

# Bistable Relay Types PSU6n, PSU14n.

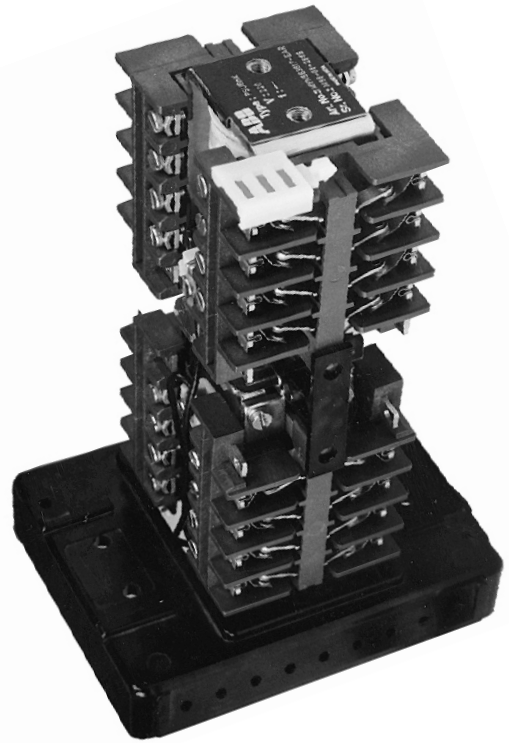
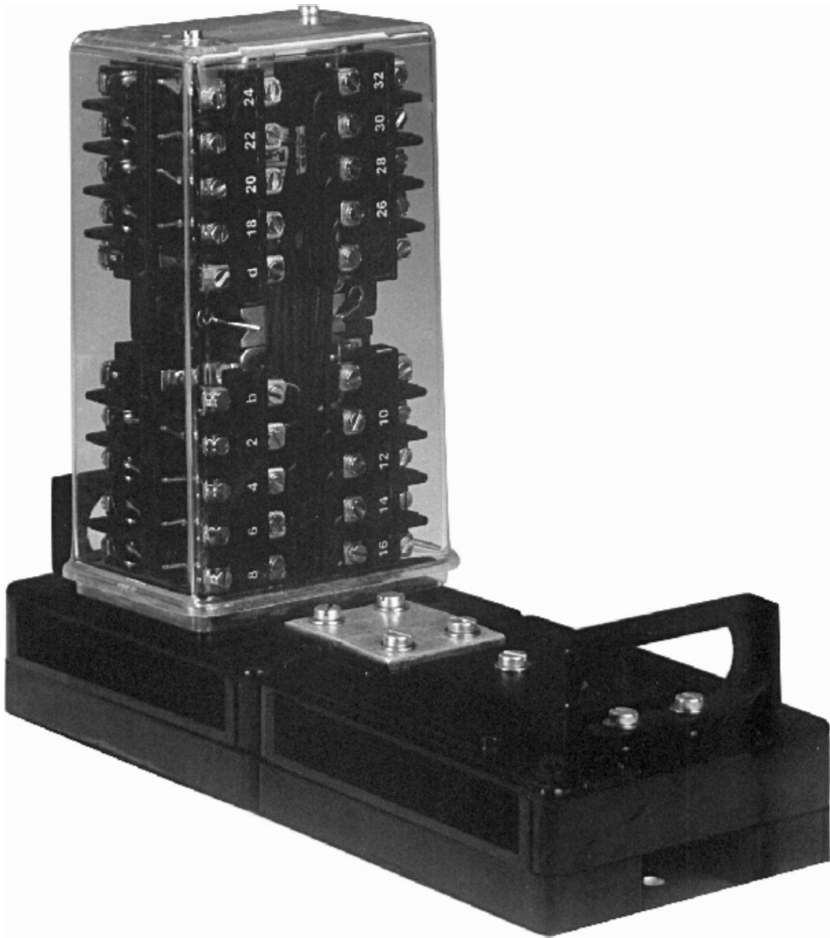


ABB Substation Automation Products



## 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

## Application

For remote and automatic control 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.

## Design and principle

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.

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 d.c. or a.c. 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.

### 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:

PSU6n2Y, PSU14n4Y, PSU14n2X,  
PSU6nX, PSU14nX ( 7 contacts).

## 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 Deg C to +55 Deg 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	: $1 \times 10^6$ switching operations, 200 Draw-out / Plug-in operations
<b>Weight</b>	
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		
	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	10A	5A	8A	4A	-	1A	-	4A
DC inductive, L/R=40ms	4A	8A	4A	8A	3A	-	0.5A	-	2A
AC resistive & inductive	10A	-	10A	-	10A	-	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, 1,2/50us, 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 Deg C in energized condition
Dry cold; Tested acc. to IEC 68-2-1	: at 0 Deg C
Damp heat (cyclic - 6days);	: 12 Hr/55 C + 12 Hr/25 C x 2 @ 93% RH
Tested acc. to IEC 68-2-30	
Storage test; Tested acc. To IEC 68-2-48	: +70 Deg C for 72 Hrs and -25 Deg C for 72 Hrs

### Ordering details:

Relay type  
Auxiliary voltage  
Contact configuration

## Connection diagram and contact configuration

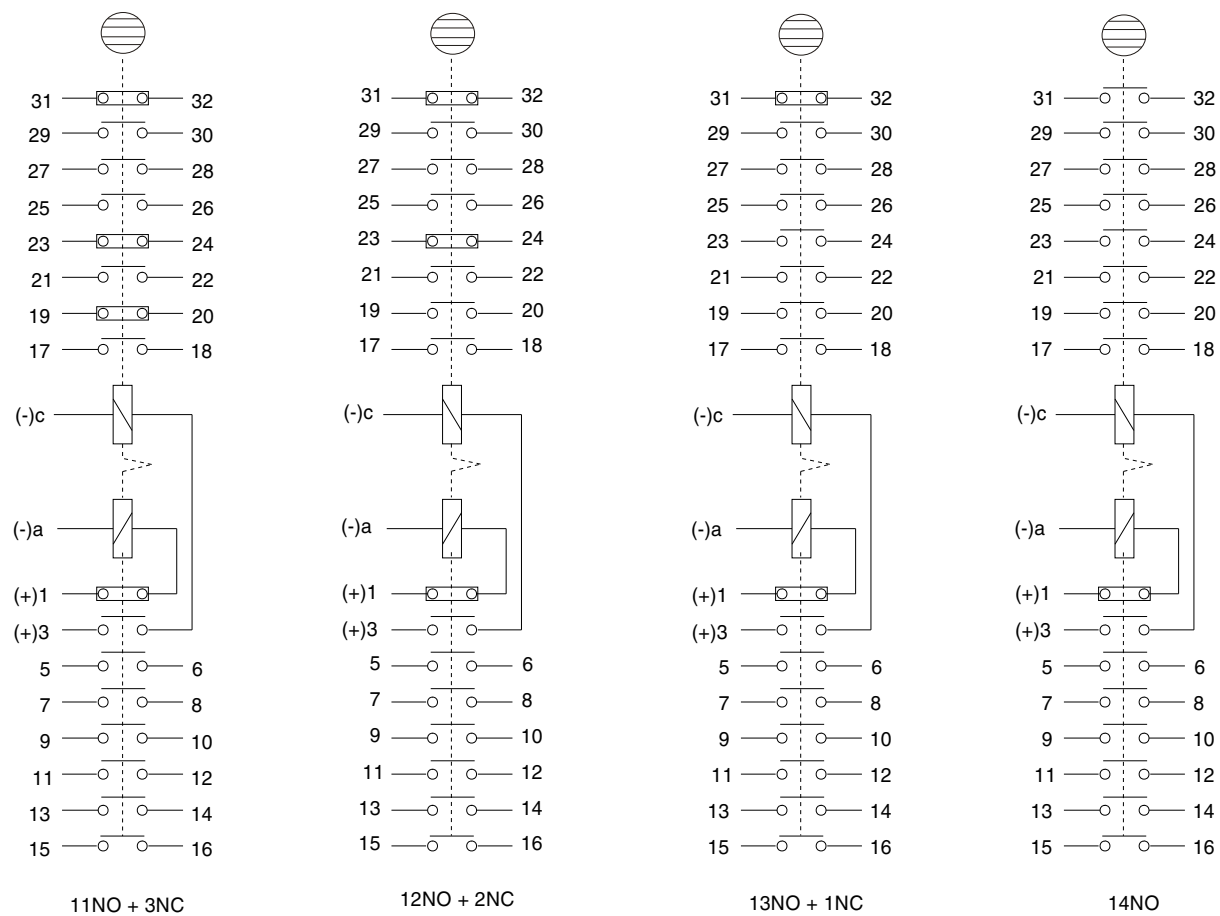
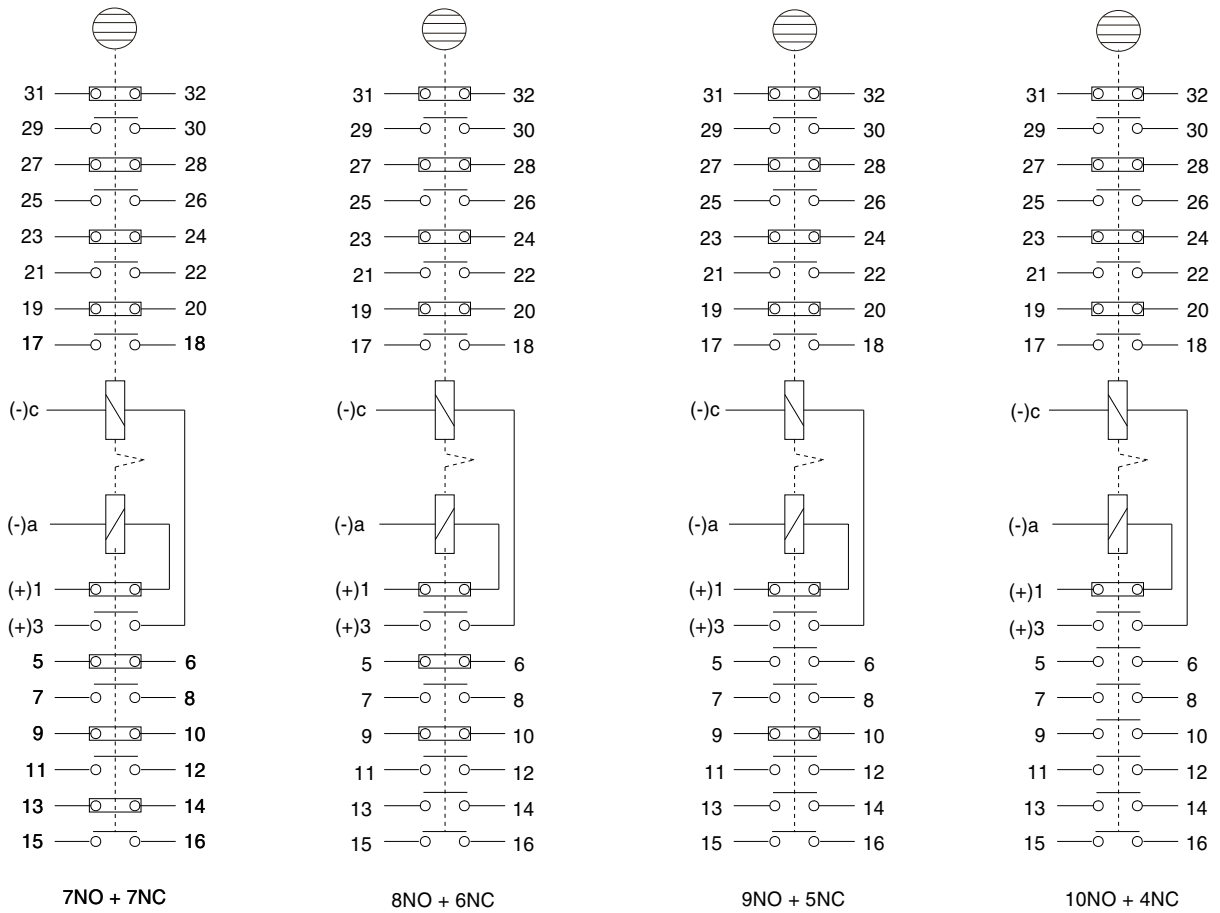


Fig.1- Relay type PSU14n on sheet-metal base mounting or on plug-in base mounting. The contact positions are shown for relay in reset condition.

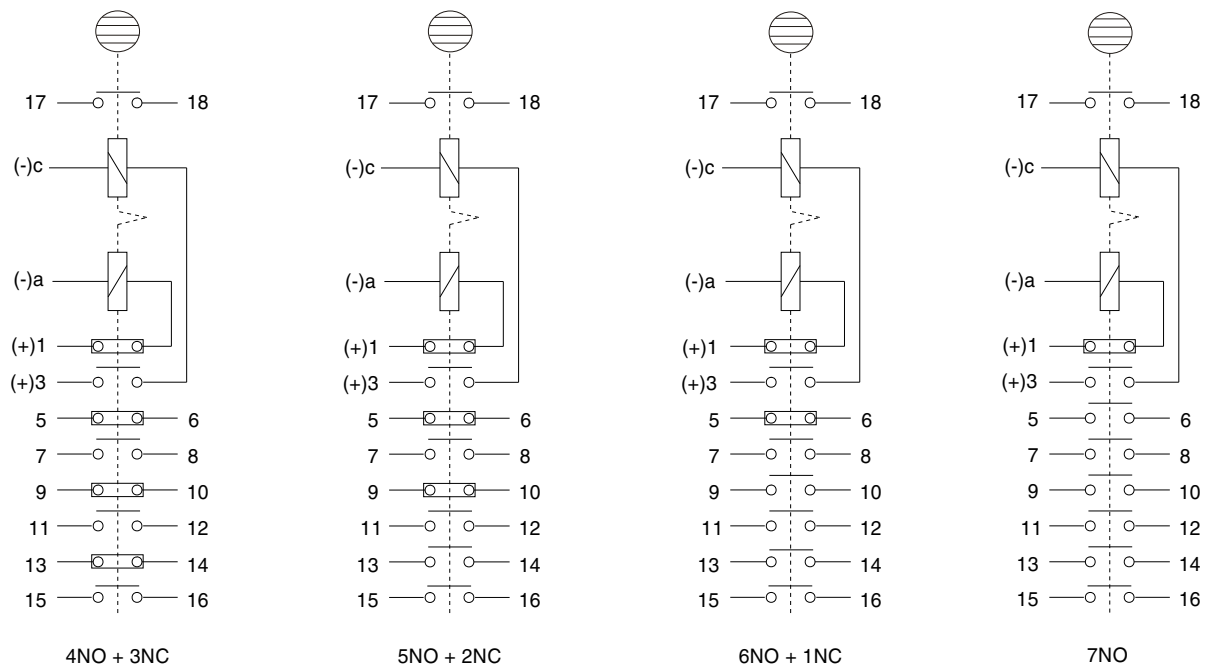


Fig.2- Relay type PSU14n on plug-in base mounting. The contact positions are shown for relay in reset condition.

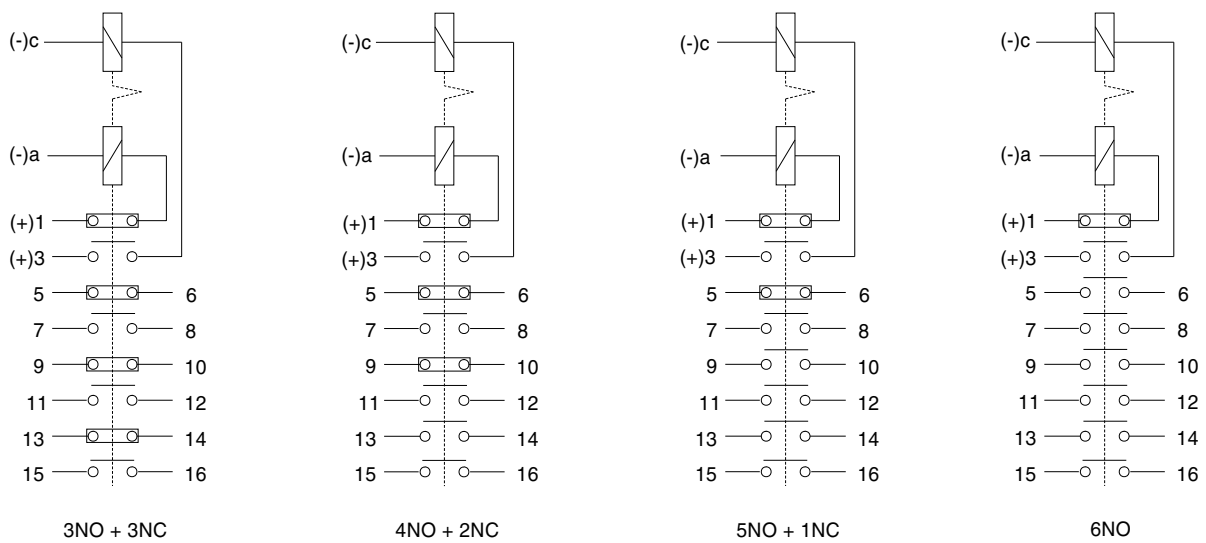


Fig.3- Relay type PSU6n on sheet-metal base mounting or on plug in base mounting. The contact positions are shown for relay in reset condition.

# Dimensions

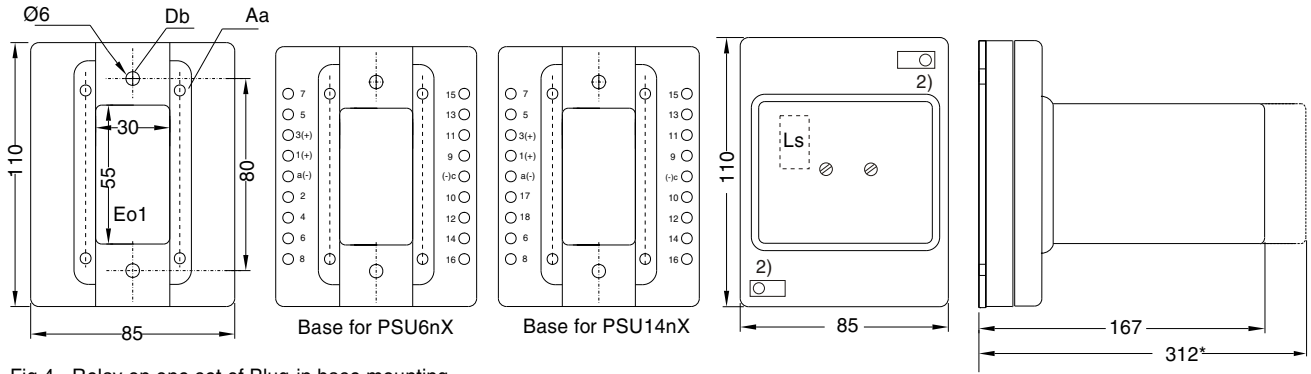


Fig.4- Relay on one set of Plug-in base mounting

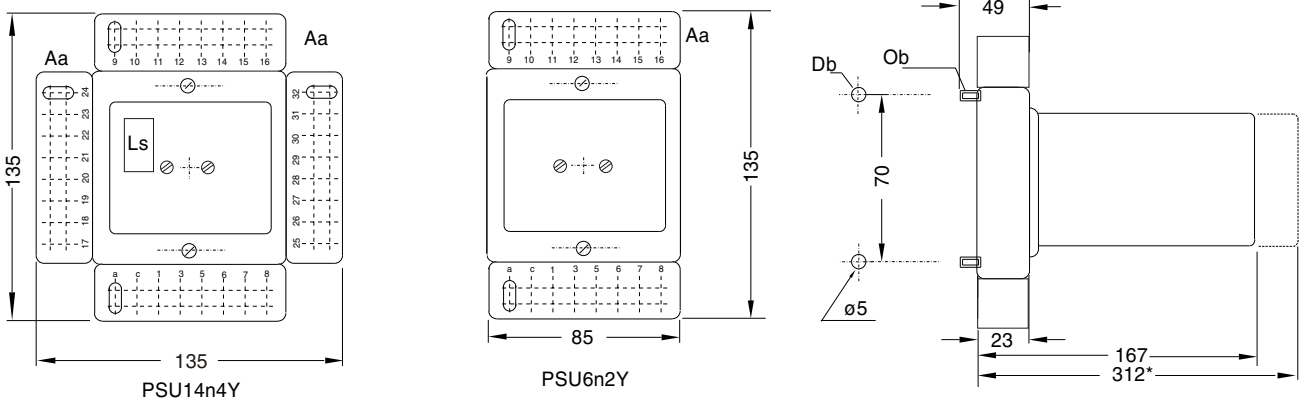


Fig.5- Relay on sheet-metal base mounting

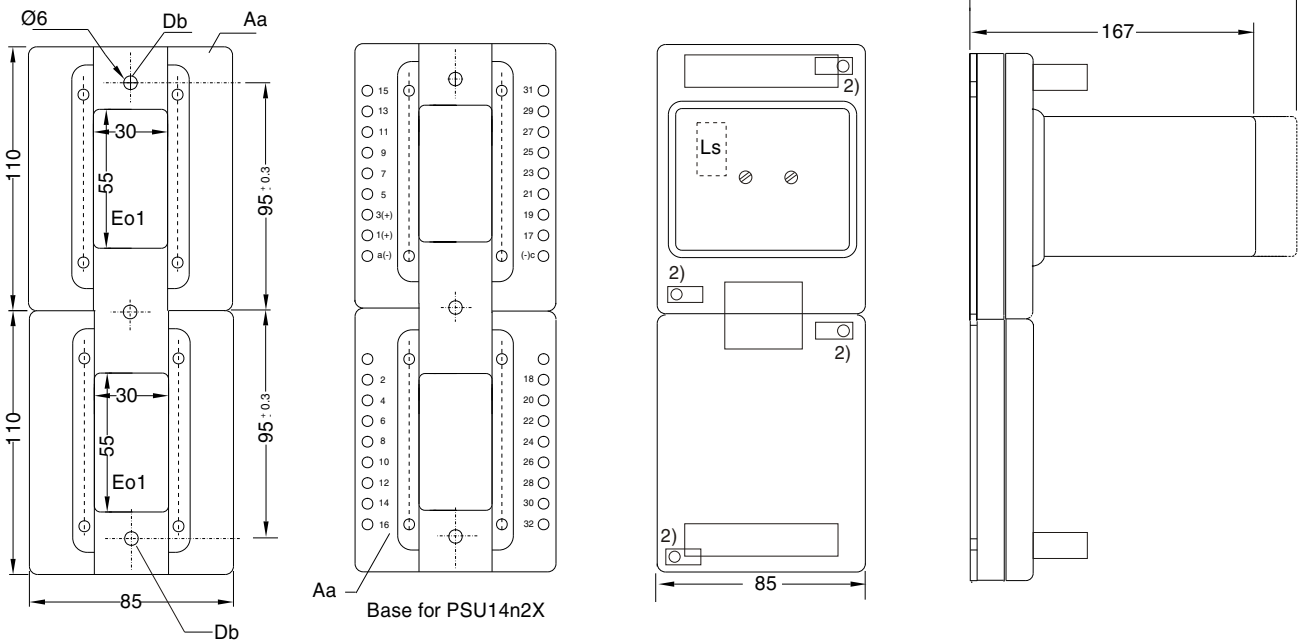
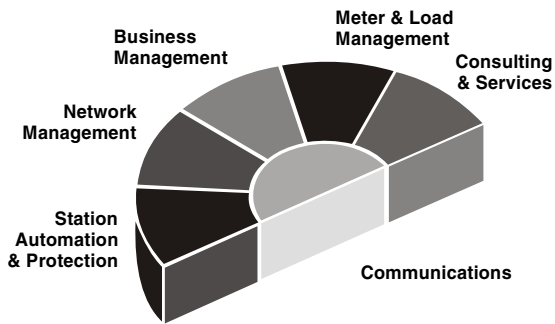


Fig.6- Relay on two sets of Plug-in base mounting

## Legend

- Aa : Terminals
- Db : Mounting hole
- E01 : Cut-out for rear wiring.
- \* : Space for removing hood.
- Ls : Operation signal
- Ob : Fixing screw
- 2) : Base fixing screw





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