CURRENT PROBE CT6710, CT6711

HIOKI

Capture Inrush, Micro and High-Speed Currents with a Single Probe

3 full ranges of 30 A, 5 A, and 0.5 A deliver an expansive current measurement spectrum

CT6711 Frequency range	CT6710 Frequency range
120 MHz	50 MHz

CE

Easy range switching at the press of a button

Choose the optimal range using the range keys on the relay box.

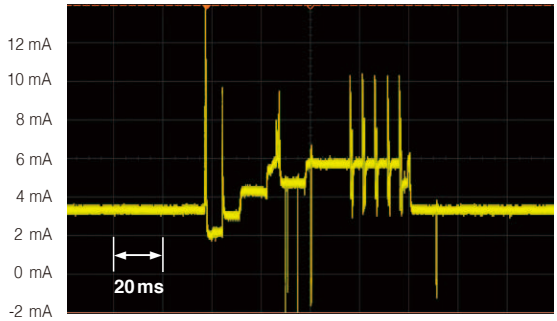
Analyze current under a broad range of operating conditions with a single instrument.

30 A, 5 A, 0.5 A Range

Observe micro current

0.5 A 10 V/A

Current consumption waveform for a Bluetooth Low Energy device while sending/receiving data

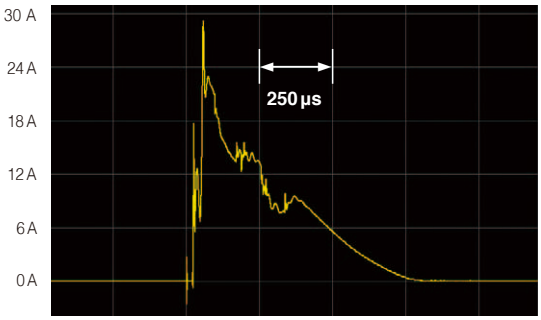


Instrument used: Oscilloscope
Frequency band: 200 MHz

Observe inrush current

30 A 0.1 V/A

Inrush current waveform when an electric device is turned on



Instrument used: Memory HiCorder MR6000

Built-in function to protect against excessive input

Warning indicator

The warning indicator flashes to warn the user if a current in excess of the rated value is being input.

Overload protection

If you select the incorrect range and then input a current signal that exceeds the rated current for that range*, this function protects the instrument from damage due to overheating.

*Caution: Input currents that exceed the frequency derating for the 30 A range may cause measurement circuit damage before the protection function can operate.

Instrument profile MEMORY HiCORDER MR6000

200 MS/s × isolated measurement

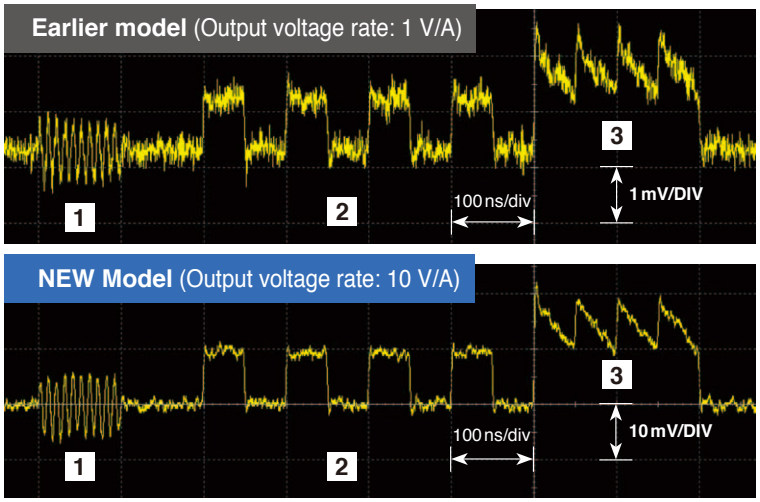
When using the High-speed Analog Unit U8976
(Frequency range: DC to 30 MHz)

Z5021
PROBE POWER UNIT
Connect up to four CT6710/CT6711 probes.

Clear observation thanks to a high S/N ratio and 10× output rate

Direct waveform observation without needing to rely on your oscilloscope's filter settings and averaging function lets you capture micro currents more clearly thanks to the 10 V/A output rate.

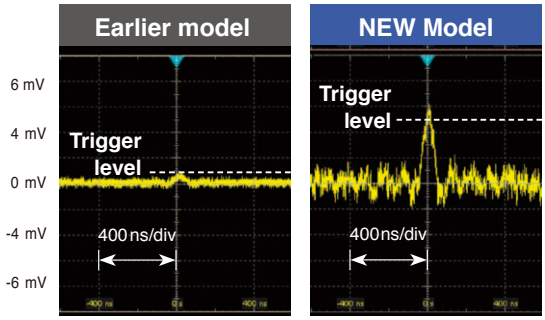
Wide bandwidth and high sensitivity for more intuitive waveform display



By improving voltage sensitivity of the oscilloscope by a factor of 10, the S/N ratio of the oscilloscope itself is enhanced to deliver a cleaner waveform.

1 Sine wave: f=100 MHz, 1 mA peak-peak
2 Square wave: f=10 MHz, 1 mA peak-peak
3 Sawtooth wave: f=20 MHz, 1 mA peak-peak (offset +1 mA)

Never miss important waveforms

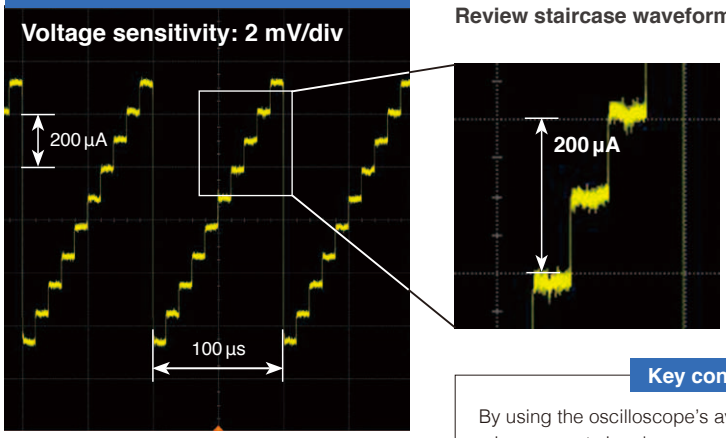


Output voltage rate: 1 V/A Output voltage rate: 10 V/A

When monitoring for single-shot phenomena with an oscilloscope, even hard-to trigger micro current waveforms buried in noise can be easily identified thanks to the high-sensitivity range with 10V/A output rate.

Observe micro current on the order of several hundred microamperes (optimizing the averaging function)

NEW Model
(Output voltage rate: 10 V/A)



Oscilloscope settings: Band limit of 20 MHz, 16× averaging, auto-trigger

Observed waveform: 10 µs stepped waveform; repeating period: 100 µs

Review staircase waveforms in 100 µA steps.

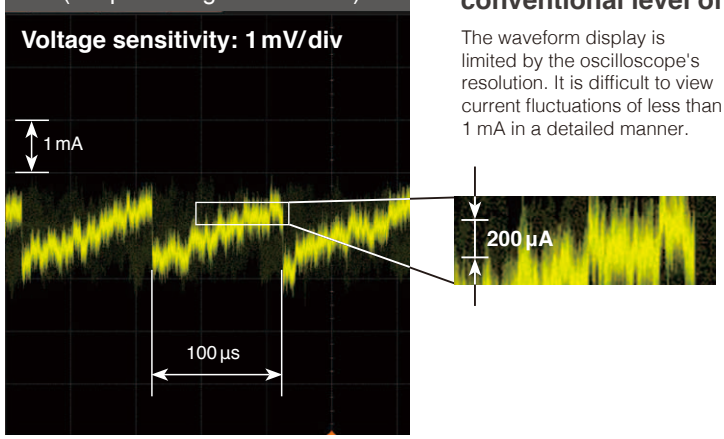
Because oscilloscopes typically have a maximum voltage sensitivity of 1 mV/div., they can only display waveforms of up to 1 mA/div. when using the conventional 1 V/A output rate. However, the CT6710 and CT6711, which have an output rate of 10 V/A (in the 0.5 A range) can display waveforms at 100 µA/div.

CURRENT PROBE CT6711		▶	Oscilloscope	
Usage range	Output voltage rate		Voltage sensitivity	Current sensitivity
0.5 A	10 V/A		2 mV/div	200 µA/div

Key considerations when measuring micro currents

By using the oscilloscope's averaging function or band-limiting function when measuring a periodic micro current signal, you can eliminate random noise in the signal in order to observe the current waveform more clearly.

Earlier model
(Output voltage rate: 1 V/A)



Measuring variations in the same current signal as above at the conventional level of sensitivity

The waveform display is limited by the oscilloscope's resolution. It is difficult to view current fluctuations of less than 1 mA in a detailed manner.

Earlier model Current Probe		▶	Oscilloscope	
Usage range	Output voltage rate		Voltage sensitivity	Current sensitivity
5 A	1 V/A		1 mV/div	1 mA/div

The signal is obscured by noise, and the trigger cannot be applied in a stable manner, so averaging is unable to function.

Specifications

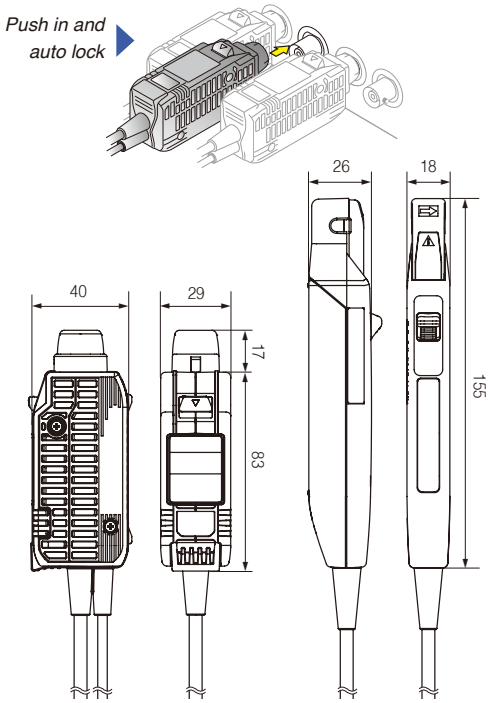
Accuracy guaranteed for 1 year,Post-adjustment accuracy guaranteed for 6 months

Frequency range		CT6710: DC to 50 MHz (-3dB) CT6711: DC to 120 MHz (-3dB)
Rise time (10% to 90%)		CT6710: 7.0 ns or less CT6711: 2.9 ns or less
Delay time (Delay time relative to an input signal with a rising time of 1 ns)	30 A Range	Typical 12 ns
	5 A Range	Typical 12 ns
	0.5 A Range	Typical 13 ns
Maximum rated current (Note frequency derating for DC and sine waves)	30 A Range	30 Arms
	5 A Range	5 Arms
	0.5 A Range	0.5 Arms
Output voltage rate	30 A Range	0.1 V/A
	5 A Range	1 V/A
	0.5 A Range	10 V/A
Amplitude accuracy (DC or 45 to 66 Hz sine wave, within maximum peak current for each range)	30 A Range	±3.0% rdg.±1 mV, Typical ±1.0% rdg.±1 mV (≤10 Arms)
	5 A Range	±3.0% rdg.±1 mV, Typical ±1.0% rdg.±1 mV
	0.5 A Range	±3.0% rdg.±10 mV, Typical ±1.0% rdg.±10 mV
Maximum peak current	30 A Range	±50 Apeak (Maximum 2 sec input)*
	5 A Range	±7.5 Apeak
	0.5 A Range	±0.75 Apeak (<10 MHz), ±0.3 Apeak (≥10 MHz)
Diameter of measurable conductors		φ5 mm or less (Insulated conductors)
Noise 0.5 A range, with a 20MHz bandwidth instrument		75 μA rms or less
Operating temperature and humidity range		0 to +40°C (32 to 104 °F), 80% RH or less (no condensation)
Effect of external magnetic fields DC or 60 Hz input, 400 A/m magnetic field		CT6710: 20 mA or less, CT6711: 5 mA or less
Cord lengths		Sensor cord: 1.5 m (59.6 in), Power cord: 1.0 m (39.37 in)
External dimensions Not including BNC connector or other protruding parts	Sensor	Approx. 155 mm (6.10 in)W × 18 mm (0.71 in)H × 26 mm (1.02 in)D
	Junction box	Approx. 45 mm(1.77 in)W × 120 mm (4.72 in)H × 25 mm (0.98 in)D
	Termination unit	Approx. 29 mm (1.14 in)W × 83 mm (3.27 in)H × 40 mm (1.57 in)D
Mass		Approx. 370 g (13.1 oz)

* Refrain from use for at least 20 seconds after maximum peak current input due to generated heat

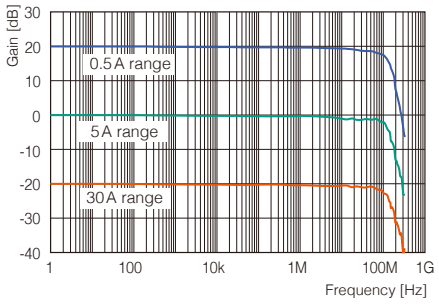
One-touch Disconnection from the BNC Terminal

The BNC connector does not need to be rotated when connecting to an oscilloscope or recorder. Insert the connector until it automatically locks into place. To disconnect it, just pull the unlock lever toward you.

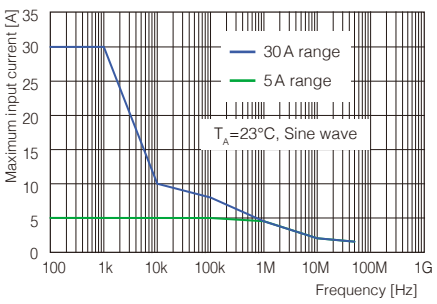


Unit: mm

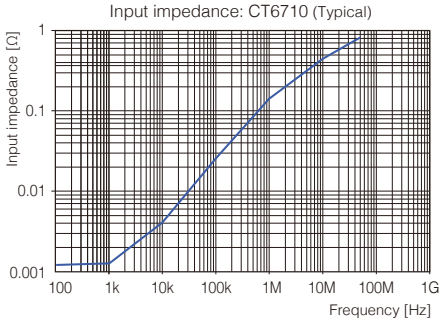
Frequency characteristics: CT6710 (Typical)



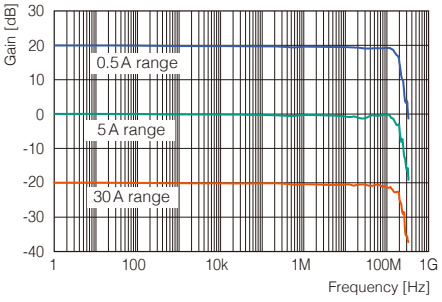
Frequency derating: CT6710 (Typical)



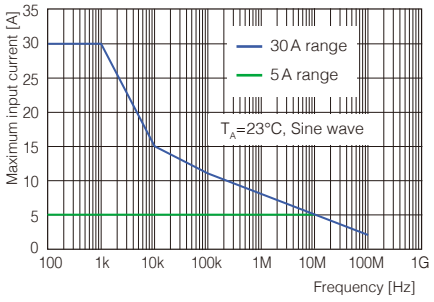
Input impedance: CT6710 (Typical)



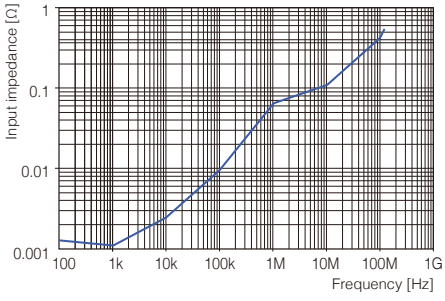
Frequency characteristics: CT6711 (Typical)



Frequency derating: CT6711 (Typical)



Input impedance: CT6711 (Typical)



Model: CURRENT PROBE CT6710, CT6711

Model No. (Order Code)	Frequency range
CT6710	DC to 50 MHz
CT6711	DC to 120 MHz

Option

POWER SUPPLY 3269

Connect up to two CT6710/CT6711 probes

Note: Company names and Product names appearing in this catalog are trademarks or registered trademarks of various companies.

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