



Product Overview

CT-100
CT-150
Current or
Voltage
Output

 **CT-100 / CT-150**

- Closed-loop current transformer technology allows accurate monitoring of DC and AC bipolar currents up to $\pm 100A$ (CT-100) or up to $\pm 150A$ (CT-150).
- 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

APPLICATIONS

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

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-100/CT-150 transducers are rated at a maximum bipolar primary current of 100A/150A with a transformation ratio of 1:1000/1:1500.

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 temperature coefficient shunt resistor and low-noise amplifier are embedded in the device).

Also connection type can be chosen

between the “C” option – a male DB-9 Connector – and the “P” option – 7-pin through-hole for PCB mounting.

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.





All CT-100/CT-150 devices also have different mounting holes in order to be easily installed in different configurations. Both self-threading screws and normal Ones can be used.

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



About Us

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 Electronic Instrumentation
-  FMC & MTCA.4 – MicroTCA for Physics

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0-FLUCS Closed-Loop Technology

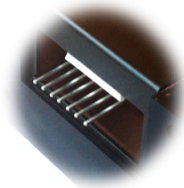
The CT-100 and CT-150 current transducer series is based on the CAEN ELS 0-FLUCS Closed-Loop Technology.

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 and automotive fields.

Commercially available versions of the CT-100/CT-150 current sensors are DB-9 connector “C” and 7-pin strip type “P” with their respective voltage-output versions “V”.

Technical Specifications	CT-100	CT-150
Current Transform Ratio – N	1:1000	1:1500
Maximum DC Primary Current - $I_{P(DC)}$	±100 A	±150 A
Maximum RMS Primary Current - $I_{P(RMS)}$	71 A	106 A
Current Polarity	Bipolar	
Maximum DC Secondary Current - $I_{S(DC)}$	±100 mA	
Maximum RMS Secondary Current - $I_{S(RMS)}$	71 mA	
Small Signal Bandwidth (±3 dB) - BW	> 500 kHz > 200 kHz (“V”-version)	
Noise (RMS) – typ.	< 0.5 ppm (@200 Hz) < 5 ppm (@50 kHz)	< 1.5 ppm (@200 Hz) < 8 ppm (@50 kHz)
External Shunt Resistance (current output only) - R_S	0 Ω – 40 Ω	
Output Voltage (“V”-version) - V_{OUT}	±10 V	
Output Voltage Ratio (“V” version) – $V_{OUT}/I_{P(DC)}$	0.1 V/A	(1/15) V/A
Maximum Output Current – “V”-version	±15 mA	
Temperature Coefficient – TC (typ.)	< 0.5 ppm/K < 2 ppm/K (“V”-version)	
Linearity	< 3 ppm < 15 ppm (“V”-version)	
Induction into Primary (typ.)	35 μV (RMS)	
Protection Signal	Yes - Primary Over-Current	
Supply Voltage (± 6%)	±15 V	
Connections	DB-9 Connector (“C”) or 7-pin type (“P”)	
Mechanical (Outer) Dimensions	45 × 57 × 75 mm	
Primary Conductor Hole Diameter – Ø	16 mm	
Operating Temperature Range	0...+50 °C	
Maximum Weight	250 g	

PS1215I – PS1215V
Low-Noise Power Supplies
for current transducers




CT-100/CT-150
7-pin strip connector for PCB



Ordering Options

WCT100CXAAAA	CT-100-C	100 A Primary Current 0-FLUCS , DB-9 connector
WCT100PXAAAA	CT-100-P	100 A Primary Current 0-FLUCS , 7-pin type connections
WCT100VCXAAA	CT-100V-C	100 A Primary Current 0-FLUCS , DB-9 connector, Voltage-Output
WCT100VPXAAA	CT-100V-P	100 A Primary Current 0-FLUCS , 7-pin type connections, Voltage-Output
WCT150CXAAAA	CT-150-C	150 A Primary Current 0-FLUCS , DB-9 connector
WCT150PXAAAA	CT-150-P	150 A Primary Current 0-FLUCS , 7-pin type connections
WCT150VCXAAA	CT-150V-C	150 A Primary Current 0-FLUCS , DB-9 connector, Voltage-Output
WCT150VPXAAA	CT-150V-P	150 A Primary Current 0-FLUCS , 7-pin type connections, Voltage-Output



Product Overview

CT-200
CT-300
CT-400

Current or
Voltage
Output



CT-200 / CT-300 / CT-400

- Closed-loop current transformer technology allows accurate monitoring of DC and AC bipolar currents up to $\pm 200\text{A}$ (CT-200), $\pm 300\text{A}$ (CT-300) or $\pm 400\text{A}$ (CT-400).
- 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 for rack/panel mounting

APPLICATIONS

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

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-200/CT-300/CT-400 transducers are rated at a maximum bipolar primary current of 200A/300A/400A with a transform ratio of respectively 1:1000, 1:1500 and 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.

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.

All CT-200/CT-300/CT-400 devices also have different mounting holes in order to be easily installed in different configurations. Both self-threading screws and normal ones can be used.

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

Due to the excellent characteristics, the 0-FLUCS transducers can be used in a variety of calibration, acceptance



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testing and quality control applications in industrial, power generation and automotive fields.

Commercially available versions of the CT-200/CT-300/CT-400 current

transformers are the standard current-output and the voltage-output “V” version.

Different output voltage ratings – e.g. ± 2.5 V or ± 5 V – are available upon request for a minimum quantity

Technical Specifications	CT-200	CT-300	CT-400
Current Transform Ratio - N	1:1000	1:1500	1:2000
Maximum DC Primary Current - $I_{P(DC)}$	± 200 A	± 300 A	± 400 A
Maximum RMS Primary Current - $I_{P(RMS)}$	141 A	212 A	283 A
Current Polarity	Bipolar		
Maximum DC Secondary Current - $I_{S(DC)}$	± 200 mA		
Maximum RMS Secondary Current - $I_{S(RMS)}$	141 mA		
External Shunt Resistor Value – R_S	0...40 Ω	0...30 Ω	0...20 Ω
Small Signal Bandwidth – typ. BW	> 200 kHz	> 200 kHz	> 200 kHz
Small Signal Bandwidth – “V” version – typ. BW	100 kHz	150 kHz	150 kHz
Noise (RMS) – typ.	< 1.5 ppm (@200 Hz) < 6 ppm (@50 kHz)	< 1.8 ppm (@200 Hz) < 7 ppm (@50 kHz)	< 2 ppm (@200 Hz) < 8 ppm (@50 kHz)
Output Voltage (“V”-version) - V_{OUT}	± 10 V		
Output Voltage Ratio (“V” version) – $V_{OUT}/I_{P(DC)}$	0.05 V/A	(1/30) V/A	0.025 V/A
Maximum Output Current – “V”-version	± 15 mA		
Temperature Coefficient – TC (typ.)	< 0.5 ppm/K < 2 ppm/K (“V”-version)		
Linearity	< 3 ppm < 15 ppm (“V”-version)		
Induction into Primary (typ.)	<20 μ V (RMS)	<25 μ V (RMS)	<30 μ V (RMS)
Offset (with factory trimming)	< 10 ppm/FS		
Protection Signal	Yes - Primary Over-Current		
Supply Voltage ($\pm 6\%$)	± 15 V		
Maximum Current Consumption	50 mA + I_S		
Connections	DB-9 Connector		
Mechanical (Outer) Dimensions	94 × 91 × 50 mm		
Primary Conductor Hole Diameter – ϕ	30 mm		
Maximum Weight	380 g		



0-FLUCS Closed-Loop Technology

The CT-200, CT-300 and CT-400 models are based on the CAEN ELS 0-FLUCS Closed-Loop Technology.



Status LED and signal

PS1215I – PS1215V
Low-Noise Power Supplies
for current transducers



Ordering Options

WCT200XAAAA	CT-200	200 A Primary Current 0-FLUCS , DB-9 connector
WCT200VAAAA	CT-200V	200 A Primary Current 0-FLUCS , DB-9 connector, Voltage-Output
WCT300XAAAA	CT-300	300 A Primary Current 0-FLUCS , DB-9 connector
WCT300VAAAA	CT-300V	300 A Primary Current 0-FLUCS , DB-9 connector, Voltage-Output
WCT400XAAAA	CT-400	400 A Primary Current 0-FLUCS , DB-9 connector
WCT400VAAAA	CT-400V	400 A Primary Current 0-FLUCS , DB-9 connector, Voltage-Output



Product Overview

CT-600
CT-1000
Current or
Voltage
Output



CT-600 / CT-1000

- Closed-loop current transformer technology allows accurate monitoring of DC and AC bipolar currents up to $\pm 600\text{A}$ (CT-600) and to $\pm 1000\text{A}$ (CT-1000).
- 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 for rack/panel mounting

APPLICATIONS

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

The 0-FLUCS (O-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-600 and CT-1000 transducers are rated at a maximum bipolar primary current of 600A and 1000A with a transform ratio of 1:1500 and 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 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.

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.

All CT-600 and CT-1000 devices also have different mounting holes in order to be easily installed in different configurations. Both self-threading screws and normal ones can be used.





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

Due to the excellent characteristics, the CT-600 and CT-1000 transducers can be used in a variety of calibration,



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acceptance testing and quality control applications in industrial, power generation and automotive fields.

Commercially available versions of the CT-600 and CT-1000 current sensors are

the standard current-output CT-600 and CT-1000 and the voltage-output version CT-600V and CT-1000V. Different output voltage ratings – e.g. ± 2.5 V or ± 5 V – are available upon request for a minimum quantity.

Technical Specifications	CT-600	CT-1000
Current Transform Ratio - N	1:1500	1:2000
Maximum DC Primary Current - $I_{P(DC)}$	± 600 A	± 1000 A
Maximum RMS Primary Current - $I_{P(RMS)}$	424 A	707 A
Current Polarity	Bipolar	
Maximum DC Secondary Current - $I_{S(DC)}$	± 400 mA	± 500 mA
Maximum RMS Secondary Current - $I_{S(RMS)}$	283 mA	354 mA
External Shunt Resistor Value - R_S	0...5 Ω	0...2 Ω
Small Signal Bandwidth (-1 dB) - typ. BW	> 150 kHz	
Noise (RMS) - typ.	< 1.5 ppm (@200 Hz) < 7 ppm (@50 kHz)	< 1.5 ppm (@200 Hz) < 10 ppm (@50 kHz)
Output Voltage ("V"-version) - V_{OUT}	± 10 V	
Output Voltage Ratio ("V" version) - $V_{OUT}/I_{P(DC)}$	(1/60) V/A	0.01 V/A
Maximum Output Current - "V"-version	± 15 mA	
Temperature Coefficient - TC (typ.)	< 0.5 ppm/K < 2 ppm/K ("V"-version)	
Induction into Primary (typ.)	< 25 μ V (RMS)	
Linearity	< 3 ppm < 15 ppm ("V"-version)	
Offset (with factory trimming)	< 10 ppm/FS	
Protection Signal	Yes - Primary Over-Current	
Supply Voltage ($\pm 6\%$)	± 15 V	
Maximum Current Consumption	50 mA + I_S	
Connections	DB-9 Connector	
Mechanical (Outer) Dimensions	107 × 91 × 50 mm	
Primary Conductor Hole Diameter - ϕ	30 mm	
Maximum Weight	450 g	600 g



0-FLUCS Closed-Loop Technology

The CT-200, CT-300 and CT-400 models are based on the CAEN ELS 0-FLUCS Closed-Loop Technology.



PS12151 – PS1215V
Low-Noise Power Supplies
for current transducers



 Status LED and signal

Ordering Options

WCT600XAAAA	CT-600	600 A Primary Current 0-FLUCS, DB-9 connector
WCT600VXAAAA	CT-600V	600 A Primary Current 0-FLUCS, DB-9 connector, Voltage-Output
WCT1000XAAAA	CT-1000	1000 A Primary Current 0-FLUCS, DB-9 connector
WCT1000VXAAA	CT-1000V	1000 A Primary Current 0-FLUCS, DB-9 connector, Voltage-Output

CT-2000

CT-3000

Current or Voltage Output
DC Current Transducers



CT-2000 / CT-3000

- Closed-loop current transformer technology allows accurate monitoring of DC and AC bipolar currents up to $\pm 2000\text{A}$ (CT-2000), $\pm 3000\text{A}$ (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

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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. ± 2.5 V or ± 5 V - are available upon request for a minimum quantity.

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