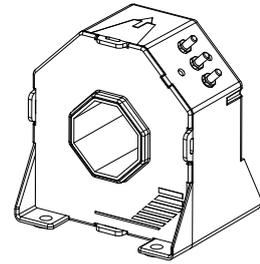


Current Transducer LT 505-S/SP10

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

$I_{PN} = 500 \text{ A}$



Electrical data

I_{PN}	Primary nominal current rms	500	A			
I_{PM}	Primary current, measuring range	0 .. ± 1200	A			
R_M	Measuring resistance @ $T_A = 85^\circ\text{C}$	$R_{M \min}$	$R_{M \max}$			
		with $\pm 12 \text{ V}$	@ $\pm 350 \text{ A}_{\max}$	0	76	Ω
			@ $\pm 500 \text{ A}_{\max}$	0	33	Ω
		with $\pm 15 \text{ V}$	@ $\pm 500 \text{ A}_{\max}$	0	60	Ω
	@ $\pm 800 \text{ A}_{\max}$	0	12	Ω		
	with $\pm 24 \text{ V}$	@ $\pm 500 \text{ A}_{\max}$	15	140	Ω	
		@ $\pm 1200 \text{ A}_{\max}$	15	18	Ω	
I_{SN}	Secondary nominal current rms	100	mA			
K_N	Conversion ratio	1 : 5000				
V_C	Supply voltage ($\pm 5\%$)	$\pm 12 \dots 24$	V			
I_C	Current consumption ($\pm 1 \text{ mA}$)	30 (@ $\pm 24 \text{ V}$) + I_S	mA			

Accuracy - Dynamic performance data

X_G	Overall accuracy @ $I_{PN}, T_A = 25^\circ\text{C}$	± 0.6	%
ϵ_L	Linearity error	< 0.1	%
I_O	Offset current @ $I_p = 0, T_A = 25^\circ\text{C}$	Typ Max	mA
I_{OT}	Temperature variation of I_O - $10^\circ\text{C} \dots +85^\circ\text{C}$	± 0.3 ± 0.5	mA
t_r	Response time ¹⁾ to 90 % of I_{PN} step	< 1	μs
di/dt	di/dt accurately followed	> 50	A/ μs
BW	Frequency bandwidth (-1 dB)	DC .. 150	kHz

General data

T_A	Ambient operating temperature	- 10 .. + 85	$^\circ\text{C}$
T_S	Ambient storage temperature	- 25 .. + 100	$^\circ\text{C}$
R_S	Secondary coil resistance @ $T_A = 85^\circ\text{C}$	69	Ω
m	Mass	220	g
	Standards	EN 50178: 1997	

Note: ¹⁾ With a di/dt of 100 A/ μs .

Features

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

Special features

- $V_C = \pm 12 \dots 24 (\pm 5\%) \text{ V}$
- $T_A = -10^\circ\text{C} \dots +85^\circ\text{C}$.
- Connection to secondary circuit on M4 threaded studs.

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

- Industrial.

Current Transducer LT 505-S/SP10

Isolation characteristics

V_d	Rms voltage for AC isolation test, 50 Hz, 1 min	6	kV
		Min	
dCp	Creepage distance	61.9	mm
dCI	Clearance distance	53.1	mm
CTI	Comparative Tracking Index (group IIIa)	225	

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, dCI	Rated isolation voltage	Nominal voltage
Single isolation	5 kV	5 kV
Reinforced isolation	2.5 kV	2.5 kV

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).

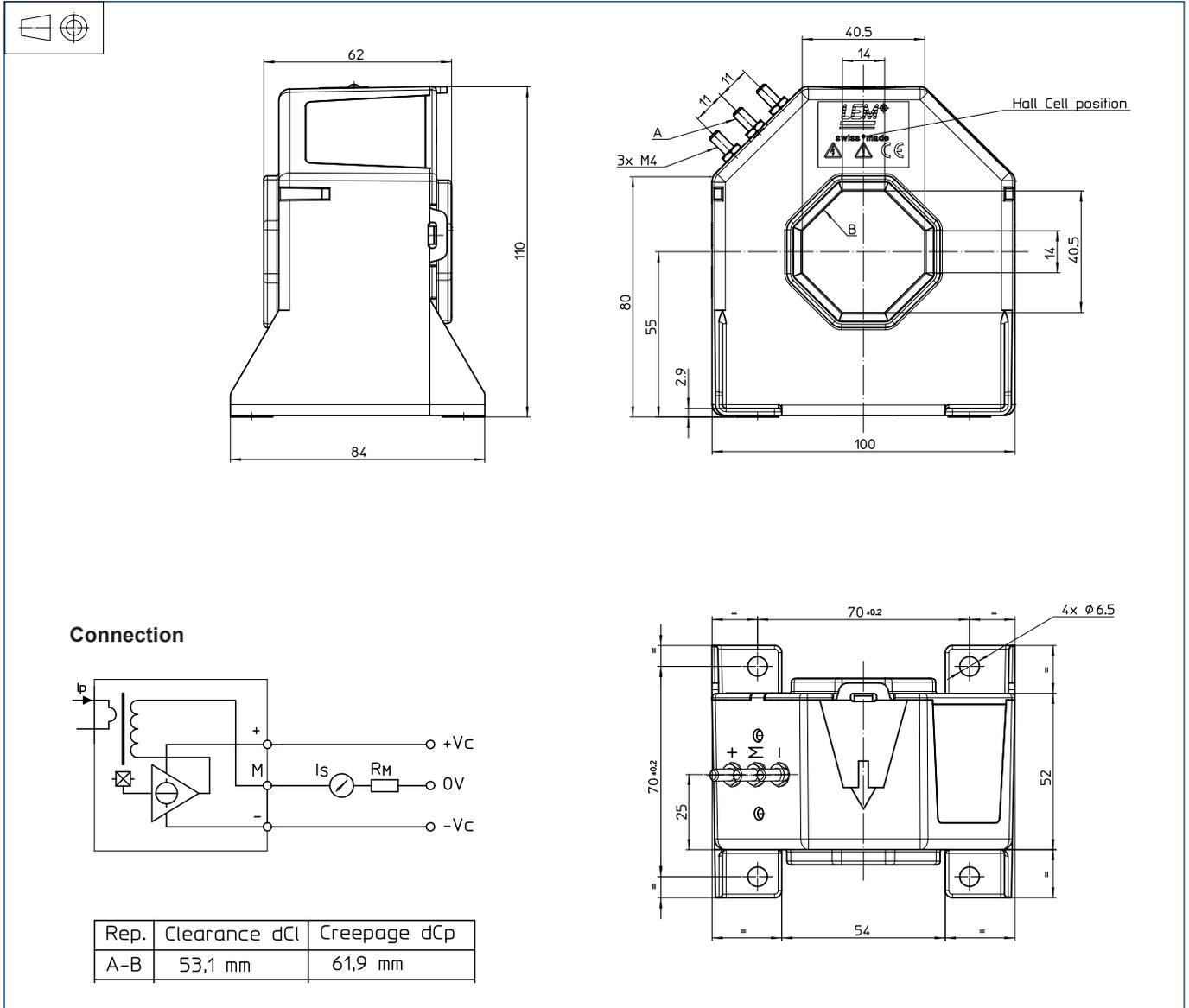
Ignoring this warning can lead to injury and/or cause serious damage.

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 LT 505-S/SP10 (in mm. 1 mm = 0.0394 inch)



Mechanical characteristics

- General tolerance ± 0.5 mm
- Transducer fastening
 - 4 holes $\varnothing 6.5$ mm
 - 4 M6 steel screws
 - Recommended fastening torque 4.5 Nm or 3.31 Lb.-Ft.
- Primary through-hole
 - $\varnothing 37.5$ mm max
 - Or by busbar 40.5 x 14 mm
- Connection of secondary
 - 3 M4 threaded studs
 - Recommended fastening torque 1.2 Nm or 0.88 Lb.-Ft.

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.

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