



Powering Innovation



PROTECTION + AUTOMATION + CONTROL

THREE POLE, DIFFERENTIAL PROTECTION RELAY JRD 013

JVS ELECTRONICS PVT. LTD.

#121, Manchanayakanahalli,
Bangalore Mysore Highway, Bidadi,
Ramanagara District - 562 109, Karnataka, India
+91 94808 26272, +91 94808 26260
bangalore@jvselectronics.in, www.jvselectronics.in

FEATURES

- ◆ Software based design
- ◆ Very sensitive and wide setting range
- ◆ Insensitive to currents at harmonic frequencies
- ◆ Trip test facility

APPLICATION

Restricted earth fault protection of transformers, generators and motors differential protection of bus bars, motors and generators.



PRINCIPLE OF OPERATION

The Relay JRD 013 are current operated Microprocessor based, Three pole, Differential Protection Relay which work on the high impedance principle. An external series stabilizing resistor is used with this relay to make it a voltage operated relay. The voltage setting of the relay is adjusted to be higher than that developed by the current transformers used for maximum external fault conditions.

The sensing current is converted to voltage by an internal resistor and this voltage is fed to a harmonic network which is tuned to fundamental frequency. The output of filter is fed to voltage comparator. When the sensing current signal at the fundamental frequency exceeds the set value, the comparator gates a train of pulses to the processor. The program residing in the CPU performs the function of control and also gives output signals for relay and LED driver circuits. The operation of the relay is indicated by the glowing of a 'Red' LED, which has to be reset manually by means of a 'RESET' push button provided on the front of the relay. A 'Trip Test' push button is also provided in the relay to enable testing of the trip and alarm circuits. When this push button is pressed, the output element of the relay is energized and its contacts close to energize the trip and alarm circuits.

The relay will not operated at third harmonic currents upto 25 times the setting.

TECHNICAL DATA

RATING

Current rating	: 1A/5A
Auxiliary supply	: 20 to 60V DC
	: 75 to 150V DC
	: 175 to 300V DC/185-250V AC

SETTINGS

Operating value	: 2.5 to 80% in steps of 2.5%
-----------------	-------------------------------

IMPEDENCE

1A rated	: 200 milli Ohms
5A rated	: 20 milli Ohms

EXTERNAL STABILIZING RESISTORS

1A rated	:	0 – 600 Ohms 100W adjustable
5A rated	:	0 – 100 Ohms 100W adjustable

OVER LOAD RATINGS

Current input	:	2 times rated continuously
	:	20 times rated for 3s

BURDEN

Input voltage	:	Less than 0.2VA at Rated 1A
	:	Less than 0.5VA at rated 5A
Auxiliary supply	:	Less than 3W(Non operated)
	:	Less than 5W(Operated)

ACCURACY

Operating value	:	+/- 5%
Operating time	:	+/- 5% or +/- 30ms

CONTACT RATINGS

Rating	:	10A at 24V DC/230V AC
--------	---	-----------------------

CONTACT DURABILITY

Unloaded contact	:	20,000 Operations
Loaded contacts	:	10,000 Operations

INSULATION

1. 2KV RMS, 50 Hz for 1 minute/ 2.5KV FOR 1 sec. Between all terminals and cases
2. 1KV RMS, 50 Hz for 1 minute across open terminals

STANDARD COMPLIANCE

Accuracy test	:	IEC 60255-151
Insulation test	:	IEC 60255-27

MECHANICAL DESIGN

Weight	:	Less than 1500 gms
Case size	:	144 sq mm with depth of 117 mm
Installation	:	Flush mounting
Panel cutout	:	138 X 138 mm

ORDERING INFORMATION

Relay Type	:	JRD 013
Rated Current	:	1A/ 5A
Auxiliary supply	:	20 to 60V DC
	:	75 to 159V DC
	:	175 to 300V DC/185-250V AC