

Earth leakage protective relays

■ Description

In the earth leakage relay the breaking mechanism is omitted from the ELCB, and the ZCT and earth leakage tripping device are integrated into a common body. These relays are available in both instantaneous and time-delay versions. Generally these relays are used in conjunction with MCCB's, ACB's and motor starters.

Relay and sensor–Unit type

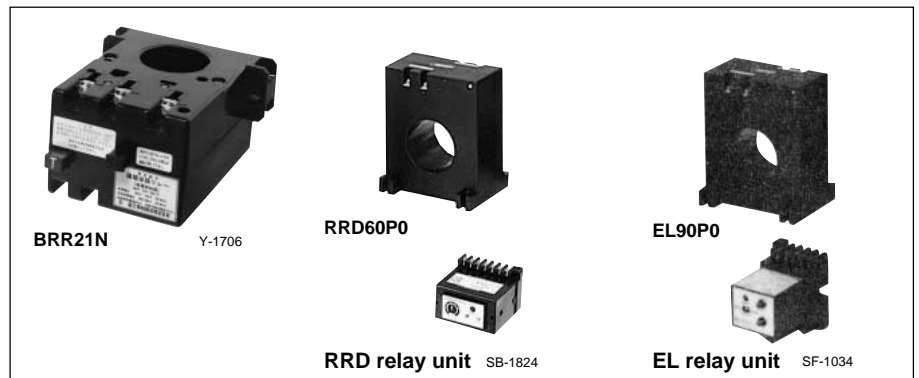
BRR/Pass-through type

- Instantaneous trip
- Solid-state tripping device
- Sensitive current: 30, 100, 200mA
500mA
- Control voltage: Up to 415V AC

Relay and sensor–Separate type

RRD/Pass-through type

- Time-delay trip
- Solid-state tripping device
- Sensitive current: 100/200, 200/500mA
500/1000mA
- Control voltage: Up to 415V AC



EL/Pass-through type

- Instantaneous or time-delay trip
- Solid-state tripping device
- Sensitive current:
30, 100/200, 200/500mA
500/1000mA
- Control voltage: Up to 415V AC
- Easily modified from front mounting
to flush mounting

■ Selection guide

● BRR(Unit type)/Solid-state tripping device

Type	BRR01N	BRR09N	BRR11N	BRR19N	BRR21N	BRR29N	BRR22N	BRR25N
Sensor hole (mm)	ø10		ø25		ø40			
Main circuit voltage (V AC)	Max. 600							
Control voltage * (V AC)	120, 240		120, 240		120, 240, 415			
Rated sensitive current (mA)	30	100	30	100	30	100	200	500
Mass (kg)	0.12		0.2		0.52			

Type	BRR42H	BRR45H
No. of poles	2, 3, 4	
Main circuit voltage (V AC)	Max. 600	
Rated current (A)	400	
Control voltage * (V AC)	120, 240, 415	
Rated sensitive current (mA)	200	500
Mass (kg)	2-pole: 3.0, 3-pole: 3.3, 4-pole: 3.6	

● RRD(Separate type)/Solid-state tripping device

Type	RRD6AZ□		RRD8AZ□		RRD10AZ□		RRD12AZ□		RRD25P0	RRD40P0	RRD60P0	RRD90P0	RRD120P0
No. of poles or sensor hole (mm)	3	4	3	4	3	4	3	4	ø25	ø40	ø60	ø90	ø120
Main circuit voltage (V AC)	Max. 600								Max. 600				
Rated current (A)	600		800		1000		1200		–				
Control voltage * (V AC)	120, 240, 415								120, 240, 415				
Rated sensitive current (mA)	100/200, 200/500, 500/1000								100/200, 200/500, 500/1000				
Time-delay type	0.2 to 2 sec. adjustable												
Mass/Relay+Sensor (kg)	8.1	12.0	9.3	14.6	12.0	16.0	15.7	25.4	0.7	1.2	1.8	2.6	7.0

Note: * 100/110V or 200/220V is available.

Earth Leakage Protective Relays BRR, RRD, and EL types

■ Selection guide

● EL (Separate type)/Solid-state tripping device

Type	EL25P0	EL40P0	EL60P0	EL90P0	EL120P0
Sensor hole (mm)	ø25	ø40	ø60	ø90	ø120
Main circuit voltage (V AC)	Max. 600				
Control voltage (V AC)	100/200, 120/240, 415				
Rated sensitive current (mA)	Instantaneous	30, 100/200, 200/500 500/1000		100/200, 200/500 500/1000	
	Time-delay type	100/200, 200/500, 500/100 (Tripping time: 0.3 or 0.8 sec. fixed)			
Mass/Relay+Sensor (kg)	0.3	0.85	1.45	2.25	6.6

■ Auxiliary contact ratings

Type	Contact arrangement	Thermal current	Making current	Breaking current (cos ϕ =0.3–0.4) (L/R=7ms)			
				415V AC	240V AC	120V AC	24V DC
BRR01N, 09N 11N, 19N	1NO * SPDT	3A 3A	10A (at 240V AC)	– –	1A 1A	1A 1A	– –
BRR21N, 29N, 22N, 25N BRR42H, 45H	SPDT	5A	10A (at 240V AC)	2.5A	5A	5A	2A
EL 120/240V AC 415V AC	SPDT 1NO	5A 3A	10A 6A	– 2A	3A 3A	3A 3A	2A 2A
RRD 120/240V AC 415V AC	2PDT SPDT	5A 5A	10A 6A	– 2.5A	3A 3A	3A 3A	2A 2A

Note: * Also available with SPDT contact.

■ Type number nomenclature, BRR unit type

BRR 2 1 N-0 24 S

Protection

S : Without enclosure (standard)

Control voltage (AC)

1 : 100/110V 12 : 120V
2 : 200/220V 2 : 240V
4 : 415V

Poles

N-0 : Pass-through type
H-2 : 2-pole with conductor and terminal assembly
H-3 : 3-pole with conductor and terminal assembly
H-4 : 4-pole with conductor and terminal assembly

Sensitive current

1 : 30mA
9 : 100mA
2 : 200mA
5 : 500mA

Rated current

0 : Pass-through type ø10
1 : Pass-through type ø25
2 : Pass-through type ø40
4 : 400A

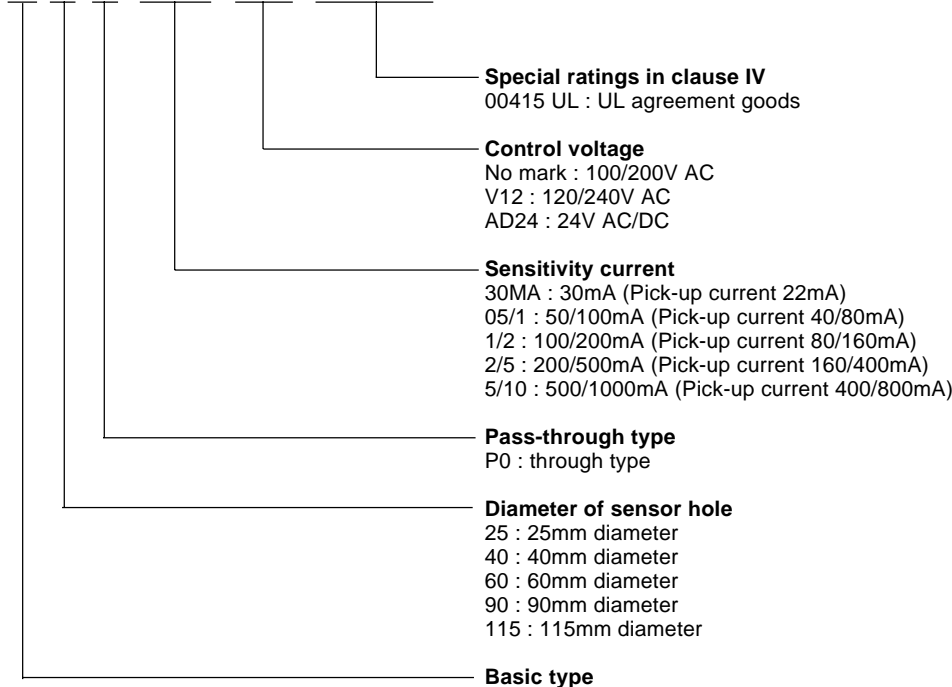
Basic type

■ Specifications/EL type, UL 1053 recognized [UL File No. E176596]

Series	Sensor hole (mm)	Rated sensitive current (mA)	Control voltage	Tripping time (sec)	Type		
					24 VAC/DC Control	100/200 VAC Control	120/240 VAC Control
EL	ø25	30 50/100 100/200 200/500 500/1000	24 VAC/DC 100/200 VAC 120/240 VAC	0.1	EL25P0-30MA-AD24-00415UL	EL25P0-30MA-00415UL	EL25P0-30MA-V12-00415UL
					EL25P0-05/1-AD24-00415UL	EL25P0-05/1-00415UL	EL25P0-05/1-V12-00415UL
					EL25P0-1/2-AD24-00415UL	EL25P0-1/2-00415UL	EL25P0-1/2-V12-00415UL
					EL25P0-2/5-AD24-00415UL	EL25P0-2/5-00415UL	EL25P0-2/5-V12-00415UL
					EL25P0-5/10-AD24-00415UL	EL25P0-5/10-00415UL	EL25P0-5/10-V12-00415UL
	ø40	30 50/100 100/200 200/500 500/1000			EL40P0-30MA-AD24-00415UL	EL40P0-30MA-00415UL	EL40P0-30MA-V12-00415UL
					EL40P0-05/1-AD24-00415UL	EL40P0-05/1-00415UL	EL40P0-05/1-V12-00415UL
					EL40P0-1/2-AD24-00415UL	EL40P0-1/2-00415UL	EL40P0-1/2-V12-00415UL
					EL40P0-2/5-AD24-00415UL	EL40P0-2/5-00415UL	EL40P0-2/5-V12-00415UL
					EL40P0-5/10-AD24-00415UL	EL40P0-5/10-00415UL	EL40P0-5/10-V12-00415UL
	ø60	30 50/100 100/200 200/500 500/1000			EL60P0-30MA-AD24-00415UL	EL60P0-30MA-00415UL	EL60P0-30MA-V12-00415UL
					EL60P0-05/1-AD24-00415UL	EL60P0-05/1-00415UL	EL60P0-05/1-V12-00415UL
					EL60P0-1/2-AD24-00415UL	EL60P0-1/2-00415UL	EL60P0-1/2-V12-00415UL
					EL60P0-2/5-AD24-00415UL	EL60P0-2/5-00415UL	EL60P0-2/5-V12-00415UL
					EL60P0-5/10-AD24-00415UL	EL60P0-5/10-00415UL	EL60P0-5/10-V12-00415UL
	ø90	30 50/100 100/200 200/500 500/1000			EL90P0-30MA-AD24-00415UL	EL90P0-30MA-00415UL	EL90P0-30MA-V12-00415UL
					EL90P0-05/1-AD24-00415UL	EL90P0-05/1-00415UL	EL90P0-05/1-V12-00415UL
					EL90P0-1/2-AD24-00415UL	EL90P0-1/2-00415UL	EL90P0-1/2-V12-00415UL
					EL90P0-2/5-AD24-00415UL	EL90P0-2/5-00415UL	EL90P0-2/5-V12-00415UL
					EL90P0-5/10-AD24-00415UL	EL90P0-5/10-00415UL	EL90P0-5/10-V12-00415UL
	ø115	30 50/100 100/200 200/500 500/1000			EL115P0-30MA-AD24-00415UL	EL115P0-30MA-00415UL	EL115P0-30MA-V12-00415UL
					EL115P0-05/1-AD24-00415UL	EL115P0-05/1-00415UL	EL115P0-05/1-V12-00415UL
					EL115P0-1/2-AD24-00415UL	EL115P0-1/2-00415UL	EL115P0-1/2-V12-00415UL
					EL115P0-2/5-AD24-00415UL	EL115P0-2/5-00415UL	EL115P0-2/5-V12-00415UL
					EL115P0-5/10-AD24-00415UL	EL115P0-5/10-00415UL	EL115P0-5/10-V12-00415UL

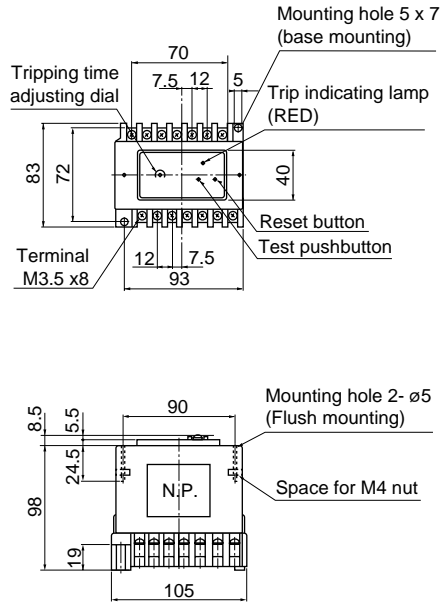
● Type number nomenclature, EL type, UL 1053 recognized

EL 25 P0 - 30MA - AD24 - 00415 UL

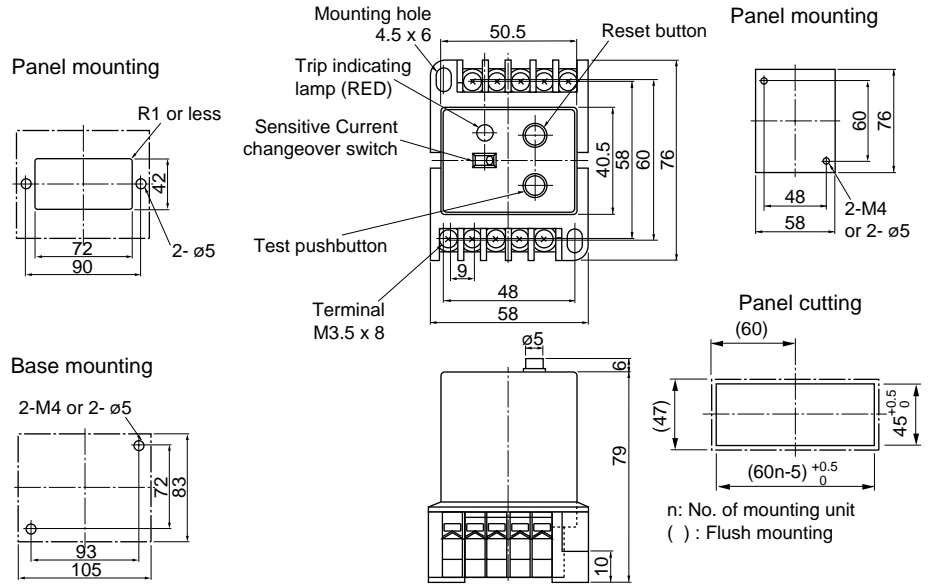


Earth Leakage Protective Relays RRD and EL types

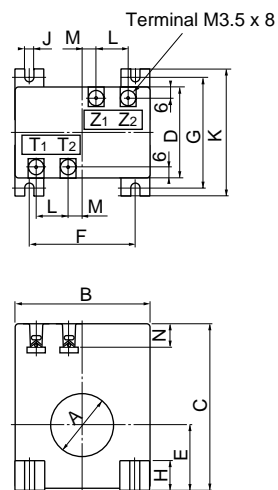
■ Dimensions, mm Relay RRD type



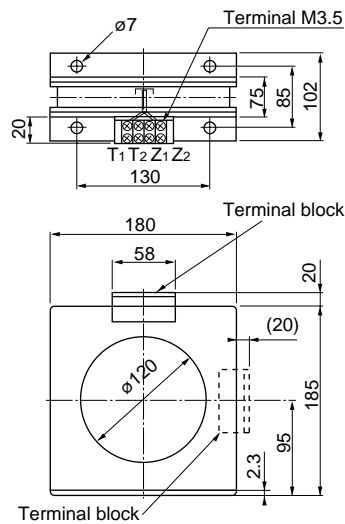
Relay EL type



Sensors RRD25, 40, 60, 90P0 EL25, 40, 60, 90P0

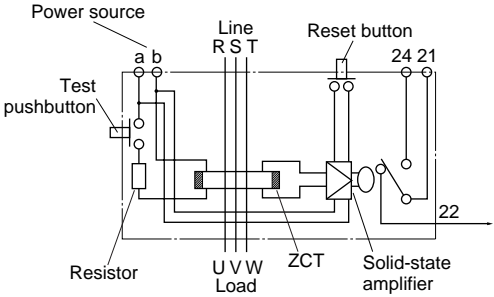


RRD120, EL120P0

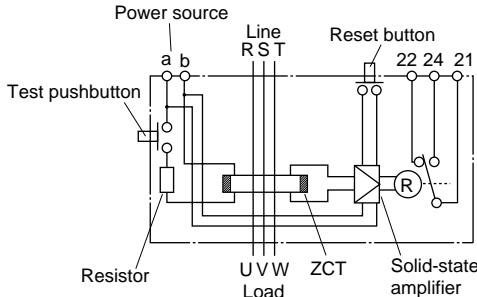


Type	A	B	C	D	E	F	G	H	J	K	L	M	N
RRD25	$\phi 25$	55	72	29	28	40	42	10	5	54	13	7	7
EL25	$\phi 25$	55	72	29	28	40	42	10	5	54	13	7	7
RRD40	$\phi 40$	90	115	62	45	70	75	18	5	90	22	8	18
EL40	$\phi 40$	90	115	62	45	70	75	18	5	90	22	8	18
RRD60	$\phi 60$	120	145	62	60	100	75	18	6	90	22	8	18
EL60	$\phi 60$	120	145	62	60	100	75	18	6	90	22	8	18
RRD90	$\phi 90$	160	185	66	80	125	88	22	7	110	22	8	18
EL90	$\phi 90$	160	185	66	80	125	88	22	7	110	22	8	18

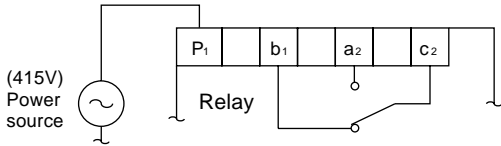
■ Wiring diagrams
BRR01N, 09N



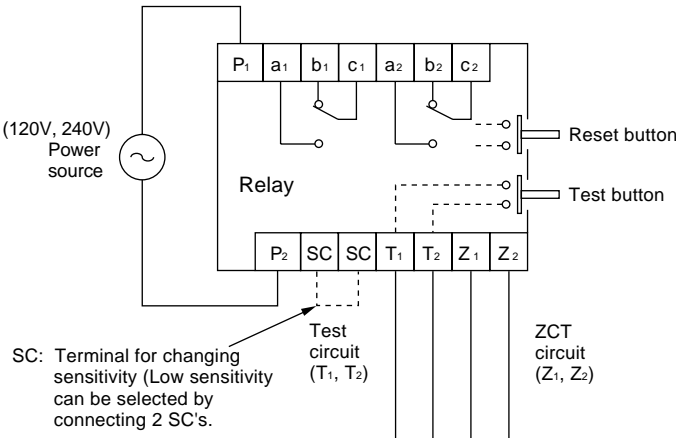
BRR11N, 19N, 21N, 29N, 22N, 23N, 25N
BRR42H, 45H



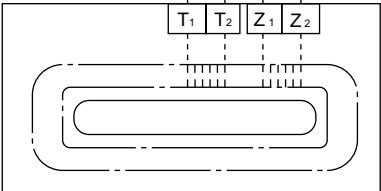
RRD type
● Where SPDT is selected.



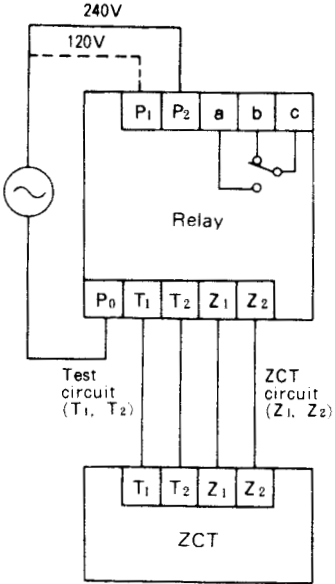
● Where 2PDT is selected.



Sensor



EL type
100/200V, 120/240V



415V

