

# Manual Supplement

Manual Title:	27 II/28 II Calibration	Supplement Issue:	5
Part Number:	Web-Only	Issue Date:	7/17
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This supplement contains information necessary to ensure the accuracy of the above manual..

## Change #1

On page 3, add the following under the **Warnings**:

The following **Warnings** apply when permitted for use by **MSHA**:

- **MSHA approved for use with three Energizer P/N E91 or three Duracell P/N MN1500 1.5 Volt, "AA" alkaline batteries only. All cells are to be replaced at the same time with identical part number cells in fresh air locations only.**
- **This multimeter is not to be used to check electrical blasting circuits.**
- **This multimeter is not to be connected to an electrically energized circuit in an area where permissibility is required.**

On page 4, add the following to the **Symbols** Table:

	United States Department of Labor, Mine Safety and Health Administration.
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On page 10, add the following under the **Warning**:

- **MSHA approved for use with three Energizer P/N E91 or three Duracell P/N MN1500 1.5 Volt, "AA" alkaline batteries only. All cells are to be replaced at the same time with identical part number cells in fresh air locations only.**

## Change #2

On page 2, under **Warning**, add:

- **Measure a known voltage first to make sure that the Product operates correctly.**
- **Do not exceed the Measurement Category (CAT) rating of the lowest rated individual component of a Product, probe, or accessory.**

On page 4, Table 1, replace CAT III, CAT IV and add CAT II to the Table:

<b>CAT II</b>	Measurement Category II is applicable to test and measuring circuits connected directly to utilization points (socket Outlets and similar points) of the low-voltage MAINS installation
<b>CAT III</b>	Measurement Category III is applicable to test and measuring circuits connected to the distribution part of the building's low-voltage MAINS installation.
<b>CAT IV</b>	Measurement Category IV is applicable to test and measuring circuits connected at the source of the building's low-voltage MAINS installation.

## Change #3, 56307, 63409, 64064, 64649, 548, 564

On page 4, add the following to the **Symbols** table:

	Conforms to relevant South Korean EMC Standards.
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On page 5, replace the entire **General Specification** with:

## General Specifications

### Maximum voltage between any

terminal and earth ground ..... 1000 V rms

Fuse for mA inputs ..... 440 mA, 1000 V, IR 10 kA

Fuse for A inputs ..... 11 A, 1000 V, IR 17 kA

### Display

Digital ..... 6000 counts, updates 4/sec (Model 28 II also has 19,999 counts in high-resolution mode).

Bargraph ..... 33 segments; updates 40/sec

### Altitude

Operating ..... 2,000 meters

Storage..... 10,000 meters

### Temperature

Operating ..... -15 °C to +55 °C, to -40 °C for 20 minutes when taken from 20 °C

Storage..... -55 °C to +85 °C (without battery)  
-55 °C to +60 °C (with battery)

### Temperature coefficient

28 II ..... 0.05 X (specified accuracy) / °C (< 18 °C or > 28 °C)

27 II ..... 0.1 X (specified accuracy) / °C (< 18 °C or > 28 °C)

**Electromagnetic Compatibility** ..... In an RF field of 3 V/m, accuracy = specified accuracy +20 counts, except 600 µA dc range total accuracy = specified accuracy +60 counts. Temperature not specified

### Electromagnetic Compatibility (EMC)

International..... IEC 61326-1: Portable, Electromagnetic Environment

CISPR 11: Group 1, Class A

*Group 1: Equipment has intentionally generated and/or uses conductively-coupled radio frequency energy that is necessary for the internal function of the equipment itself.*

*Class A: Equipment is suitable for use in all establishments other than domestic and those directly connected to a low-voltage power supply network that supplies buildings used for domestic purposes. There may be potential difficulties in ensuring electromagnetic compatibility in other environments due to conducted and radiated disturbances.*

*Caution: This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.*

*Emissions that exceed the levels required by CISPR 11 can occur when the equipment is connected to a test object.*

Korea (KCC)..... Class A Equipment (Industrial Broadcasting & Communication Equipment)

*Class A: Equipment meets requirements for industrial electromagnetic wave equipment and the seller or user should take notice of it. This equipment is intended for use in business environments and not to be used in homes.*

USA (FCC) ..... 47 CFR 15 subpart B. This product is considered an exempt device per clause 15.103.

**Relative Humidity**..... 0 % to 95 % (0 °C to 35 °C)

0 % to 70 % (35 °C to 55 °C)

**Battery Type**..... 3 AA Alkaline batteries, NEDA 15A IEC LR6, MSHA approved for use with three Energizer P/N E91 or three Duracell P/N MN1500 1.5 Volt, AA alkaline batteries only.

**Battery Life**..... 800 hrs typical without backlight (Alkaline)

**Vibration**..... Per MIL-PRF-28800 for a Class 2 instrument

**Size (H x W x L)**..... 1.80 in x 3.95 in x 8.40 in (4.57 cm x 10.0 cm x 21.33 cm)

**Size with Holster**..... 2.50 in x 3.95 in x 7.80 in (6.35 cm x 10.0 cm x 19.81 cm)

**Weight** ..... 1.14 lb (517.1 g)

**Weight with Holster and Flex-Stand** ..... 1.54 lb (698.5 g)

IP Rating .....	IP 67
Safety .....	IEC 61010-1: 600 V CAT IV / 1000 V CAT III, Pollution Degree 2
Electromagnetic Environment .....	IEC 61326-1: Portable
MSHA Approval .....	18-A100015-0

On page 8, in the **Input Characteristics** table, add the following footnote to the **Overload Protection** column:

[1] 10 <sup>6</sup> V Hz Max
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### Change #4, 548, 564, 603

On page 6, under **28 II AC Voltage**, replace note 1 with:

[1] Below 30 Hz, use the smoothing function. Below 20 Hz add 0.6 %.