

Basic Specification

— Version 2 —

Product Name : OpECS

(Optical probe Electric Current Sensor)

Product Code : OTB-11120 -00

Issue Date : 17 Nov , 2023

1. Basic Specification

1-1. Specification

Data item	Specification	Note
Frequency Bandwidth	DC~150 MHz (-3dB)	
Measurable current	$\pm 140 \text{ A}$ ※1	For measurements exceeding the measurable current, refer to "3 Sector Features".
Sensitivity	25.78 mV/A ※1 ($0.073 \text{ mV/A} \cdot \text{m}^{-1}$)	(Reference value) See "3 Sector Features" for details.
Output voltage range	$\pm 4.7 \text{ V}$	
Noise	6.3 mVrms	With no input, at 200MHz bandwidth instrument
Linearity	$\pm 1 \%$ ※1	※1 Measured in contact with 0.5mm dia, cooper wire
Output connector	BNC (50 Ω terminal)	

【Sensor head】		
Tip shape ($\phi \times L$)	$\phi 0.45 \times 1 \text{ mm}$	(Typical value)
Weight	Approx. 5 g	
Operating temperature range	-10 ~ 50 °C	
【Control Unit】		
Size (W×L×H)	158.0 × 254.0 × 108.0 mm	(Protrusions not included)
Weight	Approx. 2 kg	(AC adapter not included)
Operating temperature range	15 ~ 35 °C	
Power supply voltage	AC100~240 V (50/60 Hz)	
Power consumption	11 W	

1-2. Measurable current

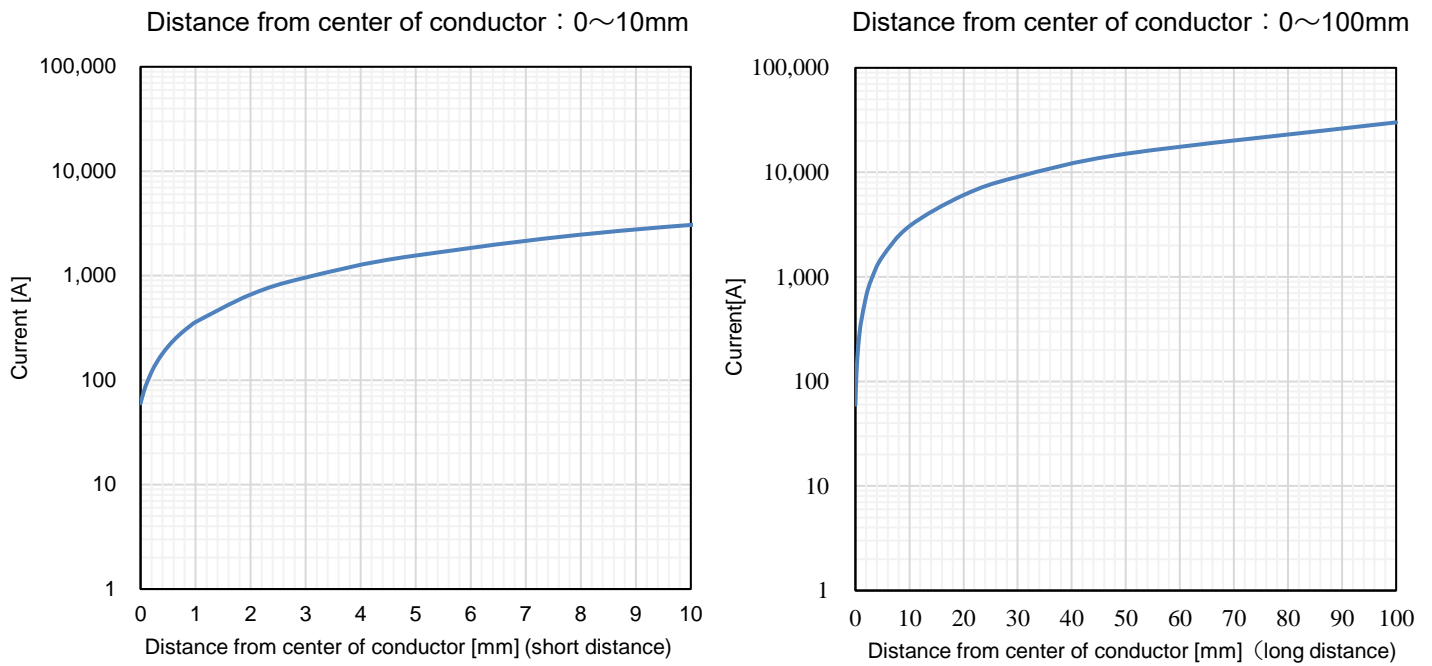
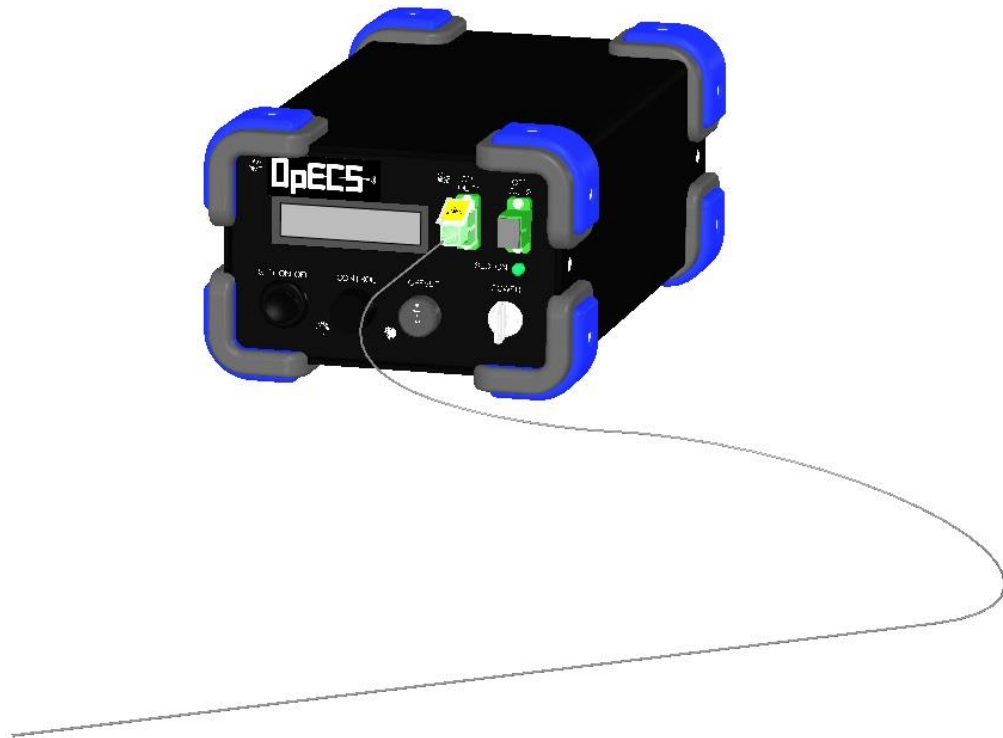


Fig.1 Measurable current value

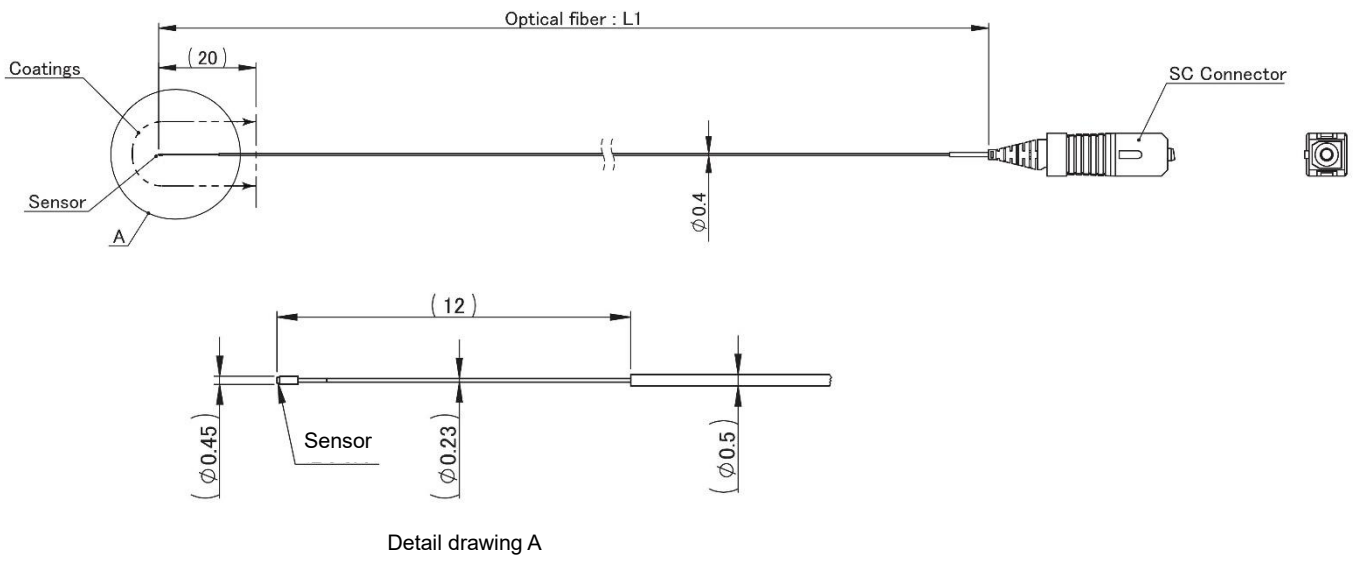
2. Mechanical Specifications

2-1. System Configurations

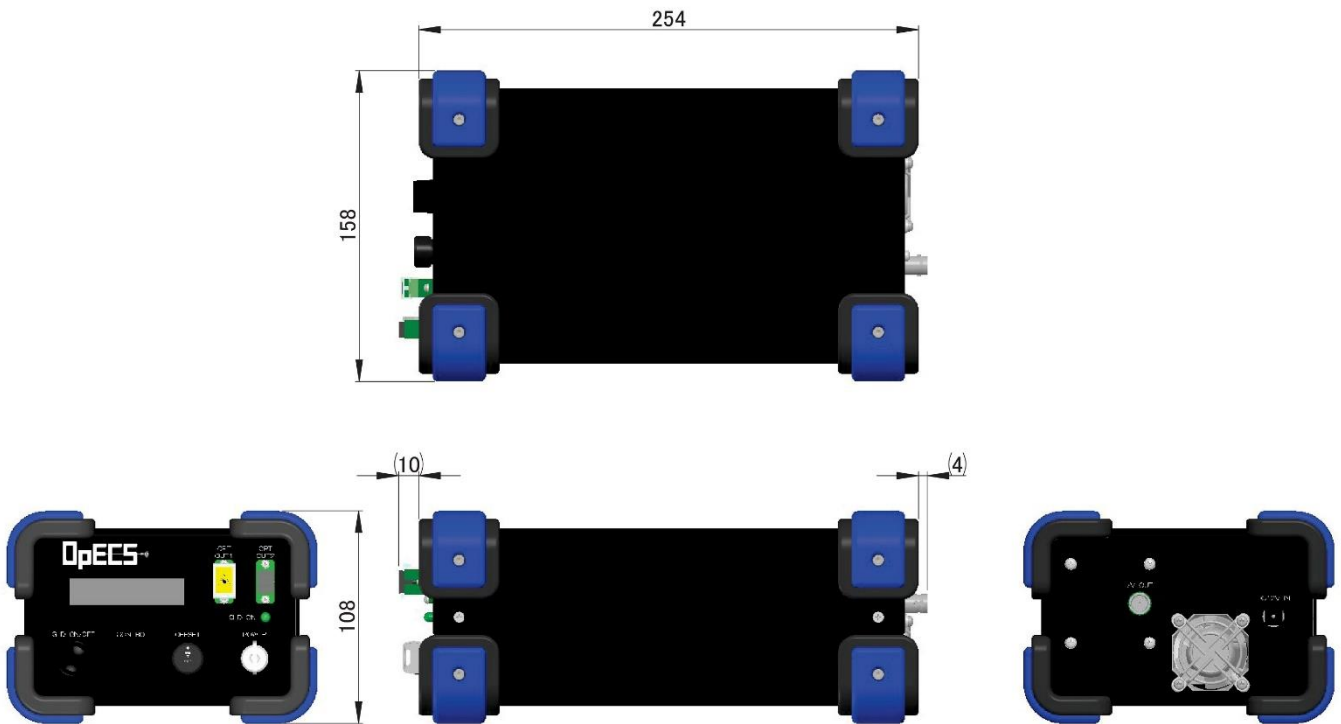


2-2. External view

[Sensor head]



[Control Unit]



3. Sensor measurement position

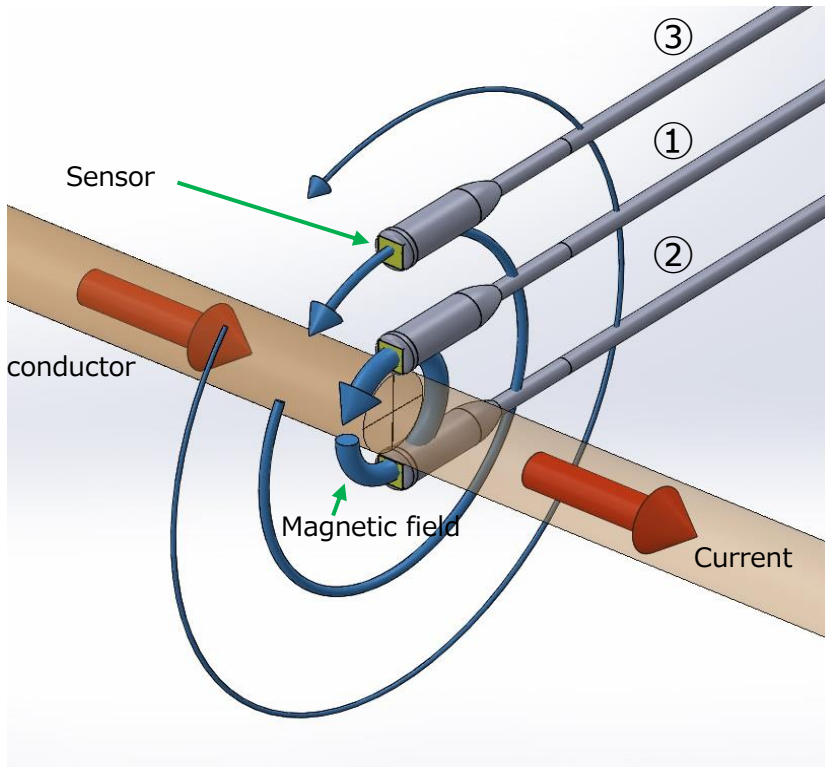


Fig.2 Measurement position

- The maximum sensitivity can be obtained by contacting the conductor with the center of the conductor as shown in Fig.2 ①.
- For the direction of the current flowing through the conductor
Positive output in case of ①.
Negative output in case of ②.
- As shown in ③, the magnetic field becomes weaker at locations away from the center of the conductor, and the sensitivity changes as the graph in Fig.3 shows OpECS can measure currents greater than the measurable current at a distance.

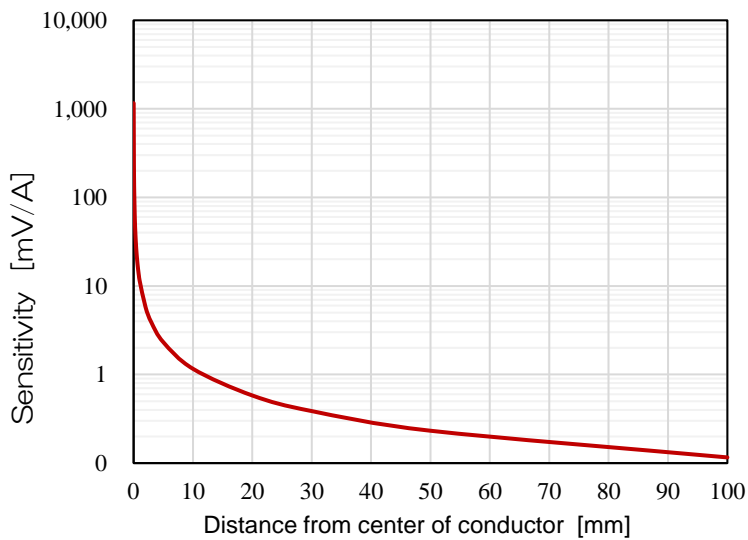


Fig.3 Sensitivity graph

- If the distance between the center of the conductor and the sensitive area is constant, As shown in Fig.4, the sensitivity does not change even if the conductor diameter is changed. Fig.4 shows that the sensitivity does not change even if the conductor diameter changes.

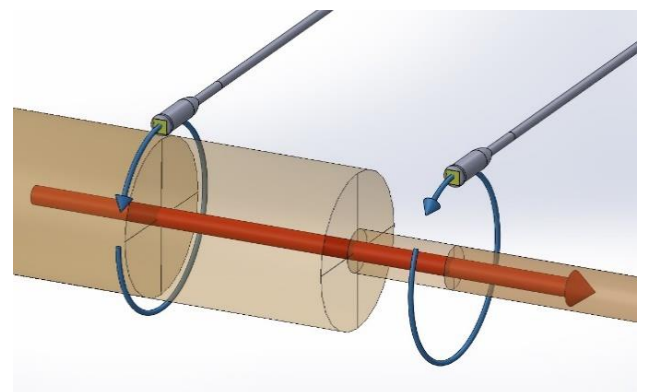


Fig.4 Relation between sensing distance and conductor diameter