# Manual Supplement

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| Manual Title: | 1586A Users | Supplement Issue: | **3** |
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This supplement contains information necessary to ensure the accuracy of the above manual. This manual is distributed as an electronic manual on the following CD-ROM:

CD Title: 1586A
CD Rev. & Date: 6/2013
CD PN: 4107852

**FLUKE** ®

Calibration

# Change #1, 66263, 66773, 66913, 66954

On page 1-14, replace **Input Protection** and add:

**Safety**

Mains Input .............................. IEC 61010-1, Overvoltage Category II, Pollution Degree 2
Measurement Input .................. 50 Vdc max, all functions and ranges.

**Electromagnetic Environment** ..... IEC 61326-1: Basic (Controlled EM for full specification)

**Radio Frequency Emissions** ........ IEC CISPR 11: Group 1, Class A. (Group 1 has intentionally generated and/or uses conductively coupled radio-frequency energy which is necessary for the internal functioning of the equipment itself. Class A equipment is suitable for use in non-domestic locations and/or directly connected to a low-voltage power supply network.)

On pages 1-15 and 1-16, replace the *PRT/RTD Resistance Accuracy* and *PRT/RTD Temperature Accuracy* with*:*

## PRT/RTD Resistance Accuracy

Accuracy is given as % of measurement or ohms, whichever is greater. Basic accuracy is for 4-wire PRT/RTD. When using 3-wire PRT/RTD add 0.013 Ω to the accuracy specification for internal resistance mismatch and voltage offset if using Channel 1, or add 0.05 Ω if using channels x01 through x20. If the environment temperature is outside the specified range, multiply the temperature coefficient numbers by the temperature deviation and add to the accuracy specification.

| Range | Sample Rate | DAQ-STAQ Module and Channel 1 | High-Capacity Module | T.C./ °C Outside 18 °C to 28 °C |
|---|---|---|---|---|
| 0 Ω to 400 Ω | Slow | 0.002 % or 0.0008 Ω | 0.003 % or 0.003 Ω | 0.0001 % or 0.0008 Ω |
| | Medium | 0.002 % or 0.002 Ω | 0.003 % or 0.003 Ω | 0.0001 % or 0.0008 Ω |
| | Fast | 0.002 % or 0.005 Ω | 0.003 % or 0.006 Ω | 0.0001 % or 0.0008 Ω |
| 400 Ω to 4 kΩ | Slow | 0.004 % or 0.06 Ω | 0.006 % or 0.06 Ω | 0.0001 % or 0.008 Ω |
| | Medium | 0.004 % or 0.1 Ω | 0.006 % or 0.1 Ω | 0.0001 % or 0.008 Ω |
| | Fast | 0.004 % or 0.18 Ω | 0.006 % or 0.18 Ω | 0.0001 % or 0.008 Ω |

Note:
For conducted disturbances on mains input >1 V from 10 MHz to 40 MHz, add 0.25 Ω. For disturbances >3 V, accuracy is unspecified.

## PRT/RTD Temperature Accuracy

Accuracy is for 4-wire 100 Ω nominal PRT/RTD. When using 3-wire PRT/RTD add 0.039 °C to the accuracy specification for internal resistance mismatch and voltage offset if using Channel 1, or add 0.15 °C if using channels x01 through x20. If the environment temperature is outside the specified range, multiply the temperature coefficient number by the temperature deviation and add to the accuracy specification. Linear interpolation may be used between points in the table. Specifications do not include sensor accuracy. The practical range of temperature measurement depends on the sensor and characterization.

| Sample Rate | Temperature | DAQ-STAQ Module and Channel 1 | High-Capacity Module | T.C./ °C Outside 18 °C to 28 °C |
|---|---|---|---|---|
| Slow | −200 °C | 0.002 °C | 0.008 °C | 0.002 °C |
| | 0 °C | 0.005 °C | 0.008 °C | 0.003 °C |
| | 300 °C | 0.012 °C | 0.018 °C | 0.006 °C |
| | 600 °C | 0.02 °C | 0.03 °C | 0.01 °C |
| Medium | −200 °C | 0.005 °C | 0.008 °C | 0.002 °C |
| | 0 °C | 0.005 °C | 0.008 °C | 0.003 °C |
| | 300 °C | 0.012 °C | 0.018 °C | 0.006 °C |

| | 600 °C | 0.02 °C | 0.03 °C | 0.01 °C |
|------|----------|----------|----------|----------|
| Fast | −200 °C | 0.013 °C | 0.015 °C | 0.002 °C |
| | 0 °C | 0.013 °C | 0.015 °C | 0.003 °C |
| | 300 °C | 0.014 °C | 0.018 °C | 0.006 °C |
| | 600 °C | 0.02 °C | 0.03 °C | 0.01 °C |

Note:
For conducted disturbances on mains input >1 V from 10 MHz to 40 MHz, add 0.6 Celsius. For disturbances >3 V, accuracy is unspecified.

On page 1-16, add the following Note to *Thermistor Resistance Accuracy* table:

Note:
For conducted disturbances on mains input >1 V from 10 MHz to 40 MHz, add 8 Ω. For disturbances >3 V, accuracy is unspecified.

On page 1-17, add the following Note to all 3, *Thermistor Temperature Accuracy* tables:

Note:
For conducted disturbances on mains input >1 V from 10 MHz to 40 MHz, add 0.02 Celsius. For disturbances >3 V, accuracy is unspecified.

On page 1-20, add the following Notes to *DC Voltage Accuracy* table:

Note:
- For conducted disturbances on mains input >1 V from 10 MHz to 20 MHz, add 0.02 % of range. For disturbances >3 V, accuracy is unspecified.
- For radiated disturbances > 1V/m from 450 MHz to 550 MHz, add 0.02 % of range. For disturbances > 3V/m, accuracy is unspecified.

On page 1-21, change the Resistance Accuracy, 1 MΩ add the following Note to *Resistance Accuracy* table:

From:   0.004 % + 0.001 %
To:      0.006 % + 0.001 %

Note:
For conducted disturbances on mains input >1 V from 10 MHz to 40 MHz, add 0.06 % of range.. For disturbances >3 V, accuracy is unspecified.

On page 2-3 Table 2-1, replace the 220 V and the 240 V entries with:

| 220 V | 160 mA, 250 V (slow blow) | 4394437 |
|-------|---------------------------|---------|
| 240 V | 160 mA, 250 V (slow blow) | 4394437 |

On page 5-3, under *About the DMM Function*, replace the first sentence with:

The DMM is a digital multimeter feature that lets you quickly connect test leads to the front-panel to make voltage, resistance, current, and frequency.

On page 6-3 Table 6-1, replace the 220 V and the 240 V entries with:

| 220 V | 160 mA, 250 V (slow blow) | 4394437 |
|---|---|---|
| 240 V | 160 mA, 250 V (slow blow) | 4394437 |

On page 6-5 Table 6-3, delete:

| 3980562 | TL71 Test Lead Set | 1 |
|---|---|---|

On page 6-5, change:

From:

| 166488 ⚠ | Fuse 0.125A, 250V (slow blow) [2] | 1 |
|---|---|---|

To:

| 4394437 ⚠ | Fuse 0.160 mA, 250V (slow blow) [2] | 1 |
|---|---|---|

# Change #2, 362

On page 1-9, add the following to the **Symbols** table:

| ⬚ | Conforms to relevant South Korean EMC Standards. |
|---|---|

On page 1-14, add:

**Electromagnetic Compatibility**..... Applies to use in Korea only. Class A Equipment (Industrial Broadcasting & Communication Equipment) [1]

[1]  This product meets requirements for industrial (Class A) electromagnetic wave equipment and the seller or user should take notice of it. This equipment is intended for use in business environments and is not to be used in homes.

# Change #3, 40

On page 6-5 add the following section, prior to *User-Replaceable Parts and Accessories*:

## *Updating Firmware*

For Products with a firmware version 1.03 or higher, firmware may be updated by the product administrator using the front-panel USB port. New firmware versions may be located and downloaded from the Fluke Calibration web page for the Product under the Knowledge and Information tab. For Products that have firmware versions below 1.03, please contact Fluke Calibration Service to schedule a firmware update as these versions do not support the USB firmware update process.

**Update instructions for Products currently using version 1.03 and above:**

### ⚠Caution

- **Do not cycle the power or remove the USB device while the firmware update is in process. These actions will cause an instrument failure during the update process and require a return to a Fluke Service center to correct.**

- **The instrument will automatically re-boot when the update process is complete. Updates can take several minutes to complete and the display screen will not be illuminated until the re-boot occurs.**

*Note*

*Fluke Calibration recommends that you move all internal data files and setup files from the Product to a USB device prior to updating the Product firmware.*

Before the update process is started, verify that the current firmware is version 1.03 or above by viewing "Firmware" under the [Instrument SETUP] key. If your firmware version is below 1.03, do not continue the update process. You must return the Product to Fluke Calibration Service for updating.

**Firmware update steps:**

1. Download and extract the firmware update files (AuxInfo.txt and mtv.flt) to your computer from the Fluke Calibration website
2. Create a new folder "firmware" on a USB flash drive (1 GB or greater), which is being used to update the product, and then copy these files into this folder. To prevent corrupting these files, use the Windows utility to safely eject your USB flash drive from your computer.
3. Plug the USB flash drive into the Product and wait for the red light on the USB port to illuminate and show that the drive is recognized.

*Note*

*Some USB flash drives may not be recognized by the Product. Test the USB flash drive you intend to use prior to starting this update process to ensure it is recognized.*

4. Press [Instrument SETUP] to enter the Setup menu.
5. Press the Up/Down arrow button to select "Firmware" then press "F3" to enter the firmware menu.
6. Press "F1" and enter the administrator password and then press "F3" to start the update process.
7. WAIT until the Product automatically re-boots. There will be no screen display for several minutes during this time. Do not cycle the power or remove the USB device while the firmware update is in process.
8. After the automatic re-boot, press [Instrument SETUP] to verify that the update was successful. Verify the firmware version that you have installed is displayed on the screen.