Current Transducer HX 10..50-P/SP13

I_{PN} = ± 10..50 A

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

All data are given with R_L = 10 kΩ

Electrical data

Primary nominal current rms I_{PN} (A)	Primary current measuring range I_{PM} (A)	Primary conductor diameter x turns (mm)	Type
10	± 30	1.1d x 6T	**HX 10-P/SP13**
15	± 45	1.4d x 4T	**HX 15-P/SP13**
25	± 75	1.6d x 2T	**HX 25-P/SP13**
50	± 150	1.2 x6.3x1T	**HX 50-P/SP13**

V_{OUT}	Output voltage (Analog) @ ± I_{PN} , R_L=10kΩ, T_A=25°C	± 4	V
R_{OUT}	Output internal resitance	< 50	Ω
R_L	Load resitance	≥ 10	kΩ
V_C	Supply voltage (± 5 %) [1]	± 15	V
I_C	Current consumption	< ± 15	mA

Accuracy - Dynamic performance data

X	Accuracy @ I_{PN} , R_L=10kΩ, T_A = 25°C	< ± 1	% of I_{PN}
ε_L	Linearity error [1] (0 .. ± I_{PN})	< ± 1	% of I_{PN}
V_{OE}	Electrical offset voltage @ T_A = 25°C	< ± 40	mV
V_{OH}	Magnetic offset voltage @ I_P = 0 after an excursion of 3 x I_{PN}	< ± 15	mV
TCV_{OE}	Temperature coefficient of V_{OE}	max. ± 1.5	mV/K
TCV_{OUT}	Temperature coefficient of V_{OUT} (% of reading)	< 0.1	%/K
t_r	Response time to 90 % of I_{PN} step	< 3	µs
BW	Frequency bandwidth (- 3 dB) [2]	DC .. 50	kHz

General data

T_A	Ambient operating temperature	- 25 .. +85 °C
T_S	Ambient storage temperature	- 25 .. +85 °C
m	Mass	< 8 g
	Standards	EN 50178: 1997

Note: [1] Also operate at ±12V power supplies, measuring range reduced to ± 2.5x I_{PN}

[2] Small signal only to avoid excessive heating of the magnetic cores.

Features

- Hall effect measureing principle
- Galvanic isolation between primary and secondary circuit
- Isolation voltage 3000V
- Low power consumption
- Extended measureing range (3 x I_{PN})
- Insulated plastic case recognized according to UL 94-V0.

Special features

- Modified internal gain ratio

Advantages

- Low insertion losses
- Easy to mount with automatic handling system
- Small size and space saving
- High immunity to external interference

Applications

- Switched Mode Power Supplies (SMPS)
- AC variable speed drives
- Uninterruptible Power Supplies (UPS)
- Battery supplied applications
- DC motor drives

Application domain

- Industrial

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Isolation characteristics

V_d	Rms voltage for AC isolation test, 50Hz, 1min	> 3	kV
V_e	Partial discharge extinction voltage rms@10pC	≥ 1	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 µs	≥ 6	kV
dCp	Creepage distance	> 5.5	mm
dCl	Clearance distance	> 5.5	mm
CTI	Comparative Tracking Index	≥ 600	

Applications examples

According to EN 50178 and IEC 61010-1 standards and following conditions:

- Over voltage category III
- Pollution degree 2
- Non-uniform field

	EN 50178	IEC 61010-1
dCp, **dCl**,$\hat{V}_w$	Rated insulation voltage	Nominal voltage
Basic insulation	600 V	600 V
Reinforced insulation	300 V	150 V

Safety

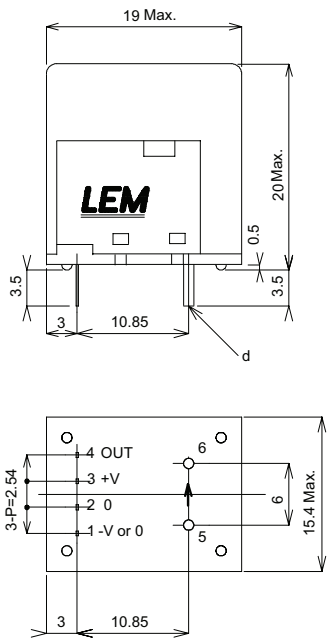
This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.

Caution, risk of electrical shock

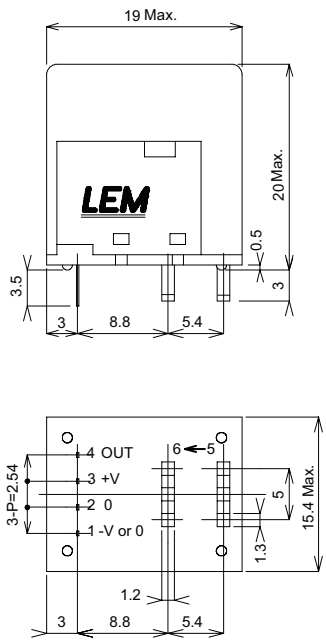
When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply).
Ignoring this warning can lead to injury and/or cause serious damage.
This transducer is a build-in device, whose conducting parts must be inaccessible after installation.
A protective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

Dimensions HX 10..50-P/SP13 (in mm.)

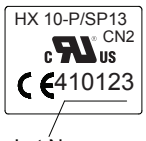
HX 10..25-P/SP13



HX 50-P/SP13



Top view



Lot No.

Terminal Pin Identification

1 ..... -15 V
2 ..... 0 V
3 ..... +15 V
4 ..... Output
5 ..... Primary input Current (+)
6 ..... Primary input Current (-)

Primary conductor diameter

HX	10-P/SP13	15-P/SP13
d	1.1	1.4
HX	25-P/SP13	50-P/SP13
d	1.6	1.2 x 6.3

Secondary pins dimension
0.5 x 0.25

Mechanical characteristics

- General tolerance ± 0.5 mm

Remarks

- $\mathbf{V}_{OUT}$ is positive when $\mathbf{I}_P$ flows in the direction of the arrow.