

# Model CLSM-1000B

# Closed Loop Hall Effect

## Description

The Model CLSM-1000 is a closed loop Hall effect current sensor that accurately measures DC and AC currents and provides electrical isolation between the current carrying conductor and the output of the sensor.

## Features

- Noncontact measurement of high current
- Measures DC, AC and impulse currents
- Very fast response and high accuracy
- High overload capacity

## Applications

- Variable speed drives for motors
- Welding Equipment
- Power supply Equipment
- Measure and control system
- Over current protection
- Protection of power semiconductors



## CLSM-1000B

## Electrical Specifications

Nominal current (I <sub>N</sub> )	±1000 A
Current range	0 to ±1500 A
Nominal output current (I <sub>M</sub> )	250 mA
Turns Ratio	4000/1
Measuring Resistance (R <sub>M</sub> )	see table 1
Overall accuracy at 25° C	±0.5 % of I <sub>N</sub>
Supply voltage (V <sub>dc</sub> )	±15 to ±24
Current consumption	20 mA + output current

## Accuracy-Dynamic Performance

Zero current offset at 25°C	< ±0.6mA
Offset current temperature drift (-40°C to 70°C) max	< ±0.9mA
Linearity	better than ±0.2%
Response time	better than 1µs
di / dt	better than 50A/µs

## General Information

Operating temperature	-40°C to +70°C
Storage temperature	-50°C to +85°C
Package	flame retardant plastic case, UL94V-0
Isolation voltage	10kV/50Hz/1 min.
Output reference	To obtain a positive output n terminal M, input current must flow in the direction of the arrow (conventional flow)
Weight	892 grams
Mounting	Panel mount via 4 holes, 6mm dia.
Aperture size	1.57" (40mm) diameter
Output connection	3 Faston Terminals

## Notes:

1. Busbar temperature should not exceed 100°C.
2. The dynamic performance is the best when the busbar fills the aperture.
3. Due to continuous process improvement, all specifications are subject to change without notice.

These new current sensors are based on principle of hall effect and null balance method with galvanic isolation between input and output. The output (secondary) from the current sensor is the balancing current which is perfect image of the primary (input) current. This current can be expressed at a voltage by passing it through a resistor. The sensors provide wide application capability for electronic measurement of DC, AC, pulsed currents or their combinations and can also be used as a feedback element to control or regulate the electric devices.



Features

- Noncontactly measure high current
- Measures DC, AC and impulse currents
- Current sensing up to 1500A peak
- Very fast response and high accuracy
- High overload capacity
- Temperature range: -40°C to +70°C

Electrical Data

- Nominal current (I<sub>N</sub>) ±1000 A
- Current range 0 ~ ±1500 A
- Nominal output current (I<sub>m</sub>) 250 mA
- Turns Ratio 4000 / 1
- Measuring Resistance (R<sub>m</sub>) refer to table
- Overall accuracy at 25°C 0.5 %
- Supply voltage ±15 V ~ ±24 V
- Current consumption 20 mA + output current

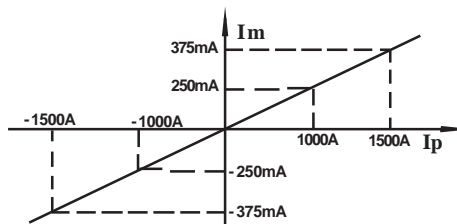
Table: Max. of Measuring Resistor (R<sub>m</sub>)

Input (Amp* Turns)	1000	1100	1200	1300	1400	1500
R <sub>max</sub> Ohms @ ±15V	30	26	22	18	14	10
R <sub>max</sub> Ohms @ ±24V	62	56	50	43	37	32

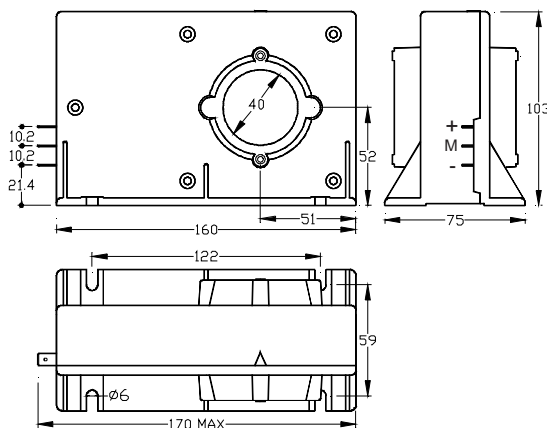
General Data

- Sensor housing: insulated plastic case
- Fire-retardant feature: UL94 V-0
- Isolation voltage: 10kV/50Hz/1min.
- Operating temperature: -40°C to +70°C
- Storage temperature: -50°C to +85°C

Output Characteristics



Mounting Dimensions (in mm)



Dynamic Performance

- Null offset current: Max. 0.6mA (25°C)
- Thermal drift of offset current: Max. 0.9mA (-40°C to +70°C)
- Linearity: better than 0.2%
- Response time: better than 1μS
- dl / dt: better than 50A/μS
- Frequency range: DC to 100KHz

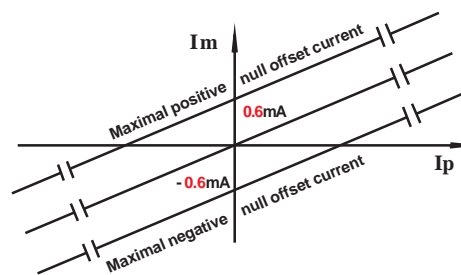
Typical Applications

- Variable speed drives for motor
- Welding Equipment
- Power supplies Equipment
- Measure and control system
- Over current protection
- Protection of power semiconductors

Attention

- Busbar' temperature don't over 100°C
- The dynamic performance is the best when the busbar is fill the hole full
- A positive output current is obtained on terminal M when the input current flows in the direction of the arrow

Null offset current Characteristics



Electrical Connection

