

AR Factsheet

Multi-contact auxiliary Relay

Features

- Consistent positive action
- Robust design for a long, reliable, service life

Description

Type AR relays are a range of electro-mechanical relays with up to 8 contacts and complying to BS142. They can be supplied in most combinations of contact, flag and reset arrangements and with a fixed time delay. Heavy duty contacts are available on most models.

The relays are identified by a series of numbers and letters which define important relay features as follows:

First digit	Second digit Type of flag	Third digit Type of contact reset
Number of identical elements	0 No flag	1 Self reset
	1 Hand reset flag	2 Hand reset
	2 Hand reset reverse acting	3 Electrical & hand
	3 Self reset flag	4 Hand & self
	4 Self reset reverse acting	6 Electrical reset

Suffix letters are used to identify further features:

Suffix D – indicates a relay fitted with a suppression diode across the coil to reduce the effects of the back emf which occurs on switch-off.

Suffix SB – identifies a relay with a series break contact to cut-off the operating coil, thus the relay burden becomes zero after operation of this contact. Only available with AR relays which have hand reset contacts.

Type	Number of Contacts	Flag Reset	Contact Reset
AR101	2, 4, 6 or 8	--	Self
AR103	4, 6 or 8	--	Elec & Hand
AR111	2, 4, 6 or 8	Hand	Self
AR112	2, 4, 6 or 8	Hand	Hand
AR113	4, 6 or 8	Hand	Elec & Hand
AR114	4 or 6	Hand	Hand & Self
AR121	2, 4, 6 or 8	Hand*	Self
AR124	4 or 6	Hand*	Hand & Self
AR131	2, 4 or 6	Self	Self
AR133	2, 4 or 6	Self	Elec & Hand
AR141	2, 4 or 6	Self*	Self
AR101T	2, 4 or 6	--	Self
AR111T	2, 4 or 6	Hand	Self
AR112T	2, 4 or 6	Hand	Hand
AR121T	2, 4 or 6	Hand*	Self
AR131T	2 or 4	Self	Self
AR141T	2 or 4	Self*	Self

Table 1. Model range. *indicates a reverse acting flag (indication on de-energisation)



Suffix T – identifies time delayed relays. The reference is completed by adding a code number, see operating time.

The following comments are provided as a guide to the various features of type AR relays.

AR—1 Up to 7 self reset contacts, flag follows contact operation, in any combination of normally open or normally closed as required.

AR—2 Up to 8 self reset contacts, flag follows contact operation, in any combination of normally open or normally closed as required.

AR—3 Electrical and hand set contacts supplied with a contact reset mechanism in the relay case cover.

AR—4 Hand and self reset contacts, can be supplied with 2 hand reset contacts and a maximum of 4 self reset contacts. All the contacts may be either normally open or normally closed.

AR – 3 & 6 Reset coils are short time rated, we recommend that reset circuits include a normally open (cut-off) contact.

Technical information

Rated voltage Vn Standard ratings:
12V, 24V, 30V, 50V, 125V, 240VAa.c.
63.5V, 110V, 220V, 240Vd.c.

Time delay relays are available for d.c. voltages.

Operating range D.C. 70% to 115% of rated voltage.
A.C. 80% to 110% of rated voltage.

Burden

Burden is 3 to 5WVA depending upon the rating. In case of rectified a.c. relays the power factor is nominally 0.96.

Operating time -Instantaneous operation
 Operating times can vary depending upon the number and configuration of the contacts and flag arrangement, typically 25ms at rated voltage, and a range of between 10ms and 50ms.
 -Time delay operation

Time delay relays, maximum numbers of contacts				
Delay on de-energisation				
Suffix	Nominal time	AR101T, AR111T, AR112T, AR121T	AR 131T	AR 141T
T1	up to 100ms	6	4	4
T2	101 to 200ms	6	4	4
T3	201 to 300ms	4	2	2
T4	301 to 400ms	2	NA	NA
Delay on energisation				
T6	50ms max	6	6	4

Delays are set at nominal voltage and within the range of 80% to 100% of nominal time.

Type	Number of Contacts	Maximum number of elements per case								Surface Mounting
		Modular		Vedette		Plug-in		Fixed		
		2	4	2/3V	1V	12	13	1a	1c	
AR*01	2	2	NA	3	6	1	1	-	-	1
	4	1	2	3	3	1	1	1	1	1
	6	1	2	2	3	-	-	-	1	1
AR*11 AR*21	2	2	NA	3	6	1	-	-	-	-
	4	1	2	3	3	1	-	1	1	-
	6	1	2	2	3	-	-	-	1	-
AR*03 AR*12	4	1	2	2	2	-	-	1	1	-
	8	1	2	-	2	-	-	-	-	-
	2	2	NA	3	6	1	-	-	-	-
AR*31 AR*41	4	1	2	3	3	1	-	1	1	-
	6	1	2	3	3	-	-	-	1	-
	4	1	2	2	2	-	-	-	-	-
AR*13 AR*33	4	1	2	2	2	-	-	-	-	-
	6	1	2	2	2	-	-	-	-	-
AR*14 AR*24	4	1	2	2	2	1	-	1	1	-
	6	1	2	2	2	-	-	-	-	-

*number of elements

Table 2. A guide to relay case accommodation

Contact arrangements

Normal duty contact Ratings
 Make and carry continuously:
 1250VA a.c. or 1250W d.c. with limits of 660V and 5A
 Make and carry for 3 seconds:
 7500VA a.c. or 7500W d.c. with limits of 660V and 30A
 Break:
 1250VA a.c. or 100W resistive d.c. or 50W inductive (L/R = 0.04) d.c. with limits of 250V and 5A
 Maximum rate of operation, 600 per hour.
 Heavy duty contacts
 Heavy duty contacts are available for d.c. circuits, contact ratings and break duty curves are available on request.
 Thermal withstand 1.15Vn continuously.
 Not less than 13Vn for 10 seconds

Environmental

Temperature IEC 68-2 and BS2011(1977)
 Operating -10°C to +55°C
 Storage -25°C to +70°C
 Humidity IEC 68-2-3 56 days at 95% RH and +40°C
 Vibration IEC 255-21-1

Shock and bump IEC 255-21-2

Relays meet the requirements with respect to shock and bump testing for class 1 severity.

Operational/Mechanical life

Relays will withstand in excess of 10,000 operations

Insulation IEC 255-5

Relays will withstand: 5kV 1.2/50µs waveform as IEC255-4 Appendix E 2kV rms 50HZ for 1 minute (2.5kV for 1s) between all terminals and earth. 1kV rms 50HZ for 1 minute across normally open contacts to IEC255-5 and BS142

Ordering information

Relay type. Case style and size. Contact arrangement. Coil voltage.

Qualifications

BS5750 Part 1. ISO 9001

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