Reyrolle
Protection
Devices

7PG221 – BD

Surgeproof Intertrip

Answers for energy

SIEMENS

7PG221 – BD

Surgeproof Intertrip

Description

The BD relay consists of two component units, the relay unit and the filter unit. The filter unit contains inductors, capacitors, and setting resistors encapsulated in a thermo-setting resin. The relay comprises a moving coil element insulated for either 5kV or 15kV, and an attracted armature repeat relay with a hand reset flag. Limiting devices are connected across the moving coil to by-pass the initial and final peak switching surges

Applications

For the tripping of remote circuit breakers in an inter-connected power system where the fault current may be fed from more than one source.

Following fault detection and operation of the local circuit breaker, a d.c. trip signal is transmitted via pilot cables to the BD intertrip receive relay. These trip the remote circuit breaker in order to completely isolate the fault.

Very high voltages may be induced in the pilots, especially during heavy fault conditions, and the relay must remain inoperative to all but the correct trip signal. The BD relay caters for transverse voltages up to 5kV rms and longitudinal voltages of up to 5kV or 15kV. Its operating time is unaf-fected by induced voltages which may be present at the time of applying the intertrip signal. Any type of pilot cable can be used, but the maximum loop resistance should not ex-ceed 1,000 ohms.

Multi-ended intertripping schemes

Multi-ended intertripping schemes often occur in practice and type BD surge proof relays are suitable for such applica-tions. In order to achieve optimum performance they should be operated as near as is reasonably possible to their design parameters. To obtain this two main requirements should be fulfilled.

A.C. Requirements - These surge proof relays have been designed to remain stable with induced voltages of up to 5kV in pilot wires having a loop resistance not exceeding approximately 1,000ohms. It is therefore recommended that the loop resistance of the pilots between any two feeder ends, between which induced pilot voltages are expected, should be maintained within the range of 500 to 1,000ohms. When determining the loop resistance the pilots at the remote end are assumed to be short circuited. If the loop resistance obtained is less than 500ohms, the resistor in the filter unit, at the end being considered, may be used to make the effective loop resistance greater than 500ohms.

D.C. Requirements - In order to ensure satisfactory operation of the BD relays at all receiving ends, the d.c. currents in each receiving end relay should preferably be equal to or in excess of 12mA. The d.c. resistance of the type BD relays, as seen from the pilots across terminals (P3, R2) is about 3,000ohms. Using this value the minimum d.c. intertrip voltage required at the sending ends can be estimated.

Technical information

Auxiliary voltage (for repeat relay)
30V, 50V, 60V, 125V, 210/220V, 240Vd.c.

Operating voltage (over pilots)
Rated voltage 50Vd.c.

The relay will operate over a voltage range of 25V to 250V.

Contract arrangements

5kV Models	2 changeover 4 contacts	1V case 1V case
15kV Models	5 contacts 6 contacts	11/2 case 11/2V cae
Indication	Hand reset flag	

Make and carry continuously:- 1500VA a.c. or 1500W d.c. within the limits of 660V and 3A. Make and carry 8A for 3 seconds or 16A for 1 second.
Break:- 300VA a.c. or 75W d.c. (inductive L/R = 0.04) within the limits of 250V and 5A.

Pilot resistance

Two resistors are provided in the filter unit to adjust the pilot resistance. Terminals allow the selection of 200, 400, and 600ohms

Mounting

5kV relay may be flush or projecting mounted, however the 15kV relay, to maintain the electrical clearances, must be flush mounted. The filter unit is suitable for surface mounting on switchgear, inside control cubicles, or on a wall.

Ordering information – 7PG22 BD

Product description	Variants	Order No.
BD		**7 P G 2 2 □ □ - □ □ □ □ □ □ - □ □ □ □**
Surgeproof intertrip receive relay (5kV).		
	Relay type	
	BD - Surgeproof intertrip receive	**1**
	Model type	
	5kV with 2 C/O	**1**
	5kV with 2NO2NC or 4NO	**2**
	5kV with 4NO2NC or 6NO	**3**
	Type of flag	
	Hand reset flag	**1**
	Contact arrangement – NO	
	0 NO	**A**
	2 NO	**C**
	4 NO	**E**
	6 NO	**G**
	Contact arrangement NC	
	0 NC	**A**
	2 NC	**C**
	Number of contacts [2])	
	Two	**2**
	Four	**4**
	Six	**6**
	Contact type	
	NO (Standard) / NC (Standard)	**0**
	C/O (Standard)	**1**
	Insulation level	
	5kV	**1**
	Housing size	
	Case size C1 Vedette	**U**
	Case size C1 1/2 Vedette	**W**
	Rating	
	30V DC	**B**
	50V DC	**C**
	60V DC	**D**
	125V DC	**E**
	240V DC	**F**
	Filter unit [1])	
	Not supplied	**0**

1) For filter unit please order the following:
Cubicle mounted filter unit – VCE:410A11245, Price €3200

2) Number of contacts must match selected contact arrangement

Ordering information – 7PG22 BD

Product description	Variants	Order No.
BD		**7 P G 2 2 □ □ - □ □ □ □ □ □ - □ □ □ □**
Surgeproof intertrip receive relay (15kV).		
	Relay type	
	BD - Surgeproof intertrip receive	**1**
	Model type	
	15kV with 3NO2NC or 5NO	**4** **5**
	15kV with 4NO2NC or 6NO	**5** **6**
	Type of flag	
	Hand reset flag	**1**
	Contact arrangement – NO	
	3 NO	**D**
	4 NO	**E**
	5 NO	**F**
	6 NO	**G**
	Contact arrangement NC	
	0 NC	**A**
	2 NC	**C**
	Number of contacts [2])	
	Five	**5**
	Six	**6**
	Contact type	
	NO (Standard) / NC (Standard)	**0**
	Insulation level	
	15kV	**2**
	Housing size	
	Case size C1 1/2 Vedette	**W**
	Rating	
	30V DC	**B**
	50V DC	**C**
	60V DC	**D**
	125V DC	**E**
	240V DC	**F**
	Filter unit [1])	
	Not supplied	**0**

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[2]) Number of contacts must match selected contact arrangemen

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