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CLAMP SENSOR SERIES

CLAMP SENSOR



Wide-band Models from DC to 100 MHz
CLAMP ON PROBE 3276



ISO 9001
JMI-0216



ISO14001
JQA-E-90091



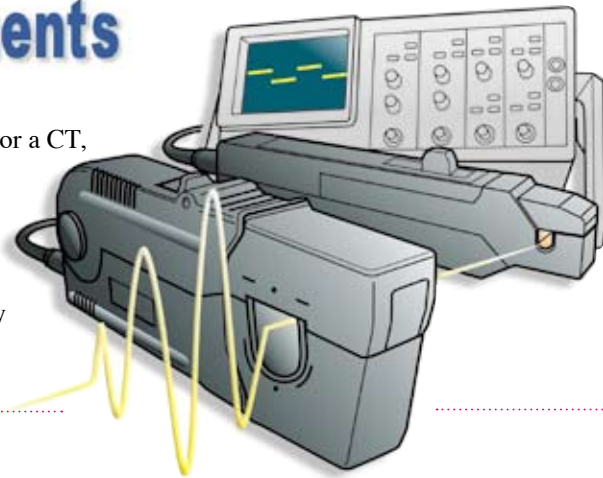
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CLAMP ON PROBE 3273-50 to 3276

From High Sensitivity (High S/N Ratio) to Large Current Measurements

Because current measurement requires the insertion of a shunt or a CT, the task often becomes difficult due to breaks in the electrical path. The 3273-50 - 3276 CLAMP ON PROBES only need to be connected directly into the BNC input on waveform observation equipment such as an oscilloscope or a recorder. Then simply clamp onto the conductor to be measured to easily observe current waveforms under a wide bandwidth and high sensitivity conditions.



Important Characteristics

3273-50

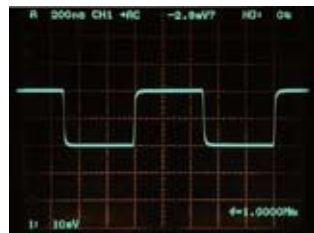
DC to 50 MHz

3273-50

■ Square wave response

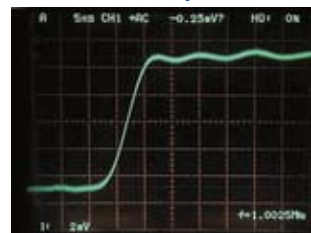


Input: 1 kHz square wave 200 mA-p
(Oscilloscope bandwidth 400 MHz)



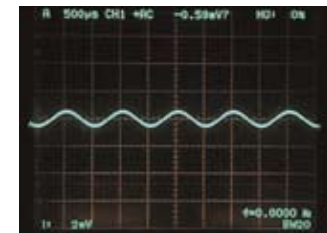
Input: 1 MHz square wave 200 mA-p
(Oscilloscope bandwidth 400 MHz)

■ Transient response



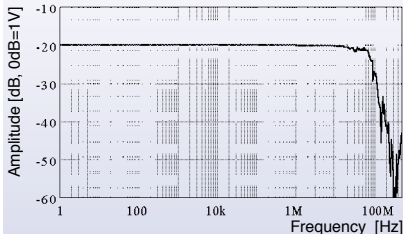
Input: 100 mA-p
(Oscilloscope bandwidth 400 MHz)

■ Low-current measurement

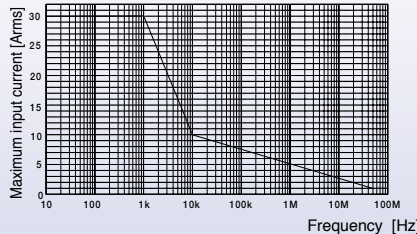


Input: 1 kHz sine wave 10 mA-p
(Oscilloscope bandwidth 20 MHz)

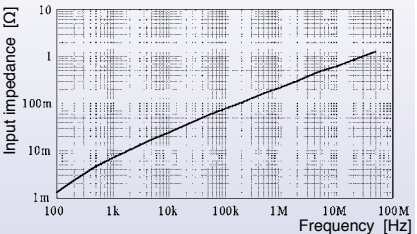
■ 1. Frequency response (Characteristics Example)



■ 2. Continuous maximum input rating (Frequency derating)



■ 3. Input impedance (Characteristics Example)



3276

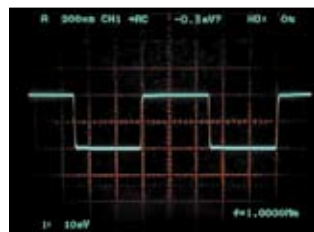
DC to 100 MHz

3276

■ Square wave response



Input: 1 kHz square wave 200 mA-p
(Oscilloscope bandwidth 400 MHz)



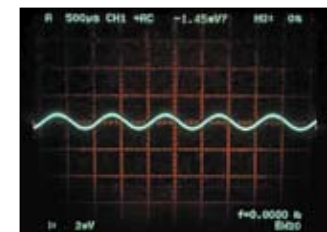
Input: 1 MHz square wave 200 mA-p
(Oscilloscope bandwidth 400 MHz)

■ Transient response



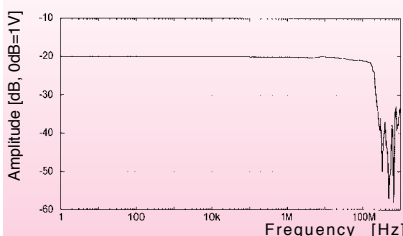
Input: 100 mA-p
(Oscilloscope bandwidth 400 MHz)

■ Low-current measurement

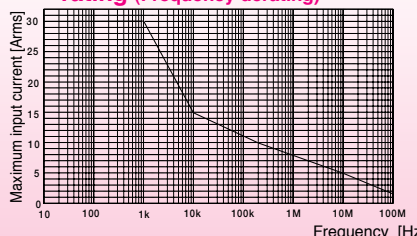


Input: 1 kHz sine wave 10 mA-p
(Oscilloscope bandwidth 20 MHz)

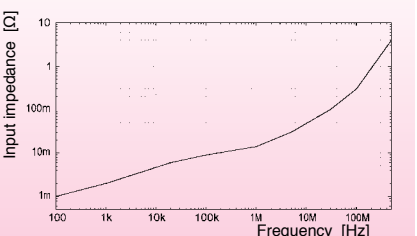
■ 1. Frequency response (Characteristics Example)



■ 2. Continuous maximum input rating (Frequency derating)



■ 3. Input impedance (Characteristics Example)



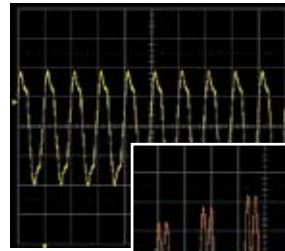
CLAMP ON PROBE 3273-50 to 3276

Features

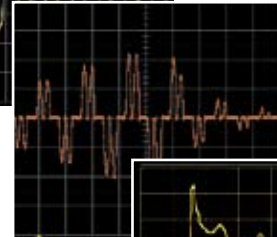
- High S/N ratio: ideal for measuring milliampere waveforms (Model 3273-50)
- Capable of waveform monitoring from wide band and minute currents to large currents (Model 3274)
- Permits waveform observation of large current of up to 500 Arms (Model 3275)
- Wide-band waveform observations, from DC to 100 MHz (Model 3276)
- Direct connection to BNC input of oscilloscope
- Highly accurate current detection
- Newly developed indium-antimony (InSb) thin-film Hall element
- Simple overload protector prevents damage due to overheating
- Easy measurement
- The 3273-50 includes a soft case, the 3274 / 3275 /3276 includes a hard carrying case



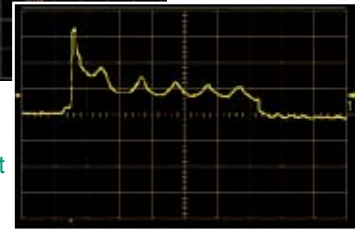
Waveform Example



Lighting Inverter
200 mA/div
20 μs/div



Press Machine Load Current
50 A/div
10 ms/div



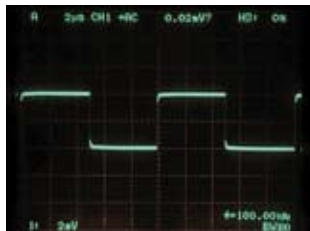
Automobile Starter Current
100 A/div
1 s/div

3274 DC to 10 MHz 3274

Square wave response

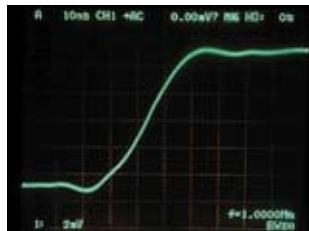


Input: 100 Hz square wave 20 Ap-p
(Oscilloscope bandwidth 100 MHz)



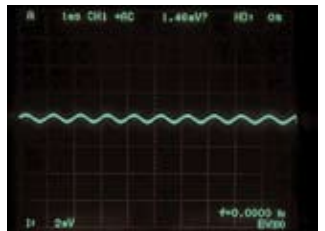
Input: 100 kHz square wave 400 mAp-p
(Oscilloscope bandwidth 100 MHz)

Transient response



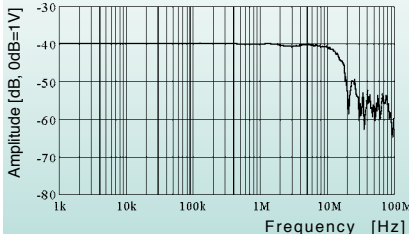
Input: 1 Ap-p
(Oscilloscope bandwidth 100 MHz)

Low-current measurement

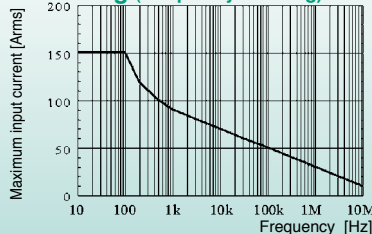


Input: 1 kHz sine wave 50 mAp-p
(Oscilloscope bandwidth 100 MHz)

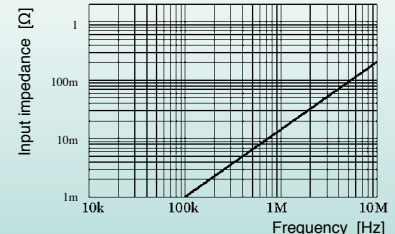
1. Frequency response (Characteristics Example)



2. Continuous maximum input rating (Frequency Derating)



3. Input impedance (Characteristics Example)

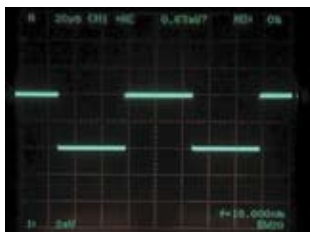


3275 DC to 2 MHz 3275

Square wave response



Input: 100 Hz square wave 300 Ap-p
(Oscilloscope bandwidth 20 MHz)



Input: 10 kHz square wave 400 mAp-p
(Oscilloscope bandwidth 20 MHz)

Transient response



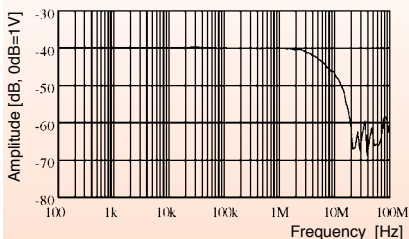
Input: 1 Ap-p
(Oscilloscope bandwidth 20 MHz)

Low-current measurement

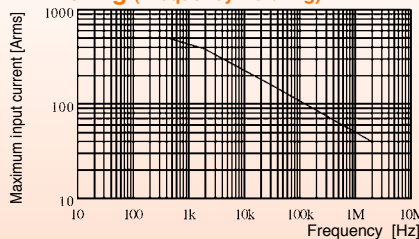


Input: 1 kHz sine wave 50 mAp-p
(Oscilloscope bandwidth 20 MHz)

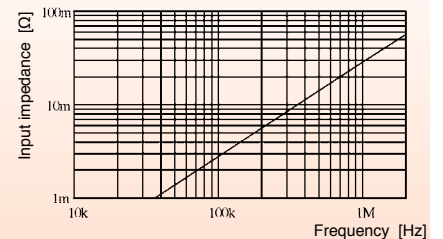
1. Frequency response (Characteristics Example)



2. Continuous maximum input rating (Frequency Derating)



3. Input impedance (Characteristics Example)



CLAMP ON PROBE 3273-50 to 3276



3273-50



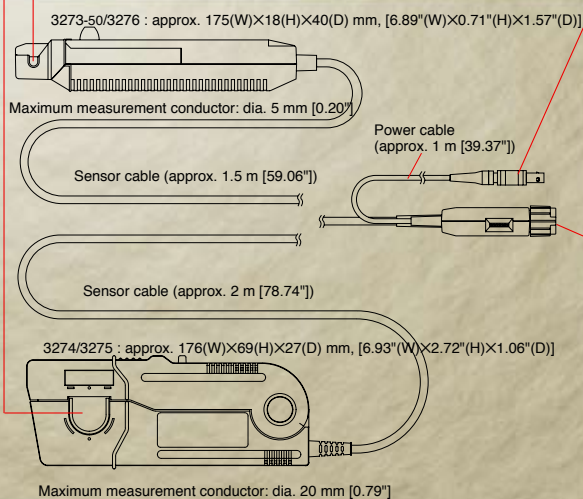
3276

3273-50 / 3276 Specifications (accuracy is guaranteed at 23±3°C [73±5°F] after the power has been on for 30 minutes)

	3273-50	3276
Frequency bandwidth	DC to 50 MHz (-3 dB) * See Fig. 1 on page 1.	DC to 100 MHz (-3 dB) * See Fig. 1 on page 1.
Rise time	7 ns or less	3.5 ns or less
Continuous maximum input range	30 Arms * Frequency derating see Fig. 2 on page 1.	30 Arms * Frequency derating see Fig. 2 on page 1.
Maximum peak current value	Non-continuous 50 Apeak	Non-continuous 50 Apeak
Output voltage rate	0.1 V/A	0.1 V/A
Amplitude accuracy	±1.0% rdg. ±1 mV (0 to 30 Arms / DC, 45 to 66 Hz) ±2.0% rdg. (30 Arms to 50 Apeak / DC, 45 to 66 Hz)	±1.0% rdg. ±1 mV (0 to 30 Arms / DC, 45 to 66 Hz) ±2.0% rdg. (30 Arms to 50 Apeak / DC, 45 to 66 Hz)
Noise	2.5 mArms or less (measured with 20 MHz bandwidth equipment)	2.5 mArms or less (measured with 20 MHz bandwidth equipment)
Input impedance	* See Fig. 3 on page 1.	* See Fig. 3 on page 1.
Sensitivity temperature characteristics	Within ±2% (At 50 Hz/30 Arms input, 0 to 40°C [32 to 104°F])	Within ±2% (from 0 to 40 °C [32 to 104 °F])
Maximum rated power	5.6 VA (Input within the maximum input range.)	5.3 VA (Input within the maximum input range.)
Power supply voltage	±12 V ±0.5 V	±12 V ±0.5 V
Operating temperature and humidity	0 to 40°C [32 to 104°F], 80% rh or less (no condensation)	0 to 40°C [32 to 104°F], 80% rh or less (no condensation)
Storage temperature and humidity	-10 to 50°C [14 to 122°F], 80% rh or less (no condensation)	-10 to 50°C [14 to 122°F], 80% rh or less (no condensation)
Effect of external magnetic fields	Max. 20 mA (equivalent) (DC and 60 Hz, Magnetic field of 400 A/m)	Max. 5 mA (equivalent) (DC and 60 Hz, Magnetic field of 400 A/m)
Max. rated voltage to earth	300 V, CAT-I (insulated conductor)	300 V, CAT-I (insulated conductor)
Measurement conductor	Diameter max. 5 mm [0.20"]	Diameter max. 5 mm [0.20"]
Dimensions and mass	Sensor: approx. 175(W)×18(H)×40(D) mm; 230 g [6.89"(W)×0.71"(H)×1.57"(D), 8.1 oz.] Termination unit: approx. 27(W)×55(H)×18(D) mm [1.06"(W)×2.17"(H)×0.71"(D)]	Sensor: approx. 175(W)×18(H)×40(D) mm; 240 g [6.89"(W)×0.71"(H)×1.57"(D), 8.5 oz.] Termination unit: approx. 27(W)×55(H)×18(D) mm [1.06"(W)×2.17"(H)×0.71"(D)]
Cable length	Sensor cable: approx. 1.5 m [59.06"] (BNC connector) Power cable: approx. 1 m [39.37"]	Sensor cable: approx. 1.5 m [59.06"] (BNC connector) Power cable: approx. 1 m [39.37"]
Supplied accessories	Soft case ×1	Hard case ×1
Applicable standards	Safety standards	EN 61010 Measurement category I (anticipated transient overvoltage 1500 V), Pollution Degree 2
	EMC	EN 61326 EN 61000-3-2 EN 61000-3-3

• Sensor head

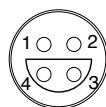
Composed of molded parts, ferrite and Hall elements. The thin-film of the Hall element especially improves detection sensitivity to realize wider bands and high sensitivity monitoring.



• Power supply plug

Connects to the FET probe power supply outlet of an oscilloscope or to the optional 3269 / 3272 power supply unit. (Provided that connector type, pin assignment, voltage, and capacity rating match, the 3273-50 to 3276 can be powered also from another source. For operation safety, be sure to refer to the specifications to ensure an exact match.)

Power supply plug pin assignment (Plug as seen from the front)



- 1 : Not connected
- 2 : GND
- 3 : V- (-12V)
- 4 : V+ (+12V)

* Connector type: LEMO inc./ FFA.0S.304.CLAC42Z

• BNC output connector

Can be connected directly to the BNC input of an oscilloscope or level recorder or similar device.

Output voltage rate: 0.1 V/A (3273-50 / 3276)
0.01 V/A (3274 / 3275)

(Use only equipment with an input impedance of 1 MΩ or more.)



CLAMP ON PROBE 3273-50 to 3276

■ 3274 / 3275 Specifications (accuracy is guaranteed at 23±3°C [73±5°F] after the power has been on for 30 minutes)

	3274	3275
Frequency bandwidth	DC to 10 MHz (-3 dB) * See Fig. 1 on page 2.	DC to 2 MHz (-3 dB) * See Fig. 1 on page 2.
Rise time	35 ns or less	175 ns or less
Continuous maximum input range	150 Arms * Frequency derating see Fig. 2 on page 2.	500 Arms * Frequency derating see Fig. 2 on page 2.
Maximum peak current value	Non-continuous 300 Apeak 500 A peak at pulse width of ≤ 30 ms	Non-continuous 700 Apeak
Output voltage rate	0.01 V/A	0.01 V/A
Amplitude accuracy	±1.0% rdg. ±1 mV (0 to 150 Arms / DC, 45 to 66 Hz) ±2.0% rdg. (150 Arms to 300 Apeak / DC, 45 to 66 Hz)	±1.0% rdg. ±5 mV (0 to 500 Arms / DC, 45 to 66 Hz) ±2.0% rdg. (500 Arms to 700 Apeak / DC, 45 to 66 Hz)
Noise	25 mArms or less (measured with 20 MHz bandwidth equipment)	25 mArms or less (measured with 20 MHz bandwidth equipment)
Input impedance	* See Fig. 3 on page 2.	* See Fig. 3 on page 2.
Sensitivity temperature characteristics	Within ±2% (At 55 Hz/150 A input, 0 to 40°C [32 to 104°F])	Within ±2% (At 50 Hz/500 A input, 0 to 40°C [32 to 104°F])
Maximum rated power	5.5 VA (Input within the maximum input range.)	7.2 VA (Input within the maximum input range.)
Power supply voltage	±12 V ±1 V	±12 V ±0.5 V
Operating temperature and humidity	0 to 40°C [32 to 104°F] , 80% rh or less (no condensation)	0 to 40°C [32 to 104°F] , 80% rh or less (no condensation)
Storage temperature and humidity	-10 to 50°C [14 to 122°F] , 80% rh or less (no condensation)	-10 to 50°C [14 to 122°F] , 80% rh or less (no condensation)
Effect of external magnetic fields	Max. 150 mA (equivalent) (DC and 60 Hz, Magnetic field of 400 A/m)	Max. 800 mA (equivalent) (DC and 60 Hz, Magnetic field of 400 A/m)
Max. rated voltage to earth	600 V CAT-II, 300 V CAT-III (insulated conductor)	600 V CAT-II, 300 V CAT-III (insulated conductor)
Measurement conductor	Diameter max. 20 mm [0.79"]	Diameter max. 20 mm [0.79"]
Dimensions and mass	Sensor: approx. 176(W)×69(H)×27(D) mm; 500 g [6.93"(W)×2.72"(H)×1.06"(D), 17.6 oz.] Termination unit: approx. 27(W)×55(H)×18(D) mm [1.06"(W)×2.17"(H)×0.71"(D)]	Sensor: approx. 176(W)×69(H)×27(D) mm; 520 g [6.93"(W)×2.72"(H)×1.06"(D), 18.3 oz.] Termination unit: approx. 27(W)×55(H)×18(D) mm [1.06"(W)×2.17"(H)×0.71"(D)]
Cable length	Sensor cable: approx. 2 m [78.74"] (BNC connector) Power cable: approx. 1 m [39.37"]	Sensor cable: approx. 2 m [78.74"] (BNC connector) Power cable: approx. 1 m [39.37"]
Supplied accessories	Hard case×1	Hard case×1
Applicable standards	Safety standards	EN 61010 Overvoltage category II, III (anticipated transient overvoltage 4000 V), Pollution Degree 2
	EMC	EN 61326 EN 61000-3-2 EN 61000-3-3

■ POWER SUPPLY 3269 / 3272

Dedicated power supplies for the Clamp Sensor series-ideal when power is not available from the oscilloscope, or when using the probes for common measurement applications.



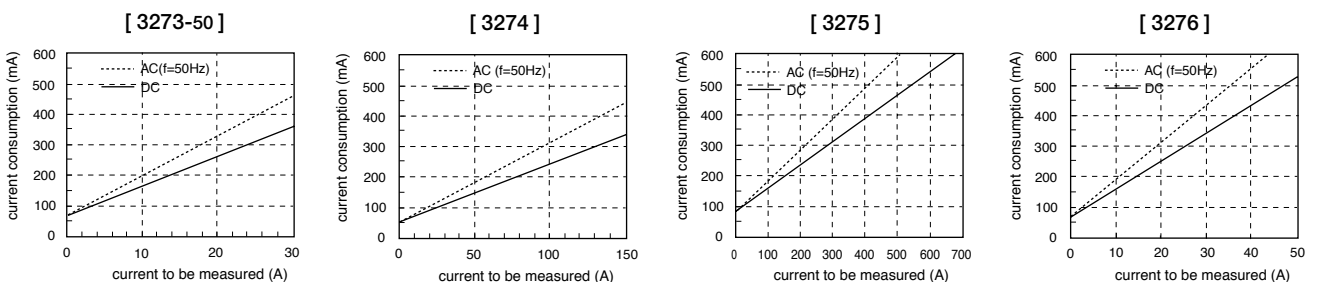
*The total current output of the 3272 is 600mA (for two channels). Depending on the current of the measurement object, simultaneous use of both channels may not be available.

The 3269 is capable of powering 4 channels of high current sensors simultaneously.

■ Current consumption of the 3273-50 to 3276 (sum of real values).

■ 3269 / 3272 Specifications

	3272	3269
Compatible sensors	3273-50/3274/3275/3276 CLAMP ON PROBE	
Number of power	2*	4
Output voltage	±12 V ±0.5 V	
Rated output current	600 mA (sum total of all channels and all output voltage)	±2.5 A (sum total of all channels)
Power requirements (50/60 Hz)	100V AC±10% (Specify 120, 220 or 240V power supply when ordering.)	AC100 to 240 V±10%
Maximum rated power	20 VA	170 VA
Dimensions	Approx. 73W×110H×186D mm	Approx. 80W×119H×200D mm
Mass	Approx. 1.1 kg	Approx. 1.1 kg
Accessories	Power cord, Spare fuse (3272 only)	



AC/DC CURRENT SENSOR 9709

DC to 100 kHz Range

The AC/DC Current Sensor 9709 is a high current, wide bandwidth and ultra-precise ($\pm 0.05\%$ rdg. $\pm 0.01\%$ f.s.) sensor. Effects from conductor position, external magnetic fields and magnetic bandwidth are extremely small, making the sensor ideal for answering measurement needs in the research and development of electrical vehicles, hybrid vehicles, and fuel cell batteries, as well as many other applications.

SENSOR UNIT 9555-10

Supply power to the 9709 when the sensor is used by itself.

Please refer to page 6 for specifications.

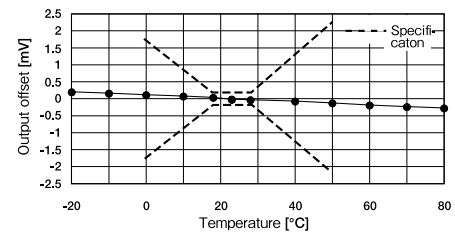


9709 Specifications

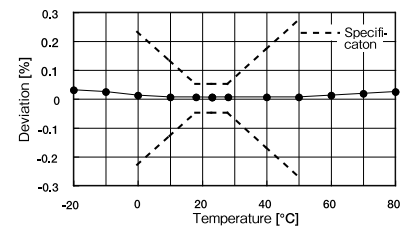
(Accuracy guaranteed for 6 months, when used within the derating range in an environment $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$, 80%rh or less, and in combination with the 9555-10 Sensor Unit, after warming up for 10 minutes.)

Rated current	500 A (AC+DC)
Output voltage	2 V/500 A (AC+DC)
Output resistance	50 Ω
Maximum input current	700 Arms (1000 A peak, 50/60 Hz, continuity)
Amplitude accuracy (after warming-up, within a derating, DC < f < 5 Hz is the reference value, when using with Model 9555, 9555-10) *: Frequency	DC < f < 45 Hz : $\pm 0.2\%$ rdg. $\pm 0.02\%$ f.s. DC, 45 Hz \leq f \leq 66 Hz : $\pm 0.05\%$ rdg. $\pm 0.01\%$ f.s. 66 Hz < f \leq 500 Hz : $\pm 0.2\%$ rdg. $\pm 0.02\%$ f.s. 500 Hz < f \leq 5 kHz : $\pm 0.5\%$ rdg. $\pm 0.05\%$ f.s. 5 kHz < f \leq 10 kHz : $\pm 2.0\%$ rdg. $\pm 0.10\%$ f.s. 10 kHz < f \leq 20 kHz : $\pm 5.0\%$ rdg. $\pm 0.10\%$ f.s. 20 kHz < f \leq 100 kHz : $\pm 30\%$ rdg. $\pm 0.10\%$ f.s.
Phase accuracy (after warming-up, within a derating, DC < f < 20 Hz is the reference value, when using with Model 9555, 9555-10) *: Frequency	DC : Not specified DC < f < 45 Hz : ± 0.3 deg 45 Hz \leq f \leq 66 Hz : ± 0.2 deg 66 Hz < f \leq 5 kHz : ± 0.5 deg 5 kHz < f \leq 10 kHz : ± 2.0 deg 10 kHz < f \leq 20 kHz : ± 5.0 deg 20 kHz < f \leq 100 kHz : ± 30 deg
Frequency bandwidth	DC to 100 kHz
Temperature coefficient	Amplitude sensitivity : $\pm 0.01\%$ rdg./ $^{\circ}\text{C}$ or less Offset voltage : $\pm 0.005\%$ f.s./ $^{\circ}\text{C}$ or less
Power consumption	5 VA or less (500 A/ 55 Hz measurement, with ± 12 power supply)
Power supply voltage	± 11 to ± 15 V (Tracking)
Operating temperature and humidity	0 to 50°C [32 to 122°F] , 80% RH or less (non-condensation)
Storage temperature and humidity	-10 to 60°C [14 to 140°F] , 80% RH or less (non-condensation)
Effect of external electromagnetic fields	50 mA or less (In a 60 Hz or DC magnetic field of 400 A/m)
Effect of conductor position	$\pm 0.05\%$ or less (at 100 ADC input, using with the wire 10 mm diameter)
Effect of magnetic	20 mA or less (after 500 ADC input)
Max. rated voltage to earth	1000 VAC/ DC (50/ 60 Hz)(Measurement category III)
Measurable conductor diameter	$\phi 36$ mm (1.42") or less
Cable length	Approx. 3 m [118.11"]
Dimensions and mass	Approx. 160(W) \times 112(H) \times 50(D) mm, Approx. 850 g [6.30"(W) \times 4.41"(H) \times 1.97"(D), 30.0 oz.]
Applicable standards	Safety : EN61010, Pollution Degree 2 EMC : EN 61326
Supplied accessories	Mark band X6 (3 sets)

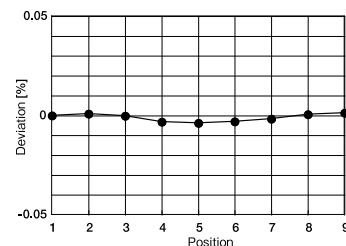
Offset - Temperature Characteristics



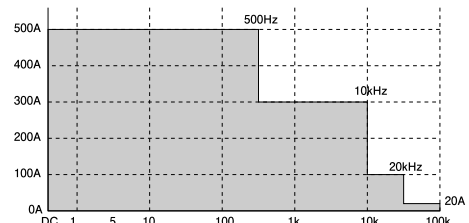
Sensitivity - Temperature Characteristics



Effect of conductor position (the wire 10 mm diameter)



Derating



UNIVERSAL CLAMP ON CT 9277 to 9279

DC to 100 kHz (9277/9278)

When used together with the 9555-10 SENSOR UNIT, current waveforms can be observed from DC to 100 kHz (Models 9277/9278). Controlled zero drift allows for stable, long-duration measurements.



■ 9277 to 9279 Specifications

	9277	9278	9279
Rated current (AC/DC)	20 A	200 A	500 A
Output voltage (AC/DC)	2 V f.s.		
Accuracy (23 ± 3°C) [73 ± 5°F] DC and 45Hz to 66Hz	After demagnetization and at least 30 min. warm-up Amplitude: ±0.5% rdg. ±0.05% f.s. Phase: within ±0.2° (DC has no provision)		
Frequency characteristics (amplitude) (deviation from accuracy)	DC to 1 kHz : within ±1.0% 1 k to 50 kHz : within ±2.5% 50 k to 100 kHz : within ±5%		DC to 1 kHz: within ±1.0% 1 k to 10 kHz: within ±2.5% 10 k to 20 kHz: within ±5%
Frequency characteristics (phase) (DC has no provision)	DC to 1 kHz : within ±0.5° 1 k to 50 kHz : within ±2.5° 50 k to 100 kHz : within ±5.0°		DC to 1 kHz: within ±0.5° 1 k to 10 kHz: within ±2.5° 10 k to 20 kHz: within ±5.0°
Output resistance	50Ω		
Input resistance(DC)	0.05 mΩ or less	0.002 mΩ or less	0.001 mΩ or less
The maximum permissible input range(DC to 3kHz)**	50 Arms (75 Apeak)	350 Arms (500 Apeak)	650 Arms (920 Apeak)
Temperature characteristics (0 to 40°C)	Sensitivity: within ±0.05% rdg./°C Offset: within ±0.005% f.s./°C		
Operating temperature and humidity	0 to 40°C [32 to 104°F] , 80% RH or less (no condensation)		
Effect of external magnetic fields*2	Max. 0.2 A	Max. 1 A	Max. 2 A
Influence of conductor position	within ±0.5% (DC, 55 Hz)	within ±1.5% (DC, 55 Hz)	
Withstand voltage	2200 V AC for 1 minute (electrical circuits to case, electrical circuits to core)		
Insulation resistance	At least 100 MΩ at 500V DC (electrical circuits to case, electrical circuits to core)		
Max. rated voltage to earth	600 Vrms (850 Vpeak)insulated wire		
Measurement conductor	Diameter max.20 mm [0.79"]		Diameter max.40 mm [1.57"]
Cable length	Approx. 1.5m [59.06"]		
Power supply voltage	±12 V to ±15 V		
Power consumption	3.6 W max.	7.2 W max.	
Dimensions and mass	Approx. 176(W)×63(H)×34(D) mm; 430 g [6.92"(W)×2.48"(H)×1.34"(D), 15.2 oz.]		Approx. 220(W)×103(H)×43.5(D) mm; 860 g [8.66"(W)×4.06"(H)×1.71"(D), 30.3 oz.]
Supplied accessories	Carrying case 9375		

*1 Maximum non-destructive input above 3 kHz is specified separately.
*2 DC and 55 Hz, Magnetic field of 400A/m.

The probe cannot be used alone: the 9555-10 is required.



■ 9555-10 Specifications

Output voltage	: ±12 V ±0.5 V, ±0.5 A Max.
Rated voltage	: ±10 V to +30 V (The supplied AC ADAPTER supplies +12 V.)
Operating temperature and humidity	: 0 to 40°C [32 to 104°F] , 80% RH max. (no condensation)
Storage temperature and humidity	: -10 to 50°C [14 to 122°F] , 80% RH max. (no condensation)
Max. rated power	: 20 VA
Output terminal:	BNC terminal Accuracy and other characteristics depend on the connected sensor.
Dimensions and mass	: Approx. 42(W)×82(H)×132(D) mm, 600g [1.65"(W)×3.24"(H)×5.20"(D), 21.2 oz.]
Accessories	: AC ADAPTER 9418-15 (with a power cord) Rated supply voltage : AC100 to 240V Rated supply frequency : 50/ 60 Hz Rated output voltage : DC 12 V

CLAMP ON SENSOR 9272-10

1Hz to 100kHz



SENSOR UNIT 9555-10

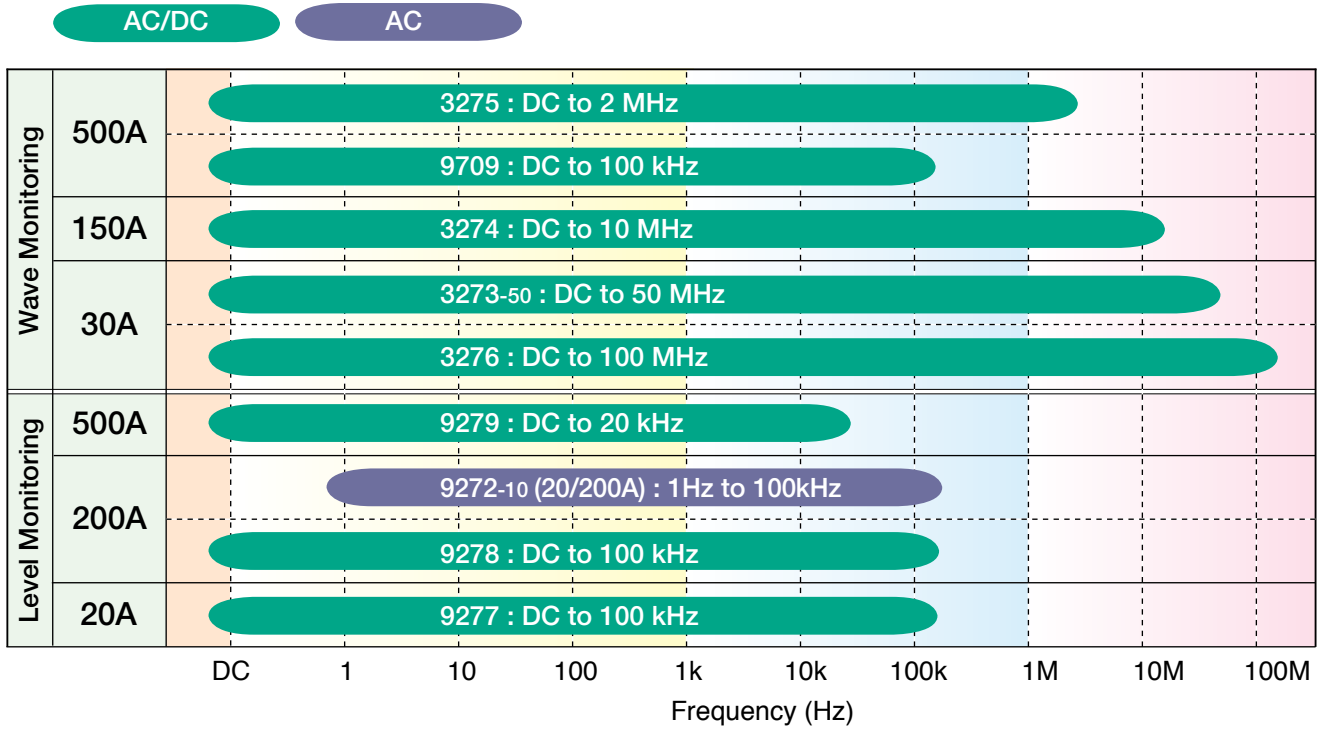
CE 9272-10

The probe cannot be used alone: the 9555-10 is required.

■ 9272-10 Specifications

Rated current	20/ 200 A AC
Maximum input current	50 Arms/ 300 Arms (50/ 60 Hz, within a derating)
Amplitude accuracy	±0.3 %rdg. ±0.01 %f.s. (45 to 66 Hz)
Phase accuracy	±0.2deg. (45 to 66Hz)
Frequency bandwidth (Deviation from the amplitude/phase accuracy)	1 Hz (±2.0% rdg. ±0.1% f.s.) to 100 kHz (±30% rdg. ±0.1% f.s.)
Output voltage	2 V f.s. (rated current)
Max. rated voltage to earth	600 Vrms AC (50/ 60 Hz)
Measurable conductor diameter	φ46 mm (1.81") or less
Cable length	Approx. 3 m [118.11"]
Power supply voltage	±11V to ±15V (Tracking)
Dimensions and mass	Approx. 78(W)×188(H)×35(D) mm; 430 g [3.07"(W)×7.40"(H)×1.38"(D), 15.2 oz.]
Supplied accessories	CARRYING CASE 9355 Mark bands × 6

■ Rated current & Frequency characteristics



⚠ WARNING



1. To avoid short circuits and electric shock accidents when using a clamp-on sensor, use only with power lines carrying voltages within the rating limit of the sensor.
2. To avoid short circuits and electric shock accidents when the clamp-on sensor is open, do not use on bare conductors.

- CLAMP ON PROBE 3273-50
- CLAMP ON PROBE 3274
- CLAMP ON PROBE 3275
- CLAMP ON PROBE 3276
- CLAMP ON SENSOR 9272-10
- UNIVERSAL CLAMP ON CT 9277
- UNIVERSAL CLAMP ON CT 9278
- UNIVERSAL CLAMP ON CT 9279
- AC/DC CURRENT SENSOR 9709



■ Option

- POWER SUPPLY 3269 (for 3273-50 to 3276, 4ch)
- POWER SUPPLY 3272 (for 3273-50 to 3276, 2ch)
- SENSOR UNIT 9555-10 (for 9270-10 / 9277 to 9279 / 9709)



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