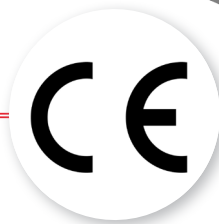


# TECHNICAL SPECIFICATIONS

## RFCS1000

A modern and efficient current sensor to measure AC, DC and pulsating currents with a galvanic insulation between primary and secondary circuits, able to measure currents from 10A to 3000A.



### KEY FEATURES

- Rectangular design, to facilitate integration with busbars
- Compact dimensions to save up to 30% of space and reduce overall dimensions of the equipment
- A wide measurement range, up to 3 times nominal current value
- High level of accuracy
- Good behavior on presence of magnetic disturbances

### APPLICATIONS



#### INDUSTRIAL

- Uninterruptible Power Supplies (UPS)
- Power supplies for welding applications
- Converter for DC drives
- AC variable speed drives
- Servo motor drives
- Windmill inverters
- Solar farm inverters
- Battery chargers
- Energy Storage System (ESS)



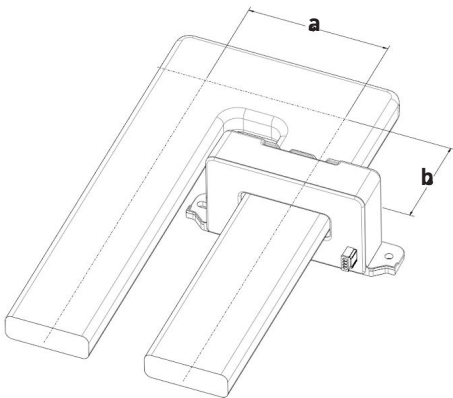
## Electrical details

Parameter	Unit	Value
Primary nominal current (AC and DC)	A	-1000/+1000
Measuring range (AC and DC)	A	-3000/+3000
Not measurable overload (10ms/h)	A	30 000
No load consumption current	mA	≤ 22
Supply voltage (+/- 5%)	V	+/-15
Output voltage (@nominal current)*	V	+/-4
Frequency bandwidth	kHz	0-25
Internal resistance	Ω	100

\* Value given with measuring resistance = 10kΩ and ambient temperature = 25°C.

## Performances

Parameter	Unit	Value
Overall accuracy @ nominal current (cf graph 1)	%	≤ 0.5
Linearity	%	≤ 0.1
Offset value	mV	≤ 10
Temperature drift coefficient	mV/K	≤ 1
Response time	μs	≤ 3
di/dt correctly followed	A/μs	50
Error generated by magnetic disturbances (see graph below)	%	< 1



The qualification of the magnetic disturbances on the sensor is done using a U shape busbar. Tests are performed with minimum distances from the back section (a) et return section (b), which is the most disturbing case.



## Warnings/Safety

This sensor must be used in electrical circuits according to EN61010-1.



This sensor must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the system instructions and internal customer rules.



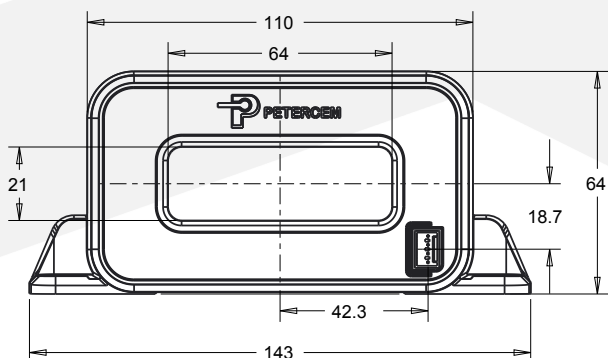
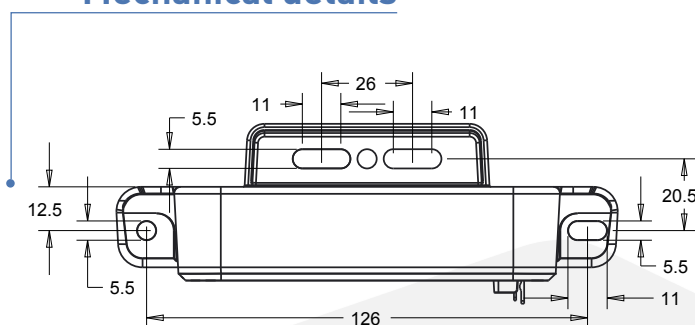
Caution: risk of electrical shock. When operating the sensor, certain parts can carry hazardous voltages (primary bar, power supply...). Ignoring this warning can lead to injury and/or cause serious damage.



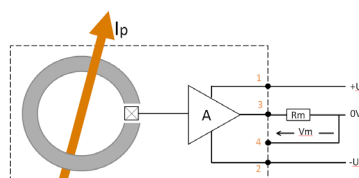
Caution: hot surface: the temperature on the sensor and on the busbar can reach very high temperatures.

*For a use in specific environment or conditions, please contact us.*

## Mechanical details



### CONNECTION



### TERMINAL MARKING



- General tolerance = +/- 1mm
- Fastening Torques = 1.5Nm for 2 screws M5

## Mounting instructions

- Bus bar must not touch the product. The temperature of the primary conductor must not exceed 100°C.
- Except for the mounting surface, a clearance distance of 1cm minimum must be respected all around the product.
- The reliability of the product is defined around nominal values. The use of the product outside of them will affect the reliability of the product and will reduce its lifetime.
- The clearance and creepage distances defined in section "Insulation" are obtained with a distance of 3mm between the primary bar and the right edge (connector side) of the through opening.

*If a special arrangement of busbars does not allow to respect the recommendation, or if you require information on reliability on special conditions, please contact us to assess the feasibility of the solution.*



## Standards

Standard category		Reference
UL	✓	UL508
CE Low voltage directive EMC directive Product standard (industrial)	✓	2014/30/UE 2014/35/UE EN 61010-1
RoHS	✓	Directive 2011/65/UE
REACH	✓	Reglement 1907/2006
Conflict mineral	✓	Dodd Frank Act 1502

## General specs

Parameter	Unit	Value
Storage temperature	°C	-25/+85
Operating temperature	°C	-25/+85
Pollution degree		2
Overvoltage category		3
Mass	g	480g

## Insulation

Parameter	Unit	Value
Dielectric test	kV	5.2 50Hz, 1min
Impulse test	kV	8,3 50Hz, 1min
Overvoltage category		3
Comparative Tracking Index (CTI)		600
Insulation resistance	MΩ	200
Insulation voltage, basic insulation	V	600
Insulation voltage, reinforced insulation	V	600
Clearance distance (connector to through opening)	mm	16
Creepage distance (connector to through opening)	mm	20,2



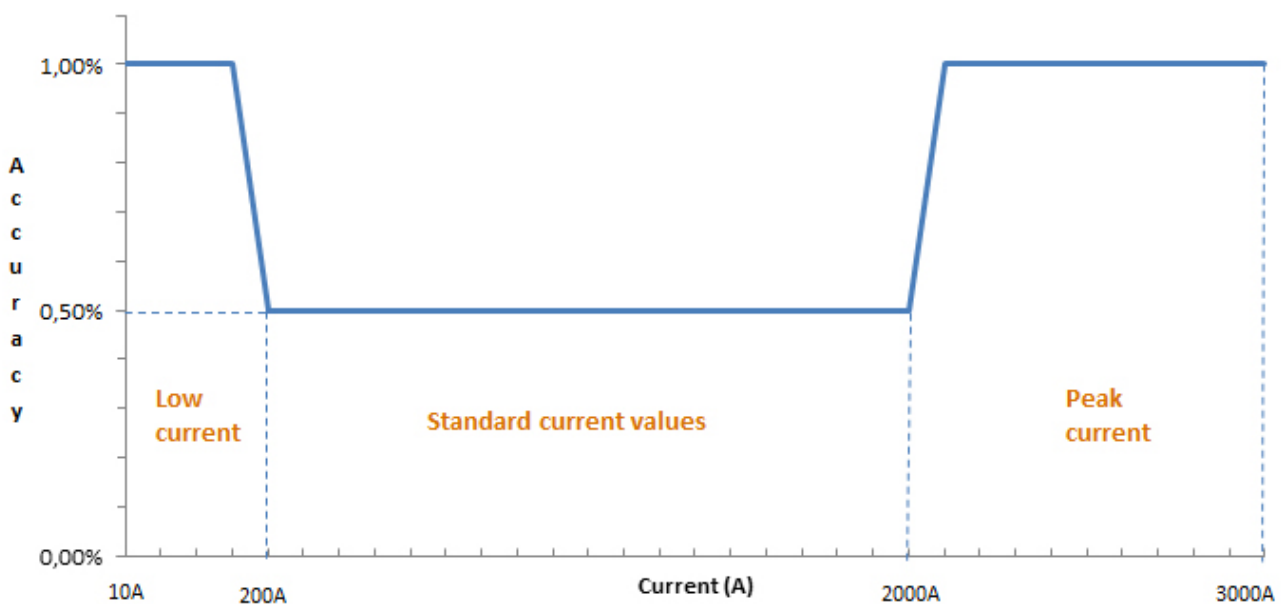
## Accuracy

### Definition

The term accuracy corresponds to the error  $\frac{\text{current measured} - \text{real current}}{\text{real current}}$   
It takes into account the residual current, linearity and thermal drift.

### Graph 1 : Accuracy vs current

The wide measurement range allows to measure currents from 10A up to 3000A.  
From 200A and up to 2000A, accuracy is  $\leq 0,5\%$ . From 10A to 200A or above 2000A, it is guaranteed within an interval of  $\pm 1\%$  across all the measurement range.



*Note: These values are given for an ambient temperature = 25°C.*



**PETERCEM Sensors**



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