

# Auxiliary Relay

Type CV2



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In India, ABB serves customers with the complete range of power and automation technologies. The company has a vast installed base, extensive manufacturing facilities and a countrywide marketing and service presence.

As a part of its Power Technologies offering, ABB serves electric, gas and water utilities as well as industrial and commercial customers with a wide range of products, systems and services for power generation, transmission and distribution. ABB's system offering ranges from Electrical Balance of Plant (EBOP) for power plants, bulk power transmission, turnkey substations and complete electrification to utility automation and power distribution.

The product offering covers a wide spectrum of technologies across the entire voltage range including indoor and outdoor circuit breakers, air and gas insulated switchgear, disconnectors, capacitor banks, reactive power compensators, power transformers, distribution transformers, instrument transformers, Compact Secondary Substations (CSS) and Ring Main Units (RMU).

## Advantage ABB

- ✓ 120 years of technology and innovation
- ✓ Unparalleled domain competence
- ✓ Global experience
- ✓ Complete solution capabilities
- ✓ Large installed base
- ✓ Environment-friendly technologies



# Auxiliary Relay

## Features

- Small size
- High degree of reliability, even when it has been idle for a long time
- Mechanical operation indicator
- High contact rating
- 2 or 4 contacts with double interruption
- Three mounting variants
- Wide range of voltage and low power consumption

## Design & Principle

The indicating relay type CV2 is an instantaneous hinged-armature relay with two contacts. These may be either two normally open contacts, or one normally open and one normally closed. (Two normally closed contacts cannot be supplied.)

The magnetic system comprises the fixed core and the hinged-armature which actuates the contacts. When the coil is de-energised, the armature is reset to its original position by a spring.

When the relay picks up, an indicating knob pops out. When the relay is in its normal state, prior to pick-up the knob is black, but when it picks up, there appears an orange ring. The indicator can be reset simply by pressing the knob back in.

Separate relays can be supplied without hood for incorporation in other equipment. For pairs of relays various modes of mounting are possible as shown below.

## Application

The indicating relay type CV2 is intended for use in control and protective systems in industrial plants and power stations, where it is mainly used in conjunction with electronic control systems, particularly where a visual indication of a given function is required.

## Type designation of auxiliary relays:

CV2			Basic auxiliary relay
	A		for AC Voltage
	D		for DC Voltage
		H	with single element without protective cover
		RM	with single element mounted on sheet-metal base
		M	with double element mounted on sheet-metal base
		RN	with single element mounted on plug-in base
		N	with double element mounted on plug-in base
		J	with single element mounted in 1/2'S' size, flush mounting case
		2J	with double element mounted in 1/2'S' size, flush mounting case

Available types: CV2AJ, CV2A2J, CV2DJ, CV2D2J, CV2DRM, CV2DM, CV2DRN, CV2DN, CV2DH,

## Technical data

Rated voltage ( $U_N$ )	24,30, 48, 110,220, 250 DC 24,30,48,110,240 AC (with Rectifier) available only in '1/2S' size mounting case
Operating range	+ 10% to - 20% of $U_N$
Frequency	50 Hz +/-5%
Pick-up voltage (% $U_N$ )	< 75%
Drop-off voltage (% $U_N$ )	>15%
Pick-up time at $U_N$ (typical)	20-35ms
Maximum power consumption	DC 3W AC 2.5 VA
Insulation tests	
Dielectric test	2kV, 50Hz, 1min. as per IEC 60255-5
Impulse voltage test	5kV, 1.2/50micro sec. 0.5J., as per IEC 60255-5
Insulation resistance	>100 M ohms at 500V dc. as per IEC 60255-5
Mechanical life	1x 10 <sup>6</sup> switching operations. as per IEC60255-6
Switching rate	Up to 1000 operations per hour at full breaking current, or 3600 times per hour with reduced breaking current

### Contacts

Rated voltage	250V DC/AC
Rated current	10 A
Max. making current	30 A

### Max. Breaking capacities

Voltage Contacts	24-60 V		110V		125 V		220V	
	1	2 in Series	1	2 in Series	1	2 in Series	1	2 in Series
DC resistive load	16A	20A	8A	15A	6A	15A	1.1A	6A
DC inductive. L/R =15ms	7.5A	10A	3A	10A	2.5A	8A	0.8A	3.5A
AC 50Hz resistive	20A	-	20A	-	20A	-	20A	-
AC 50Hz inductive (Cosφ =0.3)	20A	-	20A	-	20A	-	20A	-

### Environment tests

Dry heat test	IEC 60068-2-2	+55°C and +70°C
Dry cold test	IEC 60068-2-1	-10°C and -25°C
Damp heat cyclic test	IEC 60068-2-30	12hrs+12hrs cycle at +55°C/+25°C with RH98% for 6 days
Storage test	IEC 60068-2-8	+70°C for 72 hrs and -25°C for 72 hrs.

### Vibrations test

Vibration response	IEC 60255-21-1 Class-1	10-150Hz, 0.5g, 3 axis
Endurance test	IEC 60255-21-1 Class-1	10-150Hz, 1.0g, 3 axis

### Electromagnetic compatibility requirements

High frequency disturbance test	IEC 60255-22-1	1MHz 2.5kV common mode, and 1kV differential mode
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### Weight

Type ...N : 0.69 kg. approx.  
Type ...M : 0.68 kg. approx.  
Type ...2J : 0.85 kg. approx.

### Ordering details

Relay type  
Auxiliary Voltage  
Contacts configuration

## Connection diagram and contact configuration

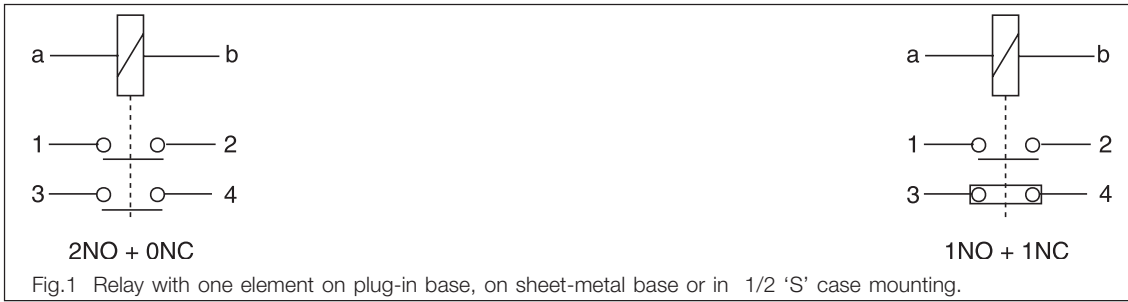


Fig.1 Relay with one element on plug-in base, on sheet-metal base or in 1/2 'S' case mounting.

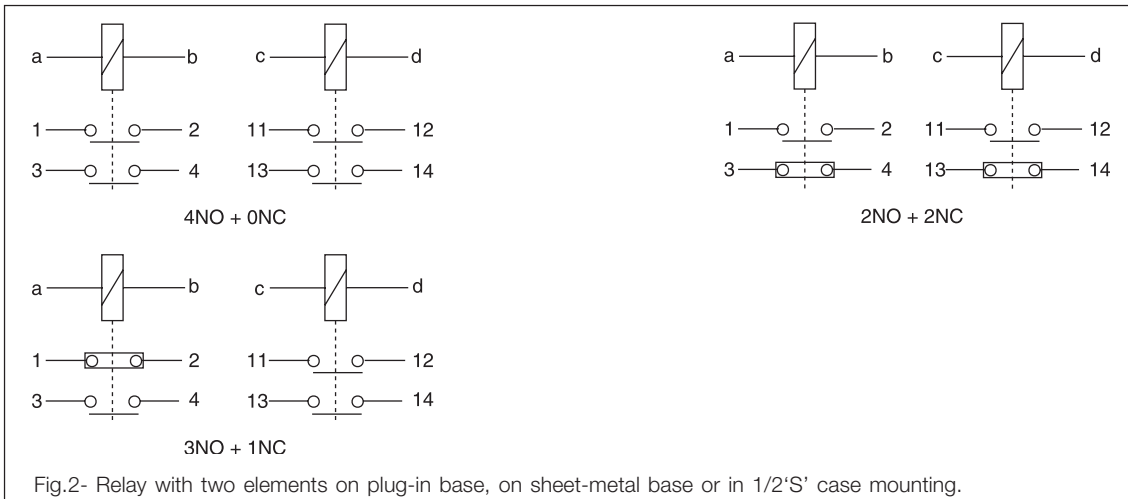


Fig.2- Relay with two elements on plug-in base, on sheet-metal base or in 1/2'S' case mounting.

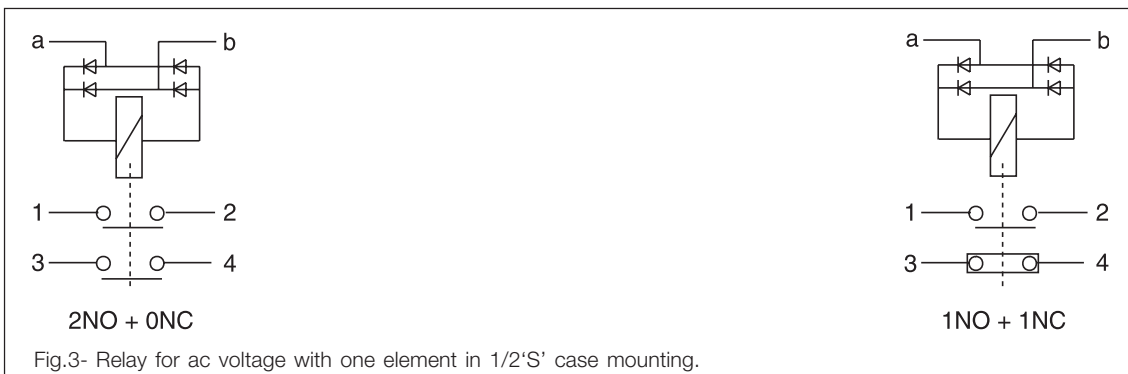


Fig.3- Relay for ac voltage with one element in 1/2'S' case mounting.

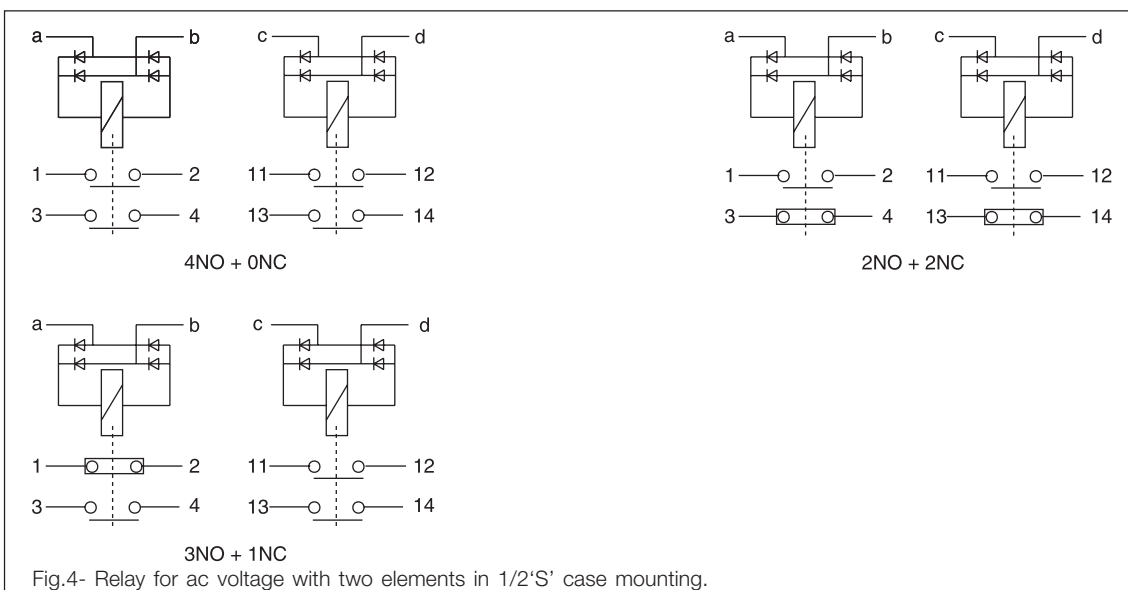
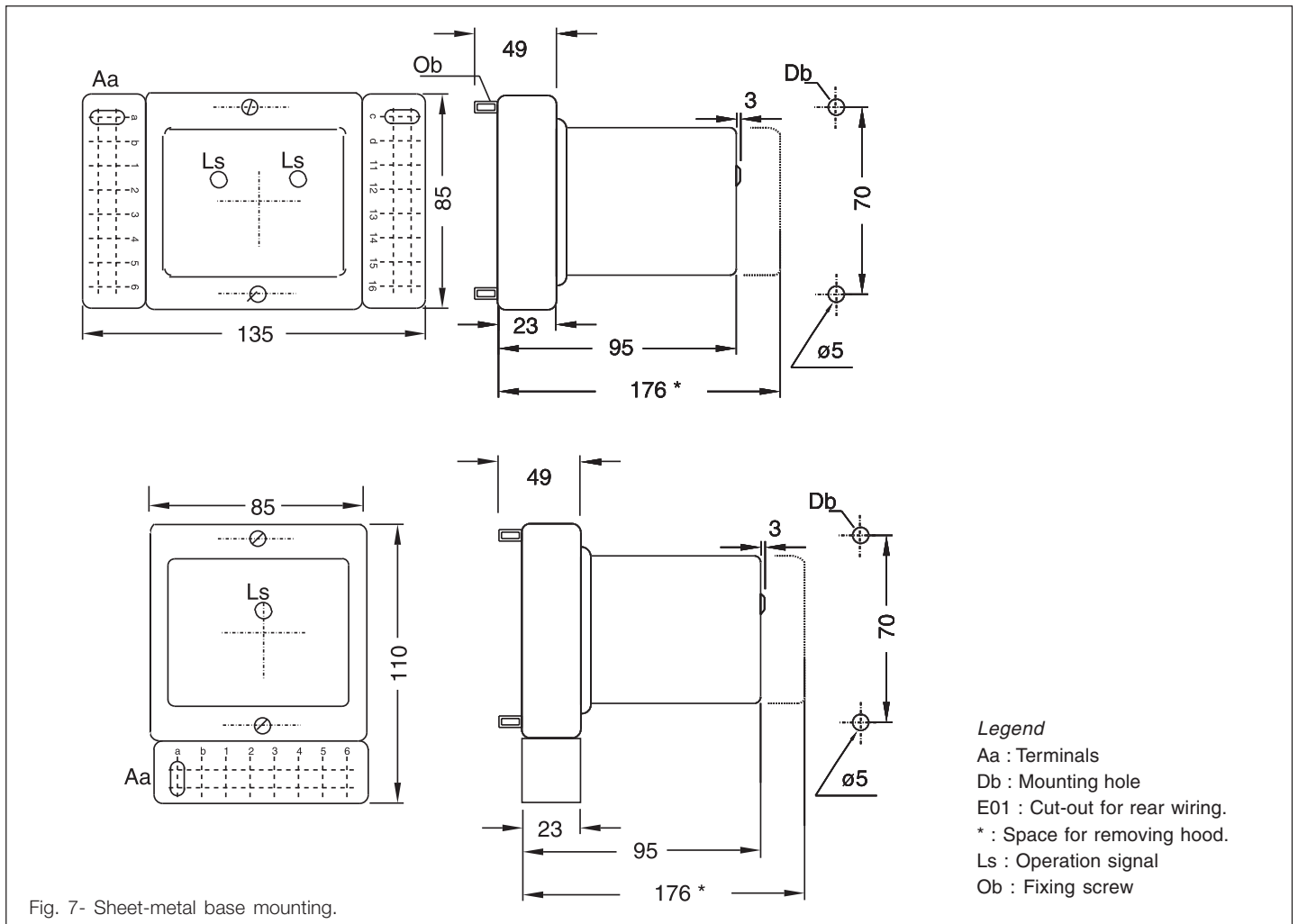
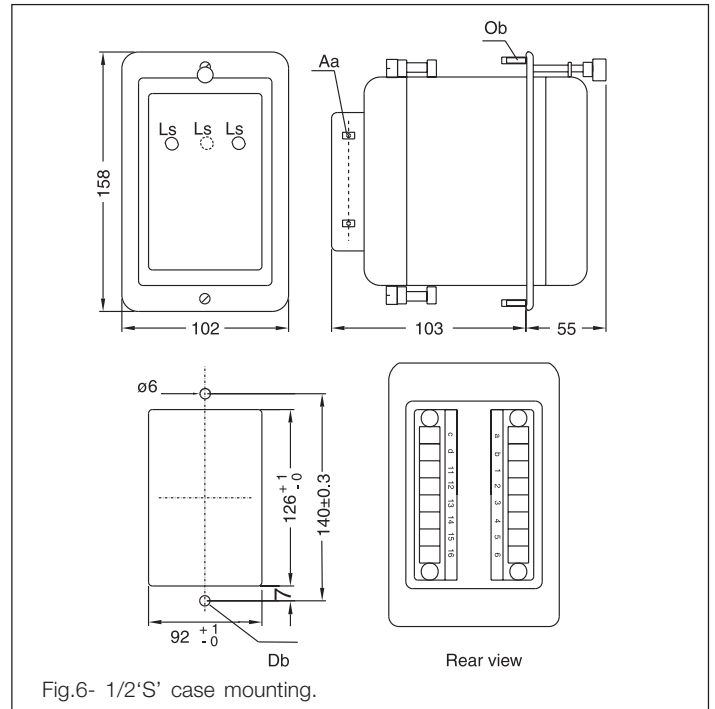
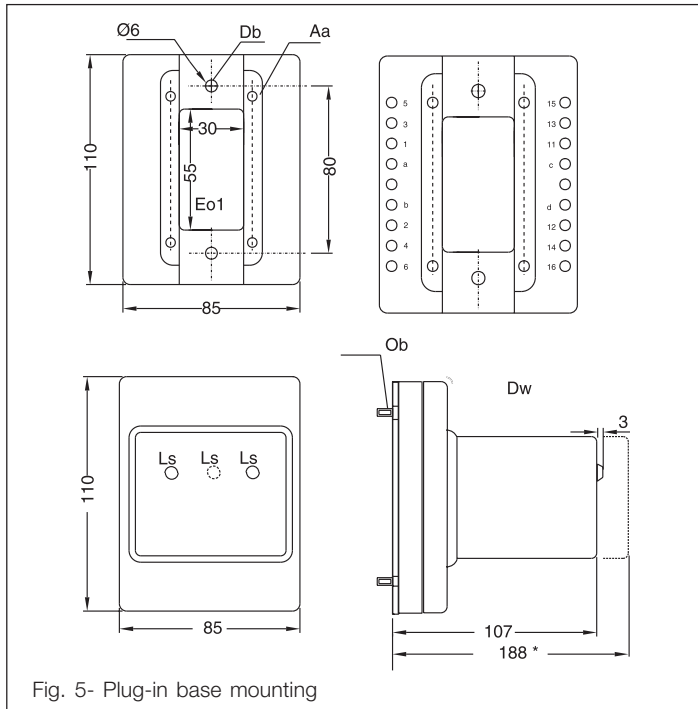


Fig.4- Relay for ac voltage with two elements in 1/2'S' case mounting.

## Dimensions



### Legend

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

## Ordering details

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

Type :	CV2DRM	<input type="checkbox"/>	Qty.....	Item no.....	
	CV2DM	<input type="checkbox"/>	Qty.....	Item no.....	
	CV2DH	<input type="checkbox"/>	Qty.....	Item no.....	
Aux Voltage :	24VDC	<input type="checkbox"/>	Contacts	2N/O + 0N/C	<input type="checkbox"/>
	30VDC	<input type="checkbox"/>		1N/O + 1N/C	<input type="checkbox"/>
	48VDC	<input type="checkbox"/>		4N/O + 0N/C	<input type="checkbox"/>
	110VDC	<input type="checkbox"/>		2N/O + 2N/C	<input type="checkbox"/>
	220VDC	<input type="checkbox"/>		3N/O + 1N/C	<input type="checkbox"/>
	250VDC	<input type="checkbox"/>			

Type :	CV2DRN	<input type="checkbox"/>	Qty.....	Item no.....	
	CV2DN	<input type="checkbox"/>	Qty.....	Item no.....	
Aux Voltage :	24VDC	<input type="checkbox"/>	Contacts	2N/O + 0N/C	<input type="checkbox"/>
	30VDC	<input type="checkbox"/>		1N/O + 1N/C	<input type="checkbox"/>
	48VDC	<input type="checkbox"/>		4N/O + 0N/C	<input type="checkbox"/>
	110VDC	<input type="checkbox"/>		2N/O + 2N/C	<input type="checkbox"/>
	220VDC	<input type="checkbox"/>		3N/O + 1N/C	<input type="checkbox"/>

Type :	CV2DJ	<input type="checkbox"/>	Qty.....	Item no.....	
	CV2AJ	<input type="checkbox"/>	Qty.....	Item no.....	
	CV2D2J	<input type="checkbox"/>	Qty.....	Item no.....	
	CV2A2J	<input type="checkbox"/>	Qty.....	Item no.....	
Aux Voltage :	24VDC	<input type="checkbox"/>	Contacts	2N/O + 0N/C	<input type="checkbox"/>
	30VDC	<input type="checkbox"/>		1N/O + 1N/C	<input type="checkbox"/>
	48VDC	<input type="checkbox"/>		4N/O + 0N/C	<input type="checkbox"/>
	110VDC	<input type="checkbox"/>		2N/O + 2N/C	<input type="checkbox"/>
	220VDC	<input type="checkbox"/>		3N/O + 1N/C	<input type="checkbox"/>
	250VDC	<input type="checkbox"/>			
	24VAC	<input type="checkbox"/>			
	30VAC	<input type="checkbox"/>			
	48VAC	<input type="checkbox"/>			
	110VAC	<input type="checkbox"/>			
	240VAC	<input type="checkbox"/>			



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