



**CT-2000**  
**CT-3000**

**Current or Voltage Output  
DC Current Transducers**



**Precision Current  
Transducers**

Your **DIGITAL**  
**POWER ELECTRONICS**  
Partner.



**CT-2000 / CT-3000**

- **Closed-loop current transformer technology allows accurate monitoring of DC and AC bipolar currents up to  $\pm 2000A$  (CT-2000),  $\pm 3000A$  (CT-3000).**
- **Galvanic isolation between primary and secondary conductor for simple current sensing at different potential.**
- **Standard current output and voltage output ("V"-version) available.**

**FEATURES**

- **Monitoring of DC and AC currents**
- **Excellent Linearity**
- **Closed-loop detection**
- **Galvanically isolated from primary**
- **Low Temperature Drift**
- **Current-output or Voltage-output versions**
- **Wide Bandwidth**
- **High Accuracy**
- **UL 94 V-0 flammability grade**
- **LED indicates correct operation**
- **DB-9 Connector or PCB-mount versions**
- **TEDS (IEEE 1451.4) interface**
- **BNC Voltage Output**

**APPLICATIONS**

- **Power Supplies**
- **Sensing Element in Calibration Systems**
- **Biomedical Devices**
- **Nuclear Magnetic Resonance (NMR)**
- **Test & Measurement Setups**
- **EV battery testing**

**CT-2000 and CT-3000.** The 0-FLUCS (0-FLUX Current Sensor) family is based on a closed loop technology that allows accurate and precise monitoring of DC and AC currents with high bandwidth.

The CT-2000/CT-3000 transducers are rated at a maximum bipolar primary current of 2000A/3000A with a transform ratio of 1:2000.

Galvanic isolation between the primary and the secondary circuits allows to measure currents at a different potential and simplifies interfacing when using the 0-FLUCS as the feedback element of current regulated power supplies.

Output from the 0-FLUCS transducers can be chosen between two different versions: secondary current output or buffered voltage output (low TC shunt resistor and low-noise amplifier are embedded in the device). A standard DB-9 connector is used

for the transducer connections. A standard BNC connector is used for the Voltage Output.

Main characteristics of the 0-FLUCS current transformers are negligible temperature coefficient on the secondary output current, excellent linearity and extremely low noise.

DC current transformers represents the ideal replacement for systems where Hall-effect sensors are used as current sensing elements and better performances are needed.





Main application fields for these current transducers are precise and extremely stable regulated power supplies, power inverters and EV Battery Testing.

Due to the excellent characteristics, the 0-FLUCS transducers can be used in a variety of calibration, acceptance testing and quality control applications in industrial, power generation



#### About Us

ELS Instruments (formerly CAEN ELS) is a leading company in the design of power supplies and state-of-the-art complete electronic systems for the Physics research world, having its main focus on dedicated solutions for the particle accelerator community and high-end industrial applications.

-  Power Supply Systems
-  Precision Current Measurements
-  Beamline Electronics Instrumentation
-  FMC and MicroTCA



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and automotive fields. Commercially available versions of the CT-2000 / CT-3000 current transformers are the standard current-output and

the voltage-output "V" version. Different output voltage ratings - e.g.  $\pm 2.5$  V or  $\pm 5$  V - are available upon request for a minimum quantity.

| Technical Specifications   | CT-2000                                   | CT-3000                                 |
|--|---|---|
| <b>Current Transform Ratio - N</b>   | 1:2000                                    |   |
| <b>Maximum DC Primary Current - <math>I_{P(DC)}</math></b>                 | $\pm 2000$ A                              | $\pm 3000$ A                            |
| <b>Maximum RMS Primary Current - <math>I_{P(RMS)}</math></b>               | 1414 A                                    | 2121 A                                  |
| <b>Current Polarity</b>  | Bipolar                                   |   |
| <b>Maximum DC Secondary Current - <math>I_{S(DC)}</math></b>               | $\pm 1.0$ A                               | $\pm 1.5$ A                             |
| <b>Maximum RMS Secondary Current - <math>I_{S(RMS)}</math></b>             | 707 mA                                    | 1.06 A                                  |
| <b>External Shunt Resistor Value - <math>R_s</math></b>                    | 0...10 $\Omega$                           | 0...5 $\Omega$                          |
| <b>Small Signal Bandwidth - typ. BW</b>                                    | 100 kHz                                   |   |
| <b>Small Signal Bandwidth - "V" version - typ. BW</b>                      | 100 kHz                                   |   |
| <b>Noise (RMS) - typ.</b>  | < 2.5 ppm (@200 Hz)<br>< 15 ppm (@50 kHz) | < 2 ppm (@200 Hz)<br>< 10 ppm (@50 kHz) |
| <b>Output Voltage ("V"-version) - <math>V_{OUT}</math></b>                 | $\pm 10$ V                                |   |
| <b>Output Voltage Ratio ("V" version) - <math>V_{OUT}/I_{P(DC)}</math></b> | 5 mV/A                                    | (1/300) V/A                             |
| <b>Maximum Output Current - "V"-version</b>                                | $\pm 15$ mA                               |   |
| <b>Temperature Coefficient - TC (typ.)</b>                                 | < 0.5 ppm/K<br>< 3 ppm/K ("V"-version)    |   |
| <b>Linearity</b>   | < 3 ppm/FS<br>< 15 ppm/FS ("V"-version)   |   |
| <b>Induction into Primary (typ.)</b>                                       | < 90 $\mu$ V(RMS)                         |   |
| <b>Offset (with factory trimming)</b>                                      | < 10 ppm/FS                               |   |
| <b>Protection Signal</b>   | Yes - Primary Over-Current                |   |
| <b>Supply Voltage (<math>\pm 6\%</math>)</b>                               | +24 V                                     |   |
| <b>Maximum Current Consumption</b>   | 200 mA + $I_s$                            |   |
| <b>Connections</b>   | DB-9 Connector<br>BNC Connector           |   |
| <b>Mechanical (Outer) Dimensions</b>                                       | 236 x 215 x 98 mm                         | 236 x 215 x 98 mm                       |
| <b>Primary Conductor Hole Diameter - <math>\emptyset</math></b>            | 67 mm                                     |   |
| <b>Maximum Weight</b>  | 5 kg                                      |   |



0-FLUCS Closed-Loop Technology



Status LED and signal

| Ordering Code | Acronym  | Description  |
|---------------|----------|--|
| WCT2000XAAAA  | CT-2000  | 2000 A Primary Current 0-FLUCS , DB-9 connector                                |
| WCT2000VXAAA  | CT-2000V | 2000 A Primary Current 0-FLUCS , DB-9 connector, Voltage Output, BNC connector |
| WCT3000XAAAA  | CT-3000  | 3000 A Primary Current 0-FLUCS , DB-9 connector                                |
| WCT3000VXAAA  | CT-3000V | 3000 A Primary Current 0-FLUCS , DB-9 connector, Voltage Output, BNC connector |