



JCSS
JCSS 0139

Calibration Certificate

Customer name IWATSU ELECTRIC CO.,LTD Test & Measurement Sales Dept.

Address of customer 7-41, 1-Chome, Kugayama ,Suginami-ku Tokyo, 168-8501, Japan

Name of item Curve Tracer

Type CS-3300

Serial number BE177090434

Name of manufacture IWATSU ELECTRIC CO.,LTD

Calibration method Calibration manual J24003-3

Calibration location 7-41, 1-Chome, Kugayama ,Suginami-ku Tokyo, 168-8501, Japan
IWATSU ELECTRIC CO., LTD. Quality Satisfaction Dept.
Standardization Center Standard Lab.

Environmental conditions Temperature 23°C±2°C, Humidity 55%±10%

Calibration date October 7, 2024

Measurand DC Voltage

We certify your calibraion results are as the following page.

Date of issue October 7, 2024

IWATSU ELECTRIC CO., LTD. Quality Satisfaction Dept.
Standardization Center
7-41, 1-Chome, Kugayama ,Suginami-ku Tokyo, 168-8501, Japan
Manager of Standardization Center

Authorised signature

• This certificate is based on article 144 of the Measurement Act and indicates the result of calibration in accordance with measurement standards traceable to Primary Measurement Standards (National Standards) which realizes the physical units of measurement according to the International System of Units (SI). The accreditation symbol is attestation of which the result of calibration is traceable to Primary Measurement Standards (National Standards).

• The certificate shall not be reproduced except in full, without the written approval of the issuing laboratory.

• The calibration laboratory which issued this calibration certificate conforms to ISO/IEC 17025:2017.

• This calibration certificate was issued by the calibration laboratory accredited by IA Japan who is a signatory to the Mutual Recognition Arrangement (MRA) of International Laboratory Accreditation Cooperation (ILAC) and Asia Pacific Accreditation Cooperation (APAC). These calibration results may be accepted internationally through ILAC/APAC MRA.

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Calibration Results

Range	Input value	Calibration value	Expanded uncertainty (Coverage Factor $k=2$)
50 mV/div	-0.4426 V	-445.28 mV	0.17 %
50 mV/div	-0.0041 mV	-0.11 mV	0.11 mV
50 mV/div	0.4462 V	448.27 mV	0.17 %
100 mV/div	-0.8935 V	-897.0 mV	0.17 %
100 mV/div	-0.0040 mV	-0.3 mV	0.11 mV
100 mV/div	0.8972 V	899.4 mV	0.17 %
200 mV/div	-1.79738 V	-1.8030 V	0.17 %
200 mV/div	-0.0041 mV	-1.1 mV	0.11 mV
200 mV/div	1.80130 V	1.8041 V	0.17 %
500 mV/div	-4.50943 V	-4.5304 V	0.17 %
500 mV/div	-0.0039 mV	-1.5 mV	0.32 mV
500 mV/div	4.51642 V	4.5320 V	0.17 %
1 V/div	-8.99786 V	-9.032 V	0.17 %
1 V/div	-0.0038 mV	-2 mV	1.2 mV
1 V/div	8.98272 V	9.009 V	0.17 %
2 V/div	-17.9881 V	-18.022 V	0.17 %
2 V/div	-0.0039 mV	-7 mV	1.2 mV
2 V/div	17.9635 V	17.982 V	0.17 %
5 V/div	-44.9551 V	-45.203 V	0.17 %
5 V/div	-0.0042 mV	-14 mV	3.4 mV
5 V/div	44.9775 V	45.176 V	0.17 %

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Calibration Results

Range	Input value	Calibration value	Expanded uncertainty (Coverage Factor $k=2$)
10 V/div	-91.1971 V	-91.61 V	0.17 %
10 V/div	-0.0054 mV	-0.03 V	11 mV
10 V/div	90.0231 V	90.36 V	0.17 %
20 V/div	-180.008 V	-180.51 V	0.17 %
20 V/div	-0.0053 mV	-0.06 V	14 mV
20 V/div	179.784 V	180.14 V	0.17 %
50 V/div	-449.826 V	-452.03 V	0.17 %
50 V/div	0.0393 mV	0.15 V	45 mV
50 V/div	450.181 V	452.44 V	0.17 %
100 V/div	-900.171 V	-902.8 V	0.17 %
100 V/div	0.0402 mV	0.1 V	86 mV
100 V/div	900.702 V	903.1 V	0.17 %
200 V/div	-1001.028 V	-1003.8 V	0.17 %
200 V/div	0.0395 mV	0.2 V	0.22 mV
200 V/div	998.614 V	1001.5 V	0.17 %
500 V/div	-1001.090 V	-1002.6 V	0.17 %
500 V/div	0.0389 mV	-0.2 V	0.32 V
500 V/div	998.625 V	999.8 V	0.17 %

Note:

- ① The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$ such that the coverage probability corresponds to approximately 95%.
- ② The displayed value of the reference standard is corrected by the external calibration result of the reference standard. The corrected displayed value is used as the Input value.
- ③ The displayed value of the curve tracer is used as the Calibration value.

— End —

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