

## Panel Mounted, Closed Loop, Hall Effect Current Sensor

The HCS-C8 Series of panel mounted, closed loop, Hall Effect current sensors are designed for application requiring the measurement of AC current, DC current and DC current pulses.

The HCS-C8 current sensor design is based upon the principle that a magnetic field applied perpendicular to an electric current will create a proportional Hall voltage perpendicular to the two fields. The closed loop design incorporates a second magnetic field which is used to offset the primary conductor magnetic field. The zeroing of the magnetic flux provides a highly accurate representation of the primary conductor current.



The technology allows;

- Contactless, non-intrusive current sensing and
- Current sensing of DC current, DC current pulses and AC electric current.

The Hall Effect technology features high accuracy, high primary to secondary electrical isolation and extended frequency detection bandwidth.

### Features:

- Rated Primary ( $I_{\text{nominal}}$ ): 500A, 1000A.
- Secondary Output ( $I_M$ ): mA current.

### Specifications:

- Frequency: 0 to 100kHz.
- Dielectric withstand voltage between Primary and Secondary: 6,000V RMS @ 50HZ for 1 minute.
- Operating Temperature: -25°C to +85°C.
- Supply Voltage:  $\pm 12V$ ,  $\pm 15V$  or  $24V$  ( $\pm 5\%$ )
- Supply Consumption: 30mA plus  $I_M$  (secondary output).

- Opening: 45mm/ 1.77"
- Construction:
  - Epoxy encapsulated housing.
  - Case material – UL flame retardant rating 94 V-0.
- RoHS compliant.



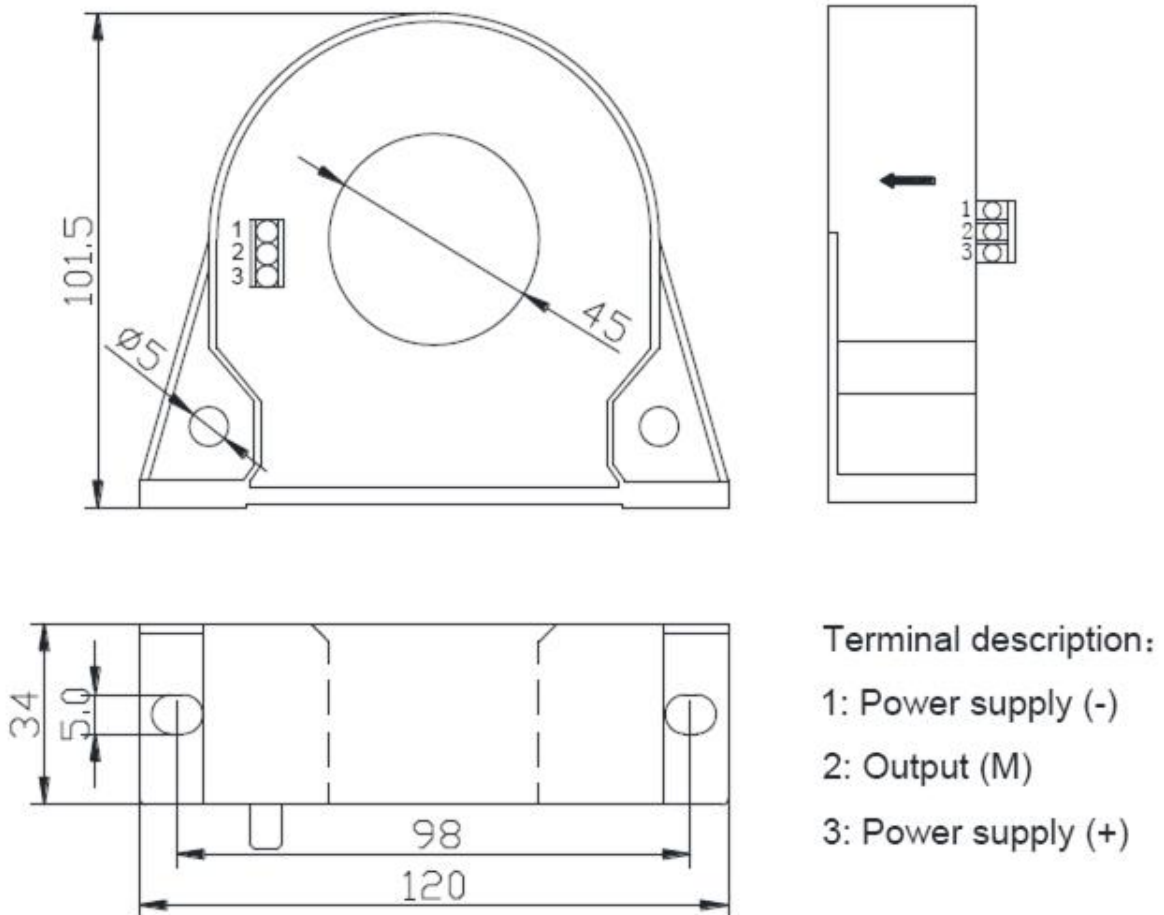
### Performance:

- Accuracy:  $\pm 0.5\%$  of  $I_{\text{nominal}}$  @ 25°C
- Linearity:  $\leq 0.1\%$
- Response Time:  $\leq 1 \mu\text{Second}$
- Offset Current (@ +25°C):  $\pm 0.3\text{mA}$  maximum primary current  $I_{\text{nominal}} = 0$ .
- Temperature Drift:  $\pm 0.3\text{mA}/^\circ\text{C}$  maximum  $\pm 0.8\text{mA}$  (-25 °C to +70 °C)

**Configuration Options:**

Model	Rated Current (RMS)	Measurement Range	Secondary @ Rated Current
HCS-500C8	500A	0 to $\pm 750A$	100mA
HCS-1000C8	1000A	0 to $\pm 1500A$	200mA

**Outline Drawing (mm):**



Terminal description:

- 1: Power supply (-)
- 2: Output (M)
- 3: Power supply (+)

**Connection Definitions:**

PIN 1	PIN 2	PIN 3
Power supply input	Secondary signal output (positive or negative value is dependent upon direction of primary current)	Power supply input
-12VDC	Signal output	+12VDC
-15VDC	Signal output	+15VDC

**NOTE:**

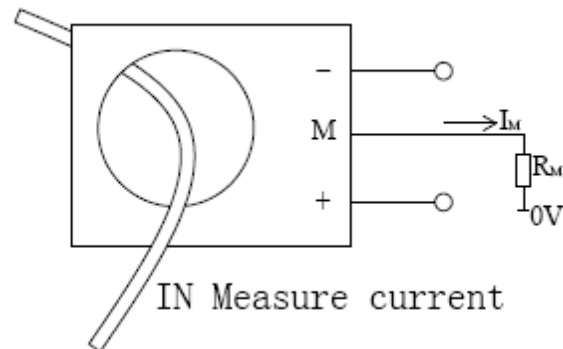
- Secondary output is positive when direction of primary flow is from side with terminals to side without terminals/ direction of the arrow.

**Application Example HCS-1000C8:**

$I_M = 200\text{mA} @ I_N = 1000\text{A}$

$R_M @ \pm 15\text{VDC} - 0 \text{ ohm to } 18 \text{ ohm maximum}$

$R_M @ \pm 24\text{VDC} - 5 \text{ ohm to } 60 \text{ ohm maximum}$



- Power supply options:**  $\pm 12\text{V}$ ,  $\pm 15\text{V}$ ,  $\pm 24\text{V}$  power supply option to be used should be specified at time of purchase).

**Custom Hall Effect current sensor designs** are available to meet the specific application requirements. For a no obligation technical evaluation, please provide the specific performance requirements to [engineering@tichenassociates.com](mailto:engineering@tichenassociates.com) or the address below.