

HIOKI

PHASE DETECTOR
VOLTAGE DETECTOR Series



PHASE • VOLTAGE DETECTORS

DIGITAL PHASE DETECTOR PD3259-50



Product warranty for 3 years
Accuracy guaranteed for 1 year



Without metal contact



Hands free Z5020 (Option)



Please see www.hioki.com for list of supported regions.

With Z3210

Order code **PD3259-50**

Order code **Z3210**



C0203



Color clip



Z5020

Accessories

- CARRYING CASE C0203
- Dimensions: W135 mm (5.31 in) x H265 mm (10.43 in) x D65 mm (2.56 in)
- LR6 alkaline battery x4
- Color clips (White x2, red x2, blue x2, yellow x2)
- Spiral tubes (black x1)
- Instruction manual

Options

- MAGNETIC STRAP Z5020

Attach to enable Bluetooth® wireless technology



CAT IV 600 V

Soil, residue, or moisture on the insulated wires may result in lower voltage and power values than their true values. Use a dry cloth to remove before measuring.

| | | |
|--------------------------|---|--|
| Measurement parameters | Detection functions | Phase detection, open phase, prediction of ground phase (Three-phase line) |
| | Three-phase AC voltage (line-to-line voltage and voltage to ground) | 90.0 V to 520.0 V AC (Three-phase line) accuracy: ±2.0% rdg. ±8 dgt |
| | Frequency | 45 Hz to 66 Hz Accuracy: ±0.5% rdg. ±1 dgt |
| | Measurement targets | Covered cables, metal portions*1 Finished outer diameter 6 to 30 mm (0.24 to 1.18 in) |
| Other | 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 | IP54 (device body only) |
| | Standards | EN61010 (Safety), EN61326 Class A (EMC) |
| | Power supply Continuous operating time | LR6 alkaline battery x4 5 hours (Without Z3210) |
| Dimensions (W x H x D) | 84 x 146 x 46 mm (3.31 x 5.75 x 1.81 in) | |
| Mass | Cable length 50 cm (1.64 ft) 590 g (20.8 oz) | |

*1 Shielded cables not supported

PHASE DETECTOR PD3129, PD3129-10

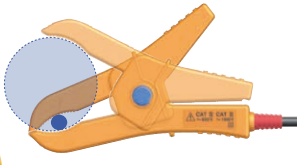


Product warranty for 3 years
Accuracy guaranteed for 1 year



φ2.4 mm (0.09 in) to φ17 mm (0.67 in)

PD3129: Thin Conductors



φ7 mm (0.28 in) to φ40 mm (1.57 in)

PD3129-10: Thick Conductors

Accessories

- CARRYING CASE
- Strap
- R6P manganese battery x2
- Spiral tube
- Instruction manual

Order code **PD3129**

Order code **PD3129-10**



PD3129

CAT IV 600 V

PD3129-10

CAT IV 600 V, CAT III 1000 V

| | | |
|----------------------------|---|---|
| Measurement parameters | Detection functions | Phase detection (positive and negative) |
| | Voltage range | PD3129 70 to 600 V AC (continuous sine wave) PD3129-10 70 to 1000 V AC (continuous sine wave) |
| | Frequency range | 45 Hz to 66 Hz |
| | Measurement targets | PD3129 2.4 mm (0.09 in) to 17 mm (0.67 in) of insulated wiring PD3129-10 7 mm (0.28 in) to 40 mm (1.57 in) of insulated wiring |
| Phase-detection indication | Positive | 4 LEDs lit in clockwise order and the buzzer sounds intermittently, green arrow lights up |
| | Negative | 4 LEDs lit in counterclockwise order and the buzzer sounds continuously |
| Other | Functions | Live line check, Battery check function |
| | Operating temperature | 0°C to 40°C, 80% rh or less (non-condensating) |
| | Storage temperature | -20°C to 60°C, 80% rh or less (non-condensating) |
| | Standards | EN61010 (Safety), EN61326 (EMC) |
| | Power supply Continuous operating time | R6P manganese battery x 2 5 hours |
| Dimensions(W x H x D) | 70 x 75 x 30 mm (2.76 x 2.95 x 1.18 in) Cable length 70 cm (2.30 ft) | |
| Mass | PD3129: 200 g (7.1 oz), PD3129-10: 240 g (8.5 oz) | |

VOLTAGE DETECTOR 3481-20



Product warranty for 3 years
Accuracy guaranteed for 1 year



with LED light



Red for voltage detection

Accessories

- LR44 button alkaline battery x3
- Instruction manual

Order code **3481-20**

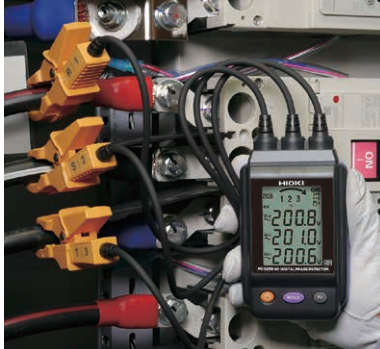


CAT IV 600 V

| | | |
|--------------------------|---|---|
| Measurement parameters | Operating voltage range | 40 to 600 V AC (50Hz/60Hz) |
| | Maximum sensitivity variable range | 40 to 80 V AC (50Hz/60Hz) |
| Other | Pilot light | Red LED lights up and the buzzer sounds when the wire is live |
| | Operating temperature | 0°C to 40°C, 80% rh or less (non-condensating) |
| | Storage temperature | -20°C to 60°C, 80% rh or less (non-condensating) |
| | Standards | EN61010 (Safety), EN61326 (EMC) |
| | Power supply Continuous operating time | LR44 button alkaline battery x 3 5 hours |
| Dimensions (W x H x D) | 20 x 126 x 15 mm (0.79 x 4.96 x 0.59 in) | |
| Mass | 30 g (1.1 oz) | |

Function introduction DIGITAL PHASE DETECTOR PD3259-50

covered cables, and your 3-phase power line inspection is complete.



Positive phase sequence display



1 phase sequence

2 Missing phase prediction

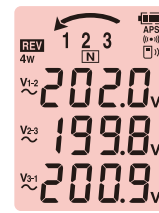
If the instrument predicts that one wire of the 3-phase circuit is missing, the icon for the phase predicted to be missing will not be displayed.

3 Ground phase prediction

If the "1" phase is grounded, the display will indicate "N" underneath "1".

4 3-phase line voltage measurement

5 Frequency measurement



Negative phase sequence display

- Red backlight
- with continuous tone



Measuring Frequency

Using Bluetooth® communication with the Z3210



WIRELESS ADAPTER Z3210 (Option)



Attach to enable Bluetooth® wireless technology

Transport to the Excel® file



Open an Excel® file and select a cell. The measured value being held on the instrument's display will be transferred to the computer and entered into the selected cell. (It will be supported by the 2021 upgrade.)

[Learn more Z3210](#)



Transport to GENNECT Cross



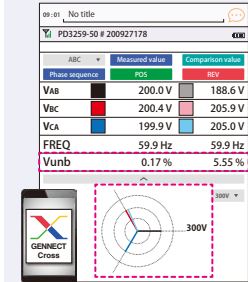
GENNECT Cross, a free app designed specifically for use with Hioki measuring instruments, lets you check and manage measurement results and create reports. The software provides a range of functionality that helps manage data in the field, including photographing measurement sites, placing measurement results on photographs, and saving hand written memos.

[Learn more GENNECT Cross](#)



New function in GENNECT Cross* (It will be supported by the 2021 upgrade.) You can check the

unbalance rate **vector diagram**



*This is a reference image of the planned completion.

Function introduction PHASE DETECTOR PD3129, PD3129-10

No-metal-contact design for the ultimate in safety, Easy-to-read arrow indicator.



Arrow: Green LED
Buzzer: Intermittent sound



Positive phase sequence display



Negative phase sequence display

- Arrow: Not lit up
- Buzzer: Continuous sound



Magnets for a more efficient workflow



70 hours of use with two AA batteries, Battery check function, Auto power off

Function introduction VOLTAGE DETECTOR 3480, 3481

Non-contact voltage detector lets you verify the hot-line state of AC voltage through the wire or cable covering.



Continuity check with your eyes and ears

No need for lights (3481 Only)



Sensitivity adjustment function









Maximum sensitivity variable range 40 V to 80 V.A.

Compact design that fits in a pocket



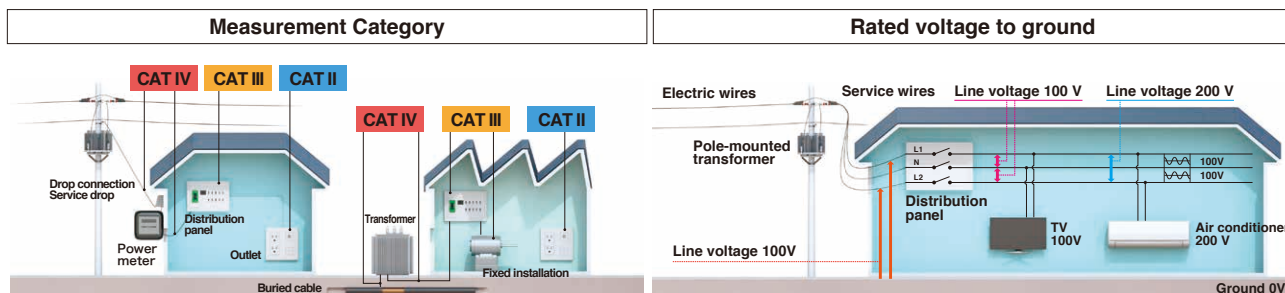
Handy clip with gap for strap.

| | |
|---|--|
|  | Safety standard categories |
|  | Drop proof Robust design capable of withstanding a drop from a height of 1 m onto concrete |
|  | Backlight |

| | |
|---|--|
|  | Auto power OFF Automatically turns off after a certain time |
|  | Display hold |
|  | True RMS True RMS measurement for accurate measurement of even distorted current waveforms |

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

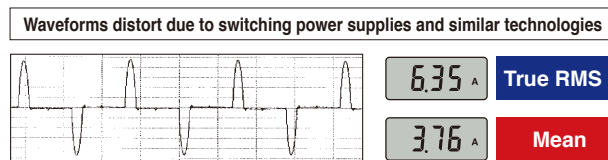
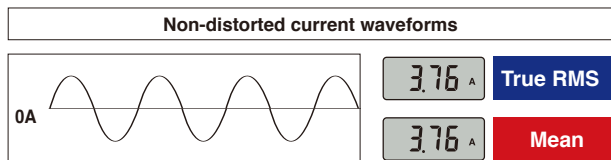
CAT IV **600V**
Measurement Category Rated voltage to ground

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 measurement point 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.



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