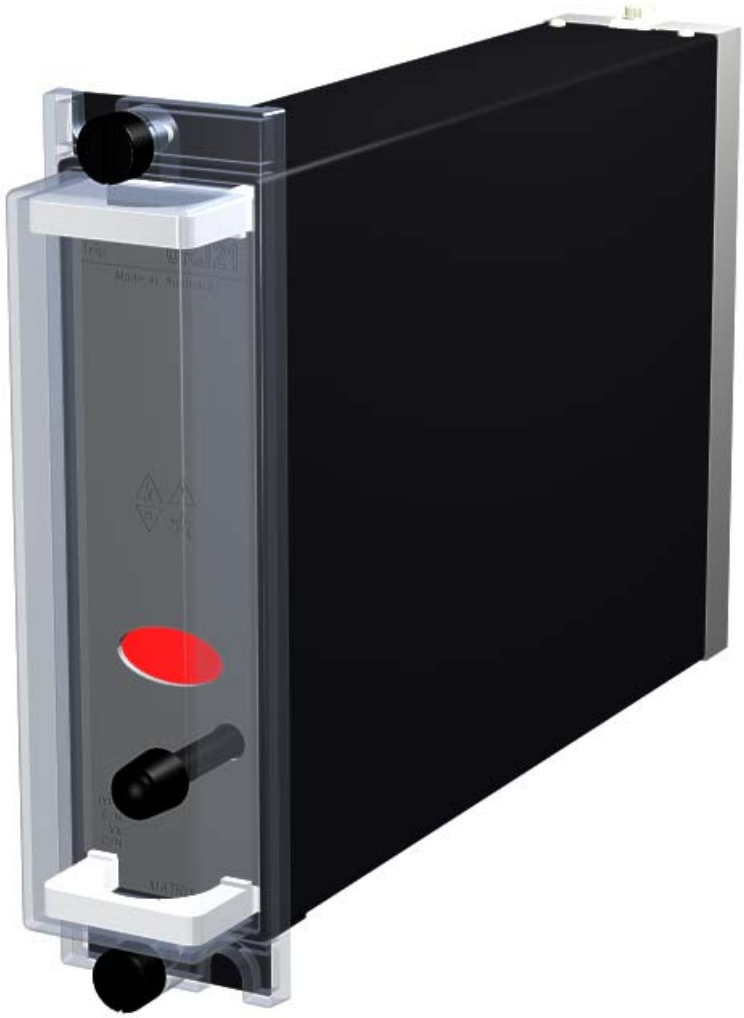
6RJ21-X-D Test Manual

High Speed Trip Relay

relay monitoring systems pty ltd

Advanced Protection Devices



User Guide

Test Manual

Serial Number | | Number in Batch | |

6RJ21-X-D

SR Contacts & HR Flag

110VDC HIGH SPEED TRIP RELAY

Issue Level	Date	Summary of changes
A	03/08/2010	Sample release
B	14/09/2010	Clarify tolerance of pick up voltage

Author	Checked & Registered	.pdf file created	Released
MVL	DW	DW	David Greenwood Digitally signed by David Greenwood DN: CN = David Greenwood, C = AU, O = RMS Reason: Document is released Date: 2010.08.06 09:21:34 +10'00'

1. ASSOCIATED DRAWINGS

Auxiliary Voltage: 110V
Refer to Job Card and associated documentation.
Relay Connection Diagram

2. HIGH VOLTAGE TESTING

a) Apply 2kV RMS 50Hz between terminal Groups 1 and 2 in Table 1 for 1 minute.

b) Apply three 5kV 1/50us pulses of each polarity between terminal Groups 1 and 2 in Table 1.

TABLE 1

GROUP 1	GROUP 2
Coil	All other connections and Frame
Each contact set	All other connections and Frame

PASS ☐

3. TEST PROCEDURE

Check the job card for any special requirements of the relay to be tested.

a) Plug in the 6R Matrix test module and attach the coaxial leads to the appropriate inputs of the oscilloscope.
b) Operate the “CRO/Counter” switch to “CRO”
c) Press the “test” button and adjust the trigger and vertical sensitivity on the CRO to obtain a waveform which displays the time between the trigger point and the contact closure.
d) Ensure that this time is less than 10ms (first touch) at nominal voltage.
e) Repeat this test for each contact in turn by operating the rotary switch to the position that corresponds to the contact under test.

PASS ☐

f) Reduce the auxiliary voltage input to 60% of nominal volts (66V) and by repeating one operation as in c) above ensure that the relay operates fully.

PASS ☐

g) Check that pick up occurs at 120% of nominal (132V). **PASS** ☐

h) Check pick up is at above 30.8V. Ensure the flag drops at the same voltage that the contacts pick up. Adjust the armature gap only if pick up voltage is within 2V of the 30.8V specification.

PASS ☐

i) Check that the drop out voltage is > 6V.

PASS ☐

j) Check that the operated power is < 5W (i.e. < 45mA at 110V). **PASS** ☐

k) Check the operating power is between 100W (0.91A) and 150W (1.36A) at nominal voltage, by measuring operating current on CRO.

PASS ☐

4. OPERATE CURRENT

a) Reduce the auxiliary input voltage to zero then bring the voltage slowly back to nominal, watch the current reading on the power supply meter. Note the current at which the relay operates, this must be greater than 100mA.

b) Ensure that the operate burden is reduced by the economising element after the relay has operated.

PASS ☐

5. CAPACITOR DISCHARGE TEST

a) Adjust the input auxiliary voltage to 120% of nominal (132V), operate the "Cap Discharge" switch and ensure that the relay does not operate. The criterion is that the flag must not drop or contacts make.

PASS ☐

6. CONTACT RESET

a) Ensure that when the auxiliary voltage is removed that the contacts reset correctly.

PASS ☐

7. FLAG RESET

a) Ensure that the flag is hand reset correctly. **PASS** ☐

8. GENERAL & FUNCTIONAL

a) Check that the relay is electrically sound and mechanically robust as per Standard Inspection & Test Schedule 903-000-026.

PASS ☐

TESTED BY: _____ DATE: _____