



ELECTRONICS TEST AND DEVELOPMENT CENTRE, MOHALI TEST REPORT

No. : ETDC(MH)/T&M/ 035	Dated : 01.08.2014	Page : 1 of 8
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1. **Indentor** : MRM procam pvt Ltd
Plot No-20-21
Sector -59 (II) Huda
Faridabad-121004
2. **Description of sample(s)**
- 2.1 Nomenclature : Protection Relay
- 2.2 Make/Model : PROCOM/ COP-1-5-H
- 2.3 Sr. No. : 2014071217
- 2.4 Manufactured by : PROCOM
- 2.5 Quantity : One
3. **Sample(s) received on** : 10.07.2014
4. **Condition of sample(s) on receipt** : Good.
5. **Date(s)/Period item(s) tested** : 16.07.2014 to 01.08.2014
6. **Location where test(s) carried out**
(With name and address) : ETDC, Mohali.
7. **Reference of test method(s) used** : IS 9000((Part-3/Sec 5)-1977,(Part-5/Sec 1)-1981,
(Part-2/Sec 4)-1977,Reaffirmed -2007 & Indenter's
8. **Applicable product specification(s)** : EN60255 and Indenter's
9. **Deviation(s), exclusion(s), addition(s)**
in test method(s) : Nil
10. **Environmental conditions**
- 10.1 Temperature : 25°C ± 10°C
- 10.2 Humidity : 45 % to 70 %
11. **Statement with regard to compliance** : Refer to test results (Test Data)
12. **Statement on uncertainty in measurement** : Not applicable
13. **Major Equipment Used**



S. no.	Nomenclature	Make	Model	Cal. Validity
1.	Elec. Safety Compliance Analyser	Extech	7742	May, 2015
2.	Power Analyser	Voltech	PM3000	May, 2015
3.	Climatic Test Chamber	W/T	340/70	Oct, 2014
4.	DMM	Rishabh	15S	May, 2015
5.	Surge Generator	Keytek	587 PLUS	Oct, 2014
6.	ESD Simulator	Keytek	MZ15	Oct, 2014
7.	Vibration Test Machine	Sarswati Dynamics	SEV100	May, 2015
8.	EFT Noise Generator	Keytek	801-4H	Oct, 2014

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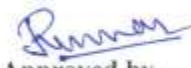
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14. RESULTS SUMMARISED:

Sr No	Test stage	Test requirements (Cl. Ref. of specs.)	Test condition	Test Data	Qty. Pass/ Fail/ Status	Uncertainty (Where applicable)
1	Pre Environmental Test					
1.1	Functional Test	IEC60255-5 & Indenter	Under normal operating condition a. Apply 5A (AC) current at current sensing terminals b. Apply 1A (AC) current at earth current sensing terminals c. Relay shall change the position, if current exceed 2% of rated value.	Complies	Pass	
1.2	Dielectric Test	IEC60255-5	AC voltage: 2.5 KV, 50Hz. Applied between: All circuit to earth Body : Input & Output Duration : 1 minute DUT : De-Energized There shall not be any breakdown/flashover. After the test, DUT shall perform all intended functions within specified tolerances	No breakdown/flashover observed during test. After test, DUT found in functional condition.	Pass	
1.3	Insulation Test	IEC60255-5	Apply the Voltage of 500V (DC) between all circuit to earth Body : Input & Output. The Insulation Resistance shall not be less than 100MΩ.	Insulation Resistance : 32356 MΩ	Pass	
1.4	Impulse Voltage Test	IEC60255-5	A pulse of 1.2/50μs, amplitude 5 kV and energy 0.5J applied between- i) All terminals of I/P and O/P contacts terminals are connected and relay case. ii) Between input terminals (connected together) and output terminals (connected together). No of pulses applied 3 of each polarity. There shall be no disruptive discharge, partial discharges in clearances, which do not result in breakdown, are disregarded.	No breakdown/flashover observed during test. After test, DUT found in functional condition.	Pass	


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14. RESULTS SUMMARISED:

Sr No	Test stage	Test requirements (Cl. Ref. of specs.)	Test condition	Test Data	Qty. Pass/ Fail/ Status	Uncertainty (Where applicable)
1.5	Surge Immunity Test	IEC60255-5 and IEC61000-4-5	A pulse of 1.2/50 μ s, amplitude 2kV (DM), 4KV (CM) applied in common mode and differential mode. The number of pulses 5 in each polarity (positive/negative). EUT: Energized & working under normal condition The relay shall not malfunction during the test. And after the test, the relay shall comply with the relevant performance requirements	No breakdown/flashover and any malfunction in DUT observed during test. After test, DUT found in functional condition.	Pass	
1.6	Electrostatic Discharge Test	IEC60255-22-2 / IEC61000-4-2	Severity : Class 3 Amplitude:8KV(Air discharge) 6kV (Contact Discharge) No. of discharges: 10 each polarity Polarity : Positive/Negative Energized & working under normal condition The relay shall not malfunction during the test. And after the test, the relay shall comply with the relevant performance requirements	No breakdown/flashover and any malfunction in DUT observed during test. After test, DUT found in functional condition.	Pass	
1.7	EFT/ Burst Test	IEC60255-22-4 / IEC61000-4-4	Severity : Class A Amplitude : 2 kV, 5 kHz Pulse : 5/ 50 ns Duration : 15 ms Period : 300 ms Mode : Common mode Energized & working under normal condition	No breakdown/flashover and any malfunction in DUT observed during test. After test, DUT found in functional condition.	Pass	



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14. RESULTS SUMMARISED (contd.) :

Sr No	Test stage	Test requirements (Cl. Ref. of specs.)	Test condition	Test Data	Qty. Pass/Fail	Uncertainty (Where applicable)
1.8	Vibration Response Test	IEC60255-5-21-1 / IEC60068-2-6	<p>The relay shall not malfunction during the test. And after the test, the relay shall comply with the relevant performance requirements</p> <p>Test conditions : Operating severity Class 1</p> <p>Sine Wave Axis: Three mutually perpendicular X, Y, Z axis Frequency Range: 10-150Hz</p> <p>Acceleration(Peak): 0.5g</p> <p>Amplitude: 0.035mm/0.5g</p> <p>Displacement (Peak): 0.035mm constant</p> <p>DUT: energized</p> <p>During the test, the measuring relay or protection equipment shall not malfunction. It is considered not to have mal operated if the normal states of its output circuits have not changed for more than 20ms.</p> <p>The test shall not cause flags or others form of indications to change their state permanently</p>	<p>No visual defects observed</p> <p>DUT found in functional condition.</p>	Pass	



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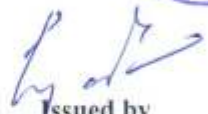
14. RESULTS SUMMARISED (contd.) :

Sr No	Test stage	Test requirements (Cl. Ref. of specs.)	Test condition	Test Data	Qty. Pass/Fail	Uncertainty (Where applicable)
1.8	Vibration Endurance Test	IEC60255-5-21-1 / IEC60068-2-6	<p>Test conditions : Non Operating</p> <p>Sine Wave Axis: Three mutually perpendicular X, Y, Z axis Frequency Range: 10-150Hz Acceleration(Peak): 1.0g Amplitude: 0.075mm/1.0g Sweep rate : One octave per minute No. of sweep cycles: 20 sweep</p> <p>The test shall not cause flags or others form of indications to change their state permanently</p>	<p>No visual defects observed</p> <p>DUT found in functional condition after test.</p>	Pass	
1.9	Shock Response Test	IEC60255-21-2	<p>Severity Class :1 Pulse shape : Half sine pulse Axis : X, Y, Z Peak acceleration: 5g Duration of Pulse: 11ms Total no. of Shocks: 3 in each direction DUT : energized condition.</p> <p>During the test, the measuring relay or protection equipment shall not malfunction. It is considered not to have mal operated if the normal states of its output circuits have not changed for more than 20ms.</p> <p>The test shall not cause flags or others form of indications to change their state permanently</p>	<p>No visual defects observed</p> <p>DUT found in functional condition.</p>	Pass	




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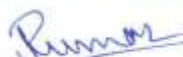
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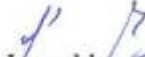
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14. RESULTS SUMMARISED (contd.) :

Sr No	Test stage	Test requirements (Cl. Ref. of specs.)	Test condition	Test Data	Qty. Pass / Fail	Uncertainty (Where applicable)
2 Operating Temperature						
2.1	Cold Test	EN60068-2-1 & Indenter's	The sample shall be subjected to the following environment condition Temperature: $-10^{\circ}\text{C}\pm 2^{\circ}\text{C}$ Duration : 2Hrs Operating conditions : ON	Conditioned.	-	-
2.1.1	Visual Examination	-	After one to two hours of recovery the DUT shall be examined visually. There shall be no physical/ visual deterioration on the sample.	No physical/ visual deterioration observed	Pass	-
2.1.2	Functional Test	-	After one to two hours of recovery the DUT shall be function satisfactorily.	DUT found functional.	Pass	-
2.2	Dry Heat Test	EN60068-2-2 & Indenter's	The sample shall be subjected to the following environment condition Temperature: $70^{\circ}\text{C}\pm 2^{\circ}\text{C}$ Duration : 2Hrs Operating conditions : ON	Conditioned.	-	-
2.2.1	Visual Examination	-	After one to two hours of recovery the DUT shall be examined visually. There shall be no physical/ visual deterioration on the sample.	No physical/ visual deterioration observed	Pass	-
2.2.2	Functional Test	-	After one to two hours of recovery the DUT shall be function satisfactorily.	DUT found functional.	Pass	-
3 Storage Temperature						
	Environmental Test	-	The sample shall be subjected to following Environmental Test sequence.			
3.1	Dry Heat Test	EN60068-2-2 & Indenter's	The sample shall be subjected to the following environment condition Temperature: $85^{\circ}\text{C}\pm 2^{\circ}\text{C}$ Duration : 16Hrs	Conditioned.	-	-


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14. RESULTS SUMMARISED:

Sr No	Test stage	Test requirements (Cl. Ref. of specs.)	Test condition	Test Data	Qty. Pass / Fail	Uncertainty (Where applicable)
3.1.1	Visual Examination	-	After one to two hours of recovery the sample shall be examined visually. There shall be no physical/ visual deterioration on the sample.	No physical/ visual deterioration observed	Pass	-
3.1.2	Functional Test	-	After one to two hours of recovery the DUT shall be function satisfactorily.	DUT found functional.	Pass	-
3.2	Cold Test.	EN60068-2-1 & Indenter's	The sample shall be subjected to the following environment condition: Temperature: -25 °C±3°C Duration : 16 Hrs	Conditioned.	-	-
3.2.1	Visual Examination	-	After two hours of recovery the sample shall be examined visually. There shall be no physical/ visual deterioration on the sample.	No physical/ visual deterioration observed	Pass	-
3.2.2	Functional Test	-	After one to two hours of recovery the DUT shall be function satisfactorily.	DUT found functional.	Pass	-
3.3	Damp Heat Cyclic Test	EN60068-2-30 & Indenter's	The sample shall be subjected to the following environment condition Temperature: 55°C±2°C, RH:95 % Duration : 48 hrs , 2 cycles of 24 hrs (12+12)hrs	Conditioned.	-	-
3.3.1	Visual Examination	-	After one to two hours of recovery the sample shall be examined visually. There shall be no physical/ visual deterioration on the sample.	No physical/ visual deterioration observed	Pass	-
3.3.2	Functional Test	-	After one to two hours of recovery the DUT shall be function satisfactorily.	DUT found functional.	Pass	-

15. Additional Remarks:

15.1 Device under test (DUT) Photograph enclosed as Annexure-


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जगदीश कुमार / JAGDEESH KUMAR
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Annexure – I



Figure-I

Model Type : CCP-1-5-III
 Rated Voltage: 230V
 Rated Current: 5A
 Auxiliary Voltage: 50-200V AC/DC
 Rated Frequency: 50 Hz
 Contact Rating : 230V AC/5A
 SN: 2014071217

Figure-II (Marking)




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