

# Bistable Relay

Types PSU6n, PSU14n.



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- ✓ Unparalleled domain competence
- ✓ Global experience
- ✓ Complete solution capabilities
- ✓ Large installed base
- ✓ Environment-friendly technologies



# Bistable relay types PSU6n, PSU14n

## Features

- High degree of reliability, even when it has been idle for a long time
- PSU14n.. with mechanical flag type indicator
- 6 / 14 contacts with double interruption
- Contact configuration can be changed with ease
- Different mounting variants
- Wide range of voltage and contact configuration

The contacts are arranged symmetrically on both sides of the relay coil and armature assembly in two stacks. They are easily accessible and the conversion from N/C to N/O contacts and vice versa is simple. The maximum rated voltage is 250V DC or AC and the material used is hard silver.

The following definitions apply for reset and operate condition:

Reset condition - Armature assembly position is away from the base i.e. the upper system has been pulsed and lower system is ready to be pulsed. The flag strips are invisible i.e. white during this condition. Operate condition - Armature assembly position is closer to the base i.e. the lower system has been pulsed and upper system is ready to be pulsed. The flag strips are visible i.e. red during this condition.

A transparent, incombustible cover with a gasket protects the contacts against dirt. The terminals of the contact stacks themselves permit two wires of 1.5mm diameter maximum to be secured. The terminals on the base for the external wiring have holes with a diameter of 3.8mm. The terminals on the plug-in base can accommodate two wires, each with a cross-section of 2.5mm<sup>2</sup>.

Changeover relays must always be mounted with the contact post horizontal, that is with the base on a vertical surface. The plug-in version offers many advantages, both from the point of view of installation and afterwards for maintenance. It is fitted with locating pegs which prevent it from being inserted the wrong way round. The labelling of the terminals on the base is identical to that on the contact stacks.

## Application

For remote and automatic controls there is often a need for contactors which have two stable contact positions, even in the dead state. This requirement is fulfilled by changeover contactors type PSU..n.. The application of alternate control pulses to the coils cause the contacts to change from the one state to the other. If the supply is interrupted, the contacts remain in their previous position, even when the voltage is restored.

## Description

Basically, the PSU changeover contactors are composed of the same constructional elements as the established contactors type P8n. Two magnet systems are inter-connected by a pivoted element. In the type PSU6n... with 6 free contacts, only one system has contacts; in type PSU14n... with 14 free contacts, both systems have contacts. In each case two contacts are required for changing over the connection of the coils.

## Type designation of auxiliary relays

PSU			Basic relay
	6n		with 6 free contacts and without indicator
	14n		with 7 or 14 free contacts and with indicator
		2Y	mounted on sheet-metal base with 2 sets of terminal blocks
		4Y	mounted on sheet-metal base with 4 sets of terminal blocks
		X	mounted on one set of plug-in base
		2X	mounted on two sets of plug-in base

Example: PSU14nX denotes a PSU type relay with 7 free contacts, mounted on one set of plug-in base. Available types:

# Technical data

Energizing quantities, rated values and limits									
Rated voltage $U_N$	24, 30, 48, 110, 125, 220, 250 V DC								
Operative voltage range	+10%, -20% of $U_N$								
Permitted ambient temperature range	0°C to +55°C								
Pick-up voltage (% $U_N$ )	< 80%								
Pick-up time at $U_N$ (typical)	20-40 m sec								
Maximum power consumption at the instant of switching	65 W								
Mechanical durability tested acc to IEC 255	1 x 10 <sup>6</sup> switching operations, 200 Draw-out / Plug-in operations								
Weight									
Type PSU6n2Y	1.5 Kg								
Type PSU6nX	1.3 Kg								
Type PSU14nX	2.1 Kg								
Type PSU14n2X	2.5 Kg								
Type PSU14n4Y	2.4 Kg								
Contact data									
Contact configuration									
Type PSU14n	7N/O+7N/C, 8N/O+6N/C, 9N/O+5N/C, 10N/O+4N/C, 11N/O+3N/C, 12N/O+2N/C, 13N/O+ 1N/C or 14NO								
Type PSU6n	3N/O+3N/C, 4N/O+2N/C, 5N/O+ 1N/C or 6NO								
Type PSU14nX	4N/O+3N/C, 5N/O+2N/C, 6N/O+1N/C, or 7N/O								
Rated voltage	250V DC/AC								
Rated current	5 A								
Max. making current	50 A, 0.5 sec,								
Max. breaking capacities									
Voltage	24V		48V		110V		250V		
Contacts	1	2 in Parallel	1	2 in parallel	1	2 in parallel	1	2 in parallel	2 in series
DC resistive load	5A	10A	5A	10A	5A	7A	1A	-	5A
DC inductive. L/R =15ms	5A	10 A	5 A	8 A	4 A	-	1 A	-	4 A
DC inductive, L/R =40ms	4 A	8 A	4 A	8 A	3 A	-	0.5A	-	2 A
AC resistive & inductive	10 A	-	10 A	-	10 A	-	10A	-	-
Electrical endurance;	0.2 million operations,								
Tested according to IEC 255-23	at 110 V DC, 0.5A L/R 40 ms								
Terminals	Suitable for 2x2,5mm <sup>2</sup> wires								
Electrical tests									
Measurement of resistance; tested acc. to IEC 255-6	+/- 10% of specified								
Temperature-rise; tested acc. to IEC 255-6	Coil (class F)								
Insulation resistance; tested acc. to IEC 255-5	>100 M Ohm at 500 V dc								
Dielectric; tested acc. to IEC 255-5	2.0 kV 50 Hz, 1 min								
Impulse; tested acc. to IEC 255-5	5 kV, 1.2/50µs, 0.5J								
Environmental tests									
Vibration response; tested acc. to IEC 255-21-1	10-150Hz; 0.5g; 3 axis								
Vibration endurance; tested acc. to IEC 255-21-1	10-150Hz; 1.0g; 3axis								
Dry heat; tested acc. to IEC 68-2-2	at +55°C in energized condition								
Dry cold; tested acc. to IEC 68-2-1	at 0°C								
Damp heat (cyclic - 6days); Tested acc. to IEC 68-2-30	12 Hr/55°C + 12 Hr/25°C x 2 @ 93% RH								
Storage test; tested acc. to IEC 68-2-48	+70°C for 72 Hrs and -25°C for 72 Hrs								

# Connection diagram and contact configuration

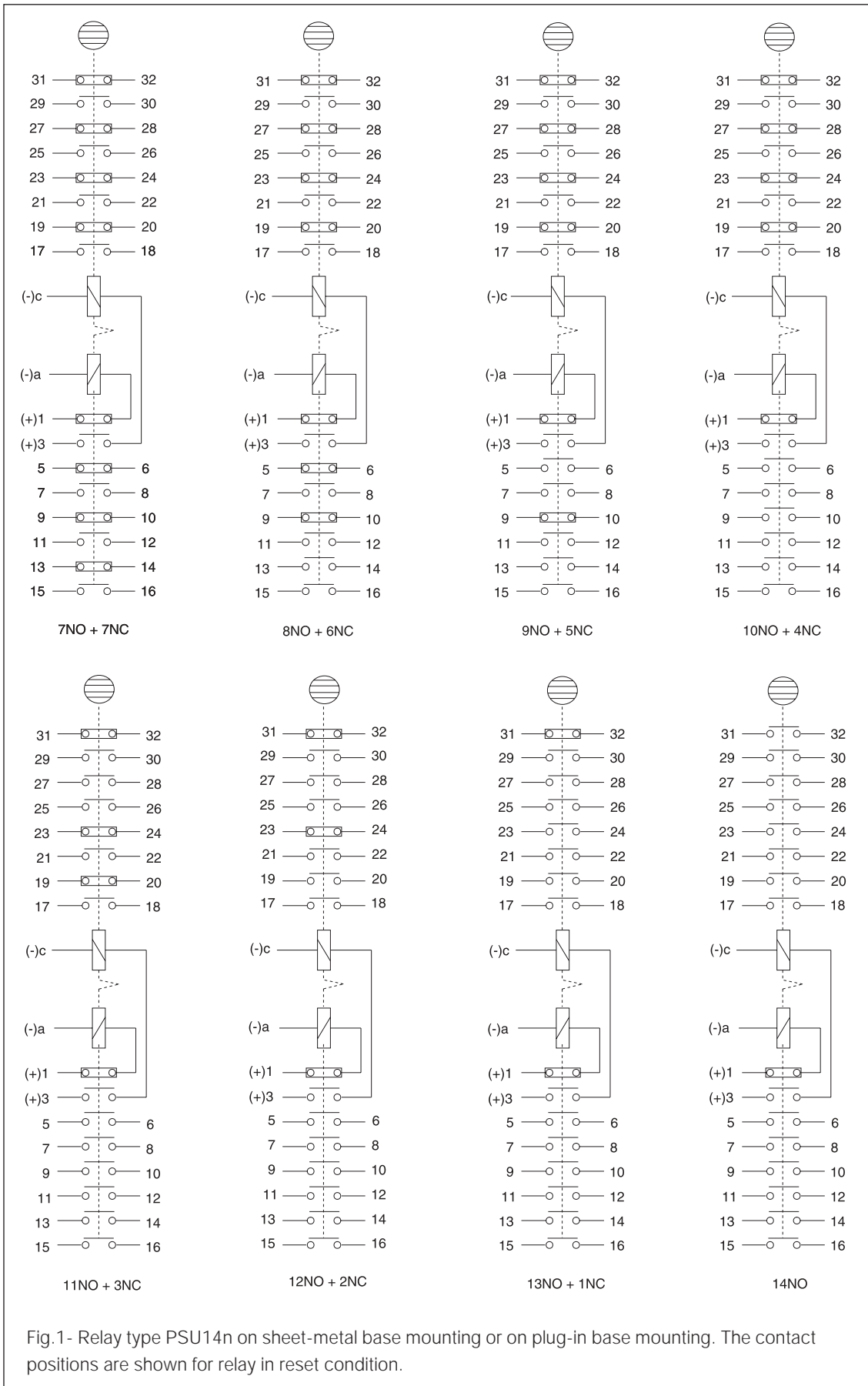
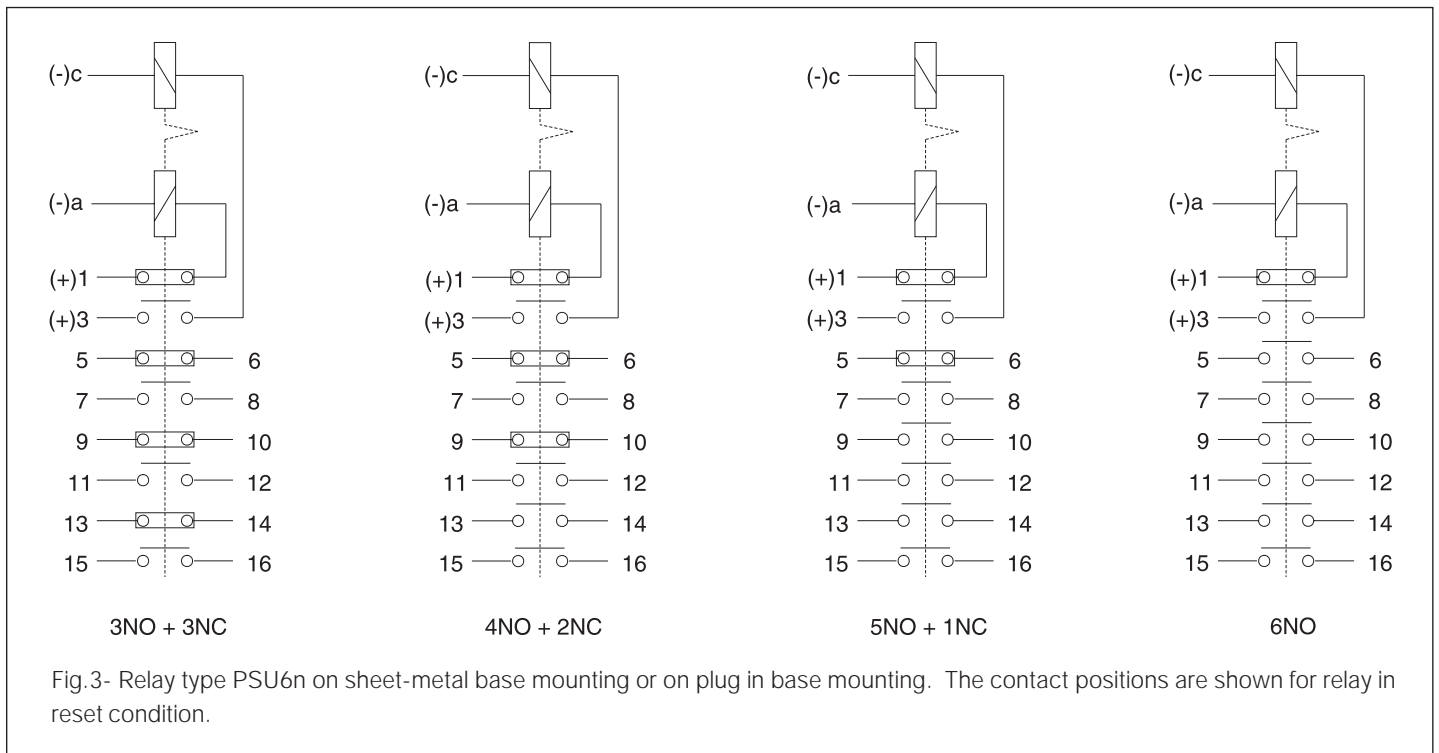
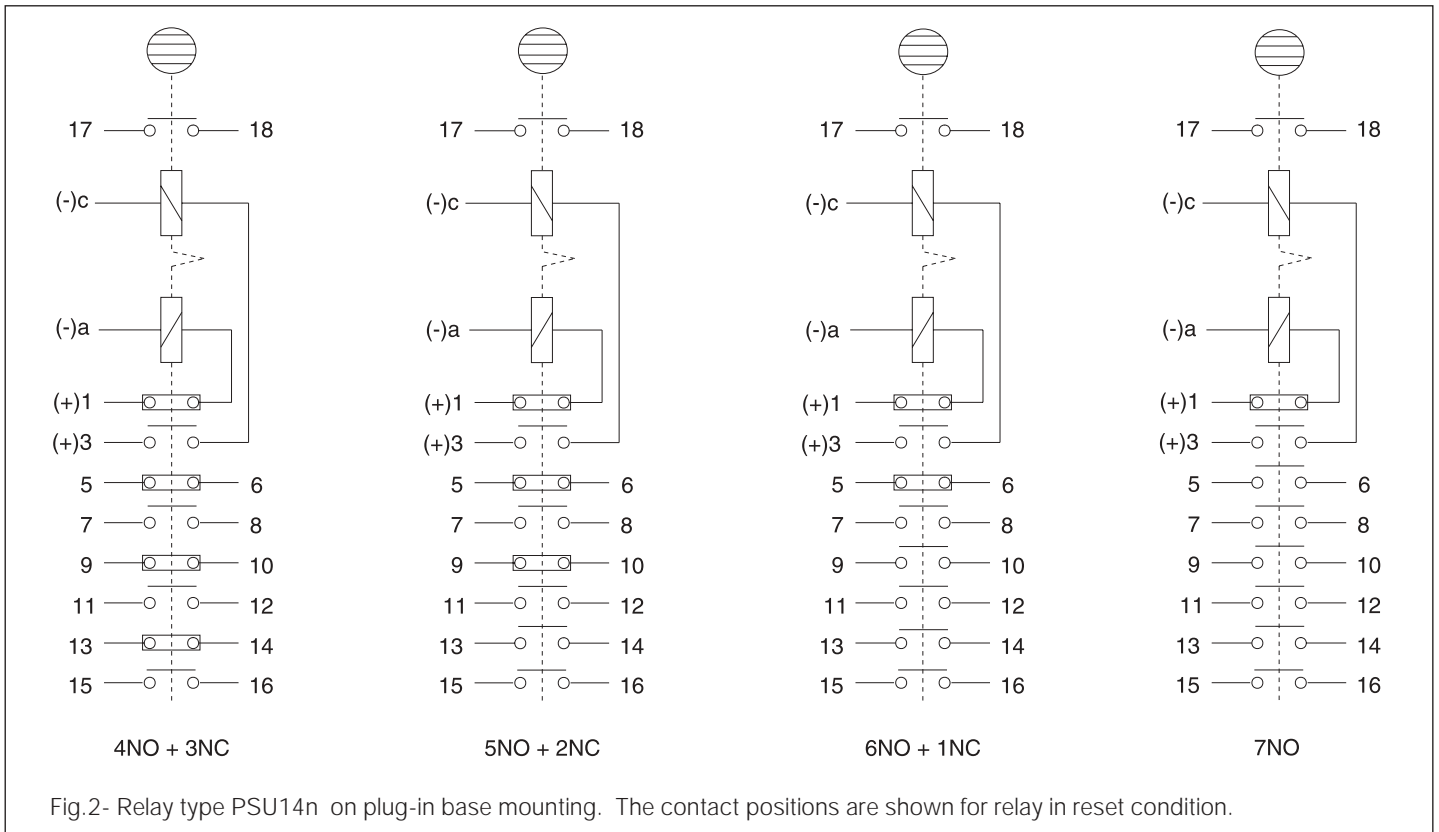


Fig.1- Relay type PSU14n on sheet-metal base mounting or on plug-in base mounting. The contact positions are shown for relay in reset condition.



**Ordering details:**

- Relay type
- Auxiliary voltage
- Contact configuration

# Dimensions

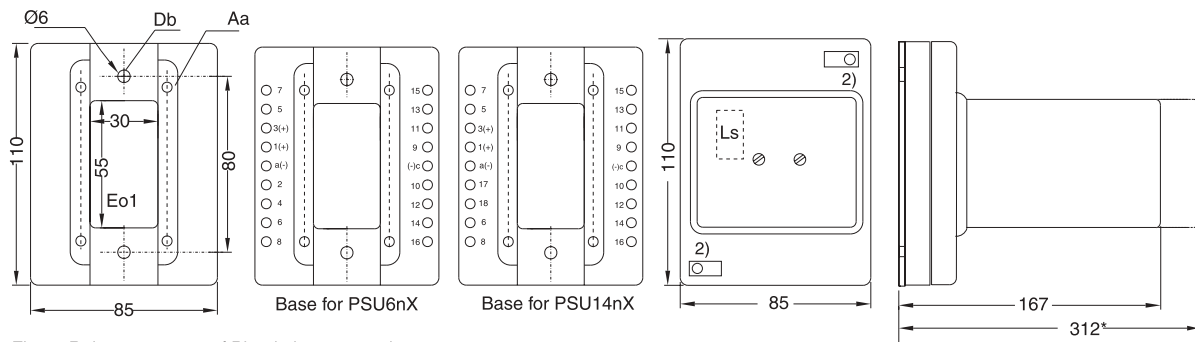


Fig.4- Relay on one set of Plug-in base mounting

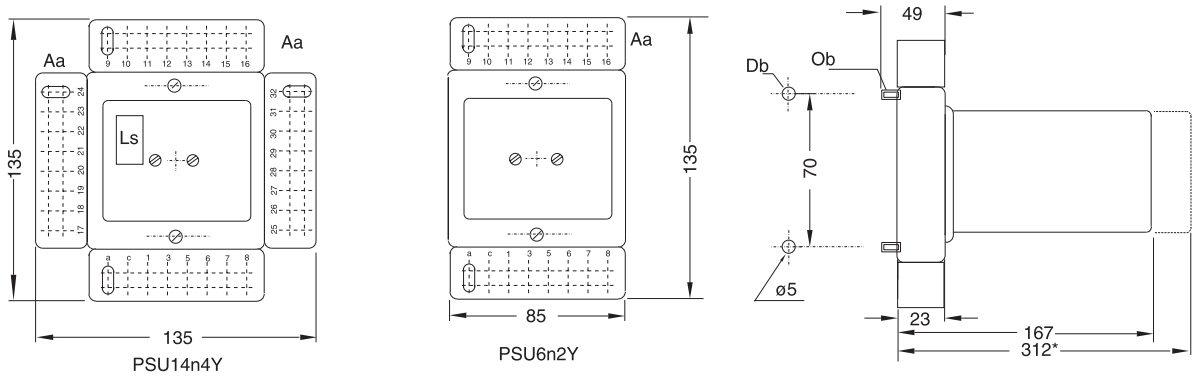


Fig.5- Relay on sheet-metal base mounting

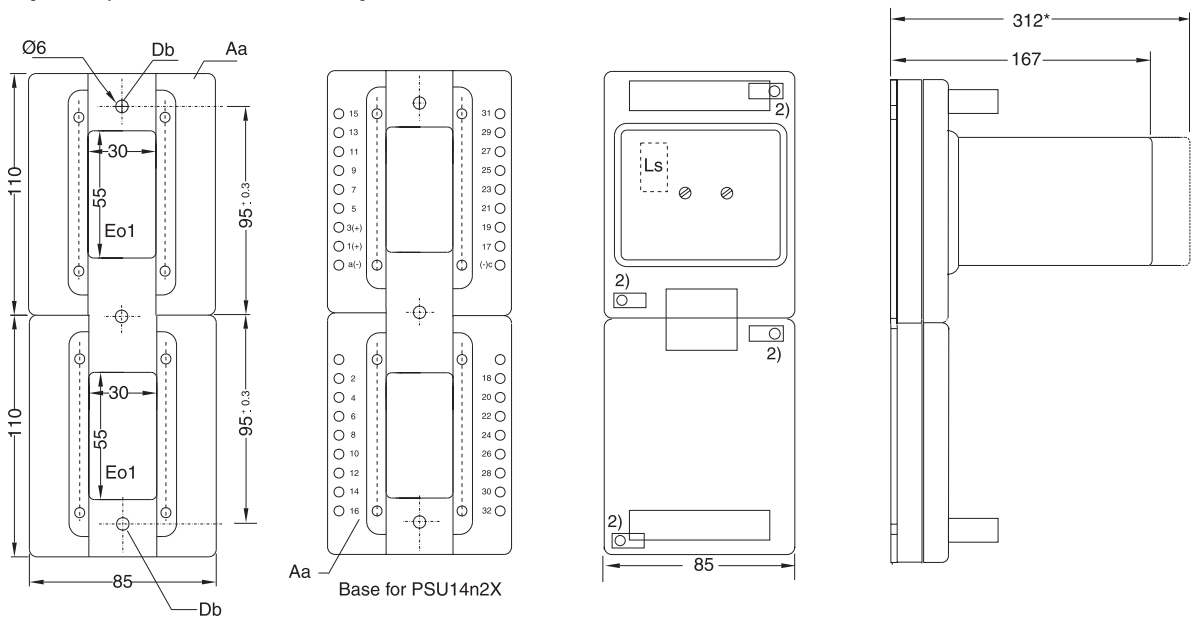


Fig.6- Relay on two sets of Plug-in base mounting

## Legend

- Aa : Terminals
- Db : Mounting hole
- Eo1 : Cut-out for rear wiring
- \* : Space for removing hood
- Ls : Operation signal
- Ob : Fixing screw
- 2) : Base fixing screw

# Ordering details

Refer type designation for selection and mark (✓) appropriate boxes

Type	:	PSU6n2Y	<input type="checkbox"/>	Qty.....	Item no.....
		PSU6nX	<input type="checkbox"/>	Qty.....	Item no.....
Aux Voltage	:	24VDC	<input type="checkbox"/>	Contacts	6N/O + 0N/C <input type="checkbox"/>
		30VDC	<input type="checkbox"/>		5N/O + 1N/C <input type="checkbox"/>
		48VDC	<input type="checkbox"/>		4N/O + 2N/C <input type="checkbox"/>
		110VDC	<input type="checkbox"/>		3N/O + 3N/C <input type="checkbox"/>
		125VDC	<input type="checkbox"/>		
		220VDC	<input type="checkbox"/>		
		250 VDC	<input type="checkbox"/>		
Type	:	PSU14nX		Qty.....	Item no.....

Aux Voltage	:	24VDC	<input type="checkbox"/>	Contacts	7N/O + 0N/C <input type="checkbox"/>
		30VDC	<input type="checkbox"/>		6N/O + 1N/C <input type="checkbox"/>
		48VDC	<input type="checkbox"/>		5N/O + 2N/C <input type="checkbox"/>
		110VDC	<input type="checkbox"/>		4N/O + 3N/C <input type="checkbox"/>
		125VDC	<input type="checkbox"/>		
		220VDC	<input type="checkbox"/>		
		250VDC	<input type="checkbox"/>		
Type		PSU14n4Y	<input type="checkbox"/>	Qty.....	Item no.....
		PSU14n2X	<input type="checkbox"/>	Qty.....	Item no.....

Aux Voltage :	24VDC	<input type="checkbox"/>	Contacts	14N/O + 0N/C	<input type="checkbox"/>
	30VDC	<input type="checkbox"/>		13N/O + 1N/C	<input type="checkbox"/>
	48VDC	<input type="checkbox"/>		12N/O + 2N/C	<input type="checkbox"/>
	110VDC	<input type="checkbox"/>		11N/O + 3N/C	<input type="checkbox"/>
	125VDC	<input type="checkbox"/>		10N/O + 4N/C	<input type="checkbox"/>
	220VDC	<input type="checkbox"/>		9N/O + 5N/C	<input type="checkbox"/>
	250VDC	<input type="checkbox"/>		8N/O + 6N/C	<input type="checkbox"/>
				7N/O + 7N/C	<input type="checkbox"/>



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