**Current Transducer HY 5 ... 25-P**

For the electronic measurement of currents: DC, AC, pulsed..., with galvanic separation between the primary circuit and the secondary circuit.

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### Electrical data

<table>
<thead>
<tr>
<th>Primary nominal RMS current $I_{PN}$ (A)</th>
<th>Primary current measuring range $I_{PM}$ (A)</th>
<th>Primary conductor Ø (mm)</th>
<th>Type</th>
<th>RoHS since code</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>±15</td>
<td>0.7</td>
<td>HY 5-P</td>
<td>45260</td>
</tr>
<tr>
<td>10</td>
<td>±30</td>
<td>1.1</td>
<td>HY 10-P</td>
<td>45286</td>
</tr>
<tr>
<td>12.5</td>
<td>±37.5</td>
<td>1.4</td>
<td>HY 12-P</td>
<td>45264</td>
</tr>
<tr>
<td>15</td>
<td>±45</td>
<td>1.4</td>
<td>HY 15-P</td>
<td>45276</td>
</tr>
<tr>
<td>20</td>
<td>±60</td>
<td>2 × Ø 1.2 1)</td>
<td>HY 20-P</td>
<td>46097</td>
</tr>
<tr>
<td>25</td>
<td>±75</td>
<td>2 × Ø 1.4 1)</td>
<td>HY 25-P</td>
<td>45269</td>
</tr>
</tbody>
</table>

$U_{out}$ Output voltage (Analog) @ $I_{PN}$, $R_i = 10$ kΩ, $T_a = 25$ °C = ±4 V

$I_{P_{max}}$ Primary withstand peak current (1 ms) = 50 × $I_{PN}$

$R_{INS}$ Insulation resistance @ 500 V DC > 1000 MΩ

$R_L$ Load resistance > 1 kΩ

$R_{out}$ Output internal resistance = 100 Ω

$U_{C}$ Supply voltage (±5 %) 2) = ±12 ... 15 V

$I_C$ Current consumption = ±10 mA

### Accuracy - Dynamic performance data

- **$e$** Error @ $I_{PN}$, $T_a = 25$ °C (excluding offset) < ±1 %
- **$d_e$** Linearity error 3) (0 ... ±$I_{PN}$) < ±1 % of $I_{PN}$
- **TCU$_O E$** Temperature coefficient of $U_{O E}$ typical max ±1.5 mV/K
- **TCU$_O E$** Temperature coefficient of $U_{out}$ (% of reading) < ±0.1 %/K
- **$U_{O E}$** Electrical offset voltage @ $T_a = 25$ °C < ±40 mV
- **$U_{O M}$** Magnetic offset voltage @ $I_{PN} = 0$, after an excursion of 1 × $I_{PN}$ < ±15 mV
- **$t_{D90}$** Delay time to 90 % of the final output value for $I_{PN}$ step 6) HY 25-P < 5 µs
- **$t_{D90}$** Delay time to 90 % of the final output value for $I_{PN}$ step 6) others < 3 µs

**$BW$** Frequency bandwidth (−3 dB) 5) DC ... 50 kHz

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### Features

- Hall effect measuring principle
- Insulation voltage 2500 V
- Compact design for PCB mounting
- Low power consumption
- Extended measuring range (3 × $I_{PN}$)
- Insulating 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

- Static converters for DC motor drives
- Switched Mode Power Supplies (SMPS)
- AC variable speed drives
- Uninterruptible Power Supplies (UPS)
- Battery supplied application
- General purpose inverters.

### Application Domain

- Industrial.

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**Notes:**

1) Conductor terminals are soldered together
2) Operating at ±12 V ≤ $U_{C}$ ≤ ±15 V will reduce measuring range
3) Linearity data exclude the electrical offset
4) For a $dl/dt = 50$ A/µs
5) Please refer to derating curves in the technical file to avoid excessive core heating at high frequency
6) Please consult characterisation report for more technical details and application advice.
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**Insulation coordination**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
<th>Value 1</th>
<th>Unit 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>( U_{\text{id}} )</td>
<td>RMS voltage for AC insulation test, 50 Hz, 1 min</td>
<td>2.5</td>
<td>kV</td>
</tr>
<tr>
<td>( U_{\text{Nm}} )</td>
<td>Rated insulation RMS voltage</td>
<td>500 1)</td>
<td>V</td>
</tr>
</tbody>
</table>

Note: 1) Pollution class 2, overvoltage category III.

**Safety**

This transducer must be used in limited-energy secondary circuits according to IEC 61010-1.

![Warning Icon]

This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer’s operating instructions.

![Warning Icon]

Caution, risk of electrical shock
When operating the transducer, certain parts of the module can carry hazardous voltage (e.g. primary busbar, power supply). Ignoring this warning can lead to injury and/or cause serious damage.
This transducer is a build-in device, whose conducting parts must be inaccessible after installation. A protective housing or additional shield could be used.
Main supply must be able to be disconnected.
Dimensions HY 5 .. 25-P (in mm)

Remark

- Temperature of the primary conductor should not exceed 100°C.