# Certificate of Calibration

| | | | |
|---|---|---|---|
| CUSTOMER: | INDO LIGHTING LTD | CERT No: | 0348662 |
| ORDER NO: | | CUST. REF: | NO CUST REF |
| MAKE: | HAMEG | TYPE: | HM8115-2 |
| DESCRIPTION: | PROGRAMMABLE POWER METER | SERIAL No: | 061080009 |

AMBIENT TEMPERATURE*: 20 ± 3 °C HUMIDITY: 55 ± 20 %RH

This is to certify the above instrument has been calibrated in accordance with the relevant specification and at the points tested the results were*:

| Found to meet that specification on receipt | Found to meet that specification after adjustment/repair | Measurements recorded in absence of relevant specification | Found NOT to meet that specification – Calibration restrictions apply |
|---|---|---|---|
| [✓] | [ ] | [ ] | [ ] |

| Pre-Calibration repair performed | Optimising adjustment performed | Calibration performed by subcontractor* |
|---|---|---|
| [ ] | [ ] | [ ] |

Absolute Calibration is registered under BS EN ISO 17025:2005 and BS EN ISO 9001:2008

*For calibration performed by a subcontractor please see the attached certificate for environmental conditions and calibration/measurement details.

In order to comply with the above standards Absolute Calibration has to ensure that all measurements carried out in its laboratories are traceable to national standards.

**Approved Signatory**

ACL 9 CAL

DATE: 25/02/13

**Absolute Calibration Limited**
14 Murrills Estate, Portchester, Hampshire, England, PO16 9RD
T: 023 9232 1712 F: 023 9221 0034
W: absolutecal.co.uk E: calit@absolute-cal.co.uk

Absolute Calibration Limited
14 Murrills Estate, Portchester, Hampshire, England, PO16 9RD
Telephone 023-92321712. Facsimile 023-92210034
Service Fax 023-92327100. e-mail calit@absolute-cal.co.uk

Q05171

Report No. 0348662

# Calibration Laboratory Report

Laboratory Ambient Temperature 20 ± 3 °C Laboratory Ambient Humidity 55 ± 20 %RH

Cal. Procedure ☑

Man'f H/Book ☐

Description: PROGRAMMEBLE POWER METER

Make: HAMEG

Type: HM8115-2

Classification: (A) B C R

Serial No: 0610800009

Cust. Ref:

Customer: INDO LIGHTING LTD

Order No:

Code: IND009

| Test Step No | Function Tested | Nominal Result | Measured Value | | Out of Tol | Manufacturers Specification |
|---|---|---|---|---|---|---|
| | | | As Found | After Adjust | | |
| | DC VOLTAGE RANGE | I/P V | IND V | | | |
| | 50V | 50.0 | 49.9 | | | |
| | 150V | 100 | 100 | | | |
| | | 150 | 149 | | | ± 0.6% + 5 DIGITS |
| | 500V | 200 | 200 | | | |
| | | 300 | 299 | | | |
| | | 400 | 400 | | | |
| | | 500 | 499 | | | |
| | AC VOLTAGE RANGE | I/P V | IND V | | | |
| | 50Hz 50V | 50.0 | 50.0 | | | |
| | 150V | 100 | 100 | | | |
| | | 150 | 150 | | | ± 0.4% + 5 DIGITS |
| | 500V | 200 | 199 | | | |
| | | 300 | 299 | | | |
| | | 400 | 399 | | | |
| | | 500 | 499 | | | |

All measurements are traceable to National Standards

Calibrated By: R Rutherford

Verified By:

Date: 25/02/13

| Test Step No | Function Tested | Nominal Result | Measured Value | | Out of Tol | Manufacturers Specification |
|---|---|---|---|---|---|---|
| | | | As Found | After Adjust | | |
| | DC CURRENT RANGE | I/PA | IND A | | | |
| | 0.16A | 0.100 | 0.100 | | | |
| | | 0.150 | 0.150 | | | |
| | 1.6A | 1.000 | 0.998 | | | |
| | | 1.500 | 1.499 | | | ± 0.6% + 5 DIGITS |
| | 16A | 2.00 | 1.97 | | | |
| | | 4.00 | 3.98 | | | |
| | | 6.00 | 5.99 | | | |
| | | 8.00 | 7.98 | | | |
| | | 10.00 | 9.99 | | | |
| | AC CURRENT RANGE | I/PA | IND A | | | |
| | 50Hz 0.16A | 0.100 | 0.100 | | | |
| | | 0.150 | 0.150 | | | |
| | 1.6A | 1.000 | 0.998 | | | |
| | | 1.500 | 1.499 | | | ± 0.4% + 5 DIGITS |
| | 16A | 2.00 | 1.99 | | | |
| | | 4.00 | 4.00 | | | |
| | | 6.00 | 6.00 | | | |
| | | 8.00 | 8.01 | | | |
| | | 10.00 | 10.02 | | | |

Report No 0348662

| Test Step No | Function Tested | Nominal Result | Measured Value | | Out of Tol | Manufacturers Specification |
|---|---|---|---|---|---|---|
| | | | As Found | After Adjust | | |
| | POWER/WATTS 50Hz | I/P W | IND W | | | |
| | 10V 1A | 10 | 9.93 | | | |
| | 20V 1A | 20 | 19.93 | | | |
| | 30V 1A | 30 | 29.93 | | | |
| | 40V 1A | 40 | 39.91 | | | |
| | 50V 1A | 50 | 49.88 | | | ± 0.5% + 10 DIGITS |
| | 100V 1A | 100 | 99.9 | | | |
| | 200V 1A | 200 | 199.7 | | | |
| | 200V 2A | 400 | 400 | | | |
| | 250V 2A | 500 | 499 | | | |
| | 500V 2A | 1000 | 996 | | | |
| | 500V 4A | 2000 | 1999 | | | |
| | 500V 6A | 3000 | 3000 | | | |
| | 500V 8A | 4000 | 4002 | | | |
| | 500V 10A | 5000 | 5005 | | | |

Report No. 0348662

| Earth Bonding and Electrical Safety Test | |
|---|---|
| Visual Inspection Ck (✓) | Mains Lead Ck (NA |
| Earth Continuity 0·152Ω | Load Test <0·05KVA |
| Insulation Test >300MΩ | Leakage Test <0·30mA |

| Instruments used in this Calibration | |
|---|---|
| ACL CODING | RECAL DUE |
| C2551 | 11/13 |
| N0009 | 10/13 |

| UNCERTAINTIES OF MEASUREMENT |
|---|
| DC VOLTAGE APPLIED ± 0·04% |
| AC VOLTAGE APPLIED ± 0·03% |
| DC CURRENT APPLIED ± 0·07% |
| AC CURRENT APPLIED ± 0·35% |