

Current Transducer LT 305-S

$I_{PN} = 366 \text{ A}$

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



16223

Electrical data

I_{PN}	Primary nominal r.m.s. current	366	A
I_P	Primary current, measuring range	0 .. ± 950	A
R_M	Measuring resistance with $\pm 15 \text{ V}$	R_{Mmin}	R_{Mmax}
		@ $\pm 366 \text{ A}_{max}$	3 49 Ω
		@ $\pm 950 \text{ A}_{max}$	3 3 Ω
I_{SN}	Secondary nominal r.m.s. current	183	mA
K_N	Conversion ratio	1 : 2000	
V_C	Supply voltage ($\pm 6 \%$)	± 15	V
I_C	Current consumption	26 (@ $\pm 15\text{V}$) + I_S	mA

Accuracy - Dynamic performance data

X_G	Overall accuracy @ I_{PN} , $T_A = 25^\circ\text{C}$	± 0.42	%
e_L	Linearity error	< 0.1	%
I_O	Offset current @ $I_P = 0$, $T_A = 25^\circ\text{C}$	Typ	Max
			± 0.20 mA
I_{OM}	Residual current ¹⁾ @ $I_P = 0$, after an overload of $3 \times I_{PN}$		± 0.20 mA
I_{OT}	Thermal drift of I_O - $10^\circ\text{C} \dots + 70^\circ\text{C}$	± 0.1	± 0.30 mA
t_{ra}	Reaction time @ 10 % of I_{PN}	< 500	ns
t_r	Response time ²⁾ @ 90 % of I_{PN}	< 1	μs
di/dt	di/dt accurately followed	> 100	A/ μs
f	Frequency bandwidth (- 1 dB)	DC .. 100	kHz

General data

T_A	Ambient operating temperature	- 10 .. + 70	$^\circ\text{C}$
T_S	Ambient storage temperature	- 40 .. + 85	$^\circ\text{C}$
R_S	Secondary coil resistance @ $T_A = 70^\circ\text{C}$	23	Ω
m	Mass	95	g
	Standards	EN 50178 : 1997	

Features

- Closed loop (compensated) current transducer using the Hall effect
- Insulated plastic case recognized according to UL 94-V0.

Advantages

- Excellent accuracy
- Very good linearity
- Low temperature drift
- Optimized response time
- Wide frequency bandwidth
- No insertion losses
- High immunity to external interference
- Current overload capability.

Applications

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

Application domain

- Industry.

Notes : ¹⁾ The result of the coercive field of the magnetic circuit

²⁾ With a di/dt of 100 A/ μs .

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Isolation characteristics

V_d	R.m.s. voltage for AC isolation test, 50/60 Hz, 1 mn	3	kV
\hat{V}_w	Impulse withstand voltage 1.2/50 μ s	>8	kV
V_e	R.m.s. voltage for partial discharge extinction @ 10pC	>2	kV
dCp	Creepage distance	9.35	mm
dCl	Clearance distance	8.8	mm
CTI	Comparative Tracking Index (Group II)	>600	

Application 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 isolation voltage	Nominal voltage
Single isolation	1000 V	1000 V
Reinforced isolation	600 V	600 V

Safety



This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the following 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).

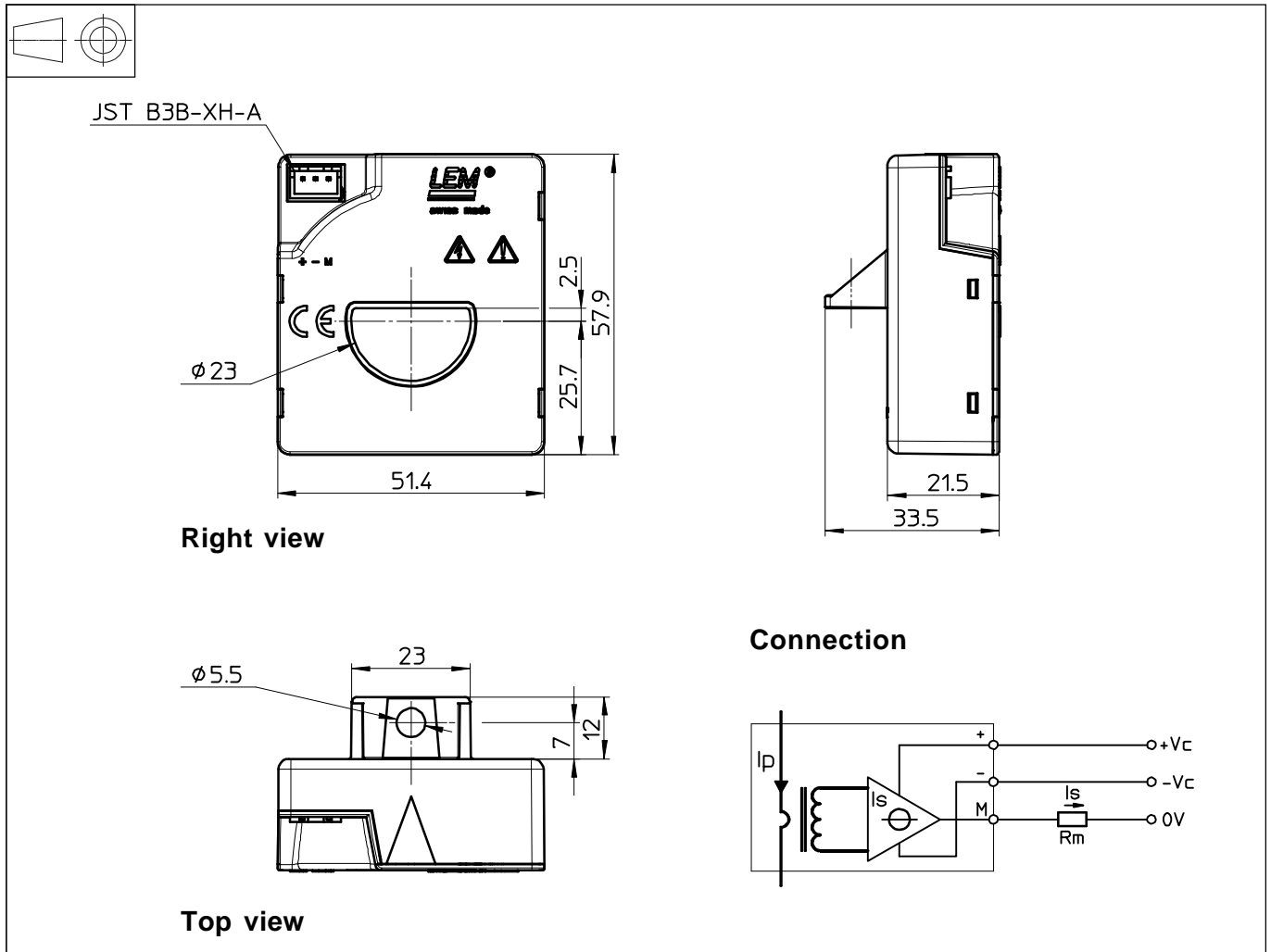
Ignoring this warning can lead to injury and/or cause serious damage.

This transducer is a built-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 LT 305-S (in mm. 1 mm = 0.0394 inch)



Mechanical characteristics

- General tolerance ± 0.5 mm
- Transducer fastening hole $\phi 5.5$ mm
steel screw M5
- Recommended fastening torque 3.4 Nm 2.5 Lb.-Ft.
- Primary through-hole $\phi 23$ mm
- Connection of secondary JST B3B-XH-A

Remarks

- I_s is positive when I_p flows in the direction of the arrow
- Temperature of the primary conductor should not exceed 100°C
- Dynamic performances (di/dt and response time) are best with a single bar completely filling the primary hole
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.