

TR-05656

# Powersafe 800A Coupler (800amp testing)



Test Date: 08/07/16

Operator: D.Maclachlan

## TYPE AND DESCRIPTION OF TEST

POWERSAFE 800A COUPLER. DIRECT RESISTANCE WITH 800A CURRENT.

## OBJECTIVE

The object of this test is to assess the current carrying capacity of the Powersafe 800amp Coupler.

## 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 Coupler will be fed with 800A from the 3000A load unit via Powersafe Line Source 800A connectors on 300mm<sup>2</sup> cables attached to either side of the unit.

## REQUIREMENTS

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

## TEST ITEMS

1 x 800A Powersafe Drain Coupler  
2 x Powersafe 800A Line Source Connectors terminated onto 300mm<sup>2</sup> cables.

## EQUIPMENT USED

| INSTRUMENT          | DESCRIPTION                             | CALIBRATION EXPIRY DATE |
|---------------------|---|-------------------------|
| Current Generation  | T & R PCU1 Mk3<br>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              |



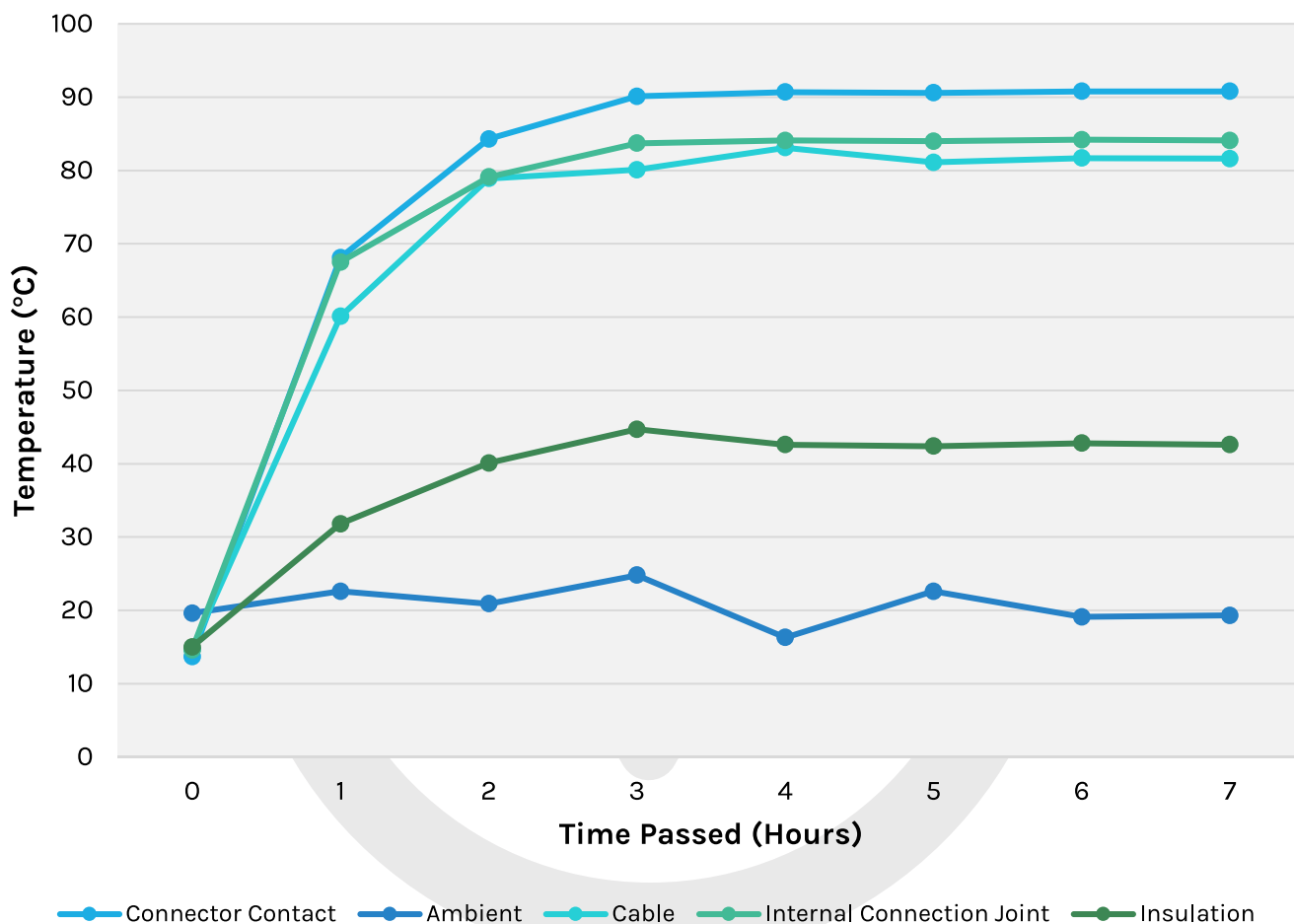
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| TIME | CONNECTOR CONTACT | AMBIENT | CABLE | INTERNAL CONNECTION JOINT | INSULATION | AMPS  |
|------|-------------------|---------|-------|---------------------------|------------|-------|
| 0    | 13.7              | 19.6    | 14.7  | 14.6                      | 15.0       | 800.0 |
| 1    | 68.1              | 22.6    | 60.1  | 67.5                      | 31.8       | 808.0 |
| 2    | 84.3              | 20.9    | 78.9  | 79.1                      | 40.1       | 814.0 |
| 3    | 90.1              | 24.8    | 80.1  | 83.7                      | 44.7       | 807.0 |
| 4    | 90.7              | 16.3    | 83.1  | 84.1                      | 42.6       | 809.0 |
| 5    | 90.6              | 22.6    | 81.1  | 84.0                      | 42.4       | 808.0 |
| 6    | 90.8              | 19.1    | 81.7  | 84.2                      | 42.8       | 805.0 |
| 7    | 90.8              | 19.3    | 81.6  | 84.1                      | 42.6       | 807.0 |

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## FINAL RESULTS

| PROBE POSITION                              | TEMPERATURE (C) | T (MEASURED-AMBIENT) | AMPS |
|---|-----------------|----------------------|------|
| Ambient                                     | 19.3            | N/A                  | N/A  |
| Cable Core (P1)                             | 81.6            | 62.3                 | 807A |
| Connection Between Connector & Coupler (P2) | 90.8            | 71.5                 | 807A |
| Coupler Internal Joint (P3)                 | 84.1            | 64.8                 | 807A |
| Coupler Insulator (P4)                      | 42.6            | 23.3                 | 807A |

## CONCLUSION

| MEASUREMENT   | RESULT |
|---|--------|
| Maximum Allowable Temperature   | 125°C  |
| Maximum Recorded Temperature Rise @ Coupler Insulator (above ambient) | 23.3°C |
| Maximum Allowable Temperature Between Coupler & Connector             | 125°C  |
| Maximum Recorded Temperature Rise (above ambient)                     | 71.5°C |
| TEMPERATURE RISE WITHIN EN, BS AND VDE ALLOWABLE LIMITS.              | PASS   |



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