Current Transducer HY 5 .. 25-P

I_{PN} = 5 .. 25 A

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



Features

- Hall effect measuring principle
- 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.

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.

Electrical data

Primary nominal rms current I_{PN} (A)	Primary current measuring range I_{PM} (A)	Primary conductor ≈≈ (mm)	Type	RoHS since date code
5	±15	⌀ 0.7	**HY 5-P**	45260
10	±30	⌀ 1.1	**HY 10-P**	45286
12.5	±37.5	⌀ 1.4	**HY 12-P**	45264
15	±45	⌀ 1.4	**HY 15-P**	45276
20	±60	2 × ⌀ 1.2 [1]	**HY 20-P**	46097
25	±75	2 × ⌀ 1.4 [1]	**HY 25-P**	45269

V_{out}	Output voltage (Analog) @ $+I_{PN}$, R_L = 10 kΩ, T_A = 25° C		±4	V
$\hat{I}_P$	Overload capability (1 ms)		50 × I_{PN}	
R_{IS}	Insulation resistance @ 500 V DC		> 1000	MΩ
U_d	Rms voltage for AC insulation test, 50 Hz, 1 min		2.5	kV
R_L	Load resistance		> 1	kΩ
U_b	Rated insulation rms voltage		500 [2]	V
R_{out}	Output internal resistance		100	Ω
U_C	Supply voltage (±5 %) [3]		± 12 .. 15	V
I_C	Current consumption		±10	mA

Accuracy - Dynamic performance data

X	Accuracy @ I_{PN}, T_A = 25° C (excluding offset)		< ±1	%
ε_L	Linearity error [4] (0 .. ±I_{PN})		< ±1	% of I_{PN}
TCV_{OE}	Temperature coefficient of V_{OE}	typical	±1.5	mV/K
		max	±3	mV/K
TCV_{out}	Temperature coefficient of V_{out} (% of reading)		< ±0.1	%/K
V_{OE}	Electrical offset voltage @ T_A = 25 °C		< ±40	mV
V_{OH}	Hysteresis offset voltage @ I_P = 0, after an excursion of 1 × I_{PN}		< ±15	mV
t_r	Step response time to 90 % of I_{PN}	HY 25-P	< 5	µs
		others	< 3	µs
di/dt	di/dt accurately followed		> 50	A/µs
BW	Frequency bandwidth (-3 dB) [5]		DC .. 50	kHz

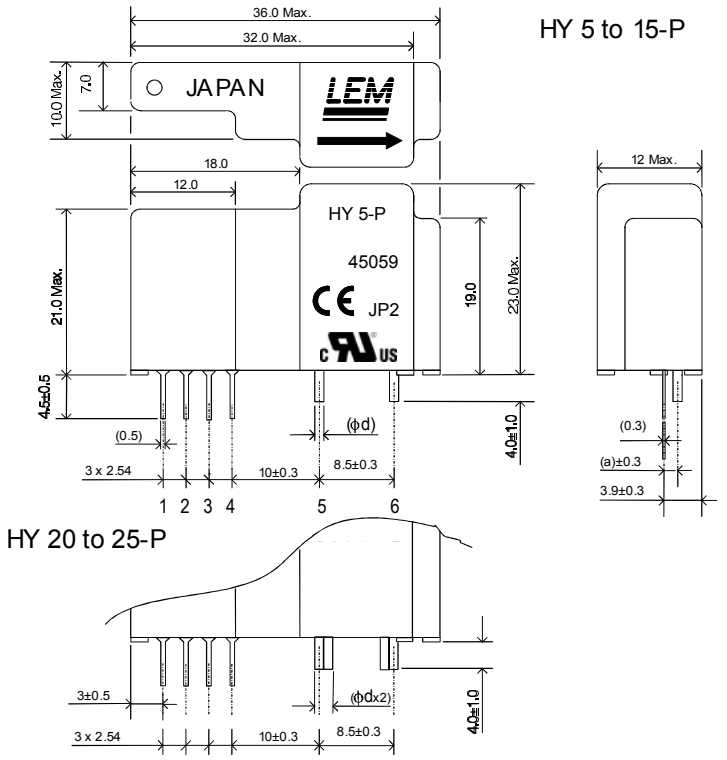
General data

T_A	Ambient operating temperature	-10 .. +80	°C
T_S	Ambient storage temperature	-25 .. +85	°C
m	Mass	< 14	g
	Standard [6]	EN 50178: 1997	

Notes:
1) Conductor terminals are soldered together
2) Pollution class 2. overvoltage category III
3) Operating at ±12 V ≤ U_C < ±15 V will reduce measuring range
4) Linearity data exclude the electrical offset
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.

LEM reserves the right to carry out modifications on its transducers, in order to improve them, without prior notice

Dimensions HY 5 .. 25-P (in mm)



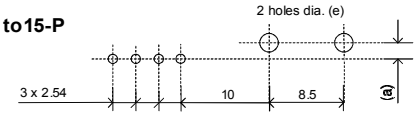
Pins Arrangement

1 +15 V
2 -15 V
3 OUTPUT
4 0 V

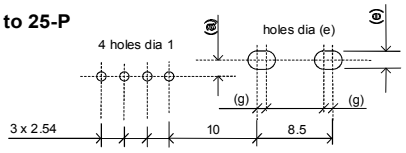
5 PRIMARY IN
6 PRIMARY OUT

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

HY 5 to15-P



HY 20 to 25-P



Type	a mm	d mm	e mm	g mm
HY 05-P	1.1	0.7	1.2	--
HY 10-P	1.4	1.1	1.6	--
HY 12-P	1.5	1.4	2.0	--
HY 15-P	1.5	1.4	2.0	--
HY 20-P	1.4	1.2	1.8	1.4
HY 25-P	1.5	1.4	2.0	1.6

Safety

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 (eg. primary connections, 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.