Current Transducer HX 03..50-P/SP2

I_{PN} = 3 .. 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 = 2 kΩ

Electrical data

Primary nominal current rms I_{PN} (A)	Primary current measuring range[1] I_{PM} (A)	Primary conductor diameter x turns (mm)	Type
3	± 9	0.6d x 20T	**HX 03-P/SP2**
5	± 15	0.8d x 12T	**HX 05-P/SP2**
10	± 30	1.1d x 6T	**HX 10-P/SP2**
15	± 45	1.4d x 4T	**HX 15-P/SP2**
20	± 60	1.6d x 3T	**HX 20-P/SP2**
25	± 75	1.6d x 2T	**HX 25-P/SP2**
50	± 150	1.2 x 6.3 x 1T	**HX 50-P/SP2**

V_{OUT}	Output voltage (Anarog) @ ± I_{PN}, R_L = 2 kΩ, T_A = 25 °C	V_{CE} ± 0.625	V
R_{OUT}	Output internal resistance	< 50	Ω
R_L	Load resistance	≥ 2	kΩ
V_C	Supply voltage (± 5 %)	+ 12 .. 15	V
V_C	Current consumption	< 15	mA

Accuracy - Dynamic performance data

X	Accuracy @ I_{PN} , T_A = 25°C (xcluding offset)	< ± 1	% of I_{PN}
ε_L	Linearity error (0 .. ± I_{PN})	< ± 1	% of I_{PN}
V_{OE}	Electorical offset voltage @ I_P = 0, T_A = 25°C	+ 2.5V ± 50	mV
V_{OH}	Hysteresis offset voltage @ I_P = 0 after an excursion of 1 x I_{PN}	< ± 10	mV
TCV_{OE}	Temperature coefficient of V_{OE}	< ± 1.5	mV/K
TCV_{OH}	Temerature 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]	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] With R_L=2kΩ

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

Features

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

Special features

- Single supply from +12V to + 15V

Advantages

- Low insertion losses
- Easy to mount with automatic handling system
- Small size and space saving
- Only one design for wide current ratings range
- High immunity to external interference

Applications

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

Application domain

- Industrial.

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Isolation characteristics

V_d	Rms voltage for AC isolation test, 50 Hz, 1 min	> 3	kV
V_e	Partial discharge extinction voltage rms @ 10 pC	≥ 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 (group I)	≥ 600	

Applications examples

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

- Over voltage category OV 3
- Pollution degree PD2
- 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.

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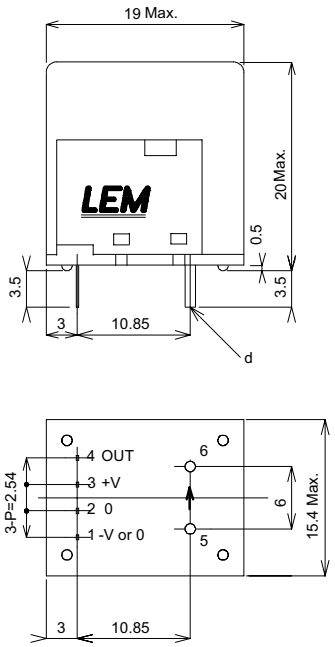
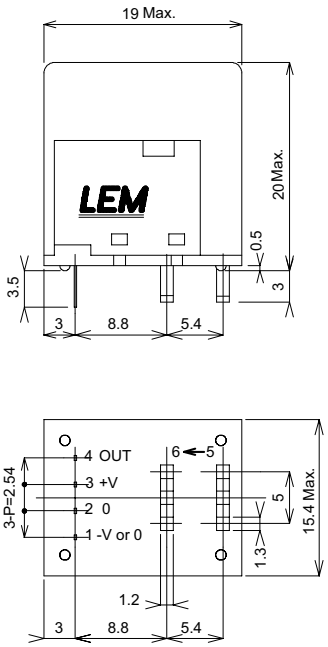
Dimensions HX 03..50-P/SP2 (in mm. 1 mm = 0.0394 inch)

HX 03 .. 25-P/SP2



HX 50-P/SP2



Terminal Pin Identification

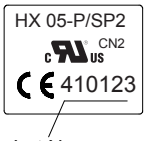
1 ..... 0 V
2 ..... 0 V
3 ..... +15 V
4 ..... Output
5 ..... Primary input Current (+)
6 ..... Primary input Current (-)

Primary conductor diameter

HX	03-P /SP2	05-P /SP2	10-P /SP2	15-P /SP2
d	0.6	0.8	1.1	1.4
HX	20-P /SP2	25-P /SP2	50-P /SP2	
d	1.6	1.6	1.2 x 6.3	

Secondary pins dimension
0.5 x 0.25

Top view



Lot No.

Mechanical characteristics

- General tolerance ± 0.5 mm

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