

CERTIFICATE OF CALIBRATION

Issued By Transmille Ltd.

Certificate Number EXAMPLE

Date of Issue 09 December 2008



Approved Signatory



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**EXAMPLE
CERTIFICATE**

EXAMPLE EXAMPLE

Customer :

Date Received :

Instrument : System ID : EXAMPLE
Description : Multi Function Workstation
Manufacturer : Transmille
Model Number : EA015
Serial Number : EXAMPLE
Procedure Version : 4.00/N

Environmental Conditions

Temperature : 20°C +/- 1°C
Relative Humidity : 50% +/- 20%

Mains Voltage : 240V +/- 12V
Mains Frequency : 50Hz +/- 1Hz

Comments

Instrument was allowed to stabilise for at least 12 hours before calibration.
Thermocouple voltages converted to temperature using BS tables.
Reference temperature of 0°C used for the thermocouple CJC.

Calibration Information

The instrument was calibrated against laboratory standards whose values are traceable to recognised National Standards. The uncertainty limits quoted refer to the measured values only, with no account being taken of the instruments ability to maintain its calibration.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Calibrated By : EXAMPLE

Date of Calibration : EXAMPLE

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AFTER ADJUSTMENT RESULTS

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| Test Title | Applied Value | Reading | Uncertainties |
|-------------------------------|-------------------|-------------------|---------------|
| Temperature Simulation | | | |
| -140°C Type K | -4.6690mV | -4.6686mV | 1.4uV |
| 0°C Type K | 0.000 0mV | 0.000 1mV | 1.4uV |
| 200°C Type K | 8.138 0mV | 8.137 7mV | 1.4uV |
| 700°C Type K | 29.129 0mV | 29.128 0mV | 1.5uV |
| 1340°C Type K | 53.795 0mV | 53.793 1mV | 1.6uV |
| -180°C Type J | -7.4030mV | -7.4024mV | 1.4uV |
| 400°C Type J | 21.848 0mV | 21.846 7mV | 1.5uV |
| 750°C Type J | 42.281 0mV | 42.279 5mV | 1.6uV |
| -250°C Type T | -6.1800mV | -6.1798mV | 1.4uV |
| 400°C Type T | 20.872 0mV | 20.870 8mV | 1.5uV |
| 1700°C Type R | 20.222 0mV | 20.221 4mV | 1.5uV |
| 1700°C Type S | 17.947 0mV | 17.946 1mV | 1.5uV |
| -270°C Type N | -4.3450mV | -4.3444mV | 1.4uV |
| 1300°C Type N | 47.513 0mV | 47.511 2mV | 1.6uV |
| 0°C Type B | 0.000 0mV | 0.000 0mV | 1.4uV |
| 1820°C Type B | 13.820 0mV | 13.819 0mV | 1.4uV |
| 0°C Type E | 0.000 0mV | -0.0001mV | 1.4uV |
| 400°C Type E | 28.946 0mV | 28.944 9mV | 1.5uV |
| 800°C Type E | 61.017mV | 61.014mV | 2uV |
| Tachometer Function | | | |
| 240 RPM | 240RPM | 240RPM | 1RPM |
| 19998 RPM | 19 998RPM | 19 998RPM | 1RPM |
| Insulation Resistance | | | |
| 10k Ω | 10.000k Ω | 9.995k Ω | 1.2 Ω |
| 20k Ω | 20.000k Ω | 20.009k Ω | 1.7 Ω |
| 40k Ω | 40.000k Ω | 40.005k Ω | 1.8 Ω |
| 50k Ω | 50.000k Ω | 49.994k Ω | 1.9 Ω |
| 60k Ω | 60.000k Ω | 59.999k Ω | 4.5 Ω |
| 100k Ω | 100.000k Ω | 100.020k Ω | 2.4 Ω |
| 200k Ω | 200.00k Ω | 199.95k Ω | 33 Ω |
| 400k Ω | 400.00k Ω | 400.00k Ω | 15 Ω |
| 500k Ω | 500.00k Ω | 500.01k Ω | 16 Ω |
| 600k Ω | 600.00k Ω | 600.09k Ω | 18 Ω |
| 1M Ω | 1.000 0M Ω | 1.000 3M Ω | 120 Ω |
| 2M Ω | 2.000 0M Ω | 2.000 5M Ω | 260 Ω |
| 4M Ω | 4.000 0M Ω | 4.001 0M Ω | 370 Ω |
| 5M Ω | 5.000 0M Ω | 5.001 2M Ω | 430 Ω |
| 6M Ω | 6.000 0M Ω | 5.985 0M Ω | 490 Ω |
| 10M Ω | 10.000M Ω | 9.965M Ω | 1.9k Ω |
| 20M Ω | 20.000M Ω | 19.929M Ω | 14k Ω |
| 40M Ω | 40.000M Ω | 39.859M Ω | 41k Ω |
| 50M Ω | 50.000M Ω | 49.822M Ω | 31k Ω |

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| Test Title | Applied Value | Reading | Uncertainties |
|----------------|-------------------|------------------|---------------|
| 60M Ω | 60.000M Ω | 59.712M Ω | 40k Ω |
| 100M Ω | 100.00M Ω | 99.70M Ω | 2M Ω |
| 200M Ω | 200.00M Ω | 201.71M Ω | 1.9M Ω |
| 400M Ω | 400.00M Ω | 399.02M Ω | 4.8M Ω |
| 500M Ω | 500.00M Ω | 496.20M Ω | 6.6M Ω |
| 600M Ω | 600.00M Ω | 596.45M Ω | 4M Ω |
| 1000M Ω | 1 000.0M Ω | 992.9M Ω | 19M Ω |

Insulation Test Voltage Measurement

| | | | |
|-------|----------|--------|-------|
| 50V | 50.00V | 49.99V | 0.01V |
| 100V | 100.00V | 99.97V | 0.01V |
| 250V | 250.0V | 250.0V | 0.1V |
| 500V | 500.0V | 499.8V | 0.1V |
| 1000V | 1 000.0V | 999.7V | 0.1V |

Continuity Resistance

| | | | |
|--------------|--------------------|--------------------|---------------|
| 1 Ω | 1.000 Ω | 1.000 Ω | 1.2m Ω |
| 10 Ω | 10.000 Ω | 9.995 Ω | 1.2m Ω |
| 19 Ω | 19.00 Ω | 18.99 Ω | 12m Ω |
| 100 Ω | 100.00 Ω | 100.00 Ω | 12m Ω |
| 190 Ω | 190.0 Ω | 190.0 Ω | 120m Ω |
| 1k Ω | 1.000 00k Ω | 0.999 39k Ω | 17m Ω |

Continuity current measurement

| | | | |
|-------------------------|---------|--------|-------|
| Current into 1 Ω | 100.0mA | 99.9mA | 0.1mA |
|-------------------------|---------|--------|-------|

Voltage and current measurement

| | | | |
|-------------|-----------|-----------|-------------|
| 30mA Range | 10.000mA | 10.002mA | 1 μ A |
| 30mA Range | 30.000mA | 30.001mA | 1 μ A |
| 30mA Range | -30.000mA | -29.993mA | 1 μ A |
| 100mV Range | 100.00mV | 100.00mV | 10 μ V |
| 100mV Range | -100.00mV | -100.00mV | 10 μ V |
| 1V Range | 0.000 0V | 0.000 0V | 100 μ V |
| 1V Range | 0.200 0V | 0.200 0V | 100 μ V |
| 1V Range | 0.400 0V | 0.400 0V | 100 μ V |
| 1V Range | 0.600 0V | 0.599 9V | 100 μ V |
| 1V Range | 0.800 0V | 0.800 0V | 100 μ V |
| 1V Range | 1.000 0V | 1.000 0V | 100 μ V |
| 1V Range | -1.0000V | -0.9995V | 100 μ V |
| 30V Range | 10.000V | 9.999V | 1mV |
| 30V Range | 20.000V | 19.998V | 1mV |
| 30V Range | 30.000V | 29.998V | 1mV |

2/10/50 Clamp Coil measured as reading compared with single conductor

| | | | |
|---------------------|--------|--------|------|
| 2 Turn Coil @ 56Hz | 20.00A | 20.00A | 14mA |
| 10 Turn Coil @ 56Hz | 20.00A | 20.00A | 14mA |
| 50 Turn Coil @ 56Hz | 20.00A | 20.00A | 14mA |

Thermocouple Tables used for temperature to volts Conversion

EN60584-1 : 1996

Equivalent to EN60584-1 : 1995 & IEC60584-1 : 1995

Replacing document BS4937 Parts 1-8

End of results