

ABF



Type ABF relays are instantaneous all-or-nothing relays with two stable off-positions. They are designed for DC or AC operation.

Change-over from one position to the other is initiated through momentary energising of the corresponding winding.

Maintenance of either position is ensured without current consumption even during continuous application of the energizing voltage.

Prime features of these relays are simplicity of design, robustness in construction and small size.

ABF relays can be incorporated, as position repeaters, in automatic and remote switching systems, with their flag indicator memorising the last inputted control voltage.

Description

Type ABF relays are housed in 45 x 45 type A F enclosures (see data sheet for F enclosures) and are designed for:

- fixed, surface mounting with rear terminals for clip-on or solder connection
- plug-in, surface mounting on F 10 or F 20 sockets

Type ABF relays consist of:

- two cores each equipped with a coil (a) and (b)
- a permanent magnet placed between the two cores. Its flux adds to that set up by coil (a) and deducts from that set up by coil (b)

- a secondary magnetic circuit with fixed gap enables closure of the magnet flux when the main magnetic circuit is open.
- a hinged armature carrying an insulating moulded part which actuates the contact blades. The armature is held in stable state "b" by a restoring spring.
- fixed contacts laid into the moulded baseplate. The fine silver contact surfaces are protected by large insulating partitions.
- a protection diode providing safeguard against accidental reversal of polarity and resultant de-magnetising of the permanent magnet. The diode also supplies AC current for relay energisation. *Relay coils can be energised by DC voltage or AC voltage of the same rms value (5% tolerance).*
- a flag indicator showing the state of the relay. This red-colour flag is visible through two openings marked "a" and "b" on the rating plate. The position of the flag on "a" or "b" identifies the energised coil (a) or (b).

With DC energisation, coils (a) and (b) are controlled by a positive polarity.

Type ABF33 S2 Relays

The construction of type ABF33 S2 relays is identical to that of the types ABF33. They are designed exclusively for DC operation and are used when coils (a) and (b) are to be controlled by a negative polarity.

Operation (see diagram below)

Stable state "a": coil "a" is energised. The armature pulled against the core, channels the total flux developed by the permanent magnet which generates a pulling force in excess of that of the restoring spring; the armature remains in the pulled-in position.

Energising of coil (b): The flux developed by coil (b) subtracts from that of the magnet. The resultant pulling force is less than that of the restoring spring and the plate "releases".

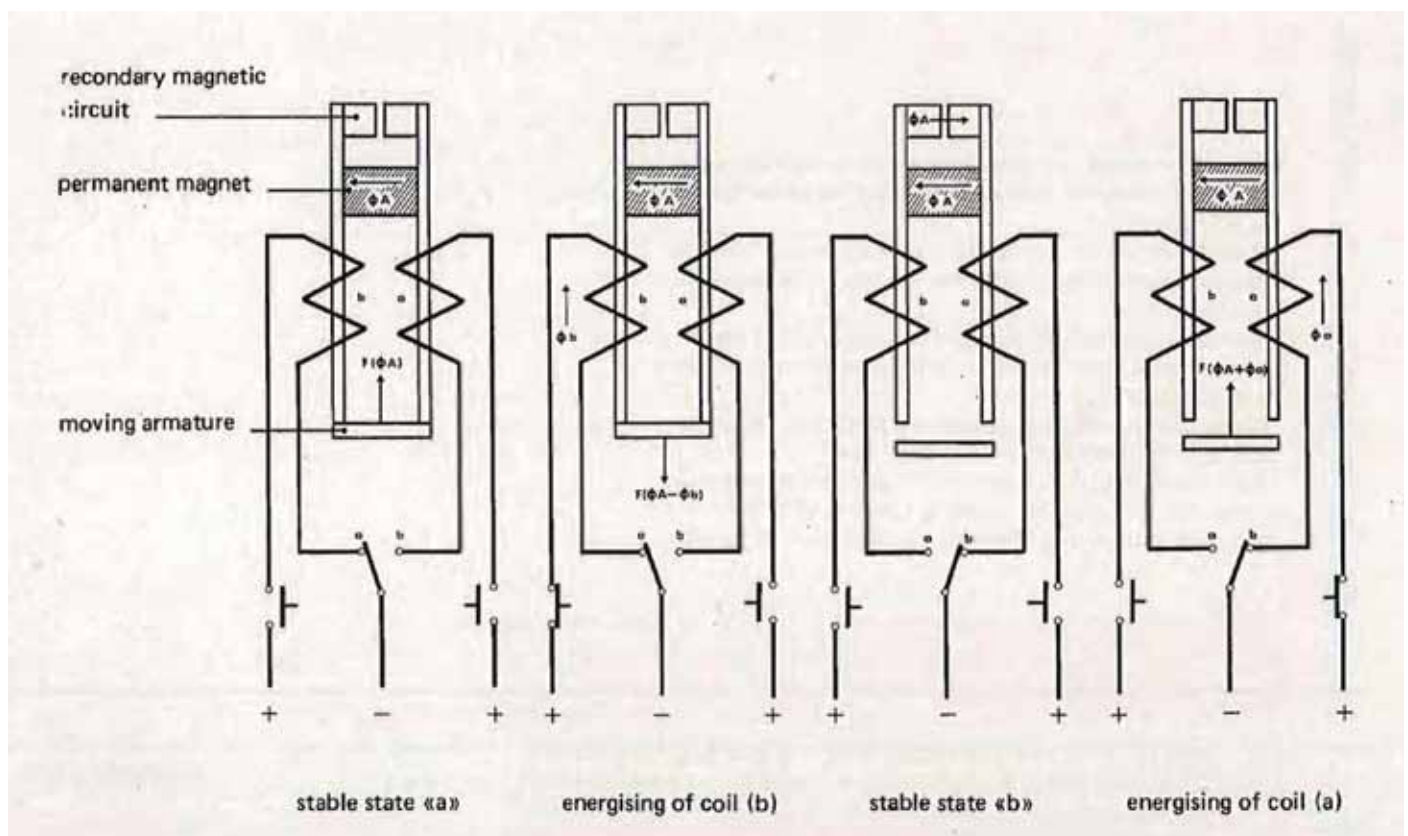
Stable state "b": the gap between the plate and the cores is wider than that of the secondary magnetic circuit. The magnet flux now closes through the secondary circuit and the plate is held in the "released" position by the restoring spring.

Energising of coil (a): The flux generated by coil (a) adds to that of the magnet. The resultant force is higher than that of the restoring spring. The plate is pulled-in and the relay returns to stable state "a".

Type ABF33 Relays

Type ABF33 relays incorporate three DT contact circuits. A fourth circuit provides electrical latching on completion of each operation, thereby preventing sustained current consumption when the control voltage is continuously applied.

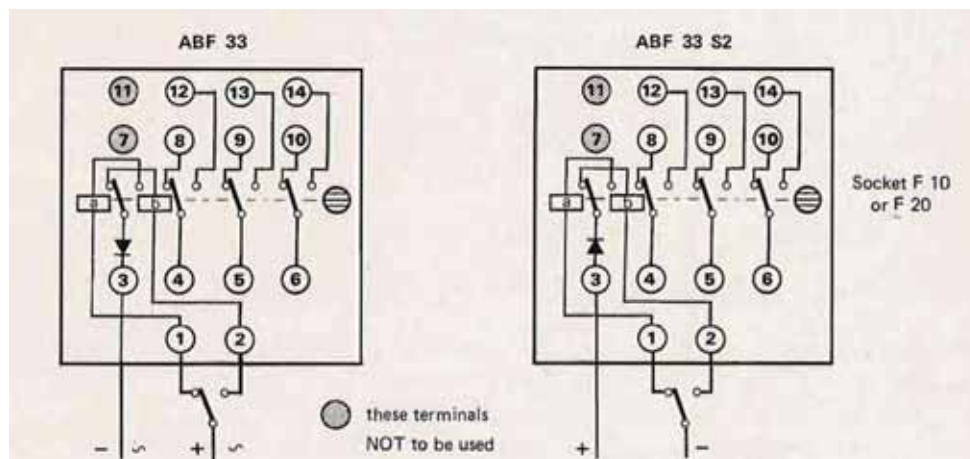
Caution: simultaneous energising of coils (a) and (b) will induce heavy chattering and cause terminal damage to the relays.



Specifications

DC operation Nominal voltage Nv - volts Operating voltage range- volts	6 5-7	12 9-13	24 19-26	48 38-53	60 48-66	110 88-121	125 100-137	220 176-242	250 200-275
AC operation Nominal voltage Nv - volts Operating voltage range - volts	24 20-27	48 41-53	58 49-64	63,5 54-72	100 85-110	110 93-121	127 108-140	220 187-242	240 204-264
Nominal power consumption at Nv	Power consumption limited to change-over time coil (a) 16 to 20 W or VA - coil (b) 5 to 7 W or VA								
Current carrying capacity	Continuous operation: 10 A Short-term operation: 250 A/30 ms								
Breaking capacity	D.C Resistive circuit			D.C L/R circuit = 40 ms			AC os $\phi = 0.4$ *		
	24 V	125 V	220 V	24 V	125 V	220 V	24 V	127 V	220 V
	10 A	1 A	0.6 A	10 A	0.8 A	0.4 A	10 A	7 A	7 A
* Single-contact breaking, single-phase operation									
Minimum duration of control voltage at Nv	DC: coil "a" 12 ms - coil "b" 8 ms AC: coil "a" 22 ms - coil "b" 18 ms								
Contact operating time DC energizing at Nv				n.o. contact make time			n.c. contact break time		
	change-over from state "a" to "b"			20 ms			8 ms		
	change-over from state "b" to "a"			25 ms			5 ms		
Dielectric test across terminals and ground	2,000 V 50 Hz during 1 min								
Weight	240 g								
Climatic conditions	In accordance with CEI-68-1 publication (cat. 25/070/10)								

DIAGRAMS: relays viewed from front in position "a"



Information required when ordering:

- Type: ABF33 - ABF33 S2
- Energising voltage: DC or AC
- Configuration: Relays - fixed (C) or plug-in (BR)
- Sockets - type F10 front terminals: screw (AV) or tags (AVC)
rear terminals: screw (AR) or single tags (ARC)
- type F20 rear terminals with twin tags (ARC)
- Accessories: bracket, plug-in guard,...see data sheet F

The specifications and drawings given are subject to change and are not binding unless confirmed by our specialists.