ACCREDITED
Calibration Cert# 2166.01

# Certificate of Calibration

## Everett Service Center

| | | | |
|---|---|---|---|
| **Certificate Number:** | EVL743342 | | |
| **Data Type:** | As-Left | **Calibration Date:** | 01-Oct-2021 |
| **Result Summary:** | Measurement Results < Limits | | |
| **Manufacturer:** | Fluke | **Certificate Date:** | 01-Oct-2021 |
| **Model:** | 525B | **Temperature:** | 22.5 °C |
| **Serial Number:** | 2041092 | **Humidity:** | 44.1 % |
| **Description:** | Temperature / Pressure Calibrator | | |
| **Procedure:** | Fluke 525A_B (1Year_90 Day ) Calibration Verification | **Revision:** | 1.0 |
| **Customer:** | ILLIANA INSTRUMENTATION INCORPORATED | | |
| **City:** | SCHERERVILLE | **Country:** | US |
| **State:** | IN | | |
| **Purchase Order:** | 4236 | **RMA:** | 32279259 |
| **Asset ID:** | 1546 | | |

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 124 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 007.

The Data Type found in this certificate must be interpreted as:

- As - Found Calibration data collected before the unit is adjusted and / or repaired.
- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ISO/IEC 17025:2017 and ANSI/NCSL Z540-1-1994 (R2002).

In the attached measurement results, deviation may be expressed with units, Measured Value (MV) - Nominal Value (NV) or as a proportion of the nominal value ((MV-NV)/NV), expressed without units with a scalar multiplier such as % (0.01), or as a ratio of the units (mA/A, µV/V, etc.) Descriptions such as µA/A, µV/V, and others, where used to annotate results or column headings are the preferred replacements for what was historically labeled as "ppm" or parts-per-million and described the results in that column, unless otherwise noted by units symbols.

Where applicable, the expanded uncertainty of measurement at the time of test is given in the following pages. They are calculated in accordance with the method described in the ISO Guide to the Expression of Uncertainty in Measurement (GUM). The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k, such that the confidence level approximates 95%.

This calibration certificate may contain data that is not covered by the A2LA Scope of Accreditation. Unaccredited material, where applicable is indicated by an asterisk (*), or confined to clearly marked sections. Functional (Pass / Fail) tests are not accredited.

No statement of compliance with specifications is made or implied on this certificate. However, measurement results are reviewed, where applicable, to establish where any measurement result exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by '!'.

Cert # : EVL743342
Date: 10/1/2021
www.fluke.com

William Callaghan
Calibration Technician

**Certificate Number:** EVL743342 **Date of Calibration:** 01-Oct-2021

## Standards Used

| Asset | Description | Cal-Date | Cal-Due |
|---|---|---|---|
| 13861 | ESI SR1030 Resistance Transfer Standard | 10-Jun-2021 | 10-Oct-2021 |
| 13862 | ESI SR1030 Resistance Transfer Standard | 11-Feb-2021 | 11-Feb-2022 |
| 10776 | Fluke 5520A Calibrator | 15-Mar-2021 | 15-Dec-2021 |
| 15765 | Fluke 5640 Thermistor Probe | 03-Sep-2021 | 03-Sep-2022 |
| 7668 | Fluke 742A-1 Resistance Standard | 09-Dec-2020 | 09-Dec-2021 |
| J1713 | FLUKE 8508A Reference Multimeter | 08-Dec-2020 | 08-Dec-2021 |
| J1287 | Hart Scientific 1504 Thermometer Readout | 06-Apr-2021 | 06-Apr-2022 |
| 14367 | Omega TJ36-ICIN-18U-12-SB-SMPW-M "J" Type Rugged Transition Joint Probe | 27-Apr-2021 | 27-Apr-2022 |

## Calibration Data

| Parameter | Nominal Value | Measurement Result | Limits of Error Lower Limit | Limits of Error Upper Limit | Expanded Uncertainty |
|---|---|---|---|---|---|
| **INSTRUMENT IDENTIFICATION** | | | | | |
| Firmware Version: V1.31 | | | | | |
| 1 Year Specifications shown unless otherwise noted | | | | | |
| **DC VOLTAGE OUTPUT:** | | | | | |
| **100mV RANGE** | | | | | |
| 0.000000 V | 0.000000 | 0.0000014 | -0.0000030 | 0.0000030 | 8.0e-007 V |
| 0.025000 V | 0.025000 | 0.0250011 | 0.0249963 | 0.0250038 | 8.4e-007 V |
| 0.075000 V | 0.075000 | 0.0750006 | 0.0749947 | 0.0750052 | 1.3e-006 V |
| 0.100000 V | 0.100000 | 0.1000010 | 0.0999940 | 0.1000060 | 1.2e-006 V |
| **1 VOLT RANGE** | | | | | |
| 0.00000 V | 0.00000 | 0.000002 | -0.000010 | 0.000010 | 5.8e-006 V |
| 0.25000 V | 0.25000 | 0.250005 | 0.249983 | 0.250018 | 6.2e-006 V |
| 0.75000 V | 0.75000 | 0.750009 | 0.749968 | 0.750032 | 7.3e-006 V |
| 1.00000 V | 1.00000 | 1.000014 | 0.999960 | 1.000040 | 7.7e-006 V |
| **10 VOLT RANGE** | | | | | |
| 0.0000 V | 0.0000 | 0.00001 | -0.00010 | 0.00010 | 5.8e-005 V |
| 2.5000 V | 2.5000 | 2.50002 | 2.49983 | 2.50018 | 6.2e-005 V |
| 7.5000 V | 7.5000 | 7.50002 | 7.49967 | 7.50033 | 7.3e-005 V |
| 10.0000 V | 10.0000 | 10.00005 | 9.99960 | 10.00040 | 7.7e-005 V |
| **100 VOLT RANGE** | | | | | |
| 0.000 V | 0.000 | 0.0002 | -0.0010 | 0.0010 | 5.8e-004 V |
| 25.000 V | 25.000 | 25.0000 | 24.9982 | 25.0018 | 6.2e-004 V |
| 75.000 V | 75.000 | 74.9994 | 74.9968 | 75.0032 | 7.4e-004 V |
| 100.000 V | 100.000 | 99.9994 | 99.9960 | 100.0040 | 8.2e-004 V |
| **DC CURRENT OUTPUT** | | | | | |
| **100mA Range** | | | | | |
| 0.00000 mA | 0.00000 | 0.000001 | -0.001000 | 0.001000 | 5.9e-009 A |
| 25.00000 mA | 25.00000 | 24.999695 | 24.997750 | 25.002250 | 2.6e-007 A |
| 75.00000 mA | 75.00000 | 74.999219 | 74.995250 | 75.004750 | 3.0e-007 A |
| 100.0000 mA | 100.0000 | 99.99918 | 99.99400 | 100.00600 | 4.3e-007 A |
| **THERMOCOUPLE INPUT** | | | | | |
| -5.000 mV | -5.0000 | -5.001 | -5.003 | -4.997 | 1.0e-006 V |
| 15.000 mV | 15.0000 | 15.000 | 14.997 | 15.003 | 1.2e-006 V |
| 30.000 mV | 30.0000 | 30.000 | 29.996 | 30.004 | 1.6e-006 V |
| 50.000 mV | 50.0000 | 50.000 | 49.996 | 50.005 | 1.7e-006 V |

## Calibration Data

| Parameter | Nominal Value | Measurement Result | Limits of Error Lower Limit | Limits of Error Upper Limit | Expanded Uncertainty |
|---|---|---|---|---|---|
| 70.000 mV | 70.0000 | 70.000 | 69.995 | 70.005 | 1.9e-006 V |
| **THERMOCOUPLE OUTPUT** | | | | | |
| -5.000 mV | -5.000 | -4.9996 | -5.0031 | -4.9969 | 6.5e-007 V |
| 15.000 mV | 15.000 | 14.9996 | 14.9965 | 15.0035 | 6.1e-007 V |
| 30.000 mV | 30.000 | 30.0003 | 29.9961 | 30.0039 | 6.3e-007 V |
| 50.000 mV | 50.000 | 50.0003 | 49.9955 | 50.0045 | 6.7e-007 V |
| 70.000 mV | 70.000 | 70.0000 | 69.9949 | 70.0051 | 7.2e-007 V |
| **RESISTANCE OUTPUT** | | | | | |
| **400 Ohm Range** | | | | | |
| 5.000 Ohm | 5.000 | 4.9996 | 4.9850 | 5.0150 | 6.4e-004 Ω |
| 100.000 Ohm | 100.000 | 100.0004 | 99.9850 | 100.0150 | 1.1e-003 Ω |
| 200.000 Ohm | 200.000 | 200.0030 | 199.9850 | 200.0150 | 2.4e-003 Ω |
| 300.000 Ohm | 300.000 | 300.0049 | 299.9850 | 300.0150 | 3.0e-003 Ω |
| 400.000 Ohm | 400.000 | 400.0077 | 399.9850 | 400.0150 | 3.7e-003 Ω |
| **4000 Ohm Range** | | | | | |
| 5.0 Ohm | 5.0 | 5.01 | 4.70 | 5.30 | 5.8e-002 Ω |
| 1000.00 Ohm | 1000.00 | 999.987 | 999.700 | 1000.300 | 9.9e-003 Ω |
| 2000.00 Ohm | 2000.00 | 2000.000 | 1999.700 | 2000.300 | 2.6e-002 Ω |
| 3000.00 Ohm | 3000.00 | 3000.002 | 2999.700 | 3000.300 | 3.0e-002 Ω |
| 4000.00 Ohm | 4000.00 | 4000.018 | 3999.700 | 4000.300 | 3.7e-002 Ω |
| **RESISTANCE MEASURE** | | | | | |
| **400 Ohm Range** | | | | | |
| 0.00 Ohm | 0.00000 | 0.0003 | -0.0040 | 0.0040 | 1.2e-003 Ω |
| 100.00 Ohm | 100.0045 | 100.004 | 99.998 | 100.010 | 1.2e-003 Ω |
| 200.00 Ohm | 200.0059 | 200.004 | 199.998 | 200.014 | 1.2e-003 Ω |
| 300.00 Ohm | 300.0082 | 300.006 | 299.998 | 300.018 | 1.2e-003 Ω |
| 400.00 Ohm | 400.0109 | 400.007 | 399.999 | 400.023 | 1.2e-003 Ω |
| **4000 Ohm Range** | | | | | |
| 0.00 Ohm | 0.0000 | 0.000 | -0.030 | 0.030 | 9.7e-004 Ω |
| 1000.00 Ohm | 999.586 | 999.59 | 999.53 | 999.65 | 1.1e-002 Ω |
| 2000.00 Ohm | 1999.219 | 1999.17 | 1999.14 | 1999.30 | 1.1e-002 Ω |
| 3000.00 Ohm | 2998.854 | 2998.81 | 2998.75 | 2998.95 | 5.9e-003 Ω |
| 4000.00 Ohm | 3998.484 | 3998.43 | 3998.36 | 3998.60 | 5.9e-003 Ω |
| **COLD JUNCTION COMPENSATION** | | | | | |
| 22.7545 °C | 22.755 | 22.78 | 22.59 | 22.91 | 6.0e-002 °C |

FLUKE.

**Certificate Number:** EVL743342 **Date of Calibration:** 1-Oct-2021

## Calibration Data

| Parameter | Nominal Value | Measurement Result | Limits of Error Lower Limit | Limits of Error Upper Limit | Expanded Uncertainty |
|---|---|---|---|---|---|
| **PRESSURE MODULE IDENTIFICATION** | | | | | |
| Pressure module properly identified | | Pass | | | |