SensorsX

SX-ECMNA-25AAY Series

Closed-Loop Hall-Effect Current Sensor — 25 A

PCB-Mount Current Measurement



25 A Primary Nominal Current	**< ±0.7%** Accuracy @ 25 °C (77 °F)	**< 0.2% F.S.** Linearity
25 mA Secondary Nominal Output	**DC – 100 kHz** Frequency Bandwidth (−1 dB)	**±12 – ±15 V** Supply Voltage (±5 %)

■ PRODUCT OVERVIEW

The SensorsX SX-ECMNA-25AAY is a PCB-mounted, closed-loop Hall-effect current sensor for measuring AC, DC, pulsed and mixed currents. Four primary connection configurations provide nominal input current ratings of 25 A, 12 A, 8 A and 6 A.With the 1:1,000 primary connection, the nominal input current is 25 A, the measuring range is −36 to +36 A, and the nominal secondary output is 25 mA. The sensor operates from a dual ±12 V to ±15 V supply and provides a frequency bandwidth of DC to 100 kHz (−1 dB).



■ KEY FEATURES

◆ **Accuracy: <0.7% at 25 °C, VC = ±15 V**	◆ **Frequency bandwidth of DC–100 kHz (−1 dB)**
◆ **Response time of <1 µs**	◆ **2.5 kV AC insulation withstand voltage (50 Hz, 1 min)**

■ TYPICAL APPLICATIONS

- PCB-based AC and DC current measurement
- Pulsed and mixed-current monitoring
- Current measurement using selectable primary connection configurations

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■ PERFORMANCE SPECIFICATIONS

Primary Current	
Primary Nominal Input Current (I_{PN})	25 A
Measuring Range of Primary Current (I_P)	−36 to +36 A
Conversion Ratio (K_N)	1:1,000 / 2:1,000 / 3:1,000 / 4:1,000
Accuracy	
Linearity (ε_L)	< 0.2% F.S.
Accuracy (X)	< ±0.7% @ T_A = 25 °C (77 °F), V_C = ±15 V
Zero Offset Current (I_O)	< ±0.15 mA @ T_A = 25 °C (77 °F)
Residual Current (I_{OM})	< ±0.15 mA @ $I_P \rightarrow 0$
Thermal Drift of I_O (I_{OT})	< ±0.5 mA @ I_P = 0, T_A = −25 to +70 °C (−13 to +158 °F)
Dynamic	
Response Time (T_R)	< 1 µs
Frequency Bandwidth (−1 dB) (f)	DC–100 kHz

■ ELECTRICAL SPECIFICATIONS

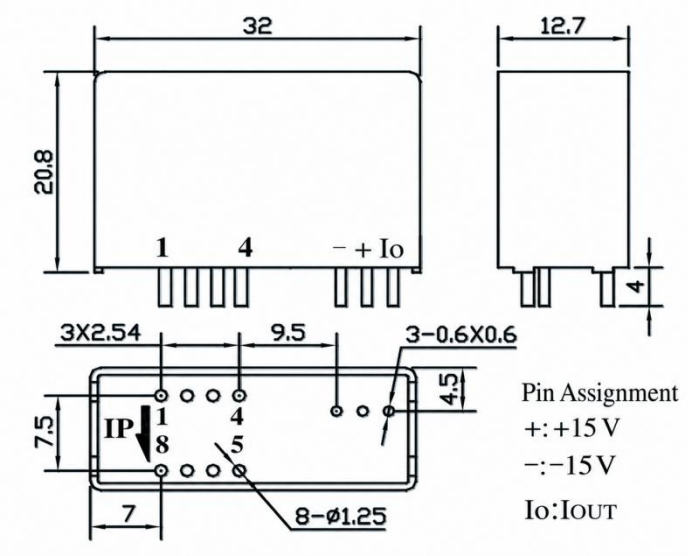
Power	
Supply Voltage (V_C)	±12–±15 V (±5%)
Current Consumption (I_C)	10 mA + I_S @ V_C = ±15 V
Output Signal	
Secondary Nominal Output Current (I_{SN})	25 mA
Measuring Resistance (R_M) (V_C = ±15 V)	54–360 Ω @ I_P = ±25 A; 68–190 Ω @ I_P = ±36 A
Coil & Isolation	
Primary Coil Resistance (R_P)	≤ 1.25 mΩ @ T_A = 25 °C (77 °F)
Secondary Coil Resistance (R_S)	40 Ω @ T_A = 70 °C (158 °F)
Insulation Voltage (V_D)	2.5 kV AC, 50 Hz, 1 min
Isolation Resistance (R_{IS})	≥ 1,500 MΩ @ T_A = 25 °C (77 °F)

■ ENVIRONMENTAL SPECIFICATIONS

Temperature	
Ambient Operating Temperature (T_A)	−25 to +70 °C (−13 to +158 °F)
Ambient Storage Temperature (T_S)	−40 to +100 °C (−40 to +212 °F)

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■ MECHANICAL DIMENSIONS



Note: All dimensions are in millimeters unless otherwise specified.

■ WIRING DIAGRAM

Primary Connection — Conversion Ratio

Conversion ratio	I_{PN}(A)	I_P(A)	I_{SN}(mA)	Primary connection
1 : 1,000	25	36	25	8 — 50UT IN1 — 4
2 : 1,000	12	18	24	8 — 50UT IN1 — 4
3 : 1,000	8	12	24	8 — 50UT IN1 — 4
4 : 1,000	6	9	24	8 — 50UT IN1 — 4

Note: The nominal primary current, measuring range, and secondary output current depend on the primary connection configuration. Refer to the table above for the corresponding values.

Remarks

- Incorrect connection may lead to damage of the sensor.
- I_{SN} is positive when IP flows in the direction of the arrow.

■ ORDERING INFORMATION — SX-ECMNA

Complete model number example: SX-ECMNA-25AAY1125

Rated Primary Current	
25A	25 A
Housing	
AY	PCB mount, 32 × 12.7 × 20.8 mm
Power Supply Type	
1	Dual (bipolar) supply

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Supply Voltage	
1	±12–±15 V
Rated Output	
25	25 mA
Customization Option	
D	Custom configuration — specify requirements when ordering

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