

Current Transducer HAX 1000 ... 1500-S/SP13

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



Electrical data

Type	Primary nominal RMS current I_{PN} (A)	Primary current, measuring range ¹⁾ I_{PM} (A)	
HAX 1000-S/SP13	1000	± 2500	
HAX 1500-S/SP13	1500	± 3750	
U_C	Supply voltage ($\pm 5\%$) ¹⁾	± 12	V
I_C	Current consumption	+20/-15	mA
I_P	Overload capability	30000	At
R_{INS}	Insulation resistance @ 500 V DC	> 1000	MΩ
U_{out}	Output voltage (Analog) @ $\pm I_{PN}$, $R_L = 10\text{ k}\Omega$, $T_A = 25^\circ\text{C}$	± 4	V
R_{out}	Output internal resistance	appr. 100	Ω
R_L	Load resistance	> 1	kΩ

Accuracy - Dynamic performance data

ε	Error @ I_{PN} , $T_A = 25^\circ\text{C}$ (excluding offset) ²⁾	< ± 1	% of I_{PN}
ε_L	Linearity error (0 ... $\pm I_{PN}$) ³⁾	< ± 1	% of I_{PN}
U_{OE}	Electrical offset voltage @ $T_A = 25^\circ\text{C}$	< ± 20	mV
U_{OH}	Hysteresis offset voltage @ $I_P = 0$, after an excursion of $1 \times I_{PN}$	< ± 20	mV
TCU_{OE}	Temperature coefficient of U_{OE}	< ± 1	mV/K
TCU_{out}	Temperature coefficient of U_{out} (% of reading)	< ± 0.1	%/K
t_{D90}	Delay time to 90 % of I_{PN} ⁴⁾	< 5	μs
BW	Frequency bandwidth ⁵⁾ (-1 dB, small signal)	DC ... 25	kHz

General data

T_A	Ambient operating temperature	-40 ... +80	°C
T_{Ast}	Ambient storage temperature	-40 ... +85	°C
m	Mass	appr. 450	g
	Standards	EN 50178: 1997 UL 508: 2013	

Notes: ¹⁾ It is possible to operate transducer with $U_C = \pm 15\text{ V}$

²⁾ The primary busbar fixed in the center of aperture is recommended. The position of busbar has impact on the accuracy of transducer

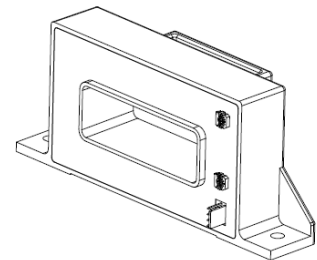
³⁾ Linearity data exclude the electrical offset

⁴⁾ For a $di/dt > 100\text{ A}/\mu\text{s}$

⁵⁾ Please refer to derating curves in the technical file to avoid excessive core heating at high frequency

⁶⁾ Variation of the offset during the test IEC 61000-4-3 between 100 to 200 MHz: 8 % of I_{SN}

$$I_{PN} = 1000 \dots 1500\text{ A}$$



Features

- Hall effect measuring principle
- Insulating plastic case recognized according to UL 94-V0.

Special features

- $U_C = \pm 12\text{ V}$
- Extended temperature range.

Advantages

- Low insertion losses
- Easy installation
- Low power consumption
- Small size and space saving
- Only one design for wide current ratings range
- High immunity to external interference.

Applications

- AC variable speed drives and servo motor drives
- Static converters for DC motor drivers
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power suppliers for welding applications.

Application domain

- Industrial.

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Insulation coordination

U_d	RMS voltage for AC insulation test, 50 Hz/1 min	5.0	kV
U_{Ni}	Impulse withstand voltage 1.2/50 μ s	8.3	kV
U_e	Partial discharge extinction RMS voltage @ 10 pC	> 660	V
		Min	
d_{cp}	Creepage distance	15.7	mm
d_{ci}	Clearance	12.7	mm
CTI	Comparative tracking index (group IIIa)	275	

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
d_{cp}, d_{ci}, U_{Ni}	Rated insulation voltage	Nominal voltage
Basic insulation	1500 V	1000 V
Reinforced insulation	600 V	600 V

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 (eg. primary busbar, power supply).

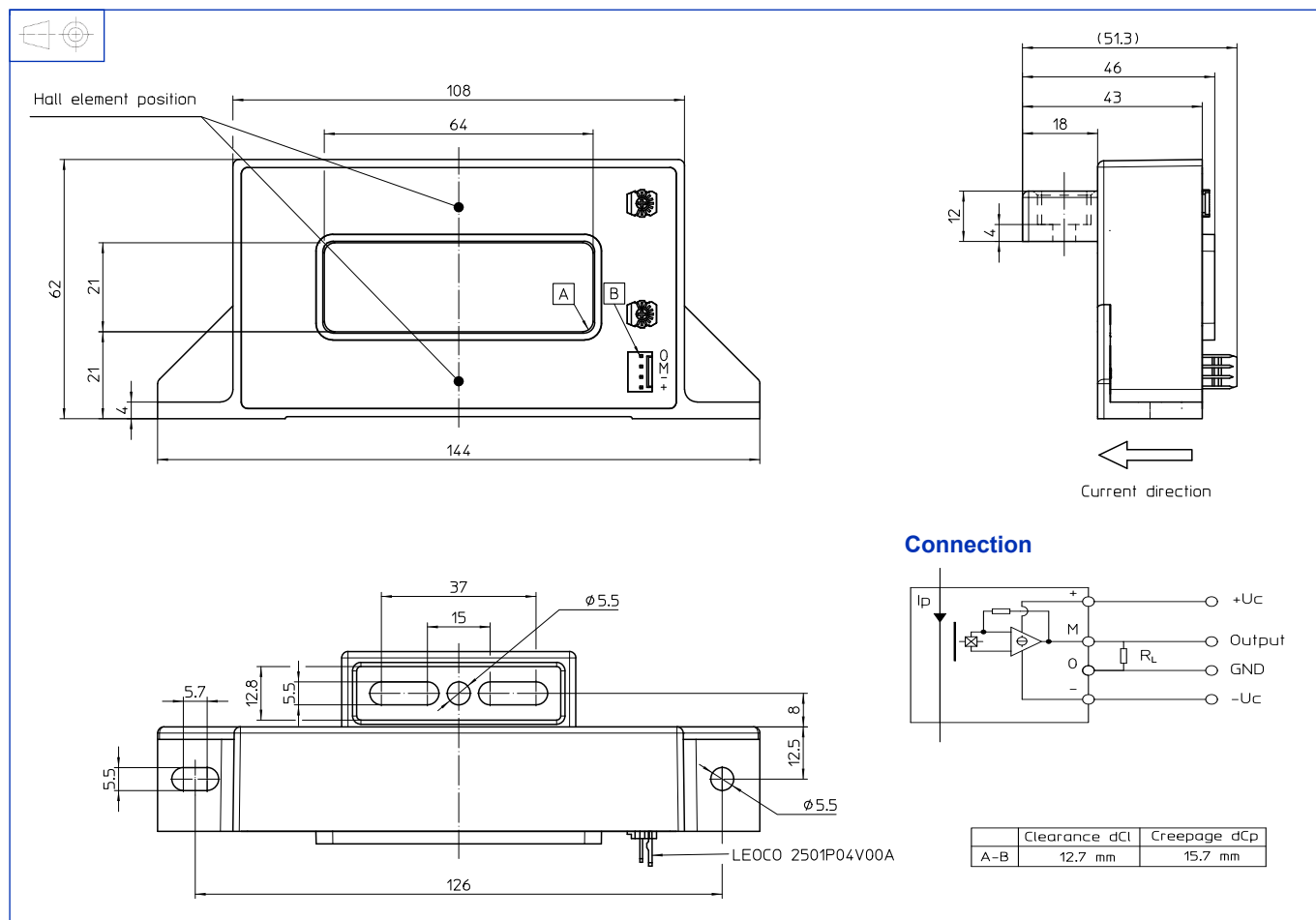
Ignoring this warning can lead to injury and/or cause serious damage.

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 HAX 1000...1500-S/SP13 (in mm)



Mechanical characteristics

- General tolerance ± 1 mm
- Transducer fastening
 - 1 hole and 1 notch $\varnothing 5.5$ mm
 - 2 M5 steel screws
- Recommended fastening torque 1.5 N·m
- or
 - 1 hole and 2 notches $\varnothing 5.5$ mm
 - 3 M5 steel screws
- Recommended fastening torque 1.5 N·m
- Primary through-hole 64 × 21 mm
- Connection of secondary LEOCO 2501P04V00A¹⁾

Note: ¹⁾ Recommended mating connector : Molex 511910400 (housing) and 508029101 (contact).

Remarks

- U_{out} is positive when I_p flows in the direction of the arrow.
- Temperature of the primary conductor should not exceed 100 °C.
- Installation of the transducer must be done unless otherwise specified on the datasheet, according to LEM Transducer Generic Mounting Rules. Please refer to LEM document N°ANE120504 available on our Web site: <https://www.lem.com/en/file/3137/download/>.
- Dynamic performances (di/dt and delay time) are best with a single bar completely filling the primary hole.

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