Current Transducers HY 5 to 25-P

For the electronic measurement of currents: DC, AC, pulsed, mixed, with a galvanic isolation between the primary circuit (high power) and the secondary circuit (electronic circuit).

### Electrical data

<table>
<thead>
<tr>
<th>Primary nominal r.m.s. current $I_{pn}$ (A)</th>
<th>Primary current measuring range ± $I_p$ (A)</th>
<th>Primary conductor (mm)</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>±15</td>
<td>Ø 0.7</td>
<td>HY 5-P</td>
</tr>
<tr>
<td>10</td>
<td>±30</td>
<td>Ø 1.1</td>
<td>HY 10-P</td>
</tr>
<tr>
<td>12.5</td>
<td>±37.5</td>
<td>Ø 1.4</td>
<td>HY 12-P</td>
</tr>
<tr>
<td>15</td>
<td>±45</td>
<td>Ø 1.4</td>
<td>HY 15-P</td>
</tr>
<tr>
<td>20</td>
<td>±60</td>
<td>2 x Ø 1.2 $^1$</td>
<td>HY 20-P</td>
</tr>
<tr>
<td>25</td>
<td>±75</td>
<td>2 x Ø 1.4 $^1$</td>
<td>HY 25-P</td>
</tr>
</tbody>
</table>

- $V_c$: Supply voltage (± 5 %) $^6$ ±12 .. ±15 V
- $I_C$: Current consumption ±10 mA
- $I_P$: Overload capability (1 ms) 50 x $I_{pn}$
- $V_d$: R.m.s. voltage for AC isolation test, 50/60Hz, 1 mn 2.5 kV
- $V_b$: R.m.s. rated voltage, safe separation 500 $^2$ V
- $R_{is}$: Isolation resistance @ 500 VDC > 1000 MΩ
- $V_{out}$: Output voltage @ ± $I_{PN}$, $R_l = 10$ kΩ, $T_A = 25^\circ$C ±4 V
- $R_{out}$: Output internal resistance 100 Ω
- $R_L$: Load resistance > 1 kΩ

### Accuracy - Dynamic performance data

- $X$: Accuracy @ $I_{PN}$, $T_A = 25^\circ$C (without offset) < ±1 %
- $\varepsilon_X$: Linearity $^3$ (0 .. ± $I_{PN}$) < ±1 % of $I_{PN}$
- $V_{oe}$: Electrical offset voltage, $T_A = 25^\circ$C < ±40 mV
- $V_{oh}$: Hysteresis offset voltage @ $I_p = 0$; after an excursion of 1 x $I_{pn}$ < ±1.5 mV typ. / ±3 mV max.
- $V_{ott}$: Thermal drift of $V_{oe}$ < ±0.1 %/°K
- $TC_{oe}$: Thermal drift of the gain (% of reading) < 50 A/µs
- $t$ $i_{r}$: Response time @ 90% of $I_p$ < 3 µs
- $di/dt$: di/dt accurately followed > 50 A/µs
- $f$: Frequency bandwidth $^4$ (-3 dB) DC .. 50 kHz

### General data

- $T_A$: Ambient operating temperature -10 .. +80 °C
- $T_S$: Ambient storage temperature -25 .. +85 °C
- $m$: Mass < 14 g
- Standards $^5$ EN 50178

### Notes

1) Conductor terminals are soldered together.
2) Pollution class 2, overvoltage category III.
3) Linearity data exclude the electrical offset.
4) Please refer to derating curves in the technical file to avoid excessive core heating at high frequency.
5) Please consult characterisation report for more technical details and application advice.
6) Operating at ±12V ≤ $V_c$ < ±15V will reduce measuring range.

### Features
- Hall effect measuring principle
- Galvanic isolation between primary and secondary circuit
- Isolation voltage 2500 V~
- Compact design for PCB mounting
- Low power consumption
- Extended measuring range (3 x $I_{PN}$)
- Insulated plastic case recognized according to UL 94-V0.

### Advantages
- Easy mounting
- Small size and space saving
- Only one design for wide current ratings range
- High immunity to external interference.

### Applications
- General purpose inverters
- AC variable speed drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS).
**HY 5 to 15-P**

- **1** +15V
- **2** -15V
- **3** OUTPUT
- **4** 0V
- **5** PRIMARY IN
- **6** PRIMARY OUT

**PCB MOUNTING DIMENSIONS** (in mm ±0.1, hole -0, +0.2)

<table>
<thead>
<tr>
<th>Type</th>
<th>a (mm)</th>
<th>d (mm)</th>
<th>e (mm)</th>
<th>g (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HY 05-P</td>
<td>1.1</td>
<td>0.7</td>
<td>1.2</td>
<td>--</td>
</tr>
<tr>
<td>HY 10-P</td>
<td>1.4</td>
<td>1.1</td>
<td>1.6</td>
<td>--</td>
</tr>
<tr>
<td>HY 12-P</td>
<td>1.5</td>
<td>1.4</td>
<td>2.0</td>
<td>--</td>
</tr>
<tr>
<td>HY 15-P</td>
<td>1.5</td>
<td>1.4</td>
<td>2.0</td>
<td>--</td>
</tr>
<tr>
<td>HY 20-P</td>
<td>1.4</td>
<td>1.2</td>
<td>1.8</td>
<td>1.4</td>
</tr>
<tr>
<td>HY 25-P</td>
<td>1.5</td>
<td>1.4</td>
<td>2.0</td>
<td>1.6</td>
</tr>
</tbody>
</table>

LEM reserves the right to change limits and dimensions.