

TR-05659

# PowersafeConnectors (530A Test)



Test Date: 11/07/16 Operator: D.Maclachlan

## TYPE AND DESCRIPTION OF TEST

POWERSAFE 500A CONNECTORS. DIRECT RESISTANCE WITH 530A CURRENT.

## OBJECTIVE

The object of this test is to assess the current carrying capacity of the Powersafe 500amp Connectors.

## TEST METHOD

A specified test current shall be applied to the contacts of the specimen for a minimum period of 3 hours or until equilibrium is reached. (Less than 1 degree per hour). The test will consist of a mated pair of Powersafe Connectors (Line Source to Line Drain) terminated onto 150mm<sup>2</sup> cables that are attached to the 3000amp load unit. A current of 530amps will be used for this test.

## REQUIREMENTS

The mated connectors must be capable of carrying the specified test current for a minimum period of 3 hours without exceeding the specified temperature rise.

## TEST ITEMS

1x Powersafe SLS-X-XX-S120-M40A terminated onto 150mm<sup>2</sup> cable.  
1x Powersafe SLD-X-XX-S120-M40A terminated onto 150mm<sup>2</sup> cable.

## EQUIPMENT USED

INSTRUMENT	DESCRIPTION	CALIBRATION EXPIRY DATE
Current Generation	T & R PCU1 Mk3 P.C.I.T.S. (21TE0216)	20/01/2017
External Load Unit	3000A Loading Unit	20/01/2017
Digital Thermometer	YF-160A Thermocoupler + 5 Probes	04/02/2017



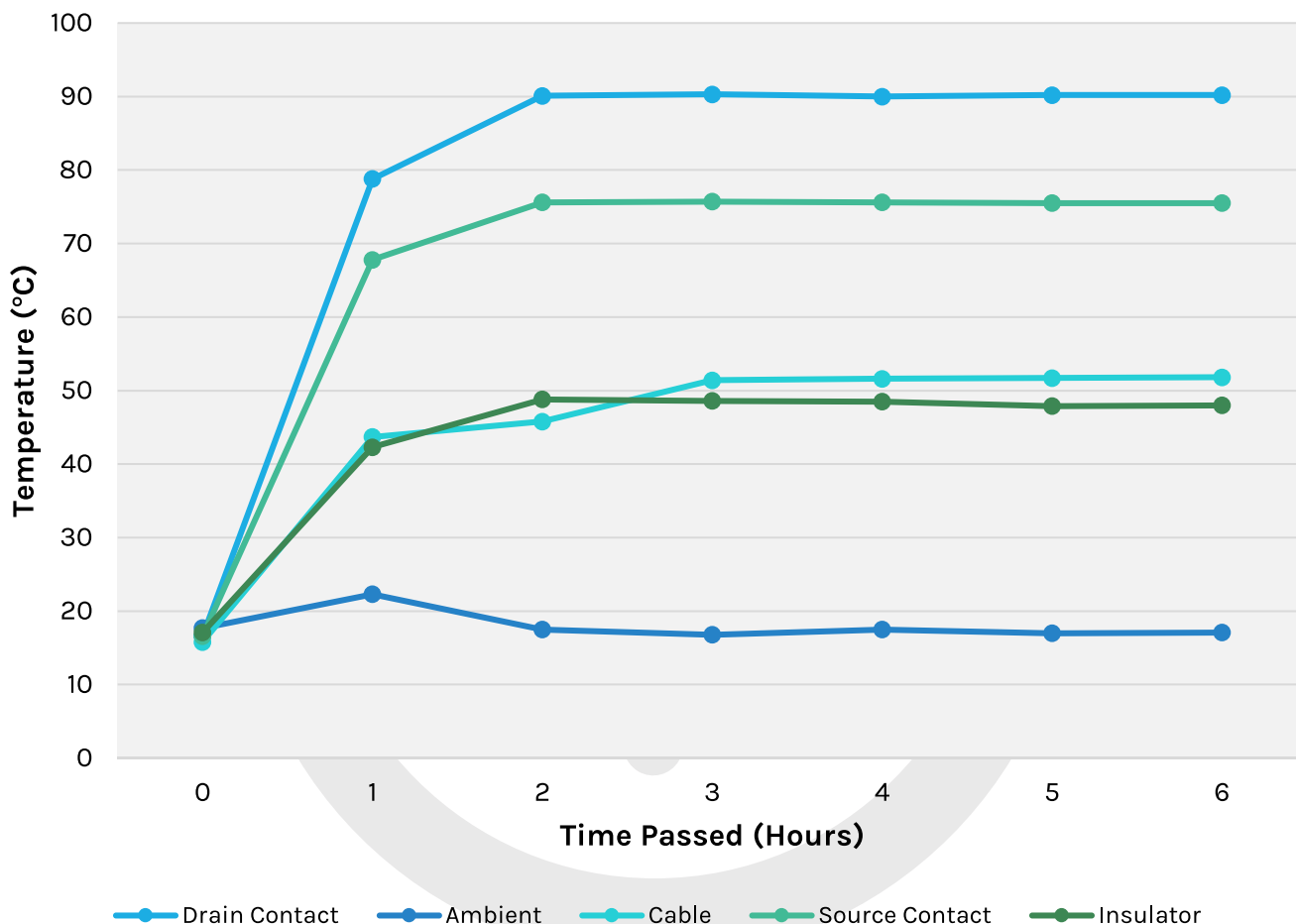
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PHASE 3

TIME	DRAIN CONTACT	AMBIENT	CABLE	SOURCE CONTACT	INSULATOR	AMPS
0	16.6	17.7	15.8	16.6	17.1	530.0
1	78.8	22.3	43.7	67.8	42.3	530.0
2	90.1	17.5	45.8	75.6	48.8	530.0
3	90.3	16.8	51.4	75.7	48.6	532.0
4	90.0	17.5	51.6	75.6	48.5	530.0
5	90.2	17.0	51.7	75.5	47.9	530.0
6	90.2	17.1	51.8	75.5	48.0	532.0

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## FINAL RESULTS

PROBE POSITION	TEMPERATURE (C)	T (MEASURED-AMBIENT)	AMPS
Ambient	17.1	N/A	N/A
Cable Core (P1)	51.8	34.7	532A
Drain Contact (P2)	90.2	73.1	532A
Source Contact (P3)	75.5	58.4	532A
Insulator (P4)	48.0	30.9	532A

## CONCLUSION

MEASUREMENT	RESULT
Maximum Allowable Temperature	125°C
Maximum Recorded Temperature Rise @ Insulator Body (above ambient)	30.9°C
Maximum Allowable Temperature of Contacts	125°C
Maximum Recorded Temperature Rise (above ambient)	73.1°C
TEMPERATURE RISE WITHIN EN, BS AND VDE ALLOWABLE LIMITS.	PASS



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