Hz	75	19.2	26.4			x
▶ R15-2013-23-5120	120	AC 50/60Hz	1910	96.0	132.0	x		
R15-2013-23-5120-WT	120	AC 50/60Hz	1910	96.0	132.0		x	
▶ R15-2013-23-5120-WTL	120	AC 50/60Hz	1910	96.0	132.0			x
▶ R15-2013-23-5230	230	AC 50/60Hz	7080	184.0	253.0	x		
R15-2013-23-5230-WT	230	AC 50/60Hz	7080	184.0	253.0		x	
R15-2013-23-5230-WTL	230	AC 50/60Hz	7080	184.0	253.0			x

R15 4PDT AC 50/60Hz & DC coil

Part Number	Coil Voltage (V)	Coil Type	Coil resistance at 20 °C in Ω	Coil operating range		Options*			
				min. (at 20°C)	max. (at 55°C)	-	K	WT	WTL
R15-1014-23-1012	12	DC	110	9.6	13.2	x			
R15-1014-23-1012-K	12	DC	110	9.6	13.2		x		
R15-1014-23-1012-L	12	DC	110	9.6	13.2			x	
R15-1014-23-1012-D	12	DC	110	9.6	13.2				x
R15-1014-23-1024	24	DC	430	19.2	26.4	x			
R15-1014-23-1024-K	24	DC	430	19.2	26.4		x		
▶ R15-1014-23-1024-L	24	DC	430	19.2	26.4			x	
R15-1014-23-1024-D	24	DC	430	19.2	26.4				x
R15-1014-23-1110	110	DC	9200	88.0	121.0	x			
R15-1014-23-1110-K	110	DC	9200	88.0	121.0		x		
R15-1014-23-1110-L	110	DC	9200	88.0	121.0			x	
R15-1014-23-1110-D	110	DC	9200	88.0	121.0				x
R15-1014-23-3024	24	AC 50Hz	72	19.2	26.4	x			
R15-1014-23-3024-K	24	AC 50Hz	72	19.2	26.4		x		
R15-1014-23-3024-L	24	AC 50Hz	72	19.2	26.4			x	
R15-1014-23-3024-D	24	AC 50Hz	72	19.2	26.4				x
R15-1014-23-3120	120	AC 50Hz	2300	96.0	132.0	x			
R15-1014-23-3120-K	120	AC 50Hz	2300	96.0	132.0		x		
R15-1014-23-3120-L	120	AC 50Hz	2300	96.0	132.0			x	
R15-1014-23-3120-D	120	AC 50Hz	2300	96.0	132.0				x
R15-1014-23-3230	230	AC 50Hz	7900	184.0	253.0	x			
R15-1014-23-3230-K	230	AC 50Hz	7900	184.0	253.0		x		
R15-1014-23-3230-L	230	AC 50Hz	7900	184.0	253.0			x	
R15-1014-23-3230-D	230	AC 50Hz	7900	184.0	253.0				x
R15-1014-23-6120	120	AC 60Hz	2000	96.0	132.0	x			
R15-1014-23-6120-K	120	AC 60Hz	2000	96.0	132.0		x		
▶ R15-1014-23-6120-L	120	AC 60Hz	2000	96.0	132.0			x	
R15-1014-23-6120-D	120	AC 60Hz	2000	96.0	132.0				x
R15-1014-23-6230	230	AC 60Hz	7000	184.0	253.0	x			
R15-1014-23-6230-K	230	AC 60Hz	7000	184.0	253.0		x		
R15-1014-23-6230-L	230	AC 60Hz	7000	184.0	253.0			x	
R15-1014-23-6230-D	230	AC 60Hz	7000	184.0	253.0				x

WT = with mechanical indicator + lockable front test button; WTL = with mechanical indicator + lockable front test button + light indicator (LED)
 K = with test button without block function; L = with light indicator (LED); D = with surge suppression element (diode); other options available upon request

▶ **BOLD** - Regular stocked items.

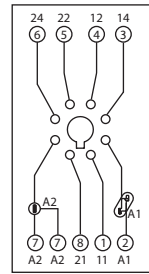
GZP8 for R15 DPDT

Screw terminals
 Max. tightening moment
 for the terminal: 0.5 Nm
 35 mm rail mount
 acc. to PN-EN 60715
 or on panel mounting
 73 x 38.2 x 27.2 mm Two poles
 12 A, 300 V AC

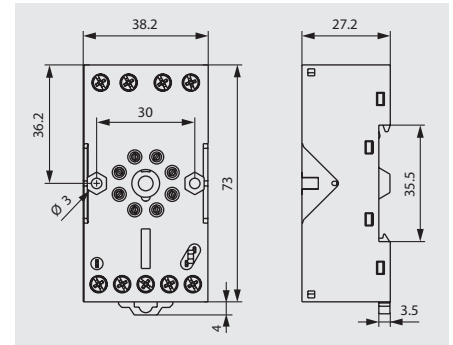


GZP8

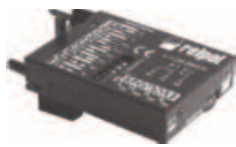
CONNECTION DIAGRAM



DIMENSIONS



E22891



Time module COM3T



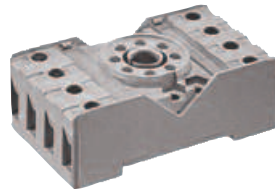
GZP-0035



GZP-0054

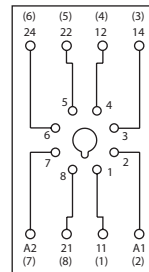
PZ8 for R15 DPDT

Screw terminals
 Max. tightening moment
 for the terminal: : 0.7 Nm
 35 mm rail mount
 acc. to PN-EN 60715
 or on panel mounting
 68.2 x 38 x 24.2 mm
 Two poles
 10 A, 250 V AC

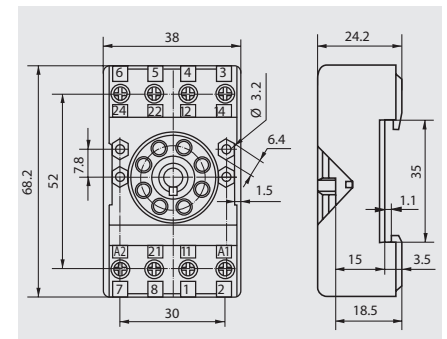


PZ8

CONNECTION DIAGRAM



DIMENSIONS



E105728



PZ11 0031

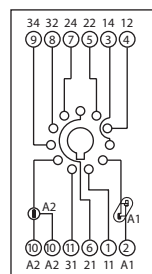
GZP11 for R15 3PDT

Screw terminals
 Max. tightening moment
 for the terminal: : 0,5 Nm
 35 mm rail mount
 acc. to PN-EN 60715
 or on panel mounting
 73 x 38.2 x 27.2 mm
 Three poles
 12 A, 300 V AC

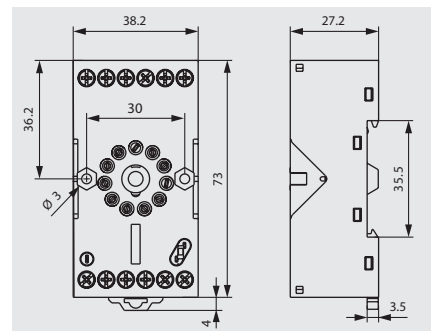


GZP11

CONNECTION DIAGRAM



DIMENSIONS



E22891



Time module COM3T



GZP-0035



GZP-0054

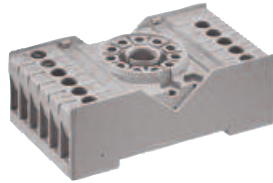
All accessories are sold separately.

R15

Industrial Electromagnetic Relays - Plug-in Sockets and Accessories

PZ11 for R15 3PDT

Screw terminals
 Max. tightening moment
 for the terminal: : 0.7 Nm
 35 mm rail mount
 acc. to PN-EN 60715
 or on panel mounting
 68.2 x 38 x 24.2 mm
 Three poles
 10 A, 250 V AC

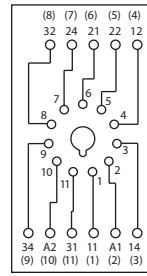


PZ11

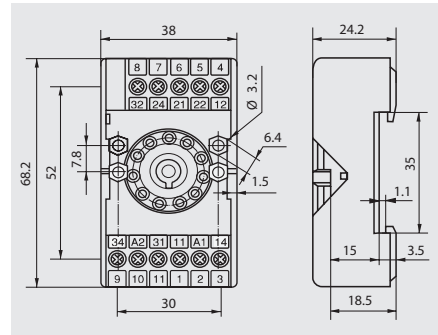


PZ11 0031

CONNECTION DIAGRAM



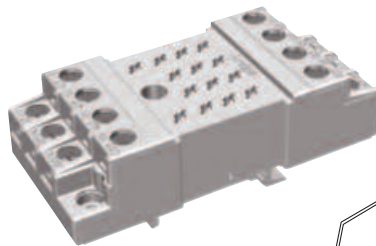
DIMENSIONS



E105728

GZ14U for R15 4PDT

Screw terminals
 Max. tightening moment
 for the terminal: : 0.7 Nm
 35 mm rail mount
 acc. to PN-EN 60715
 96.8 x 46.2 x 33.3 mm
 Four poles
 10 A, 250 V AC

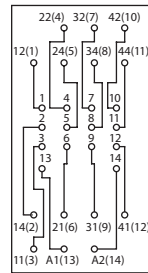


GZ14ZU

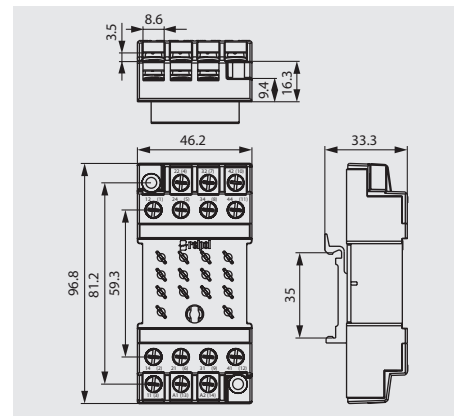


GZ14 0737

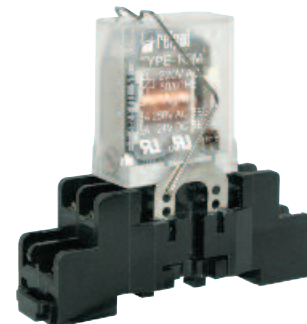
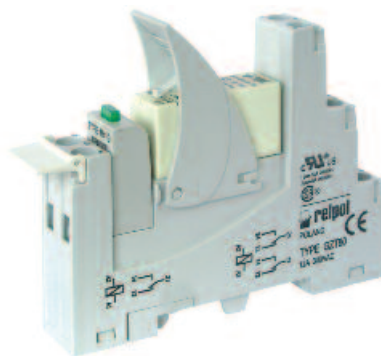
CONNECTION DIAGRAM



DIMENSIONS



See Relay Socket Combinations on pages 104-109



All accessories are sold separately.