

DATA SHEET

Hall Effect Current Sensor

PN : HCS-AP

IPN = 50A - 100A - 125A - 200A

Features

- Closed loop
- High accuracy
- Supply voltage : ± 12 to ± 18 V DC
- Current output
- Through hole primary
- Can be customized

Good linearity
Fast response time
Low temperature drift
High anti-jamming capability
Strong current overload



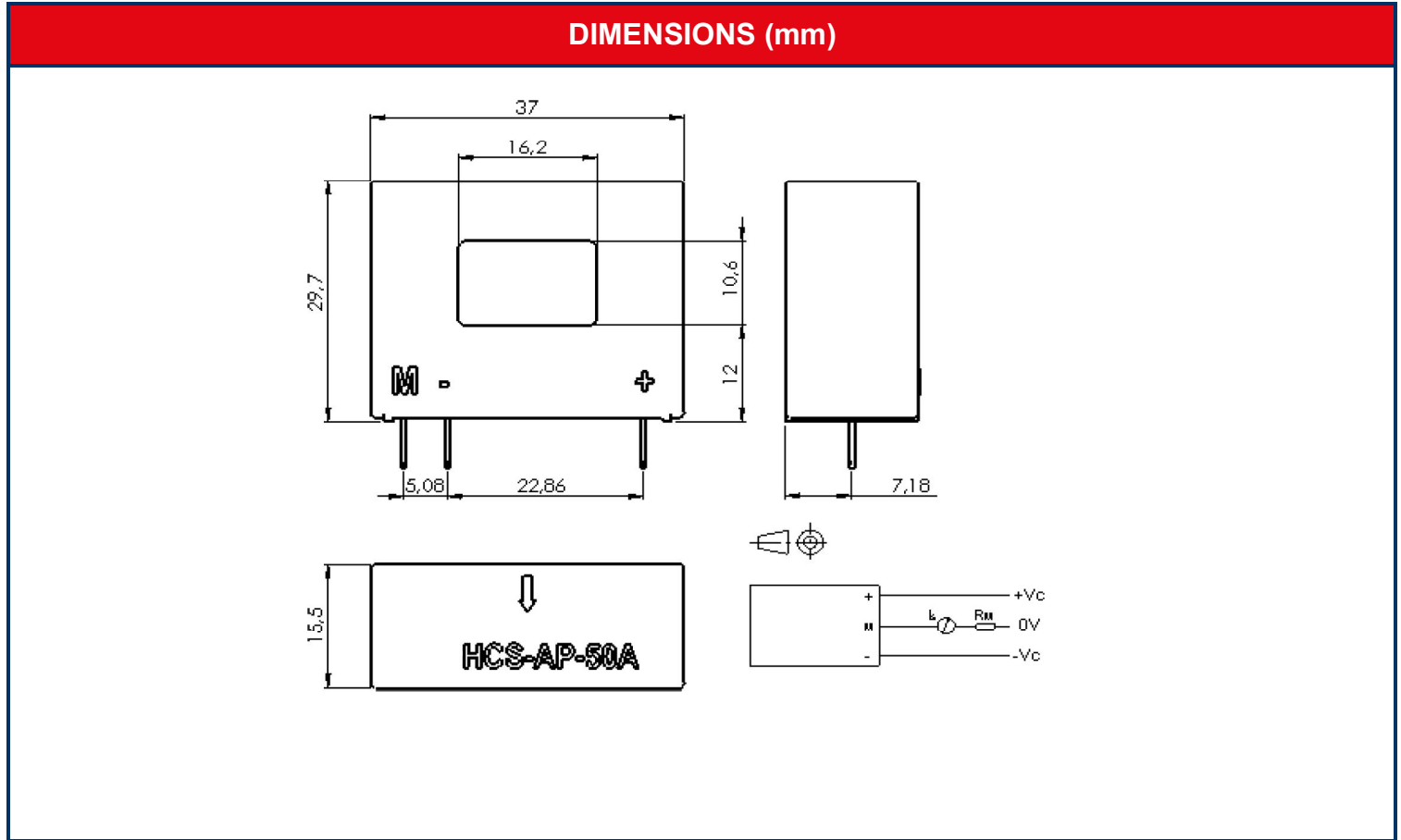
Applications

AC/DC variable speed motor driver
Battery applications
Uninterruptible power supplies (UPS)
Power supplies for welding applications
Switching power supplies (SMPS)

ELECTRICAL DATA

| HCS-AP-... | | 50A | 100A | 125A | 200A |
|--|----------------------|--|-----------|-----------|-----------|
| Nominal rms current I_{PN} (A) | | 50 | 100 | 125 | 200 |
| Sensed current range I_{PM} (A) | | ± 150 | ± 300 | ± 375 | ± 600 |
| Measuring Resistance with VC = ± 15 V, @ $T_A = +75^\circ\text{C}$ | and @ I_P (A) | ± 50 | ± 100 | ± 125 | ± 200 |
| | $R_M \max(\Omega) =$ | 169 | 155 | 58 | 64 |
| | and @ $I_P \max$ (A) | ± 150 | ± 300 | ± 375 | ± 500 |
| | $R_M \max(\Omega) =$ | 56 | 42 | 22 | 9 |
| Measuring Resistance with VC = ± 18 V, @ $T_A = +75^\circ\text{C}$ | and @ I_P (A) | ± 50 | ± 100 | ± 125 | ± 200 |
| | $R_M \max(\Omega) =$ | 219 | 205 | 80 | 91 |
| | and @ $I_P \max$ (A) | ± 150 | ± 300 | ± 375 | ± 600 |
| | $R_M \max(\Omega) =$ | 75 | 61 | 13 | 10 |
| Coil turns ratio K ($P^N:S^N$) | | 1:1000 | 1:2000 | 1:1000 | 1:2000 |
| Secondary resistance R_S (Ω) @ $T_A = 75^\circ\text{C}$ | | 31 | 45 | 31 | 45 |
| Rated output current I_{SN} (mA) | | 50 | 50 | 125 | 100 |
| Supply voltage V_C (Vdc) | | $\pm 12^{\pm 0,5\%}$ to $\pm 18^{\pm 0,5\%}$ | | | |
| Current consumption I_C (mA) | | $10 + I_S$ | | | |

| ACCURACY DYNAMIC PERFORMANCE | | | GENERAL & ISOLATION CHARACTERISTICS | | |
|--|------------------|------------------------|---|-------------|--------------------|
| Accuracy $X_G @ I_{PN}, T=25^{\circ}\text{C}$ | $\pm 0,5$ | % | Operating temperature range | -40 to +85 | $^{\circ}\text{C}$ |
| Offset current $I_0 @ I_p=0, T=25^{\circ}\text{C}$ | $\leq \pm 0,2$ | mA | Storage temperature | -40 to +125 | $^{\circ}\text{C}$ |
| Drift of I_0 | $\leq \pm 0,005$ | mA/ $^{\circ}\text{C}$ | Weight | 19 | g |
| Linearity error ϵ_L | $< 0,1$ | % FS | Insulation voltage (50Hz, 1mn) | 2,5 | KV |
| di/dt accurately followed | >100 | A/ μs | Impulse withstand voltage (1,2/50 μs) | 4,5 | KV |
| Response time t_r | ≤ 1 | μs | | | |
| Bandwidth | DC to 200 | Khz | | | |



| MECHANICAL CHARACTERISTICS | |
|----------------------------------|-----------------------|
| General tolerance | $\pm 0,2 \text{ mm}$ |
| Primary square through hole size | 12,7 x 7 mm |
| Terminal connection | 3 pins 0,63 X 0,56 mm |

Cautions :

- I_S is positive when I_p flows in accordance with the arrow direction (see the top of the sensor);
- Primary conductor temperature should not exceed 100°C ;
- Best dynamic performances (di/dt and response time) are achieved with a single electrical conductor completely filling the through hole;
- To achieve the best magnetic coupling, the primary winding must be wound around the top edge of the sensor.

WARNING : Incorrect wiring may cause damage to the sensor.