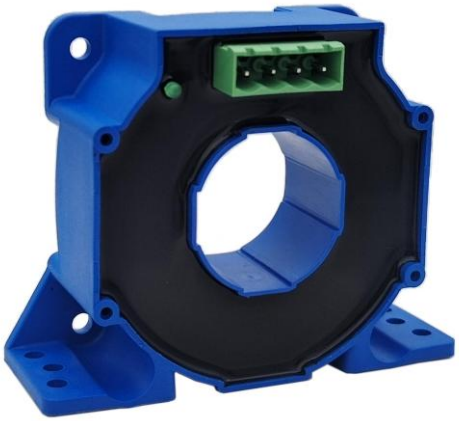
SensorsX

SX-ECFNA-500ALFBH Series

High-Precision Fluxgate Current Transducer — 500 A

Industrial Current Measurement



±500 A Primary Nominal Current (DC)	**100 ppm** Accuracy @ 25 °C (77 °F)	**20 ppm** Linearity
±250 mA Secondary Nominal Output	**DC – 150 kHz** Frequency Bandwidth (−3 dB)	**±15 V** Supply Voltage (±5 %)

■ PRODUCT OVERVIEW

The SensorsX SX-ECFNA-500ALFBH current transducer uses fluxgate technology to measure DC, AC, pulsed and non-sinusoidal currents with galvanic isolation. Its nominal primary current is ±500 A DC or 353 A RMS AC. An output-to-input current ratio of 1:2,000 provides a nominal secondary output of ±250 mA at a primary DC current of ±500 A.The transducer provides an accuracy of 100 ppm at 25 °C and a frequency bandwidth of DC to 150 kHz (−3 dB). It operates from a dual ±15 V supply, with a green LED indicating normal operation.



■ KEY FEATURES

◆ **Accuracy: 100 ppm at 25 °C**	◆ **Frequency bandwidth of DC–150 kHz (−3 dB)**
◆ **5 kV AC insulation withstand voltage (50 Hz, 1 min)**	◆ **Response time: ≤1 µs at 100 A/µs, measured from 10% to 90%**
◆ **Zero-offset current: 3 µA at 25 °C**	◆ **Green LED operating status indicator**

■ TYPICAL APPLICATIONS

- Electrical test and measurement instruments
- Laboratory testing and measurement
- Medical equipment
- High-precision power supplies
- Precision current measurement and calibration systems
- Electric and hybrid vehicles

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■ PERFORMANCE SPECIFICATIONS

Primary Current	
Primary Nominal Input Current (I_{PN})	±500 A (DC)
Primary Nominal RMS Current (I_{PNAC})	353 A (AC)
Measuring Range of Primary Current (I_P)	−900 to +900 A
Conversion Ratio (K_N)	1 : 2,000
Accuracy	
Accuracy (X)	100 ppm @ T_A = 25 °C (77 °F)
Linearity (ε_L)	20 ppm @ I_P = 0–±IPN
Zero Offset Current (I_O)	3 μA @ T_A = 25 °C (77 °F)
Offset Temperature Coefficient (T_C)	5 μA @ I_{PN} = 0, TA = −40 to +85 °C (−40 to +185 °F)
Dynamic	
Response Time (T_R)	≤ 1 μs @ 100 A/μs, 10%–90%
Frequency Bandwidth (f)	DC–150 kHz @ −3 dB
Accurately Tracked Current Rate of Change (di / dt)	> 100 A/μs

■ ELECTRICAL SPECIFICATIONS

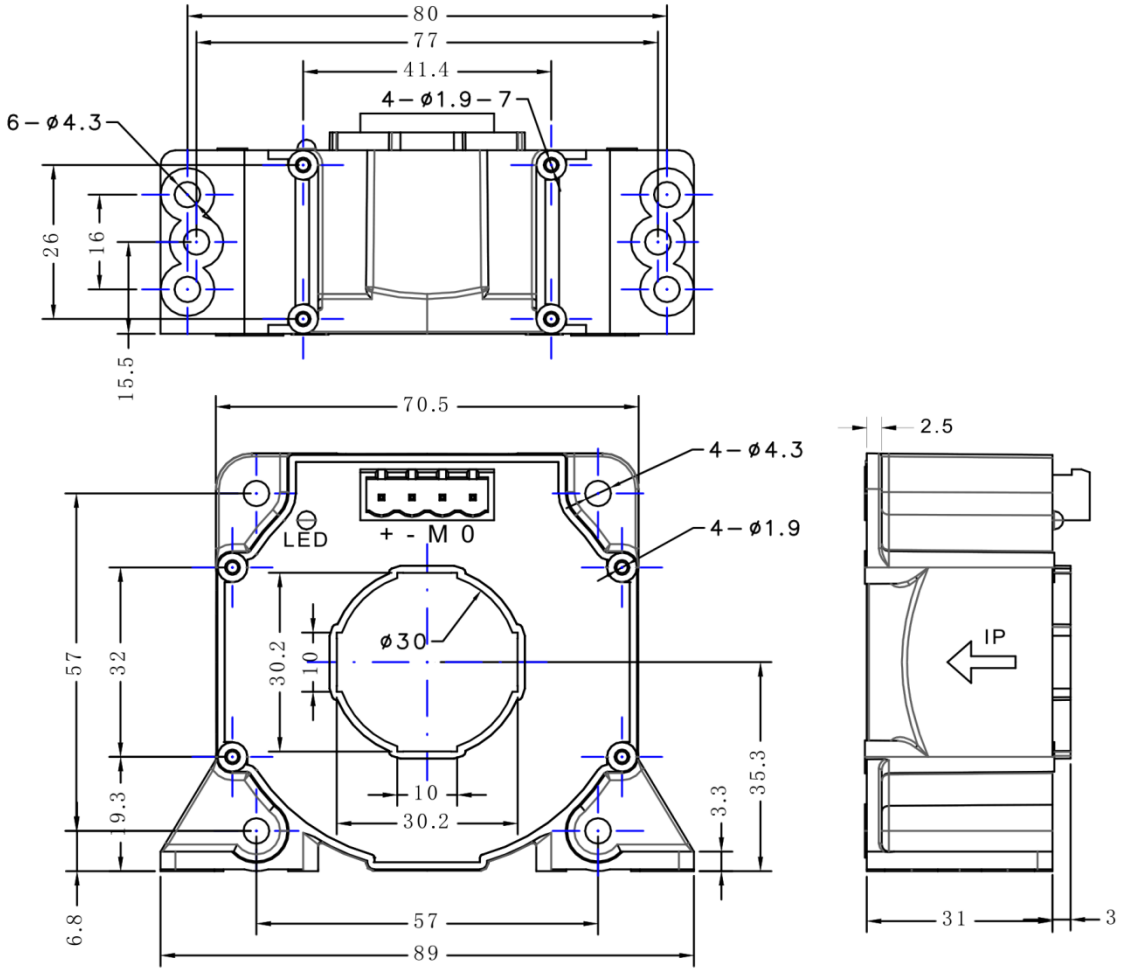
Power	
Supply Voltage (V_C)	±15 V (±5%)
Current Consumption (I_C)	15 mA + I_P / K_N
Output Signal	
Secondary Nominal Output Current (I_{OUT})	±250 mA
Measuring Resistance (R_M)	0 Ω (min.)–34 Ω (max.), within ±15 V, @ ±500 A max.
Measuring Resistance (R_M)	0 Ω (min.)–10 Ω (max.), within ±15 V, @ ±900 A max.
Secondary Coil Resistance (R_S)	16 Ω @ T_A = 85 °C (185 °F)
Isolation	
Insulation Voltage (V_D)	5 kV AC, 50 Hz, 1 min

■ ENVIRONMENTAL SPECIFICATIONS

Temperature	
Ambient Operating Temperature (T_A)	−40 to +85 °C (−40 to +185 °F)
Ambient Storage Temperature (T_S)	−40 to +125 °C (−40 to +257 °F)
Primary Conductor Temperature	The temperature of the primary conductor (cable or busbar) should not exceed 100 °C (212 °F)
Weight	
Mass (m)	253 g (8.92 oz)

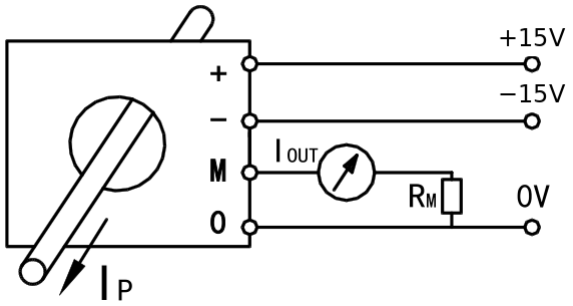
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■ MECHANICAL DIMENSIONS



Note: All dimensions are in millimeters unless otherwise specified.

■ WIRING DIAGRAM



Terminal Assignment

+	+15 V supply
−	−15 V supply
M	I output (IOUT, via measuring resistor RM)
0	GND (0 V)

Remarks

- Incorrect connection may lead to damage of the sensor.
- IOUT is positive when IP flows in the direction of the arrow.

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■ OPERATING STATUS

- Normal status: The green LED is on during normal operation.
- Fault indication: The green LED is off.

Troubleshooting

a) If the green LED is off, check the power supply first.

b) If the power supply is normal, check whether the primary current exceeds the specified measurement range. Under overload conditions, the transducer operates in a non-zero-flux state, and the secondary current is no longer proportional to the primary current. Normal operation resumes when the primary current returns to the specified measurement range.

■ ORDERING INFORMATION — SX-ECFNA

Complete model number example: SX-ECFNA-500ALFBH14250

Rated Primary Current	
500A	±500 A
Housing	
LFBH	Ø30 mm (Ø1.18 in) aperture, 4-terminal electrical connection
Power Supply Type	
1	Dual (bipolar) supply
Supply Voltage	
4	±15 V
Rated Output	
250	±250 mA
Customization Option	
D	Custom configuration — specify requirements when ordering

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