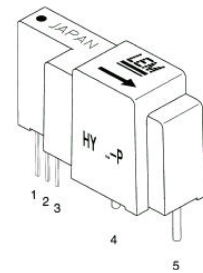


# Current Transducer HY 10 ... 50-P/SP1

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



$$I_{PN} = 10 \dots 50 \text{ A}$$



## Electrical data

Primary nominal RMS current $I_{PN}$ (A)	Primary current measuring range $I_{PM}$ (A)	Primary conductor (mm)	Type	RoHS since date code
10	±30	∅ 1.1	HY 10-P/SP1	45286
15	±45	∅ 1.4	HY 15-P/SP1	45276
25	±75	2 × ∅ 1.4 <sup>1)</sup>	HY 25-P/SP1	45269
50	±150	1.6 × 3.5	HY 50-P/SP1	45334
$U_{out}$	Output voltage (Analog)	@ $+I_{PN}$ , $R_L = 10 \text{ k}\Omega$ , $T_A = 25^\circ \text{C}$ @ $-I_{PN}$ , $R_L = 10 \text{ k}\Omega$ , $T_A = 25^\circ \text{C}$	+2.5 V +1.5 V	V
$\hat{I}_{P \text{ max}}$	Primary withstand peak current (1 ms)		$50 \times I_{PN}$	
$R_{INS}$	Insulation resistance @ 500 V DC	HY 50-P/SP1	> 500 MΩ > 1000 MΩ	MΩ
$R_L$	Load resistance		> 1 kΩ	kΩ
$R_{out}$	Output internal resistance		100 Ω	Ω
$U_C$	Supply voltage (±5 % <sup>2)</sup> )		+5 V	V
$I_C$	Current consumption		±10 mA	mA

## Accuracy - Dynamic performance data

$\epsilon$	Error @ $I_{PN}$ , $T_A = 25^\circ \text{C}$ (excluding offset)		< ±2	%
$\epsilon_L$	Linearity error <sup>2)</sup> (0 ... ± $I_{PN}$ )		< ±1	% of $I_{PN}$
$TCU_{OE}$	Temperature coefficient of $U_{OE}$	typical max	±1.5 ±3	mV/K mV/K
$TCU_{out}$	Temperature coefficient of $U_{out}$ (% of reading)		< ±0.1	%/K
$U_{OE}$	Electrical offset voltage @ $T_A = 25^\circ \text{C}$		+2 V ±25	mV
$U_{OM}$	Magnetic offset voltage @ $I_p = 0$ , after an excursion of $1 \times I_{PN}$		< ±10	mV
$t_{D90}$	Delay time to 90 % of the final output value for $I_{PN}$ step <sup>3)</sup> < 5			µs
$BW$	Frequency bandwidth (-3 dB) (small signal) <sup>4)</sup>	HY 50-P/SP1	DC ... 25 DC ... 50	kHz kHz

## General data

$T_A$	Ambient operating temperature		-10 ... +75	°C
		HY 50-P/SP1	-10 ... +80	°C
$T_{A \text{ st}}$	Ambient storage temperature		-25 ... +85	°C
$m$	Mass		< 14	g
	Standard		EN 50178: 1997	

**Notes:** <sup>1)</sup> Conductor terminals are soldered together  
<sup>2)</sup> Linearity data exclude the electrical offset  
<sup>3)</sup> For a  $di/dt = 50 \text{ A}/\mu\text{s}$ .

## Features

- Hall effect measuring principle
- Galvanic separation between primary and secondary circuit
- Insulation voltage 2500 V
- Compact design for PCB mounting
- Low power consumption
- Extended measuring range ( $3 \times I_{PN}$ )
- Insulating plastic case recognized according to UL 94-V0.

## Special feature

- Single power supply +5 V.

## Advantages

- Easy installation
- 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.

## Current Transducer HY 10 ... 50-P/SP1

### Insulation coordination

$U_d$	RMS voltage for AC insulation test, 50 Hz, 1 min	2.5	kV
$U_{Nm}$	Rated insulation RMS voltage	500 <sup>1)</sup>	V

**Note:** <sup>1)</sup> Pollution class 2, overvoltage category III.

### UL 508: Ratings and assumptions of certification

File # E189713 Volume: 2 Section: 1

#### Standards

- Standard for Industrial Control Equipment UL 508, Seventeenth Edition
- Canadian Standard for Industrial Control Equipment CSA C22.2 No. 14-10, Eleventh Edition

#### Ratings

Parameter	Symbol	Unit	Value
Max surrounding air temperature	$T_A$	°C	40
Primary current	$I_P$	A	According to series primary currents
Secondary supply voltage	$U_C$	V DC	0 to ±15
Output voltage	$U_{out}$	V DC	0 ... 4

#### Conditions of acceptability

When installed in the end-use equipment, consideration shall be given to the following:

- 1 - *These devices must be mounted in a suitable end-use enclosure.*
- 2 - *The terminals have not been evaluated for field wiring.*
- 8 - *Low voltage circuits are intended to be powered by a circuit derived from an isolating source (such as a transformer, optical isolator, limiting impedance or electro-mechanical relay) and having no direct connection back to the primary circuit (other than through the grounding means).*

#### Marking

Only those products bearing the UL or UR Mark should be considered to be Listed or Recognized and covered under UL's Follow-Up Service. Always look for the Mark on the product.

## Safety

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



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.



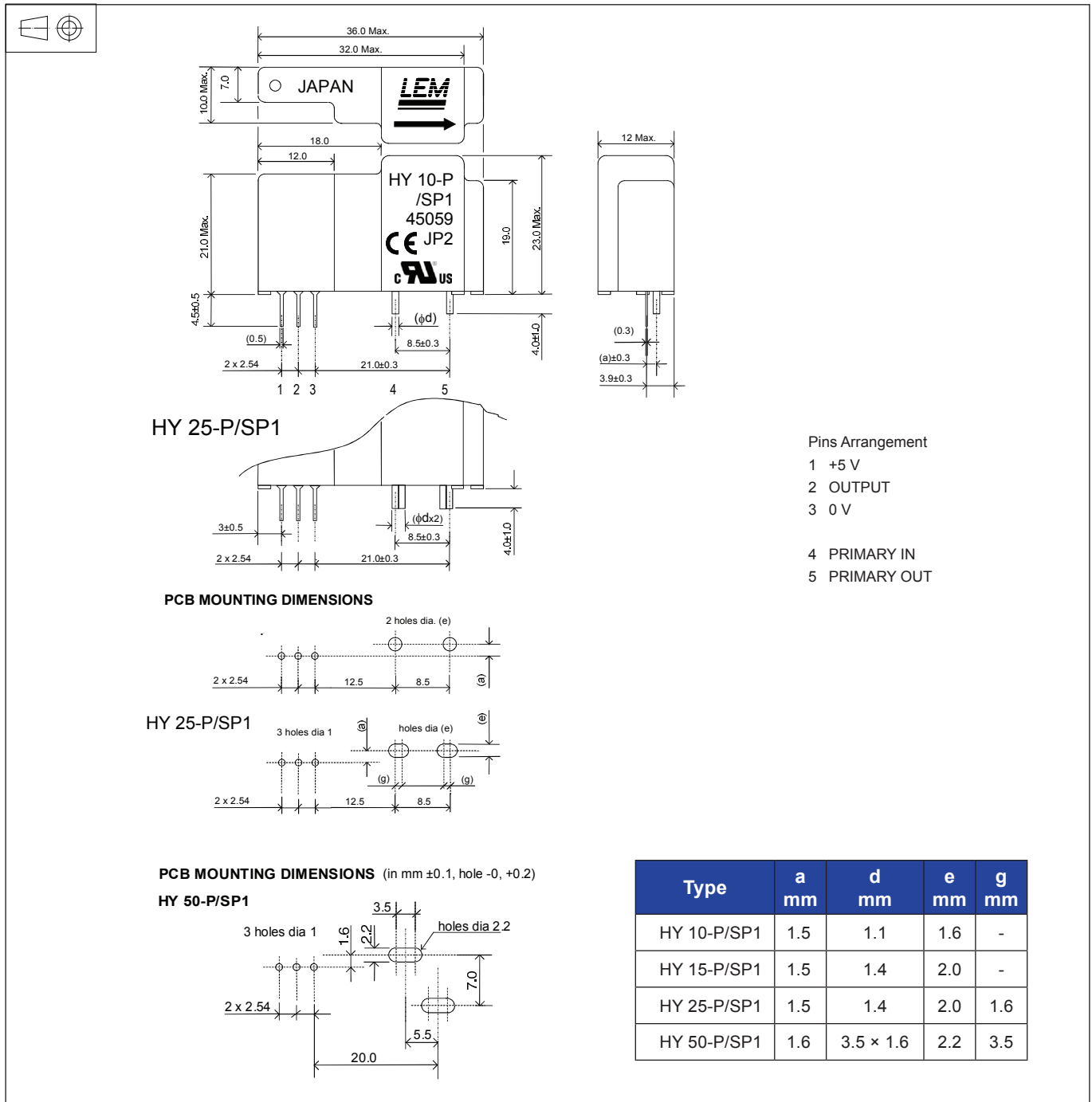
Caution, risk of electrical shock

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 10 ... 50-P/SP1 (in mm)



### Remark

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