Reyrolle
Protection
Devices

7PG17 – XR 151/2/3

Supervision Relays

Answers for energy

SIEMENS

7PG17– XR151/2/3

Supervision Relays

Description

Supervision relays XR151, 152 & 153 are attracted armature relays developed from the AR series:

XR151 Trip relay supervision - Hand or Self reset flag.
XR152 Protection supply supervision - Self reset flag
XR153 Protection supply supervision - Hand reset flag

Safety

The commissioning and future maintenance of this equipment should only be carried out by skilled personnel trained in protective relay operation and capable of observing all the necessary safety precautions and regulations appropriate to this equipment and also the associated primary plant.

Equipment should be isolated from auxiliary supplies and the circuit breaker trip circuit prior to commencing any work on an installed product.

Unpacking, handling & storage

On receipt unpack the relay and inspect for any obvious damage.

If damage has been sustained a claim should immediately be made against the carrier, also inform Siemens Protection Devices Limited.

When not immediately required return the relay to its carton and store in a clean, dry place.

Preliminary Tests

Check that the relay operating voltage is correct for the auxiliary voltage to be used. In some instances relays are to be used with the coil in series with a voltage dropper resistor, this is advised on our Order Acknowledgement and shown on the relay label as "+Ext R", suitable resistors are supplied with the relay, ensure that such resistors are mounted vertical, are secure and wired to the correct relay coil.

If the relay is wired into the circuit isolate from the auxiliary supply by removing fuses and links as necessary.

Physically check the wiring to the relay terminals for security and that is correct to the circuit schematic/wiring diagrams.

Insulation Tests

Using a 500V insulation test set:

a) Connect all relay terminals together and measure the resistance to earth

b) Connect the d.c. input terminals together and measure the resistance between these terminals and all other terminals connected together and to earth.

c) Connect the relay output contacts together and measure the resistance between these terminals and all other terminals connected together including earth.

A value of 2.5 to 3.0 megohms obtained from the above tests is considered satisfactory, a value of less than 1.0 megaohm is not satisfactory and the cause of such a low reading should be determined and corrected.

Mechanical Settings

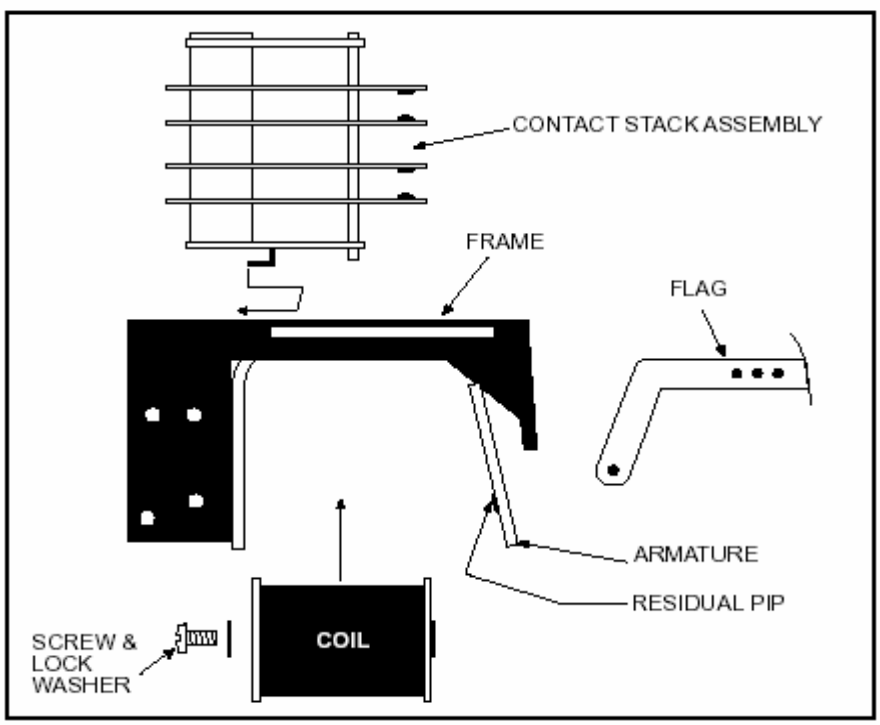
It should not be necessary to adjust settings during routine tests unless parts have been replaced or other repairs carried out. Adjustment of one setting will often influence another, therefore all settings must be checked after the final adjustment.

The table of Mechanical Settings provides the basic settings necessary before finally setting the relay to obtain its performance and are generally minimum values.

Contacts

Contact tips are fine silver on copper and should only be burnished if any pitting has occurred. Contact pressures are set by gentle pressure with contact setting pliers near to the contact stack assembly. During this operation avoid putting any stress on the contact actuating cone. Contact pressures should be measured using an accurate gram gauge at the tip of the contact leaf.

Mechanical settings			
1. Residual gap	1.1	Measured at top of core	0.2
2. Armature gap	2.1	Measured at residual screw	1.5mm
3 Normally closed contacts	3.1	Clearance between comb and moving contact	0.1-0.2mm
	3.2	Force to separate closed contacts, gms	10-12gm
	3.3	Force required to lift fixed contact off its backing strip, gms	10-12 gm
	3.4	Contact separation	1.5min
4 Normally open contacts	4.1	Remaining armature travel, measured at the residual screw	0.3mm
	4.2	Contact separation	1.5mm min
	4.3	Force required to lift moving contact off the comb, gms	8-10gm
	4.4	Force required to lift the fixed contact off it's backing strip, gms	16-20gm
5 Armature control spring	5.1	Only fitted to certain relays with non or one normally open contact measured at the end of the comb	8-10 gm



Typical relay sub-assemblies.

Electrical Tests

Check that the relay operates over its operating range, it should operate smoothly and the armature go fully home.

XR151:
Operating Range
D.C. relays 70 – 115% of rated voltage

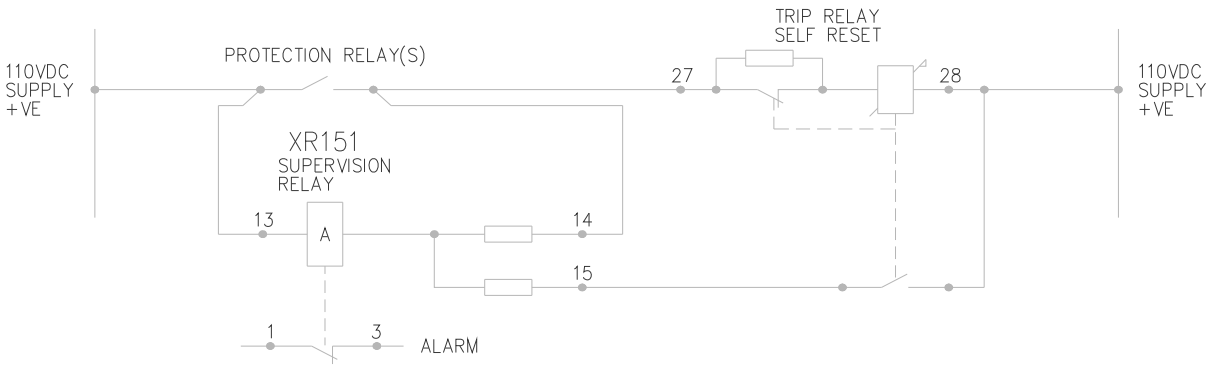
Relays must reset when the applied voltage is reduced to not less than 26% of rated voltage.

XR152 & 153:
Operating Range
D.C. relays 70 – 115% of rated voltage

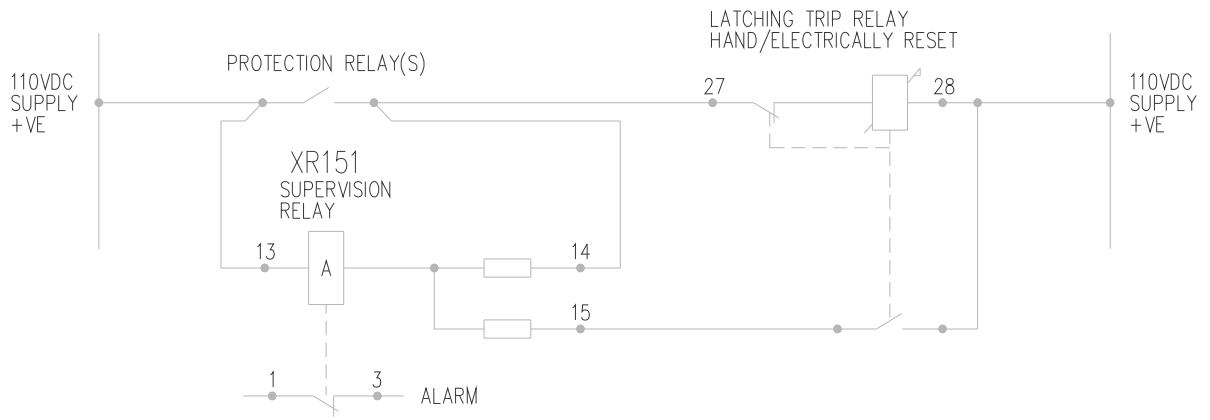
Relays must reset when the applied voltage is reduced to not less than 26% of rated voltage.

Application Diagrams

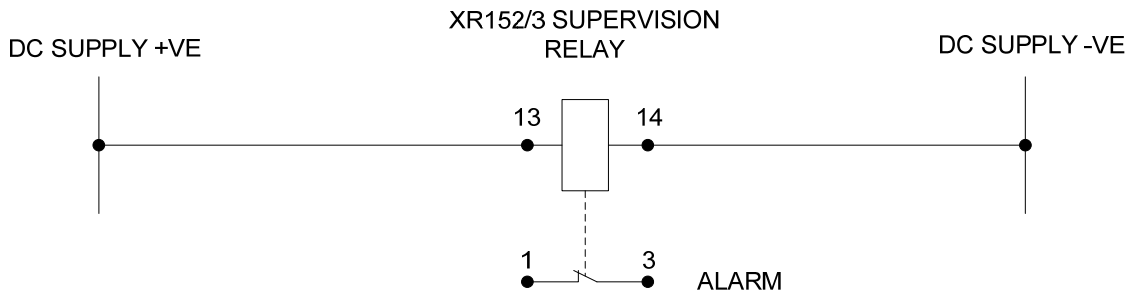
XR151 with Self Reset Trip Relays:



XR151 with Latched Trip Relays:



XR152 & XR153:



Please note:
These diagrams are for reference only; the relay connection diagram for the specific device purchased should always be consulted.

Published by and copyright © 201:
Siemens AG
Energy Sector
Freyeslebenstrasse 1
91058 Erlangen, Germany

Siemens Protection Devices Limited
P.O. Box 8
North Farm Road
Hebburn
Tyne & Wear
NE31 1TZ
United Kingdom
Phone: +44 (0)191 401 7901
Fax: +44 (0)191 401 5575
www.siemens.com/energy

For more information, please contact our
Customer Support Center.
Phone: +49 180/524 70 00
Fax: +49 180/524 24 71(Charges depending on provider)
E-mail: support.energy@siemens.com

Power Distribution Division Order No. C53000-G7076-C60-1
Printed in Fürth

Printed on elementary chlorine-free bleached paper.