

Non-intercepting DC current measurement
with 10 microamps resolution

To measure:

Return ground currents, DC and AC

Leakage current, DC and AC

Sum of currents

Small difference of high currents

Low current at high voltage

Power tube electrode currents

Electrostatic corona discharge

Electrochemically induced currents

Standby systems charging currents

Main features

The IPCT is a DC Current Transformer

Large aperture 82mm (3.23")

Widely used for Xray installations periodic
recalibration

Full scale from ± 1 mA to ± 20 A factory preset

± 10 V analog output

DC to 3.8 kHz (-3dB) response

Accuracy independent of primary conductor
position

Withstands 100kA 4/10 μ s discharges

100 times more precise than Hall effect
devices

Increased sensitivity with multiple primary turns

Operating principle

The IPCT works on the principle of the DCCT, invented at CERN, the European Particle Physics Laboratory, by K.Unser in 1969. The DC component of the current flowing through the toroid sensor is detected by a magnetic modulator, also called fluxgate or second harmonic detector. The AC component is detected by an active Hereward transformer. The two circuits are cascaded in a common feedback loop to generate a magnetic flux which always cancels the primary current flux. The IPCT output is the voltage developed by the feedback current passing through a precision resistor.

DISTRIBUTORS

HR HAYASHI-REPIC

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MANUFACTURER

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BERGOZ Instrumentation
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Specifications

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

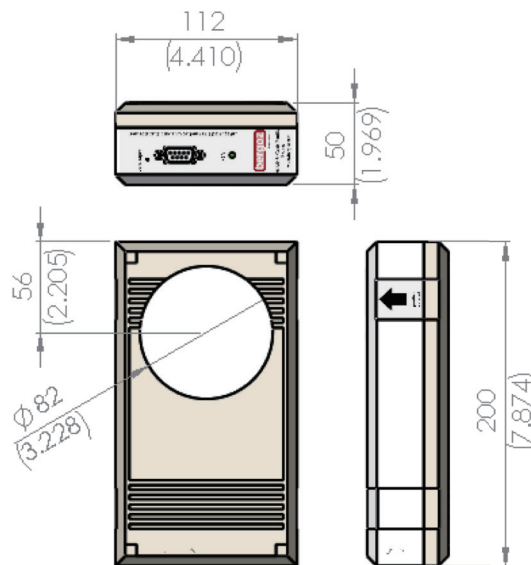
Resolution, bandwidth and ripple

| Range | Resolution (Noise) | Bandwidth -3 dB | Ripple (7kHz) |
|--------------------|------------------------------------|--------------------|------------------|
| $\pm 1\text{mA}$ | 1 $\mu\text{A}/\sqrt{\text{Hz}}$ | > 150 Hz | < 80 mV rms |
| $\pm 10\text{mA}$ | 10 $\mu\text{A}/\sqrt{\text{Hz}}$ | > 800 Hz | < 70 mV rms |
| $\pm 100\text{mA}$ | 10 $\mu\text{A}/\sqrt{\text{Hz}}$ | > 3 kHz | < 70 mV rms |
| $\pm 2\text{A}$ | 30 $\mu\text{A}/\sqrt{\text{Hz}}$ | > 3.8 kHz | < 12 mV rms |
| $\pm 20\text{A}$ | 200 $\mu\text{A}/\sqrt{\text{Hz}}$ | > 2 kHz | < 12 mV rms |

Connections

| 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 |

Dimensions



Order codes

| | |
|------------|--|
| IPCT-XXXmA | Integrated Parametric Current Transformer. Factory-preset Any range XXXmA up to $\pm 20\text{A}$ |
|------------|--|

Options

| | |
|--------------|--|
| IPCT-0.01% | High accuracy calibration 0.01% $\pm 10\mu\text{A}$ |
| IPCT-CALCERT | IPCT initial certificate of Calibration with test report |
| IPCT-PS-BNC | 90-245Vac power supply & BNC output for IPCT |



IPCT-PS-BNC (on option): Power supply & BNC output for IPCT

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