

# HIOKI

CLAMP METER Series



# CLAMP METERS



1000A CAT II 600V  
CAT III 1000V



CM4375  
AC/DC  
CLAMP METER

TEMP

A+VVA



AUTO V

AUTO A

OFF

SHIFT

True RMS

DAD1

HOLD

# Remarkable Ease of Use New "Slim Jaw" Design

Innovative slim jaw resolves worksite issues such as crowded wiring to deliver safe, accurate and high-performance testing.

CM4376



Traditional design



Easily Clamp Within Crowded Cables with New Slim Jaw Design



CM4375  
CM4376

34 mm=1.34 in



CM4141  
CM4142

55 mm=2.17 in



CM3289

33 mm=1.30 in



CM3281  
CM3291

46 mm=1.81 in



CM4001

24 mm=0.94 in

**-25°C to 65°C  
operating temperature\*1**



CM4000 Series can be used in freezing temperatures or on the hottest summer days.

**Dustproof and  
waterproof performance\*1**



International Protection Code: IP54 Jaws (current sensor portion): IP50 Measurement functionality is maintained despite exposure to sand or dust as well as water droplets.

**CAT IV 600V\*1**



Safely measure embedded cables and electric panels with a maximum rated voltage to earth of 600V

**Using Bluetooth® communication with the Z3210\*2**

Install the Wireless Adapter Z3210 to enable Bluetooth® communications. With the Z3210, you can transfer data directly to an Excel® file and pair the instrument with GENNECT Cross.



Attach to enable Bluetooth® wireless technology



Transport to the Excel® file\*

\*It will be supported by the 2021 upgrade.



Transport to GENNECT Cross



Z3210  
For more details

**Manage measurement data using GENNECT Cross\*3**


Pair clamp meters built in with Bluetooth(R) wireless technology with the free GENNECT Cross mobile app to upload data to your mobile device for further data management, processing and reporting.




Bluetooth®  
communications

Transfer data to a tablet wirelessly

Screen1



Take a picture of the test location and map measured values on it

Screen2



Verify current waveforms on your mobile device

Screen3



Visualize intermittent GFCI and RCD trips Review trip times and maximum current values




Mail Cloud



- Save data and create reports right on the App
- Share data via cloud services or E-mail

**Downloading GENNECT Cross**

Data can be downloaded to tablets and smartphones using Hioki's dedicated apps available from the Google Play or App Store. Search for "HIOKI" and download the "GENNECT Cross" app.

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 \*For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.



**GENNECT  
Cross**  
For more details



# Safe, More Durable, and More Convenient

\*1 Supported models : CM4371, CM4372, CM4373, CM4374, CM4375, CM4376, CM4141, CM4142, CM3286, CM3286-01 \*2 CM4001, CM4002, CM4003  
 \*3 Supported models : CM4372, CM4374, CM4376, CM4142, CM3286-01, CM4001 (with Z3210), CM4002 (with Z3210), CM4003 (with Z3210)

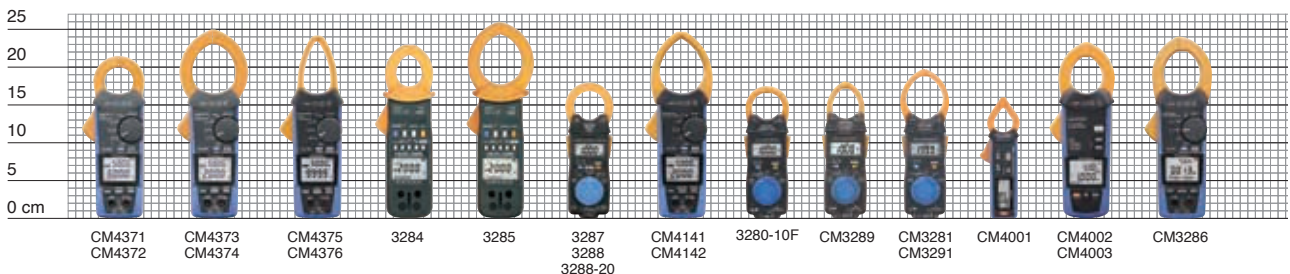
# Lineup

Clamp Multimeters How to Use



| Measurement type          | AC / DC Current                           |   |   |   |  |   |   |                                 |
|---------------------------|---|---|---|---|--|---|---|---------------------------------|
| Model                     | CM4371<br>CM4372                          | CM4373<br>CM4374                          | CM4375<br>CM4376                          | 3284                                      | 3285                                       | 3287                                      | 3288<br>3288-20                           |                                 |
| Appearance                |   |   |   |   |  |   |   |                                 |
| Core jaw diameter         | φ33 mm (1.30 in)                          | φ55 mm (2.17 in)                          | φ34 mm (1.34 in)                          | φ33 mm (1.30 in)                          | φ55 mm (2.17 in)                           | φ35 mm (1.38 in)                          | φ35 mm (1.38 in)                          |                                 |
| AC measurement system     | True RMS                                  | True RMS                                  | True RMS                                  | True RMS                                  | True RMS                                   | True RMS                                  | MEAN Value<br>True RMS (-20)              |                                 |
| Frequency characteristics | 10 Hz to 1 kHz                            | 10 Hz to 1 kHz                            | 10 Hz to 1 kHz                            | 10 Hz to 2 kHz                            | 10 Hz to 1 kHz                             | 10 Hz to 1 kHz                            | 10 Hz to 500 Hz                           |                                 |
| Measurement parameters    | AC current (Resolution)                   | 600 A (0.01)                              | 2000 A (0.1)                              | 1000 A (0.1)                              | 200 A (0.01)                               | 2000 A (0.1)                              | 100 A (0.01)                              | 1000 A (0.1)                    |
|                           | Guaranteed accuracy range                 | 1 A to 600 A                              | 1 A to 2000 A                             | 1 A to 999.9 A                            | 1 A to 200 A                               | 10 A to 2000 A                            | Full display range <sup>5</sup>           | Full display range <sup>5</sup> |
|                           | DC current (Resolution)                   | 600 A (0.01)                              | 2000 A (0.1)                              | 999.9 A (0.1)                             | 200 A (0.01)                               | 2000 A (0.1)                              | 100 A (0.01)                              | 1000 A (0.1)                    |
|                           | AC Voltage                                | 1000 V                                    | 1000 V                                    | 1000 V                                    | 600 V                                      | 600 V                                     | 600 V                                     | 600 V                           |
|                           | DC Voltage                                | 1500 V <sup>1</sup>                       | 1500 V <sup>1</sup>                       | 1500 V <sup>1</sup>                       | 600 V                                      | 600 V                                     | 600 V                                     | 600 V                           |
|                           | Power                                     | 1020 kVA (DC) <sup>1</sup>                | 3400 kVA (DC) <sup>1</sup>                | 1700 kVA (DC) <sup>1</sup>                | N / A                                      | N / A                                     | N / A                                     | N / A                           |
|                           | Resistance                                | 600 kΩ                                    | 600 kΩ                                    | 600 kΩ                                    | N / A                                      | N / A                                     | 42 MΩ                                     | 42 MΩ                           |
|                           | Temperature                               | -40°C to 400°C                            | -40°C to 400°C                            | -40°C to 400°C                            | N / A                                      | N / A                                     | N / A                                     | N / A                           |
|                           | Electrostatic capacity                    | ✓   | ✓   | ✓   | N / A                                      | N / A                                     | N / A                                     | N / A                           |
|                           | Frequency                                 | 999.9 Hz                                  | 999.9 Hz                                  | 999.9 Hz                                  | 1000 Hz                                    | 1000 Hz                                   | N / A                                     | N / A                           |
| Rush current              | ✓   | ✓   | ✓   | N / A                                     | N / A                                      | N / A                                     | N / A                                     |                                 |
| Continuity check          | ✓   | ✓   | ✓   | N / A                                     | N / A                                      | ✓   | ✓   |                                 |
| Diode check               | ✓   | ✓   | ✓   | N / A                                     | N / A                                      | N / A                                     | N / A                                     |                                 |
| Voltage detection         | ✓   | ✓   | N / A                                     | N / A                                     | N / A                                      | N / A                                     | N / A                                     |                                 |
| Low-pass filter           | ✓   | ✓   | ✓   | N / A                                     | N / A                                      | N / A                                     | N / A                                     |                                 |
| Auto power off            | ✓   | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |                                 |
| Auto range                | ✓   | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |                                 |
| Data hold                 | AUTO / MANUAL                             | AUTO / MANUAL                             | AUTO / MANUAL                             | MANUAL                                    | MANUAL                                     | MANUAL                                    | MANUAL                                    |                                 |
| Automatic AC/DC detection | ✓   | ✓   | ✓   | N / A                                     | N / A                                      | N / A                                     | N / A                                     |                                 |
| MAX / MIN / AVG           | ✓   | ✓   | ✓   | ✓   | ✓  | N / A                                     | N / A                                     |                                 |
| Output                    | N / A                                     | N / A                                     | N / A                                     | ✓   | ✓  | N / A                                     | N / A                                     |                                 |
| Bluetooth® communication  | ✓ (CM4372 only)                           | ✓ (CM4374 only)                           | ✓ (CM4376 only)                           | N / A                                     | N / A                                      | N / A                                     | N / A                                     |                                 |
| Backlight                 | ✓   | ✓   | ✓   | N / A                                     | N / A                                      | N / A                                     | N / A                                     |                                 |
| Display refresh rate      | 5 times / s                               | 5 times / s                               | 5 times / s                               | 4 times / s <sup>-3</sup>                 | 4 times / s <sup>-3</sup>                  | 2.5 times / s                             | 2.5 times / s                             |                                 |
| Safety standard category  | CAT IV 600 V<br>CAT III 1000 V            | CAT IV 600 V<br>CAT III 1000 V            | CAT IV 600 V<br>CAT III 1000 V            | CAT III 600 V                             | CAT III 600 V                              | V: CAT III 300 V<br>A: CAT III 600 V      | V: CAT III 300 V<br>A: CAT III 600 V      |                                 |
| CE                        | ✓   | ✓   | ✓   | N / A                                     | N / A                                      | ✓   | ✓   |                                 |
| Dustproof and waterproof  | IP54 <sup>2</sup>                         | IP54 <sup>2</sup>                         | IP54 <sup>2</sup>                         | IP40                                      | IP40                                       | N / A                                     | N / A                                     |                                 |
| Drop proof                | N / A                                     | N / A                                     | N / A                                     | N / A                                     | N / A                                      | N / A                                     | N / A                                     |                                 |
| Power supply              | LR03 x2<br>Alkaline                       | LR03 x2<br>Alkaline                       | LR03 x2<br>Alkaline                       | 6F22 x1<br>Stacked manganese              | 6F22 x1<br>Stacked manganese               | CR2032 x1<br>Coin type                    | CR2032 x1<br>Coin type                    |                                 |
| Dimensions (W x H x D)    | 65 x 215 x 35 mm<br>2.56 x 8.46 x 1.38 in | 65 x 250 x 35 mm<br>2.56 x 9.84 x 1.38 in | 65 x 242 x 35 mm<br>2.56 x 9.53 x 1.38 in | 62 x 230 x 39 mm<br>2.44 x 9.06 x 1.54 in | 62 x 260 x 39 mm<br>2.44 x 10.24 x 1.54 in | 57 x 180 x 16 mm<br>2.24 x 7.09 x 0.63 in | 57 x 180 x 16 mm<br>2.24 x 7.09 x 0.63 in |                                 |
| Weight                    | 340 g / 12.0 oz                           | 530 g / 18.7 oz                           | 330 g / 11.6 oz                           | 460 g / 16.2 oz                           | 540 g / 19.0 oz                            | 170 g / 6.0 oz                            | 150 g / 5.3 oz                            |                                 |

## Size comparison



\*1 Your instrument can be used to measure voltages in excess of 1000 V DC if and only if both of the following conditions are satisfied:

1. The circuit under measurement is isolated from the commercial power grid. 2. The circuit under measurement is isolated from ground.

e.g.: when measuring the no-load voltage of an ungrounded PV panel. Do not use the instrument with circuits whose terminal-to-ground voltage exceeds 1000 V. Doing so may result in electric shock.

\*2 Grip only, jaws: IP50, measurement functionality is maintained despite exposure to sand or dust as well as water droplets.

\*3 4 times / s (FAST), 2 times / s (NORMAL), 1 time / 3s (SLOW) \*4 Input Voltage \*5 displayed 0 with below 0.06

| Measurement type          | AC Current                                |   |   |   |   | Leakage Current                           |   | AC Power                                  |                 |
|---------------------------|---|---|---|---|---|---|---|---|-----------------|
| Model                     | CM4141<br>CM4142                          | 3280-10F                                  | CM3289                                    | CM3281                                    | CM3291                                    | CM4001                                    | CM4002<br>CM4003  | CM3286<br>CM3286-01                       |                 |
| Appearance                |   |   |   |   |   |   |   |   |                 |
| Core jaw diameter         | φ55 mm (2.17 in)                          | φ33 mm (1.30 in)                          | φ33 mm (1.30 in)                          | φ46 mm (1.81 in)                          | φ46 mm (1.81 in)                          | φ24 mm (0.94 in)                          | φ40 mm (1.57 in)  | φ46 mm (1.81 in)                          |                 |
| AC measurement system     | True RMS                                  | MEAN Value                                | True RMS                                  | MEAN Value                                | True RMS                                  | True RMS                                  | True RMS  | True RMS                                  |                 |
| Frequency characteristics | 45 Hz to 1 kHz                            | 50 / 60 Hz                                | 40 Hz to 1 kHz                            | 50 / 60 Hz                                | 40 Hz to 1 kHz                            | 40 Hz to 1 kHz                            | 15 Hz to 2 kHz  | 45 Hz to 1 kHz                            |                 |
| Measurement parameters    | AC current (Resolution)                   | 2000 A (0.01)                             | 1000 A (0.01)                             | 1000 A (0.01)                             | 2000 A (0.01)                             | 2000 A (0.01)                             | 600 A (0.01mA)  | 200 A (0.001mA)                           | 600 A (0.001)   |
|                           | Guaranteed accuracy range                 | 1 A to 2000 A                             | 4 A to 1000 A                             | 4 A to 1000 A                             | 4 A to 1999 A                             | 4 A to 1999 A                             | 0.6 mA to 600 A   | 0.06 mA to 200 A                          | 0.06 A to 600 A |
|                           | DC current (Resolution)                   | N / A                                     | N / A                                     | N / A                                     | N / A                                     | N / A                                     | N / A   | N / A                                     | N / A           |
|                           | AC Voltage                                | 1000 V                                    | 600 V                                     | 600 V                                     | 600 V                                     | 600 V                                     | N / A   | N / A                                     | 600 V           |
|                           | DC Voltage                                | 1500 V <sup>1</sup>                       | 600 V                                     | 600 V                                     | 600 V                                     | 600 V                                     | N / A   | N / A                                     | N / A           |
|                           | Power                                     | N / A                                     | N / A                                     | N / A                                     | N / A                                     | N / A                                     | N / A   | N / A                                     | 360 kW (AC)     |
|                           | Resistance                                | 600 kΩ                                    | 42 MΩ                                     | 42 MΩ                                     | 42 MΩ                                     | 42 MΩ                                     | N / A   | N / A                                     | N / A           |
|                           | Temperature                               | -40°C to 400°C                            | N / A                                     | N / A                                     | N / A                                     | N / A                                     | N / A   | N / A                                     | N / A           |
|                           | Electrostatic capacity                    | ✓   | N / A                                     | N / A                                     | N / A                                     | N / A                                     | N / A   | N / A                                     | N / A           |
|                           | Frequency                                 | 999.9 Hz                                  | N / A                                     | N / A                                     | N / A                                     | N / A                                     | 999.9 Hz  | 2000 Hz                                   | 999.9 Hz        |
| Rush current              | ✓   | N / A                                     | N / A                                     | N / A                                     | N / A                                     | ✓   | ✓   | N / A                                     |                 |
| Continuity check          | ✓   | ✓   | ✓   | ✓   | ✓   | N / A                                     | N / A   | N / A                                     |                 |
| Diode check               | ✓   | N / A                                     | N / A                                     | N / A                                     | N / A                                     | N / A                                     | N / A   | N / A                                     |                 |
| Voltage detection         | N / A                                     | N / A                                     | N / A                                     | N / A                                     | N / A                                     | N / A                                     | N / A   | N / A                                     |                 |
| Low-pass filter           | ✓   | N / A                                     | N / A                                     | N / A                                     | N / A                                     | ✓   | ✓   | N / A                                     |                 |
| Auto power off            | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   |                 |
| Auto range                | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   |                 |
| Data hold                 | AUTO / MANUAL                             | MANUAL                                    | MANUAL                                    | MANUAL                                    | MANUAL                                    | AUTO / MANUAL                             | AUTO / MANUAL   | AUTO / MANUAL                             |                 |
| Automatic AC/DC detection | ✓ (Voltage only)                          | N / A                                     | N / A                                     | N / A                                     | N / A                                     | N / A                                     | N / A   | N / A                                     |                 |
| MAX / MIN / AVG           | ✓   | N / A                                     | N / A                                     | N / A                                     | N / A                                     | ✓   | ✓   | ✓   |                 |
| Output                    | N / A                                     | N / A                                     | N / A                                     | N / A                                     | N / A                                     | N / A                                     | ✓ (CM4003 only)   | N / A                                     |                 |
| Bluetooth® communication  | ✓ (CM4142 only)                           | N / A                                     | N / A                                     | N / A                                     | N / A                                     | ✓ (with Z3210)                            | ✓ (with Z3210)  | ✓ (CM3286-01 only)                        |                 |
| Backlight                 | ✓   | N / A                                     | N / A                                     | N / A                                     | N / A                                     | ✓   | ✓   | ✓   |                 |
| Display refresh rate      | 5 times / s                               | 2.5 times / s                             | 2.5 times / s                             | 2.5 times / s                             | 2.5 times / s                             | 5 times / s                               | 5 times / s   | 2 times / s                               |                 |
| Safety standard category  | CAT IV 600 V<br>CAT III 1000 V            | V: CAT III 300 V<br>A: CAT IV 300 V       | V: CAT III 300 V<br>A: CAT IV 300 V       | V: CAT III 300 V<br>A: CAT IV 300 V       | V: CAT III 300 V<br>A: CAT IV 300 V       | CAT III 300 V                             | CAT IV 300 V (CM4002)<br>CAT III 600 V (CM4002)<br>CAT III 300 V (CM4003) | CAT IV 600 V<br>CAT III 1000 V            |                 |
| CE                        | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   |                 |
| Dustproof and waterproof  | IP54 <sup>2</sup>                         | IP40                                      | IP40                                      | IP40                                      | IP40                                      | N / A                                     | IP40  | IP54 <sup>2</sup>                         |                 |
| Drop proof                | N / A                                     | ✓   | ✓   | ✓   | ✓   | N / A                                     | N / A   | N / A                                     |                 |
| Power supply              | LR03 x2<br>Alkaline                       | CR2032 x1<br>Coin type                    | CR2032 x1<br>Coin type                    | CR2032 x1<br>Coin type                    | CR2032 x1<br>Coin type                    | LR03 x1<br>Alkaline                       | LR6 x2<br>Alkaline  | LR03 x2<br>Alkaline                       |                 |
| Dimensions (W x H x D)    | 65 x 247 x 35 mm<br>2.56 x 9.72 x 1.38 in | 57 x 175 x 16 mm<br>2.24 x 6.89 x 0.63 in | 57 x 181 x 16 mm<br>2.24 x 7.13 x 0.63 in | 57 x 198 x 16 mm<br>2.24 x 7.80 x 0.63 in | 57 x 198 x 16 mm<br>2.24 x 7.80 x 0.63 in | 37 x 160 x 27 mm<br>1.46 x 6.30 x 1.06 in | 64 x 233 x 36 mm<br>2.52 x 9.17 x 1.41 in                                 | 82 x 241 x 37 mm<br>3.23 x 9.49 x 1.46 in |                 |
| Weight                    | 300 g / 10.6 oz                           | 100 g / 3.5 oz                            | 100 g / 3.5 oz                            | 103 g / 3.6 oz                            | 103 g / 3.6 oz                            | 115 g / 4.1 oz                            | 400 g / 14.1 oz   | 450 g / 15.9 oz                           |                 |

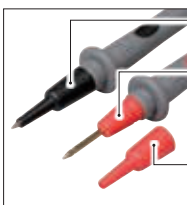
### Insulated sleeves prevent short-circuits



Previous model



NEW model



Sleeve attached

**CAT III, CAT IV**

No sleeve attached

**CAT II**

When a sleeve is not attached, the test leads can only be used in a CAT II environment.

**Sleeve**

included as a standard accessory

\*This sleeve cannot be attached to previous products

No sleeves attached to the tip of test leads?  
**DANGER** of short-circuit accident.

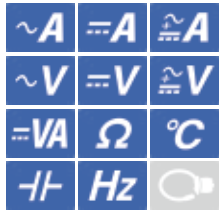
With sleeve attached to the tip of test leads,  
short-circuit accidents can be prevented.

# AC/DC Current



## AC/DC CLAMP METER CM4371, CM4372, CM4373, CM4374, CM4375, CM4376

Product warranty for 3 years  
Accuracy guaranteed for 1 year



**Accessories**



- L9207-10 C0203**
- LR03 Alkaline battery x2
  - Instruction manual



φ33 mm =1.30 in

**CM4371**  
**600 A AC/DC**  
True RMS  
CAT IV 600 V  
CAT III 1000 V

**CM4372**  
**600 A AC/DC**  
True RMS  
CAT IV 600 V  
CAT III 1000 V

GENNECT Cross  
**Bluetooth®**  
Please see www.hioki.com for list of supported regions.



φ55 mm =2.17 in

**CM4373**  
**2000 A AC/DC**  
True RMS  
CAT IV 600 V  
CAT III 1000 V

**CM4374**  
**2000 A AC/DC**  
True RMS  
CAT IV 600 V  
CAT III 1000 V

GENNECT Cross  
**Bluetooth®**  
Please see www.hioki.com for list of supported regions.



φ34 mm =1.34 in

**CM4375**  
**1000 A AC/DC**  
True RMS  
CAT IV 600 V  
CAT III 1000 V

**CM4376**  
**1000 A AC/DC**  
True RMS  
CAT IV 600 V  
CAT III 1000 V

GENNECT Cross  
**Bluetooth®**  
Please see www.hioki.com for list of supported regions.

## CLAMP ON AC/DC HiTESTER 3284, 3285

**Not CE marked**  
Product warranty for 3 years  
Accuracy guaranteed for 1 year



**Accessories**



- L9207-10 9399/9345\***
- Hand strap
  - Stacked manganese battery 6F22
  - Instruction manual

Model 3284 includes the 9399, and Model 3285 includes the 9346 carrying case.



φ33 mm =1.30 in

**3284**  
**200 A AC/DC**  
True RMS  
CAT III 600 V



φ55 mm =2.17 in

**3285**  
**2000 A AC/DC**  
True RMS  
CAT III 600 V

## CLAMP ON AC/DC HiTESTER 3287, 3288, 3288-20

Product warranty for 3 years  
Accuracy guaranteed for 1 year



**Accessories**



- L9208 9398**
- Coin type lithium battery CR2032x1
  - Instruction manual



φ35 mm =1.38 in

**3287**  
**100 A AC/DC**  
True RMS  
V: CAT III 300 V  
A: CAT III 600 V



φ35 mm =1.38 in

**3288**  
**1000 A AC/DC**  
True RMS  
V: CAT III 300 V  
A: CAT III 600 V



φ35 mm =1.38 in

**3288-20**  
**1000 A AC/DC**  
True RMS  
V: CAT III 300 V  
A: CAT III 600 V





For more details



| Model                  | CM4371 - 72 | CM4373 - 74 | CM4375 - 76 |   | Basic accuracy       |
|------------------------|-------------|-------------|-------------|---|----------------------|
| AC Current             | ✓           | N/A         | N/A         | 20.00 A/600.0 A (guaranteed accuracy range: 1.00 A to 600.0 A)  | ±1.3% rdg ±0.08 A    |
|                        | N/A         | ✓           | N/A         | 600.0 A/2000 A (guaranteed accuracy range: 1.0 A to 2000 A)     | ±1.3% rdg ±0.3 A     |
|                        | N/A         | N/A         | ✓           | 1000 A (guaranteed accuracy range: 1.0 A to 999.9 A)            | ±1.3% rdg ±0.3 A     |
| DC Current             | ✓           | N/A         | N/A         | 20.00 A/600.0 A (guaranteed accuracy range: ±1.00A to ±600.0 A) | ±1.3% rdg ±0.08 A    |
|                        | N/A         | ✓           | N/A         | 600.0 A/2000 A (guaranteed accuracy range: ±1.0A to ±2000 A)    | ±1.3% rdg ±0.3 A     |
|                        | N/A         | N/A         | ✓           | 1000 A (guaranteed accuracy range: ±1.0 A to ±999.9 A)          | ±1.3% rdg ±0.3 A     |
| AC + DC Current        | ✓           | N/A         | N/A         | 20.00 A/600.0 A   | ±1.3% rdg ±0.13 A    |
|                        | N/A         | ✓           | N/A         | 600.0 A/2000 A  | ±1.3% rdg ±1.3 A     |
|                        | N/A         | N/A         | ✓           | 30.0 A/900.0 A/999.9 A  | ±1.3% rdg ±1.3 A     |
| AC Voltage             | ✓           | ✓           | ✓           | 6.000 V/60.00 V/600.0 V/1000 V                                  | ±0.9% rdg ±0.003 V   |
| DC Voltage             | ✓           | ✓           | ✓           | 600.0 mV/6.000 V/60.00 V/600.0 V/1500 V <sup>2</sup>            | ±0.5% rdg ±0.5 mV    |
| AC + DC Voltage        | ✓           | ✓           | ✓           | 6.000 V/60.00 V/600.0 V/1000 V                                  | ±1.0% rdg ±0.013 V   |
| DC Power               | ✓           | N/A         | N/A         | 0.0 VA to 1020 kVA <sup>2</sup>                                 | ±2.0% rdg ±20 dgt    |
|                        | N/A         | ✓           | N/A         | 0.000 kVA to 3400 kVA <sup>2</sup>                              | ±2.0% rdg ±20 dgt    |
|                        | N/A         | N/A         | ✓           | 0.000 kVA to ±1700 kVA <sup>2</sup>                             | ±2.0% rdg ±0.020 kVA |
| Resistance             | ✓           | ✓           | ✓           | 600.0 Ω/6.000 kΩ/60.00 kΩ/600.0 kΩ                              | ±0.7% rdg ±0.5 Ω     |
| Temperature            | ✓           | ✓           | ✓           | -40.0°C to 400.0°C  | ±0.5% rdg ±3.0°C     |
| Electrostatic capacity | ✓           | ✓           | ✓           | 1.000 μF/10.00 μF/100.0 μF/1000 μF                              | ±1.9% rdg ±0.005 μF  |
| Frequency              | ✓           | ✓           | ✓           | 9.999 Hz/99.99 Hz/999.9 Hz                                      | ±0.1% rdg ±0.003 Hz  |

|                           |  |
|---------------------------|--|
| Display refresh rate      | 5 times/s <sup>3</sup>   |
| Operating temperature     | -25°C to 65°C, 90% RH or less (non-condensating)   |
| Storage temperature       | -30°C to 70°C, 90% RH or less (non-condensating)   |
| Dustproof and waterproof  | Grip IP54 <sup>4</sup>   |
| Power supply              | Alkaline battery LR03 x2   |
| Continuous operating time | 45 hours <sup>5</sup>  |
| Dimensions (W x H x D)    | CM4371, CM4372: 65 x 215 x 35 mm (2.56 x 8.46 x 1.38 in)<br>CM4373, CM4374: 65 x 250 x 35 mm (2.56 x 9.84 x 1.38 in)<br>CM4375, CM4376: 65 x 242 x 35 mm (2.56 x 9.53 x 1.38 in) |
| Weight                    | CM4371, CM4372: 340 g (12 oz)<br>CM4373, CM4374: 530 g (18.7 oz)<br>CM4375, CM4376: 330 g (11.6 oz)  |

- <sup>1</sup>Excludes CM4375, CM4376
- <sup>2</sup>Your instrument can be used to measure voltages in excess of 1000 V DC if and only if both of the following conditions are satisfied:
  - The circuit under measurement is isolated from the commercial power grid.
  - The circuit under measurement is isolated from ground.
 e.g.: when measuring the no-load voltage of an ungrounded PV panel Do not use the instrument with circuits whose terminal-to-ground voltage exceeds 1000 V. Doing so may result in electric shock.
- <sup>3</sup>Excludes electrostatic capacity, frequency, and temperature
- <sup>4</sup>While in storage, or when measuring an insulated conductor. Do not use when wet.
- <sup>5</sup>With backlight and Bluetooth® communications turned OFF

- Order code **CM4371**
- Order code **CM4372**
- Order code **CM4373**
- Order code **CM4374**
- Order code **CM4375**
- Order code **CM4376**



| Model           | 3284 | 3285 |  | Basic accuracy    |
|-----------------|------|------|--|-------------------|
| AC Current      | ✓    | N/A  | 20.00 A/200.0 A (guaranteed accuracy range: 1.00 A to 200.0 A) | ±1.3% rdg ±3 dgt  |
|                 | N/A  | ✓    | 200.0 A/2000 A (guaranteed accuracy range: 10.0 A to 2000 A)   | ±1.3% rdg ±3 dgt  |
| DC Current      | ✓    | N/A  | 20.00 A/200.0 A (guaranteed accuracy range: 1.00 A to 200.0 A) | ±1.3% rdg ±3 dgt  |
|                 | N/A  | ✓    | 200.0 A/2000 A (guaranteed accuracy range: 10.0 A to 2000 A)   | ±1.3% rdg ±3 dgt  |
| AC + DC Current | ✓    | N/A  | 20.00 A/200.0 A  | ±1.3% rdg ±13 dgt |
|                 | N/A  | ✓    | 200.0 A/2000 A   | ±1.3% rdg ±13 dgt |
| AC Voltage      | ✓    | ✓    | 30.00 V/300.0 V/600 V  | ±1.0% rdg ±3 dgt  |
| DC Voltage      | ✓    | ✓    | 30.00 V/300.0 V/600 V  | ±1.0% rdg ±3 dgt  |
| AC + DC Voltage | ✓    | ✓    | 30.00 V/300.0 V/600 V  | ±1.0% rdg ±7 dgt  |
| Frequency       | ✓    | ✓    | 10.00 Hz/100.0 Hz/1000 Hz                                      | ±0.3% rdg ±1 dgt  |

|                           |   |
|---------------------------|---|
| Display refresh rate      | 4 times/s (FAST), 2 times/s (NORMAL), 1 time/3s (SLOW)  |
| Operating temperature     | 0°C to 40°C, 80% RH or less (non-condensating)  |
| Storage temperature       | -10°C to 50°C (non-condensating)  |
| Dustproof and waterproof  | IP40  |
| Power supply              | Stacked manganese battery 6F22 x1, 25 hours or AC adapter 9445-02/-03 (Options)                   |
| Continuous operating time |   |
| Dimensions (W x H x D)    | 3284: 62 x 230 x 39 mm (2.44 x 9.06 x 1.54 in)<br>3285: 62 x 260 x 39 mm (2.44 x 10.24 x 1.54 in) |
| Weight                    | 3284: 460 g (16.2 oz) 3285: 540 g (19 oz)   |

**Includes external output function**  
Pair with a recorder to capture instantaneous or current waveforms

**Recording output (REC mode)**  
1V DC / f.s.

**Monitor output (MON mode)**  
1V AC / f.s.

\*Requires optional L9094, L9095 or L9096 Output Cord

- Order code **3284**
- Order code **3285**



| Model      | 3287 | 3288 | 3288-20 |  | Basic accuracy   |
|------------|------|------|---------|--|------------------|
| AC Current | ✓    | N/A  | N/A     | 10.00 A/100.0 A (Display range: 0A to 10.00 A/100.0 A) | ±1.5% rdg ±5 dgt |
|            | N/A  | ✓    | ✓       | 100.0 A/1000 A (Display range: 0A to 100.0 A/1000 A)   | ±1.5% rdg ±5 dgt |
| DC Current | ✓    | N/A  | N/A     | 10.00 A/100.0 A  | ±1.5% rdg ±5 dgt |
|            | N/A  | ✓    | ✓       | 100.0 A/1000 A   | ±1.5% rdg ±5 dgt |
| AC Voltage | ✓    | ✓    | ✓       | 4.200 V/42.00 V/420.0 V/600 V                          | ±2.3% rdg ±8 dgt |
| DC Voltage | ✓    | ✓    | ✓       | 420.0 mV/4.200 V/42.00 V/420.0 V/600 V                 | ±1.3% rdg ±4 dgt |
| Resistance | ✓    | ✓    | ✓       | 420.0 Ω/4.200 kΩ/42.00 kΩ/420.0 kΩ/4.200 MΩ/42.00 MΩ   | ±2.0% rdg ±4 dgt |

|                           |   |
|---------------------------|---|
| Display refresh rate      | 2.5 times/s   |
| Operating temperature     | 0°C to 40°C, 80% RH or less (non-condensating)      |
| Storage temperature       | -10°C to 50°C, 80% RH or less (non-condensating)    |
| Dustproof and waterproof  | N/A   |
| Power supply              | Coin type lithium battery CR2032 x1                 |
| Continuous operating time | 25 hours  |
| Dimensions (W x H x D)    | 57 x 180 x 16 mm (2.24 x 7.09 x 0.63 in)            |
| Weight                    | 3287: 170 g (6.0 oz), 3288, 3288-20: 150 g (5.3 oz) |

- Order code **3287**
- Order code **3288**
- Order code **3288-20**

# AC Current

## AC CLAMP METER CM4141, CM4142



Product warranty for 3 years  
Accuracy guaranteed for 1 year



**Accessories**



- L9207-10 C0203
- LR03 Alkaline battery x2
- Instruction manual



φ55 mm =2.17 in

**CM4141**

**2000 A AC**

True RMS

CAT IV 600 V  
CAT III 1000 V



φ55 mm =2.17 in

**CM4142**

**2000 A AC**

True RMS

CAT IV 600 V  
CAT III 1000 V



Please see [www.hioki.com](http://www.hioki.com) for list of supported regions.

## AC CLAMP METER 3280-10F, CM3289, CM3281, CM3291



Product warranty for 3 years  
Accuracy guaranteed for 1 year



**Accessories**



- L9208
- CARRYING CASE (models vary as shown on right)
- Coin type lithium battery CR2032x1
- Instruction manual



φ33 mm =1.30 in

**3280-10F**  
**3280-70F**

**1000 A AC**

MEAN Value

V: CAT III 300 V  
A: CAT IV 300 V



φ33 mm =1.30 in

**CM3289**

**1000 A AC**

True RMS

V: CAT III 300 V  
A: CAT IV 300 V



φ46 mm=1.81 in

**CM3281**  
**CM3291**

**2000 A AC**

CM3281: MEAN Value  
CM3291: True RMS

V: CAT III 300 V  
A: CAT IV 300 V



**CARRYING CASE**

# Leakage Current

## AC LEAKAGE CLAMP METER CM4001, CM4002, CM4003



Product warranty for 3 years  
Accuracy guaranteed for 1 year



WIRELESS ADAPTER Z3210 (Option)  
Attach to enable Bluetooth® wireless technology



φ24 mm=0.94 in

**CM4001**

**0.6 mA to 600 A AC**

True RMS

CAT III 300 V

**Accessories**



- CARRYING CASE
- STRAP
- LR03 Alkaline battery x1
- Instruction manual



Please see [www.hioki.com](http://www.hioki.com) for list of supported regions.

**With Z3210**



φ40 mm=1.57 in

**CM4002**

**0.06 mA to 200 A AC**

True RMS

CAT IV 300 V  
CAT III 600 V

**Accessories**



- C0203
- LR6 Alkaline battery x2
- Instruction manual



Please see [www.hioki.com](http://www.hioki.com) for list of supported regions.

**With Z3210**



φ40 mm=1.57 in

**CM4003**

**0.06 mA to 200 A AC**

True RMS

CAT III 300 V

**Accessories**



- C0203 L9097
- LR6 Alkaline battery x2
- Instruction manual
- USB cable



Please see [www.hioki.com](http://www.hioki.com) for list of supported regions.

**With Z3210**

**Functions**

- External output
- External power supply



For more details



| Model                  | CM4141 · CM4142 | Basic accuracy  |
|------------------------|-----------------|---|
| AC Current             | ✓               | 60.00 A/600.0 A/2000 A (guaranteed accuracy range: 1.00A to 2000 A) |
| AC Voltage             | ✓               | 6.000 V/60.00 V/600.0 V/1000 V                                      |
| DC Voltage             | ✓               | 600.0 mV/6.000 V/60.00 V/600.0 V/1500 V <sup>1</sup>                |
| AC + DC Voltage        | ✓               | 6.000 V/60.00 V/600.0 V/1000 V                                      |
| Resistance             | ✓               | 600.0 Ω/6.000 kΩ/60.00 kΩ/600.0 kΩ                                  |
| Temperature            | ✓               | -40.0°C to 400.0°C  |
| Electrostatic capacity | ✓               | 1.000 μF/10.00 μF/100.0 μF/1000 μF                                  |
| Frequency              | ✓               | 9.999 Hz/99.99 Hz/999.9 Hz  |

| Other                     |  |
|---------------------------|--|
| Display refresh rate      | 5 times/s <sup>2</sup>                           |
| Operating temperature     | -25°C to 65°C, 90% RH or less (non-condensating) |
| Storage temperature       | -30°C to 70°C, 90% RH or less (non-condensating) |
| Dustproof and waterproof  | Grip IP54 <sup>3</sup>                           |
| Power supply              | Alkaline battery LR03 x2                         |
| Continuous operating time | 48 hours <sup>4</sup>                            |
| Dimensions (W x H x D)    | 65 x 247 x 35 mm (2.56 x 9.72 x 1.38 in)         |
| Weight                    | 300 g (10.6 oz)                                  |

<sup>1</sup>Your instrument can be used to measure voltages in excess of 1000 V DC if and only if both of the following conditions are satisfied:  
 1. The circuit under measurement is isolated from the commercial power grid.  
 2. The circuit under measurement is isolated from ground.  
 e.g.: when measuring the no-load voltage of an ungrounded PV panel  
 Do not use the instrument with circuits whose terminal-to-ground voltage exceeds 1000 V. Doing so may result in electric shock.  
<sup>2</sup>Excludes electrostatic capacity, frequency, and temperature  
<sup>3</sup>While in storage, or when measuring an insulated conductor.  
 Do not use when wet.  
<sup>4</sup>With backlight and Bluetooth® communications turned OFF

Order code **CM4141**

Order code **CM4142**



| Model      | 3280-10F | CM3289 | CM3281 · CM3291 | Basic accuracy  |
|------------|----------|--------|-----------------|---|
| AC Current | ✓        | ✓      | N / A           | 42.00 A/420.0 A/1000 A (guaranteed accuracy range: 4.00A to 1000 A) |
| AC Voltage | N / A    | N / A  | ✓               | 42.00 A/420.0 A/2000 A (guaranteed accuracy range: 4.00A to 1999 A) |
| DC Voltage | ✓        | ✓      | ✓               | 4.200 V/42.00 V/420.0 V/600 V                                       |
| Resistance | ✓        | ✓      | ✓               | 420.0 mV/4.200 V/42.00 V/420.0 V/600 V                              |
|            |          |        |                 | 420.0 Ω/4.200 kΩ/42.00 kΩ/420.0 kΩ/4.200 MΩ/42.00 MΩ                |

| Other                     |  |
|---------------------------|--|
| Display refresh rate      | 2.5 times/s  |
| Operating temperature     | -25°C to 65°C, 80% RH or less (non-condensating)   |
| Storage temperature       | -25°C to 65°C, 80% RH or less (non-condensating)   |
| Dustproof and waterproof  | IP40 (EN60529)   |
| Power supply              | Coin type lithium battery CR2032 x1  |
| Continuous operating time | 3280-10F, CM3281: 120 hours<br>CM3289: 70 hours<br>CM3291: 70 hours  |
| Dimensions (W x H x D)    | 3280-10F: 57 x 175 x 16 mm (2.24 x 6.89 x 0.63 in)<br>CM3289: 57 x 181 x 16 mm (2.24 x 7.13 x 0.63 in)<br>CM3281, CM3291: 57 x 198 x 16 mm (2.24 x 7.80 x 0.63 in) |
| Weight                    | 3280-10F: 100 g (3.5 oz)<br>CM3289: 100 g (3.5 oz)<br>CM3281, CM3291: 103 g (3.6 oz)   |



3280F, CM3289, CM3291 are compatible with the CT6280 AC Flexible Current Sensor  
 Ø130mm (5.1 in), 4200 A AC

Model 3280-70F includes 3280-10F AC Clamp Meter and CT6280 AC Flexible Sensor as a set

Order code **3280-10F**

Order code **3280-70F**

Order code **CM3289**

Order code **CM3291**

<sup>1</sup> Excludes 3280F

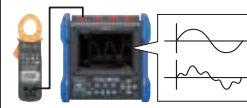


| Model      | CM4001 | CM4002 · CM4003 | Basic accuracy  |
|------------|--------|-----------------|---|
| AC Current | ✓      | N / A           | 60.00 mA/600.0 mA/6.000A/60.00A/600.0A (guaranteed accuracy range: 0.60 mA to 600.0A)           |
|            | N / A  | ✓               | 6.000 mA/60.00 mA/600.0 mA/6.000A/60.00A/200.0A (guaranteed accuracy range: 0.060 mA to 200.0A) |
| Frequency  | ✓      | N / A           | 999.9 Hz  |
|            | N / A  | ✓               | 999.9 Hz/2000 Hz  |

| Other                     |  |
|---------------------------|--|
| Display refresh rate      | 5 times/s  |
| Operating temperature     | -10°C to 65°C (non-condensating)   |
| Storage temperature       | CM4001: -10°C to 65°C (non-condensating)<br>CM4002, CM4003: -30°C to 70°C (non-condensating)                           |
| Dustproof and waterproof  | CM4002, CM4003: IP40   |
| Power supply              | CM4001: LR03 Alkaline battery x 1, 32 hours<br>CM4002, CM4003: LR6 Alkaline battery x 2, 48 hours (LR6, without Z3210) |
| Continuous operating time | CM4003: AC ADAPTER Z1013 (Option)  |
| Dimensions (W x H x D)    | CM4001: 37 x 160 x 27 mm (1.46 x 6.30 x 1.06 in)<br>CM4002, CM4003: 64 x 233 x 36 mm (2.52 x 9.17 x 1.41 in)           |
| Weight                    | CM4001: 115 g (4.1 oz)<br>CM4002, CM4003: 400 g (14.1 oz)  |

**Includes external output function (CM4003 Only)**

Pair with a recorder to capture instantaneous or current waveforms



**RMS value output (RMS mode)**  
 DC 600 mV/f.s.  
**Waveform output (WAVE mode)**  
 AC 600 mV/f.s.

\*Using CONNECTION CABLE L9097 (Accessories)

Order code **CM4001**

Order code **CM4001-90**

Order code **CM4002**

Order code **CM4002-90**

Order code **CM4003**

Order code **CM4003-90**

Order code **Z3210**

Model CM4001-90, CM4002-90, CM4003-90 includes Z3210 as a set



## AC CLAMP POWER METER CM3286, CM3286-01

Product warranty for 3 years  
Accuracy guaranteed for 1 year

φ46 mm=1.81 in



CM3286

CM3286-01

### CM3286

**AC 600 A**

True RMS

CAT IV 600 V  
CAT III 1000 V

### CM3286-01

**AC 600 A**

True RMS

CAT IV 600 V  
CAT III 1000 V



**Bluetooth**

Please see [www.hioki.com](http://www.hioki.com)  
for list of supported regions.

### Accessories



L9257

C0203

- LR03 Alkaline battery x2
- Instruction manual

Order code **CM3286**

Order code **CM3286-01**

<sup>1</sup> Harmonics can be displayed using dedicated application software (GENNECT Cross)

<sup>2</sup> While in storage, or when measuring current on an insulated conductor

|   | Measurement parameters   |  |
|---|--|--|
|   | Parameter  | Range and Accuracy   |
| Power (Active/reactive/apparent)                | Single phase   | 3.600 kW/36.00 kW/360.0 kW<br>Guaranteed accuracy range: 0.005 kW to 360.0 kW<br>Basic accuracy: ±2.0% rdg ±7 dgt  |
|   | Balanced three-phase 3-wire  | 7.200 kW/72.00 kW/720.0 kW<br>guaranteed accuracy range: 0.020 kW to 623.5 kW<br>Basic accuracy: ±3.0% rdg ±10 dgt |
|   | Balanced three-phase 4-wire  | 10.80 kW/108.0 kW/1080 kW<br>guaranteed accuracy range: 0.040 kW to 1080 kW<br>Basic accuracy: ±2.0% rdg ±3 dgt    |
| AC Current                                      | 6.000 A/60.00 A/600.0 A<br>Basic accuracy: ±1.0% rdg ±3 dgt  |  |
| AC Voltage                                      | 600.0 V<br>Basic accuracy: ±0.7% rdg ±3 dgt  |  |
| Power factor                                    | Single-phase, Balanced three-phase 4-wire:<br>[Regeneration] -1.000 to -0.001, [Consumption] 0.000 to 1.000<br>Balanced three-phase 3-wire:<br>[Regeneration] -0.001, [Consumption] 0.000 to 1.000 |  |
| Phase angle                                     | Single-phase, Balanced three-phase 4-wire :<br>[lead] -180.0° to -0.1°, [lag] 0.0° to 179.9°<br>Balanced three-phase 3-wire:<br>[lead] -90.0° to -0.1°, [lag] 0.0° to 90.0°                        |  |
| Frequency                                       | 45.0 Hz to 999.9 Hz  |  |
| Simple Active Energy Consumption (Single-phase) | 99.99 Wh/999.9 Wh/9.999 kWh/<br>99.99 kWh/999.9 kWh/9999 kWh/  |  |
| Harmonic <sup>1</sup><br>CM3286-01 only         | Voltage or current harmonic levels up to 30th order,<br>content factor, total harmonic distortion ratio  |  |
| Display refresh rate                            | 2 times/s  |  |
| Operating temperature                           | -25°C to 65°C, 80% RH or less (non-condensating)   |  |
| Storage temperature                             | -25°C to 65°C, 80% RH or less (non-condensating)   |  |
| Dustproof and waterproof                        | Grip IP54 <sup>2</sup>   |  |
| Other   | Power supply   | LR03 Alkaline battery x2   |
|   | Continuous operating time  | 25 hours   |
|   | Dimensions (W x H x D)   | 82 x 241 x 37 mm (3.23 x 9.49 x 1.46 inch)   |
| Weight  | 450 g (15.9 oz)  |  |

# Options

**3280-10F, CM3289, CM3281, CM3291, 3287\*, 3288\*, 3288-20\***

**CM437x series, CM414x series, CM3286, CM3286-01**

1 L9208 Cable length 70 cm (2.3 ft) With the Cap (Red x1, Black x1)

2 CT6280\*  $\Phi$ 130 mm (5.12 in) 4200 AAC \*Not available to use with 3287, 3288, 3288-20

3 L4933 50 mm (1.97 in)

4 L4934

6 L4933 50 mm (1.97 in)

7 L4934

8 L9243 97 mm (3.82 in)

9 L4932 With the Cap (Red x1, Black x1)

10 L4935

11 L4936

12 L4937 Magnet :  $\phi$ 6 mm (0.24 in)

13 9804 Magnet :  $\phi$ 11 mm (0.43 in)

14 L4938 With the Cap (Red x1, Black x1) 22 mm (0.87 in),  $\phi$ 3.7 mm (0.15 in)

15 L4939 1 22 mm (0.87 in)  $\phi$ 3.7 mm (0.15 in) 2  $\phi$ 48 mm (1.89 in)  $\phi$ 2.6 mm (0.1 in)

1 L9207-10 Cable length 90 cm (2.95 ft) With the Cap (Red x1, Black x1)

2 L4930 Cable length 120 cm (3.94 ft)

3 L4931 Cable length 150 cm (4.92 ft) with the coupling connector

4 DT4910 -40 to 260°C Sensor length: 80 cm (2.62 ft)

5 9290-10  $\Phi$ 55 mm (2.17 in) 1000 A AC (CT ratio of 10:1)

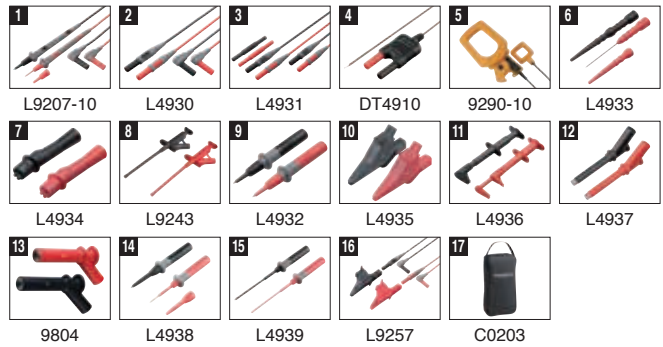
**3280-10F, CM3289, CM3281, CM3291, 3287, 3288, 3288-20**

|   |                                   |   |
|---|-----------------------------------|---|
| 1 | TEST LEAD L9208                   |   |
| 2 | AC FLEXIBLE CURRENT SENSOR CT6280 | For 3280-10F, CM3289, CM3281, CM3291      |
| 3 | CONTACT PIN SET L4933             |   |
| 4 | SMALL ALLIGATOR CLIP SET L4934    |   |
| 5 | CARRYING CASE 9398                | For 3280-10F, CM3289, 3287, 3288, 3288-20 |
| 6 | CARRYING CASE C0205               | Bundled accessory for CT6280              |
| 7 | TEST LEADS HOLDER 9209            | For 3280-10F, CM3289, 3287, 3288, 3288-20 |



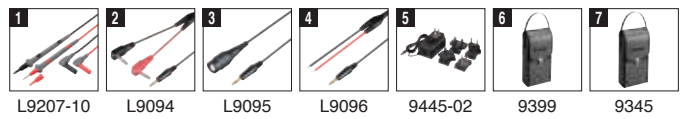
**CM437x series, CM4141, CM4142, CM3286, CM3286-01**

|    |                                |                                   |
|----|--------------------------------|-----------------------------------|
| 1  | TEST LEAD L9207-10             |                                   |
| 2  | CONNECTION CABLE SET L4930     |                                   |
| 3  | EXTENSION CABLE SET L4931      |                                   |
| 4  | THERMOCOUPLES(K) DT4910        | For CM437x series, CM4141, CM4142 |
| 5  | CLAMP ON ADAPTER 9290-10       | For CM3286, CM3286-01             |
| 6  | CONTACT PIN SET L4933          |                                   |
| 7  | SMALL ALLIGATOR CLIP SET L4934 |                                   |
| 8  | GRABBER CLIP L9243             |                                   |
| 9  | TEST PIN SET L4932             |                                   |
| 10 | ALLIGATOR CLIP SET L4935       |                                   |
| 11 | BUS BAR CLIP SET L4936         |                                   |
| 12 | MAGNETIC ADAPTER SET L4937     |                                   |
| 13 | MAGNETIC ADAPTER SET 9804      |                                   |
| 14 | TEST PIN SET L4938             |                                   |
| 15 | BREAKER PIN SET L4939          |                                   |
| 16 | CONNECTION CORD L9257          | Combination of L4930 and L4935    |
| 17 | CARRYING CASE C0203            |                                   |



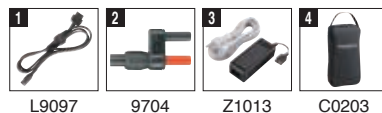
**3284, 3285**

|   |                    |                       |
|---|--------------------|-----------------------|
| 1 | TEST LEAD L9207-10 | 3284, 3285 only, 90cm |
| 2 | OUTPUT CORD L9094  | 1.5m, Banana terminal |
| 3 | OUTPUT CORD L9095  | 1.5m, BNC terminal    |
| 4 | OUTPUT CORD L9096  | 1.5m, Block terminal  |
| 5 | AC ADAPTER 9445-02 |                       |
| 6 | CARRYING CASE 9399 | 3284 only             |
| 7 | CARRYING CASE 9345 | 3285 only             |














**CM4002, CM4003**
















|   |                         |  |
|---|-------------------------|--|
| 1 | CONNECTION CABLE L9097  |  |
| 2 | CONVERSION ADAPTER 9704 |  |
| 3 | AC ADAPTER Z1013        |  |
| 4 | CARRYING CASE C0203     |  |



## About the Marks

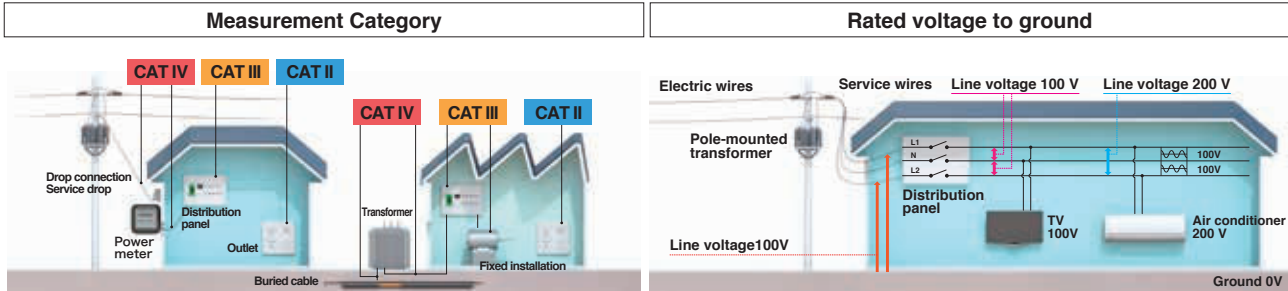
|   |  |
|---|--|
|    | <b>Safety standard measurement categories*</b>   |
|    | <b>Drop proof</b><br>Robust design capable of withstanding a drop from a height of 1 m onto concrete     |
|    | <b>Backlight</b>   |
|    | <b>Auto power OFF</b><br>Automatically turns off after a certain time                                    |
|    | <b>Display hold</b>  |
|    | <b>True RMS</b><br>True RMS measurement for accurate measurement of even distorted current waveforms     |
|    | <b>Low-pass filter</b><br>Cuts high frequency content to provide stable numerical values for measurement |
|    | <b>AUTO AC/DC</b><br>Automatically detects and measures AC and DC voltage                                |
|    | <b>MAX/MIN/AVG value*</b><br>Displays the maximum, minimum, and average of the displayed values          |
|    | <b>Peak measurement*</b><br>Displays the wave maximum and minimum peak values                            |
|  | <b>Flexible current sensor can be connected</b>  |

\*For more detailed information, please refer to the next page.

|   |  |
|---|--|
|    | <b>AC voltage</b>  |
|    | <b>DC voltage</b>  |
|    | <b>DCV + ACV</b>   |
|    | <b>Frequency</b>   |
|    | <b>Resistance</b>  |
|    | <b>Capacitance</b>   |
|    | <b>Temperature</b>   |
|    | <b>ACA current</b>   |
|    | <b>DCA current</b>   |
|    | <b>DCA + ACA</b>   |
|  | <b>DC Power</b>  |
|  | <b>Continuity check</b><br>Buzzer sounds when continuity is detected                                     |
|  | <b>Diode check</b><br>Displays voltage if in the correct direction, and OVER if in the reverse direction |
|  | <b>Voltage detection</b><br>Buzzer sounds when AC voltage is detected                                    |
|  | <b>Inrush (Rush current)</b><br>Measures inrush current when power is turned on, etc.                    |

**Measurement Category · Anticipated Transient Overvoltage**

Under safety standards (EN61010 Series, JIS C 1010 Series), measurement is classified into Categories II to IV according to the measurement point's rated voltage to ground, current capacity (size of current that flows in a short-circuit fault), etc., and the transient overvoltage that occurs at the measurement point.



- CAT II :** Measurement at a point from the power plug to the equipment's power circuits, where equipment is directly connected to an outlet.
- CAT III :** Measurement at a point on the power distribution cabling or power supply circuits, or at a point from the distribution panel to a distribution terminal behind an outlet, where equipment (for example a fixed installation) takes electricity directly from a distribution panel.
- CAT IV :** Measurement at a point on a service drop to a building, or on the line from the drop connection to the power meter or distribution panel.

**Anticipated Transient Overvoltage**

| Rated voltage to ground | Transient overvoltage |         |         |
|-------------------------|-----------------------|---------|---------|
|                         | CAT II                | CAT III | CAT IV  |
| 300 V                   | 2500 V                | 4000 V  | 6000 V  |
| 600 V                   | 4000 V                | 6000 V  | 8000 V  |
| 1000 V                  | 6000 V                | 8000 V  | 12000 V |

Power lines in factories and similar facilities will at times include transient overvoltage (impulse voltage) that is around 10 times the power source voltage. The transient overvoltage of the measurement points must be predicted in advance, and the instrument will need a safety design that will enable it to withstand such overvoltage.

**Marks**

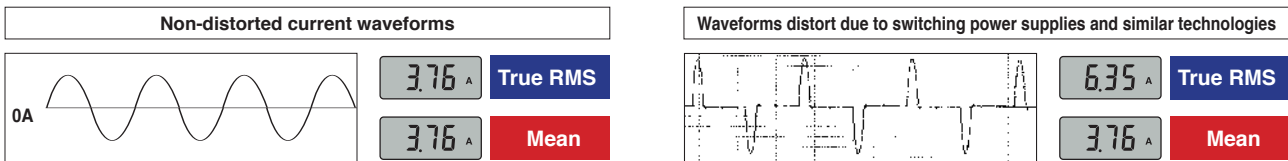
**CAT IV** **600V**  
 Measurement Category Rated voltage to ground

Assuming 600 V for the measurement point's voltage to ground, a Category IV location could potentially include transient overvoltage of 8000 V. Hence, CAT IV measurement instruments are designed to withstand transient overvoltage of 8000 V. CAT III measurement instruments can only withstand up to 6000 V, so if 8000 V transient overvoltage enters, it will cause insulation breakdown that could result in electric shock.

Never measure a location with a higher category number than the category indicated on the measuring instrument. Doing so could lead to a serious accident such as electric shock.

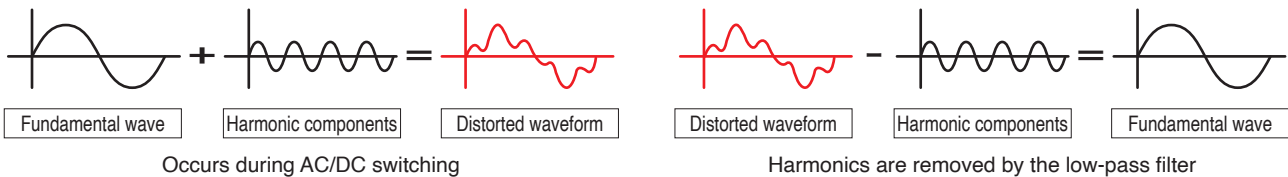
**Rectification Methods: True RMS and Mean**

A measuring instrument uses one of two rectification methods, "True RMS" or "Mean". Using mean rectification assumes that the signal is based on a sine wave without distortions in order to calculate the value. Distorted waveforms cannot be measured accurately using this method. As the performance of equipment increases, so do distorted waveforms. In order to accurately measure in these situations, using the True RMS method is necessary.

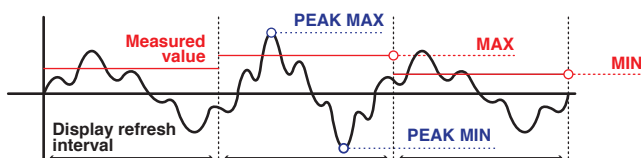


**Low-Pass Filter Reduces the Effects of Harmonics and Measures the Fundamental Wave Component Accurately**

Switching power supplies and the secondary side of inverters include harmonic components. Waveforms containing harmonics are distorted and difficult to measure with accuracy. By using a low-pass filter to remove harmonic components, accurate measurement values can be obtained.



**MAX/MIN/AVG/PEAK value**



The ability to identify the maximum, minimum, average, and crest maximum and minimum values for equipment like machine tools whose load current fluctuates is useful in preventive maintenance and quality control.

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