# Fiber Optic High Current Sensor

## Up to 700 kA

DATASHEET

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Fiber Optic Current Sensors (FOCS) are ideal for high-voltage substations, aluminum smelting, and aerospace applications. They are immune to electromagnetic interference (EMI) and do not suffer from magnetic saturation, which improves accuracy, simplifies installation, and enables reliable digital data output with very low power consumption. FOCS systems can measure currents up to 700 kA. They offer a practical alternative to traditional Hall-effect sensors, using a lightweight, clamp-on design that allows installation without opening bus bars — reducing time and complexity. The measurement depends only on the current inside the fiber loop and is not affected by external magnetic fields. This allows flexible sensor placement along the bus bar without interference concerns.

FOCS technology is based on the Faraday effect. Polarized light traveling through an optical fiber changes phase when exposed to a magnetic field. In the sensor, light travels through a fiber loop, reflects back, and returns to the electronics. When current flows, the magnetic field causes a small difference in the speed of light components, creating a phase shift. This shift is directly proportional to the current, enabling highly accurate measurement. The system includes a light source, optical detection components, and a signal processor, which converts the optical signal into a digital output for monitoring and analysis. FOCS technology has been proven in demanding environments across air, land, and sea applications.

## Features

- Compact, Lightweight
- Easy to Install
- Immure to Electromagnetic Interference
- Measurement of Large Current
- High-Speed Response
- Long Distance Remote Sensing
- High Accuracy
- High Current

## Applications

- High-voltage substations
- Aluminum smelting
- AAerospace applications
- Scientific Research Experiment
- Power station

RoHS COMPLIANT

ATTENTION
OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC

## Specifications

| Parameter | | Min | Typical | Max | Unit |
|---|---|---|---|---|---|
| Rated Current | | 20 | 100 | 700 | kA |
| Maximum Range | | | 120 | | % Ir |
| Measurement Range | | 10 | | 120 | % Ir |
| Measurement Accuracy | | 0.1 | | 0.5 | % |
| Bandwidth (analog output) | | 0 | | 3 | kHz |
| Response Time (simulated output) | | | | 300 | µs |
| Operating Voltage (at the sensor loop measuring point) | | | | 2 | kV |
| Analog Voltage Output | Unipolar | 0~5, 0~10 | | | V |
| | Bipolar | ±5, ±10 | | | |
| Analog Current Output | Unipolar | 4~20, 0~20 | | | mA |
| | Bipolar | 4 … 12 … 24, ±20 | | | |
| Number of Analog Voltage Output Channels | | 1 | | 6 | |
| Number of Analog Current Output Channels | | 1 | | 6 | |
| Digital Output | | Modbus RTU | | | |
| Data Logger Operating Temperature | | -5 | | +55 | °C |
| Storage Temperature | | -40 | | +70 | °C |
| Humidity | | 5 | | 95 | % |

**Note:** The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link]:

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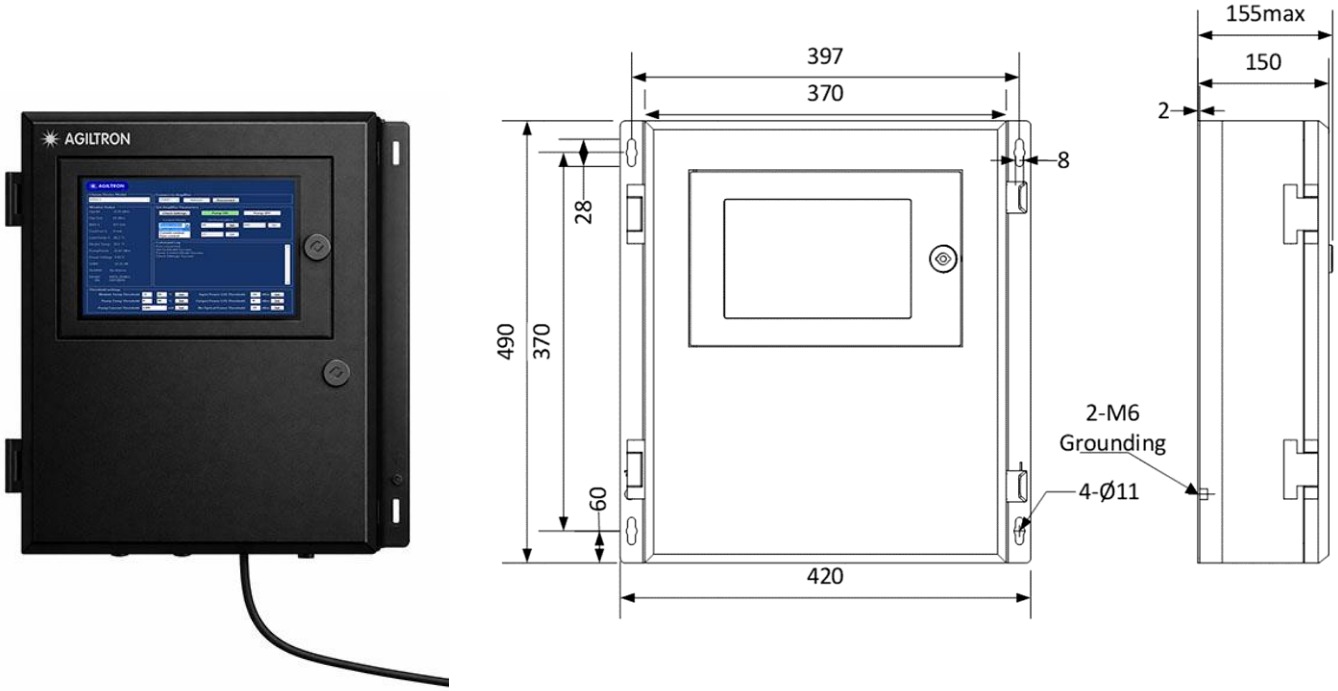
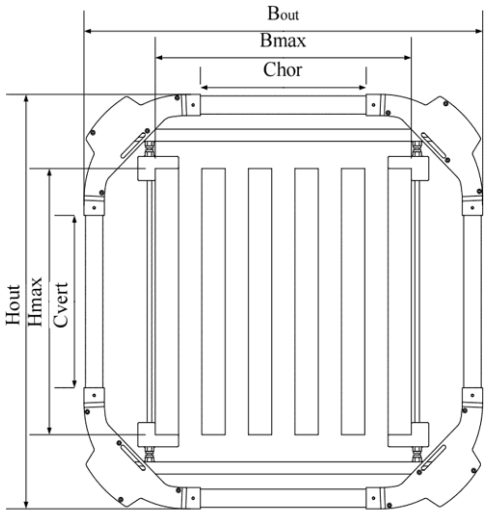
## Data Collector Chassis Mechanical Dimensions (mm)




*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

## Sensor Ring Mechanical Dimensions (mm)




| Skeleton Model | Chor (mm) | Cvert (mm) | Bout (mm) | Hout (mm) | Bmax (mm) | Hmax (mm) |
|---|---|---|---|---|---|---|
| O0 | 0 | 0 | 400 | 400 | 155 | 155 |
| O1 | 285 | 285 | 685 | 685 | 440 | 440 |
| O2 | 680 | 680 | 1080 | 1080 | 835 | 835 |
| O3 | 1180 | 680 | 1580 | 1080 | 1335 | 835 |
| O4 | 1180 | 1180 | 1580 | 1580 | 1335 | 1335 |
| O5 | 1680 | 1180 | 2080 | 1580 | 1835 | 1335 |
| O6 | 2180 | 1180 | 2580 | 1580 | 2335 | 1335 |
| O7 | 2680 | 1180 | 3080 | 1580 | 2835 | 1335 |
| O8 | 3180 | 1180 | 3580 | 1580 | 3335 | 1335 |

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### Ordering Information (Part Number)

| | ☐ | ☐☐ | ☐ | ☐ | ☐☐ | ☐ | 1 |
|---|---|---|---|---|---|---|---|
| **Prefix** | **Package** | **Configuration** | **Max Current** | **Accuracy** | **Sensor Size** | **Readout** | |
| **OFCS-** | Standard = 1<br>Special = 0 | Standard = 11 | 100 kA = 1<br>200 kA = 2<br>700 kA = 7 | Standard = 1<br>High = 2 | O0 = 00<br>O1 = 01<br>O2 = 02 | Yes = 1<br>None = 2 | |