HIOKI

DIFFERENTIAL PROBE 9322

Introducing a 3-function universal probe

- **Floating measurement of high-voltage waveforms**
- **Detection of power supply surge noise**
- **RMS rectified output**

Main Applications

Measurement of potential differences included in common mode voltages, such as IGBT
Measurement of commercial power line waveforms, such as on 400V power lines
Measurement of high voltage surge noise waveforms
Measurement of the RMS value of inverter outputs, etc.

Product outline and features

3 kinds of measurement with a single probe
The DIFFERENTIAL PROBE 9322 provides floating measurement of high voltage waveforms, detection of surge noise on power supply lines, and true RMS rectified output of high voltage AC.

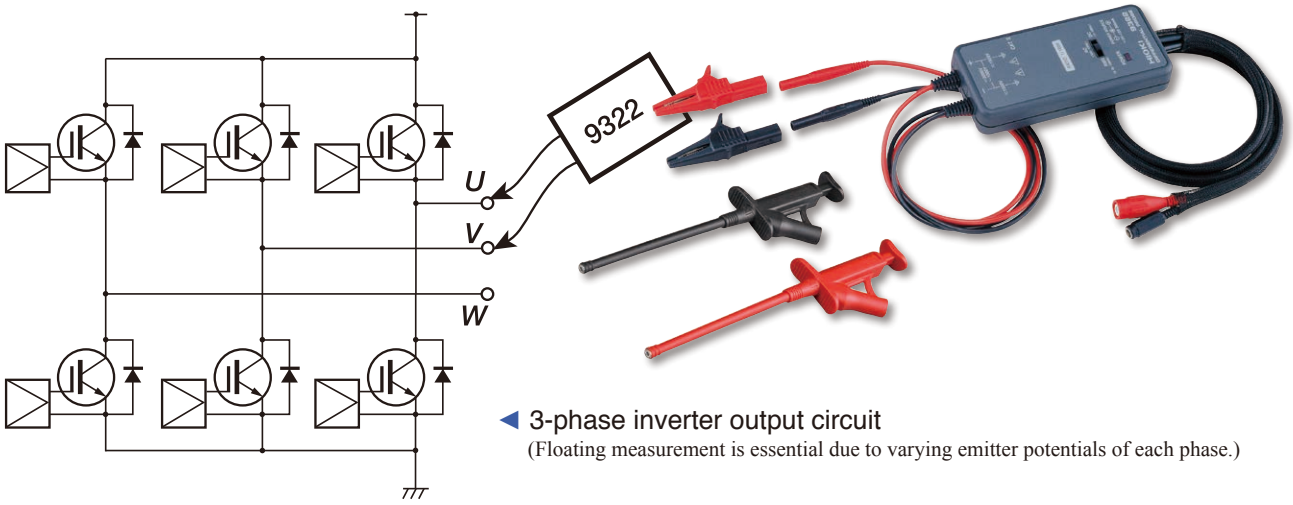
Supply power via an AC adapter or Hioki's Probe Power Unit.
The 9322 is extremely easy to use. Power can be supplied to the Differential Probe from either the AC Adapter 9418-15 or the Probe Power Unit Z5021, which is designed for use with the Memory HiCorder MR6000.

Floating measurement of high-voltage waveforms (DC mode)
When measuring the potential difference in signals containing a large common mode voltage component on commercial power lines, an electrocution hazard exists unless measurement is done using an instrument with fully isolated inputs, such as a Memory HiCorder. When measuring signals carrying common mode voltages with a high frequency component (such as those produced by inverter control circuits and switching power supplies), measurements are greatly affected by the rate of common mode elimination at the isolated inputs. Although Memory HiCorders provide the greatest possible to-ground voltage rating (ordinarily 400V AC or DC), use of the DIFFERENTIAL PROBE 9322 raises the rating level to 1000V AC/DC (CAT II) allowing measurement of circuits carrying even larger common mode voltages. Potential differences can be measured for input voltages of up to 2000V DC or 1000V AC (CAT II) producing a 1/1000 divided output.

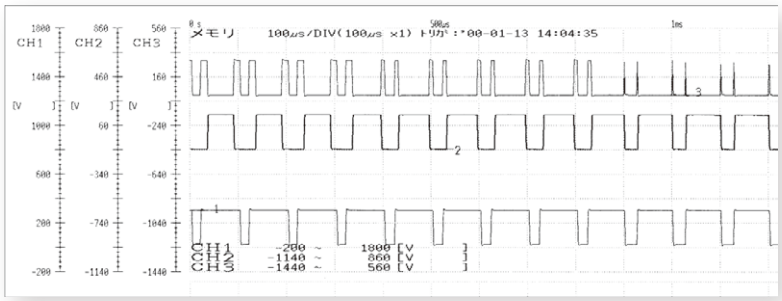
Measurement of power line surge noise (AC mode)
Upon selecting the AC output mode, the AC coupled signal inside the probe is divided by 1000 for output. Since the probe's frequency range is from 1kHz to 10MHz, output waveforms are produced only when input voltages contain high frequency components, such as surge noise imposed on 50/60Hz commercial mains power. The probe can thus serve as either a noise detector or for measurement of wave peaks.

Provides output of true RMS rectified voltages (RMS mode)
Upon selecting the RMS output mode, the input signal is divided by 1000, rectified to obtain the true RMS value, then output as a direct current voltage. True RMS rectification is performed by an analog circuit with a bandwidth of 40Hz to 100kHz, allowing true RMS conversion of signals containing high frequency components, such as inverter output waveforms, as well as 50/60Hz commercial mains.

CE 3 year Warranty



◀ 3-phase inverter output circuit
(Floating measurement is essential due to varying emitter potentials of each phase.)



◀ 3-phase inverter waveform recording example

Basic specifications (Accuracy guaranteed for 1 year)

Measurement functions	DC mode: Waveform monitor output, DC to 10 MHz ±3 dB AC mode: Detection of power line surge noise, 1 kHz to 10 MHz ±3 dB (Low frequency cut-off frequency 1 kHz ± 300 Hz) RMS mode: Rectified RMS output of DC and AC voltages, DC, 40 Hz to 100 kHz, Response speed: 200 ms or less (400 V AC)
Output	Voltage division ratio: 1/1000, BNC terminal (DC/AC/RMS 3-mode selectable output)
DC amplitude accuracy	±1 % f.s. (1000 V DC or less), ±3 % f.s. (2000 V DC or less) (f.s.=2000 V DC)
RMS amplitude accuracy	±1 % f.s. (DC, 40 Hz to 1 kHz), ±4 % f.s. (1 kHz to 100 kHz) (f.s.=1000 V AC)
Input resistance, capacity	H-L: 9 MΩ, approx 10 pF (C at 100 kHz) H-case, L-case: 4.5 MΩ, approx 20 pF (C at 100 kHz)
Max. allowable input	600 V AC/DC (CAT III), 2000 V DC, 1000 V AC (CAT II)
Max. rated voltage to earth	When using the Grabber Clip L9243: 1000 V AC/DC (CAT II) When using alligator clip: 1000 V AC/DC (CAT II), 600 V AC/DC (CAT III)
Power supply	(1) Via AC adapter 9418-15 *+5 to +12 V, less than 300 mA. DC jack OD 5.5 mm (0.22 in), ID 2.1 mm (0.08 in) (2) Supplied from the Probe Power Unit Z5021 via Power Cord 9248.
Dimensions and mass	70 mm (2.76 in)W × 150 mm (5.91 in)H × 25 mm (0.98 in)D, 350 g (12.3 oz), Cord length: Input 46 cm (1.51 ft), Output 1.3 m (4.27 ft)
Accessories	Alligator clips ×1 (red/black set), Grabber Clip L9243 ×1 (red/black set), Carrying case C0203 ×1, Instruction manual ×1

DIFFERENTIAL PROBE 9322

Model No. (Order Code)
9322 (For the Memory HiCorder series)

Connect to the Memory HiCorder's analog inputs. An AC adapter or Hioki's Probe Power Unit Z5021, which is designed for use with the Memory HiCorder MR6000, is required in order to provide power.
(Caution) To avoid electric shock, connect the power cord supplied with the main unit (Memory HiCorder or AC adapter for the 9322) to a grounded 2-pole outlet.
* For the latest information about how to power the 9322 with a Memory HiCorder, please visit the Hioki website.

Supplied Accessories

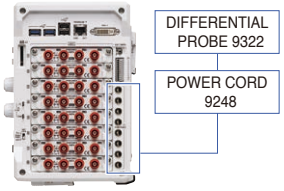
GRABBER CLIP
L9243
Attaches to the tip of the banana plug cable, Red/ Black: 1 each, 185 mm (7.28 in) length, CAT II 1000 V

CARRYING CASE
C0203

Power supply method

Power can be supplied from either the AC Adapter 9418-15 or the Probe Power Unit Z5021.

AC ADAPTER
9418-15
When used to power the 9322, 100 to 240 V AC.



PROBE POWER UNIT
Z5021
Memory HiCorder MR6000/MR6000-01 factory option. Install in the side of the unit to supply power to up to eight Differential Probe 9322 units.
* When a current sensor is connected to the Probe Power Unit Z5021, or the Current Unit 8971, U8977, the number of the 9322 connection including the current sensor is limited (up to a total of 9 including the current sensor).

POWER CORD
9248
Power supply to the 9322 through this cord from the Probe power unit Z5021, 70 cm (2.30 ft) length

DISTRIBUTED BY

HIOKI E.E. CORPORATION

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All information correct as of Apr. 1, 2022. All specifications are subject to change without notice.
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