

## HALL EFFECT CURRENT SENSOR DATASHEET AND APPLICATION MANUAL

### Salient Features

- Hall effect technology
- Voltage signal output
- Output range 0-3.3 V (Compatible with DSP/Microcontroller)
- High Bandwidth 0-30 KHz
- Provides Galvanic Isolation with the help of Hall Effect Transducer
- Good linearity
- Low disturbance in common mode

### Application

- AC variable speed drives and servo motor drive
- Static converters used in MICROGRID
- Static converters for DC motor drives
- Uninterrupted Power Supplies (UPS)
- Battery Supplied applications
- Switched Mode power supplies (SMPS)



Fig.1 Current Sensor

### Working

A current must be passed through the circuit to develop corresponding output. The voltage developed at the output of the sensor is proportional to the current flowing through hole of sensor. The output provides an offset of 1V so that zero current can be distinguish from broken circuit.

### Connection

- Hole for primary conductor
- Three soldering pins for secondary connections
- Electric Circuit As:

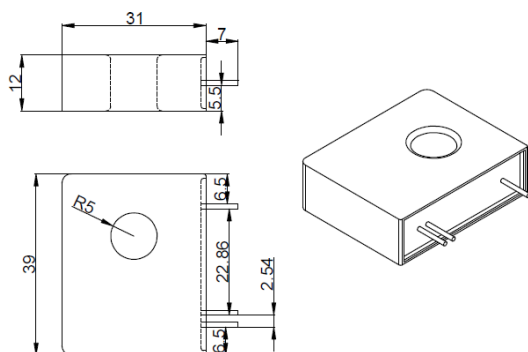


Fig.3 Sensor Dimension (all in MM)

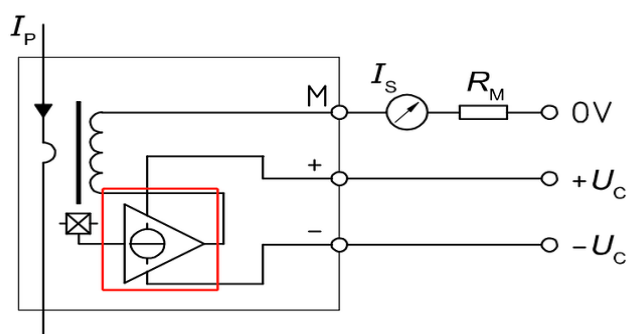


Fig 2: Sensor Application Example

## Sensor Parameter

### Current Sensor Specifications

| Parameter                            | Value                   | Description  |
|--------------------------------------|-------------------------|--|
| <b>Nominal Primary Current (RMS)</b> | 25 A                    | Continuous rated current                                     |
| <b>Measuring Range (Peak)</b>        | ±55 A                   | Maximum measurable peak current                              |
| <b>Turns Ratio</b>                   | 1000:1                  | Ratio of primary to secondary current                        |
| <b>Rated Secondary Current</b>       | 25 mA                   | Output current at nominal primary current                    |
| <b>Supply Voltage</b>                | ±12V, ±15V              | Required power supply range                                  |
| <b>Linearity Error</b>               | < 0.15%                 | Maximum deviation from ideal linear response                 |
| <b>Bandwidth</b>                     | ≤200 kHz                | Frequency range for accurate measurement                     |
| <b>Response Time (Delay)</b>         | ≤0.1 μs                 | Time taken for sensor to respond to current change           |
| <b>Secondary Resistance</b>          | 35 Ω                    | Internal resistance of the secondary winding                 |
| <b>Operating Temperature</b>         | -20°C to +70°C          | Ambient temperature range for reliable operation             |
| <b>Storage Temperature</b>           | -40°C to +85°C          | Temperature range for safe storage                           |
| <b>Maximum Overcurrent (Peak)</b>    | ±100 A                  | Maximum transient current before damage                      |
| <b>Isolation Voltage</b>             | >2 kV                   | Maximum voltage isolation between primary and secondary      |
| <b>Output Voltage Scaling</b>        | 1V/A                    | Secondary voltage per amp of primary current (if applicable) |
| <b>Power Consumption</b>             | < 50 mW                 | Typical power drawn from the supply                          |
| <b>Insulation Resistance</b>         | >100 MΩ                 | Minimum resistance between primary and secondary             |
| <b>Mounting Type</b>                 | PCB Mount / Panel Mount | Installation method  |
| <b>Connection Type</b>               | Pin / Screw Terminal    | Type of electrical connection                                |
| <b>Compliance Standards</b>          | IEC 61010 / CE          | Relevant safety and performance standards                    |
| <b>Vibration Resistance</b>          | 10g                     | Maximum vibration level the sensor can withstand             |
| <b>Humidity Range</b>                | 0 - 95% RH              | Operating humidity without condensation                      |
| <b>Mass</b>                          | 30 g                    | Sensor weight  |

### Advantages

- Very High Accuracy
- Good linearity
- Low temperature drift
- Optimized response time
- High Frequency Bandwidth
- Immunity to external interference
- No Insertion Losses
- Current Overload Capacity