

## Technical Specification

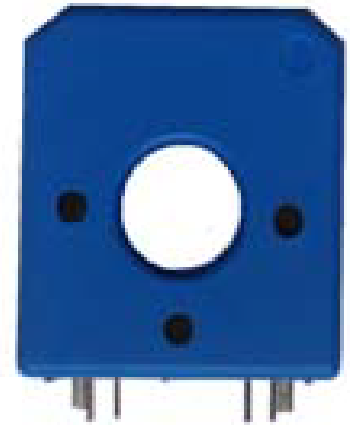
### Miniature Current Transducer : MCT-400

#### Features :

- DC&AC earth leakage current transducer using a flux-gate principle
- PCB mounting
- Single Supply Voltage
- Closed Loop current transducer
- Small size
- 



**RÖHS**  
COMPLIANT



This closed-loop (compensated) current transducer is For the electronic measurement of currents: DC, AC, mixed, with a galvanic isolation between the primary (high power) circuit and the secondary (electronic) circuit.

#### Application Domaine:

- Industrial

#### Applications:

- Earth leakage detection in transformerless
- Failure detection in power sources
- Current leakage detection in stacked DC sources
- 1st human contact protection of PV arrays
- Single phase or three phase differential current measurement up to  $\pm 30A$  per wire (DC or AC).
- Symmetrical fault detection(e.g. after motor inverter)

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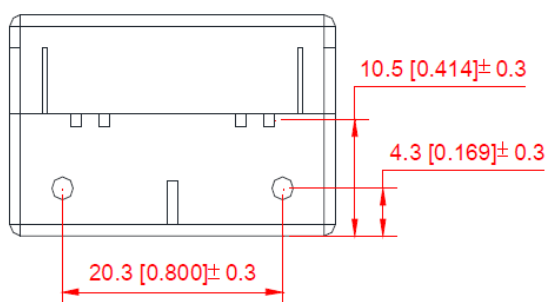
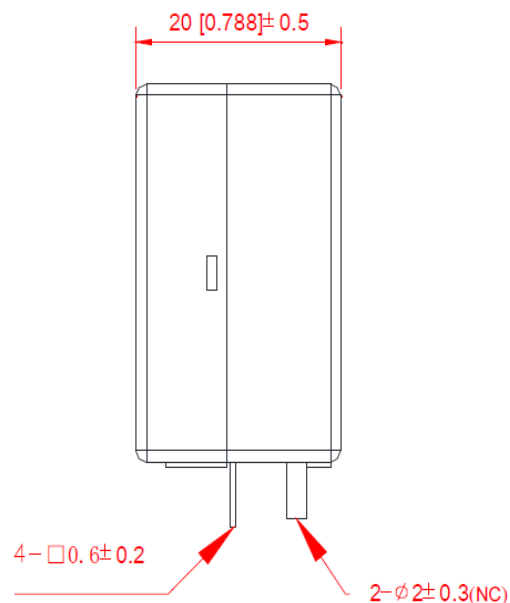
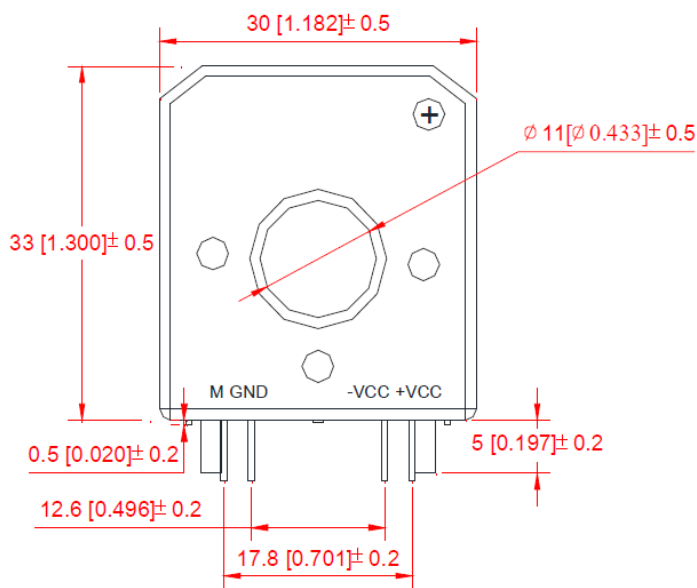
### SPECIFICATIONS:

$T_A = +25^{\circ}\text{C}$  ,

Parameter	Symbol	Condition	Min	Typ	Max	Unit
ELECTRICAL DATA						
Primary nominal r.m.s Current	I <sub>PN</sub>		-	400	-	A
Primary Current measuring range	I <sub>PM</sub>		-800	-	+800	A
Supply Voltage	V <sub>CC</sub>		-	±15	-	V
Current consumption	I <sub>c</sub>			45		mA
Isolation resistance	R <sub>IS</sub>	@500 VDC	>500			MΩ
Ouput voltage(Analog)@±IPN	V <sub>OUT</sub>	R <sub>L</sub> =10K Ω , T <sub>A</sub> =25°C	±5			V
Output internal resistance	R <sub>OUT</sub>		<51			Ω
Load resistance	R <sub>L</sub>		≥10			KΩ
Capacitive loading	C <sub>L</sub>		≤5			nF
Accuracy (excluding soffset)	X	@IPN,T <sub>A</sub> =25°C, R <sub>L</sub> =10K Ω	<±1			%IPN
Linearity	ε <sub>L</sub>	0…±IPN	< ± 0.5			%IPN
Temperature coefficient of TCV <sub>OUT</sub>			<±0.05			% °C
Offset voltage	V <sub>o</sub>		<100			mV
Hysteresis offset voltage	V <sub>OH</sub>	@100IPN	< ± 20			mV
Temperature coefficient of V <sub>o</sub>	TCV <sub>o</sub>		2			mV/°C
Response time	tr		<60			ms
Isolation Voltage	V <sub>d</sub>	@50(60)HZ/1min	2.5			KV
Bandwidth	BW		DC 40....18000			Hz
Operating temperature	To		- 20	-	+ 85	°C
Storage temperature	T <sub>s</sub>		- 25	-	+85	°C
Mass	M		25			g
Plastic material	PBT G30/G15, UL94- V0;					

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### DIMENSION



### Mechanical characteristics:

- General tolerance :  $\pm 1$  mm  
(Unless otherwise specified in the above drawing)
- Aperture for primary conductor  $\varnothing: 11$  mm
- Connection of secondary 4 pins  $0.6 \times 0.6$  mm<sup>2</sup> Recommended PCB hole 1.2 mm
- PCB fixation 2 pins  $\varnothing: 2$  mm Recommended PCB hole 2.2 mm

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### IMPORTANT

- $V_{OUT}$  is positive when  $I_P$  flows in the direction of the arrow.
- This transducer induces into the primary circuit a square wave of 500Hz. This voltage can induce an AC current in the primary if the primary impedance is low.
- Primary impedance  $\geq 10\Omega$ ,  $V_{OUT}$  by induced current  $\leq 0.3\%$  of  $I_{PN}$
- Temperature of the primary conductor should not exceed  $100^\circ\text{C}$ .

### 1. General Safety Warnings

- **Intended Use:** This transducer is designed for installation in electrical and electronic systems. It must be used in compliance with applicable international standards, such as **IEC 61010-1**, as well as local regulations and codes.
- **Applicable Standards:** The transducer must be operated according to the Adisens's operating instructions to ensure compliance with relevant safety standards, including:
  - **IEC 61010-1:** Safety requirements for electrical equipment for measurement, control, and laboratory use.
  - **EN 50178:** Safety requirements for electronic equipment for power installations.
- **Installation by Qualified Personnel:** Only qualified professionals, trained in handling high-voltage systems and electrical components, should install, commission, and maintain the transducer. Misuse or incorrect installation may result in electric shock, fire, or severe equipment damage.

### 2. Electrical Shock Risk

- **Risk of Electric Shock:** This transducer operates in high-voltage environments. It must be handled with care to avoid direct contact with live electrical components. There is a risk of serious injury or death from electric shock if proper precautions are not taken.
- **Limited-Energy Secondary Circuits:** To ensure safe operation, this transducer must be used exclusively within limited-energy secondary circuits, as specified by **IEC 61010-1**, which governs the safe design of electrical circuits to reduce the risk of injury and electrical hazards.
- **Isolation Requirements:** This transducer provides galvanic isolation between the primary (high-power) and secondary (low-power) circuits. However, the device should not be assumed to provide absolute protection against electric shock. Always de-energize circuits before installation or maintenance.

### 3. Installation Precautions

- **Environmental Conditions:** The transducer is designed to operate in controlled environments. Ensure that the operating temperature, humidity, and surrounding conditions comply with the transducer's specifications provided in the technical datasheet. Avoid exposure to moisture, corrosive environments, or areas prone to electrical interference.
- **Mounting:** Secure the transducer properly in a location that prevents movement or vibration during operation. Improper mounting may cause electrical arcing or contact with live components.

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- **Grounding:** Ensure that the transducer is correctly grounded in accordance with the electrical system design. This will help prevent electric shock and improve system safety and performance.

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### 4. Operational Guidelines

- **Operating Limits:** Operate the transducer strictly within the specified voltage, current, and temperature ranges. Overloading the transducer beyond its rated capacity may result in equipment failure or create safety hazards.
- **Routine Maintenance:** Inspect the transducer regularly for signs of wear, damage, or abnormal operation. Discontinue use if any issues are detected and consult the manufacturer for replacement or repair.

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### 5. Handling and Storage

- **Handling Precautions:** Avoid direct contact with transducer terminals during handling. Always handle the device with protective gear, including insulated gloves, to avoid accidental electric shock.
- **Storage Conditions:** Store the transducer in a clean, dry, and temperature-controlled environment. Prolonged exposure to harsh conditions may degrade performance and compromise safety.

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### 6. Emergency Procedures

- **Power Disconnection:** In case of a malfunction, electrical fault, or other emergency, immediately disconnect the power supply to the transducer and seek professional assistance for inspection and repair.
- **First Aid:** If an electric shock occurs, follow established first aid protocols and seek emergency medical assistance immediately.

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### 7. Disposal

- **Environmental Considerations:** Dispose of the transducer according to local regulations for electronic waste. Do not incinerate, and avoid disposing of the device in general waste, as it may contain hazardous materials.

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### 8. Manufacturer's Support

For additional information, technical support, or to report any issues with the transducer, please contact us on [contact@adisens.fr](mailto:contact@adisens.fr). Ensure that you have the model number, serial number, and installation details on hand for a prompt response.