

# HIOKI

PHASE DETECTOR  
VOLTAGE DETECTOR Series

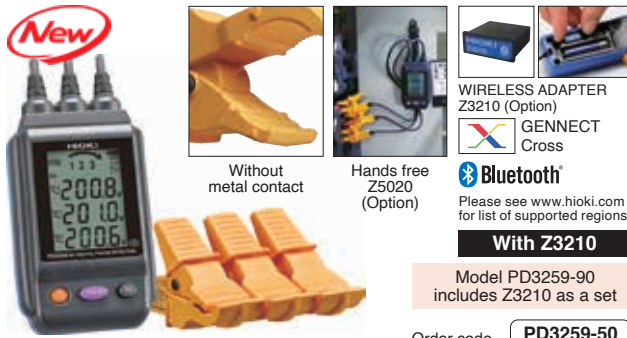


# PHASE • VOLTAGE DETECTORS

## DIGITAL PHASE DETECTOR PD3259-50



Product warranty for 3 years  
Accuracy guaranteed for 1 year



### 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



WIRELESS ADAPTER  
Z3210 (Option)  
GENNECT  
Cross

Bluetooth®

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

**With Z3210**

Model PD3259-90  
includes Z3210 as a set

Order code **PD3259-50**

Order code **PD3259-90**

Order code **Z3210**



C0203 Color clip 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: $\pm 2.0\%$ rdg. $\pm 8$ dgt
	Frequency	45 Hz to 66 Hz Accuracy: $\pm 0.5\%$ rdg. $\pm 1$ dgt
	Measurement targets	Covered cables, metal portions* <sup>1</sup> 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	LR6 alkaline battery x4
	Continuous operating time	5 hours (Without Z3210)
Other	Dimensions (W x H x D)	84 x 146 x 46 mm (3.31 x 5.75 x 1.81 in) Cable length 50 cm (1.64 ft)
	Mass	590 g (20.8 oz)

\*<sup>1</sup> Shielded cables not supported

## PHASE DETECTOR PD3129, PD3129-10



Product warranty for 3 years  
Accuracy guaranteed for 1 year



$\phi 2.4$  mm (0.09 in) to  $\phi 17$  mm (0.67 in)

PD3129: Thin Conductors

$\phi 7$  mm (0.28 in) to  $\phi 40$  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**

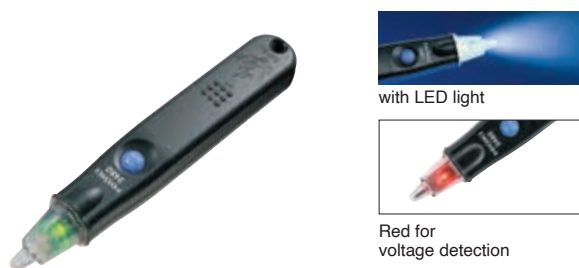
PD3129-10 **CAT IV 600 V, CAT III 1000 V**

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	R6P manganese battery x 2
	Continuous operating time	5 hours
Other	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**

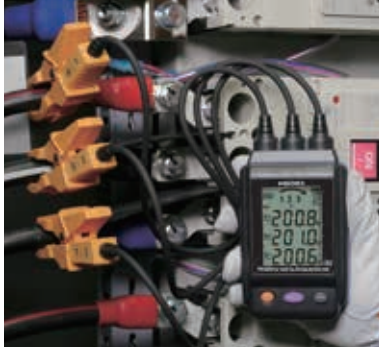


**CAT IV 600 V**

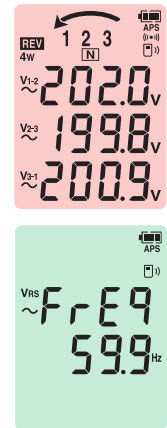
Measurement parameters	Operating voltage range	40 to 600 V AC (50Hz/60Hz)
	Maximum sensitivity variable range	40 to 80 V AC (50Hz/60Hz)
Other	Pilot light	Red LED lights up and the buzzer sounds when the wire is live
	Operating temperature	0°C to 40°C, 80% rh or less (non-condensating)
	Storage temperature	-20°C to 60°C, 80% rh or less (non-condensating)
	Standards	EN61010 (Safety), EN61326 (EMC)
	Power supply	LR44 button alkaline battery x 3
	Continuous operating time	5 hours
Other	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.



- 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**

**Low battery**

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.



**No need for lights (3481 Only)**

**Sensitivity adjustment function**

Maximum sensitivity variable range 40 V to 80 V AC

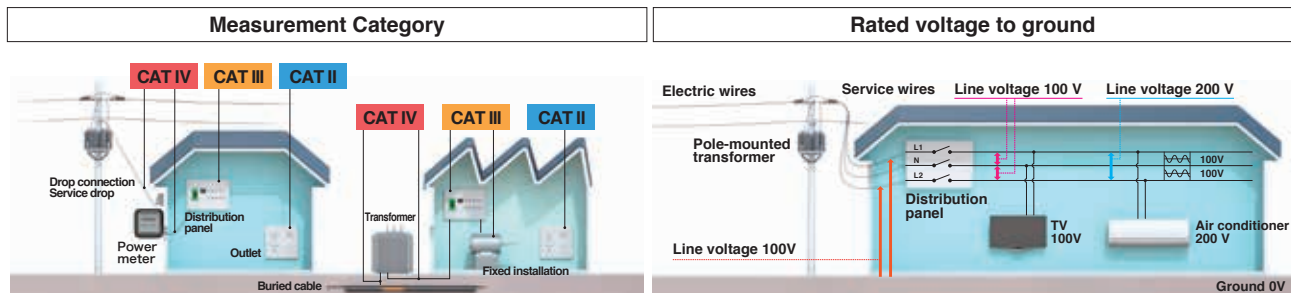


	<b>Safety standard categories</b>
	<b>Drop proof</b> Robust design capable of withstanding a drop from a height of 1 m onto concrete
	<b>Backlight</b>

	<b>Auto power OFF</b> Automatically turns off after a certain time
	<b>Display hold</b>
	<b>True RMS</b> 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**

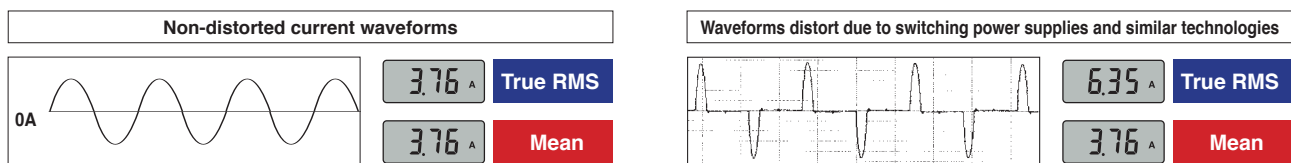
**CAT IV** **600V**  
Measurement Category Rated voltage to ground

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

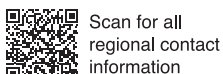
A measuring instrument uses one of two rectification methods, "True RMS" or "Mean". Using mean rectification assumes that the signal is based on a sine wave without distortions in order to calculate the value. Distorted waveforms cannot be measured accurately using this method. As the performance of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