IPCT

Integrated Parametric Current Transformer Instructions

Revision 3.0

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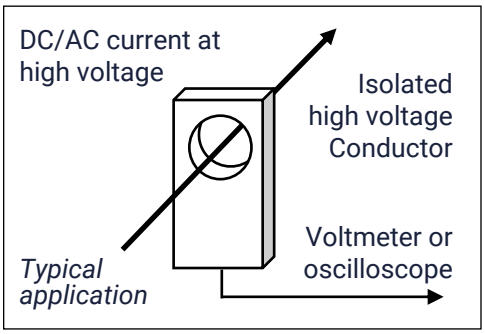
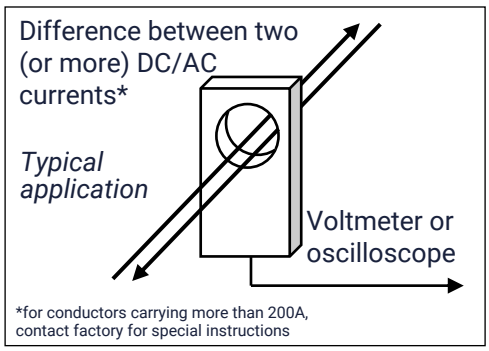
Thank you for your confidence in Bergoz Instrumentation. You purchased a highly precise non-interceptive current measuring instrument. It can be used to measure low DC and AC currents with high absolute accuracy and very high resolution.

Power supply: +-15V
Connector DB9
Current range printed on instrument's label.

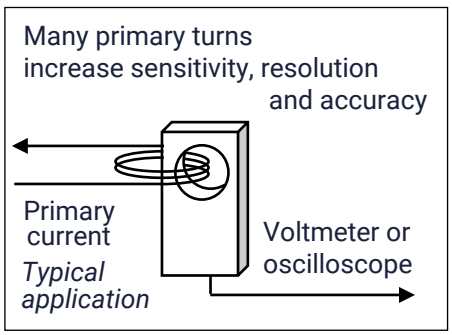
Zero-adjust by front-panel potentiometer: Turn potentiometer until output voltage ≈ 0.000



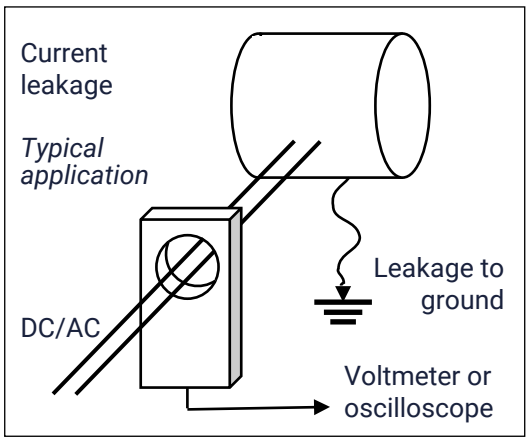
Output is a voltage in range -10V to +10V, proportional to primary current.
Output must be measured in a high impedance circuit. Output current is limited to 20mA.
Range is determined by a factory-installed load resistor, or user-installed resistor. The precision of this resistor determines the absolute IPCT accuracy.



Polarity: An arrow is printed on the IPCT side: a positive current in the direction of the arrow gives a positive output. A negative current gives a negative output.



The IPCT is based on the DCCT principle invented in 1969 by Klaus Unser at CERN; not based on Hall effect. 100-1000 times more precise than Hall sensors.



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Specifications

Full scale range	Any value from +- 1mA to +- 20A, factory preset
Over range	120% full scale permanently
Saturation	>120% full scale
Damage level	DC: unlimited, AC: > 20Arms Discharge: > 100kA 4/10µs
Voltage isolation ground	5kV current conductor to
Resolution	See “Resolution” table below
Linearity error	<0.1% FS
Absolute accuracy	+- 0.2% FS
Calibration	External current can be applied
Ripple	7kHz and even harmonics See “Ripple” table below
Bandwidth	DC to 3.8 kHz (-3dB) See “Bandwidth” table below
Output	+- 10V, buffered, 20 mA max stands permanent short circuit
Zero adjust	20-turn front-panel potentiometer
Power supply	+- 15V, 100mA
Connection	DB-9 male on front panel
Temperature drift	<5µA/K
Stabilization after overload	10ms max.
Magnetic field	50µA/Gauss typ. sensitivity
Mass	0.5 Kg

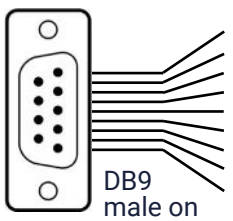
Characteristics at given full scale ranges

Range	Resolution (1s integr.)	Bandwidth -3 dB	Ripple (7kHz)
+- 1 mA	1 uA	> 150 Hz	< 80 mV rms
+- 10 mA	10 uA	> 800 Hz	< 70 mV rms
+- 100 mA	10 uA	> 3 kHz	< 70 mV rms
+- 2 A	30 uA	> 3.8 kHz	< 12 mV rms
+- 20 A	200 uA	> 2 kHz	<12 mV rms

Ordering code

IPCT	
-xxxmA	Factory-preset xxx mA range up to +-20 A
Options	
-0.01%	Linearity error < 0.01% Full Scale
-PS-BNC	90-245Vac power supply and BNC output
-CALCERT	IPCT initial certificate of calibration

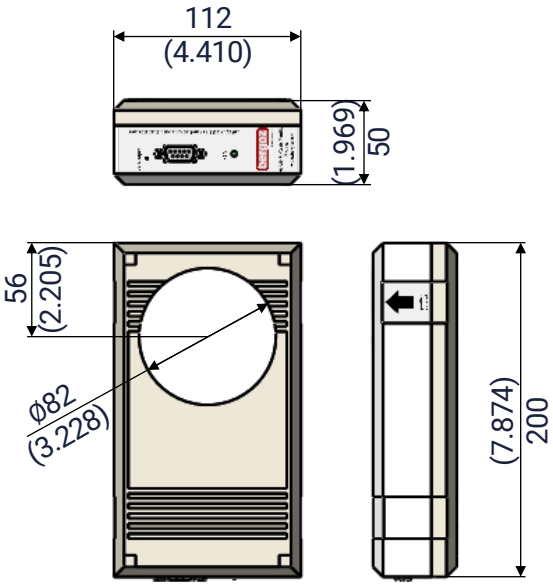
Connections



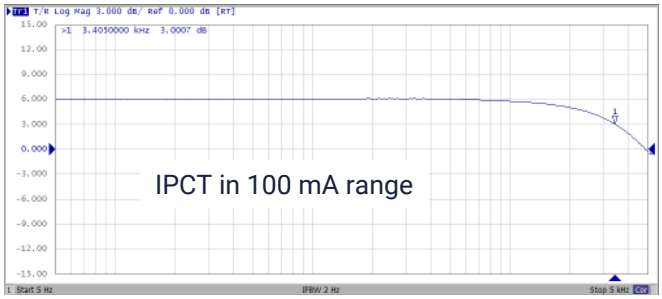
DB9 male on instrument

1	Optional external resistor
6	Optional external resistor
2	Output +-10V
7	Output ground
3	Calibration winding -
8	Calibration winding +
4	Power supply -15V
9	Power supply +15V
5	Power supply ground

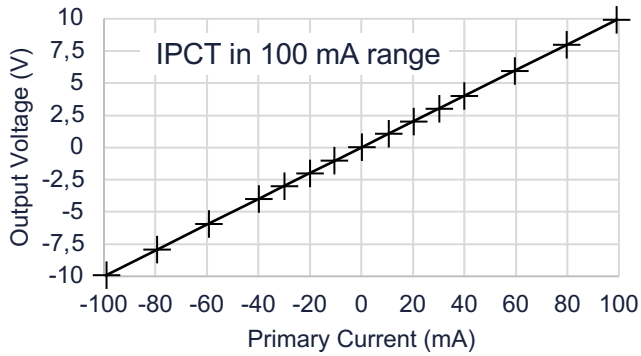
Dimensions



Output voltage vs. frequency



Output voltage vs. input current



Product identifications and connections

Integrated Parametric Current Transformer

Model IPCT- xxx mA

Serial nr. #0000

DB9 Connector pin allocation

Function	Pin
Power supply -15V	4
Power supply +15V	9
Power supply ground	5
Output (-10V to +10V)	2
Output ground	7
Optional external resistor	1
Optional external resistor	6
Calibration winding +	8
Calibration winding –	3

Front view

☑ Fixed range model, with internal load

☐ User-adjustable range model. To set range, install precision load resistor between pins 1–6 of DB9 connector. Select resistor value according to desired range:

1mA	1MΩ	≥1/10W
2mA	500kΩ	≥1/10W
5mA	200kΩ	≥1/10W
10mA	100kΩ	≥1/10W
20mA	50kΩ	≥1/10W
50mA	20kΩ	≥1/10W
100mA	10kΩ	≥1/10W
200mA	5kΩ	≥1/10W
500mA	2kΩ	≥1/10W
1A	1kΩ	≥1/10W
2A	500Ω	≥1/5W
5A	200Ω	≥1/2W
20A	100Ω	≥1W

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