

Current Transducer LT 505-S/SP24

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).



16289

Electrical data

I_{PN}	Primary nominal current rms	500	A
I_{PM}	Primary current, measuring range	0 .. ± 1000	A
R_M	Measuring resistance @	$T_A = 70^\circ\text{C}$ $T_A = 85^\circ\text{C}$ $R_{M \min}$ $R_{M \max}$ $R_{M \min}$ $R_{M \max}$	
	with $\pm 15\text{ V}$	@ $\pm 500\text{ A}_{\max}$	0 60 0 58 Ω
		@ $\pm 1000\text{ A}_{\max}$	0 17 0 15 Ω
I_{SN}	Secondary nominal current rms	143	mA
K_N	Conversion ratio	1 : 3500	
V_C	Supply voltage ($\pm 5\%$)	± 15	V
I_C	Current consumption	$30 + I_S$	mA

Accuracy - Dynamic performance data

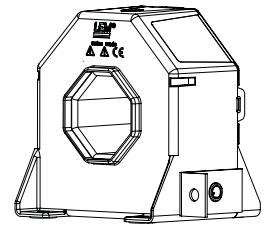
X_G	Overall accuracy @ I_{PN} , $T_A = 25^\circ\text{C}$	± 0.6	%
ε_L	Linearity error	< 0.1	%
		Typ Max	
I_O	Offset current @ $I_P = 0$, $T_A = 25^\circ\text{C}$	± 0.6	mA
I_{OT}	Temperature variation of I_O - $25^\circ\text{C} \dots +85^\circ\text{C}$	± 0.3 ± 0.8	mA
t_r	Response time ¹⁾ to 90 % of I_{PN} 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	-25 .. +85	$^\circ\text{C}$
T_S	Ambient storage temperature	-40 .. +90	$^\circ\text{C}$
R_S	Secondary coil resistance @	$T_A = 70^\circ\text{C}$ 25 Ω	
		$T_A = 85^\circ\text{C}$ 27 Ω	
m	Mass	850	g
	Standards	EN 50155: 1995	

Note: ¹⁾ With a di/dt of 100 A/ μs .

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



Features

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

Special features

- $I_{PM} = 0 \dots \pm 1000\text{ A}$
- $K_N = 1 : 3500$
- $V_C = \pm 15 (\pm 5\%) \text{ V}$
- $T_A = -25^\circ\text{C} \dots +85^\circ\text{C}$
- Connection to secondary circuit on LEMO EGJ.0B.303.CLA
- Potted
- Between primary and secondary shield linked to external shield
- Customer marking.

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

- Single or three phases inverter
- Propulsion and braking chopper
- Propulsion converter
- Auxiliary converter
- Battery charger.

Application Domain

- Traction.

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Isolation characteristics

V_d	Rms voltage for AC isolation test, 50 Hz, 1 min	6 ²⁾	kV
		1 ³⁾	kV
dCp	Creepage distance	37.9	mm
dCI	Clearance distance	32.9	mm
CTI	Comparative Tracking Index (group III)	225	

Notes: ²⁾ Between primary and secondary + shields
³⁾ Between secondary and internal shield + external shield
The internal shield is connected to external shield.

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).

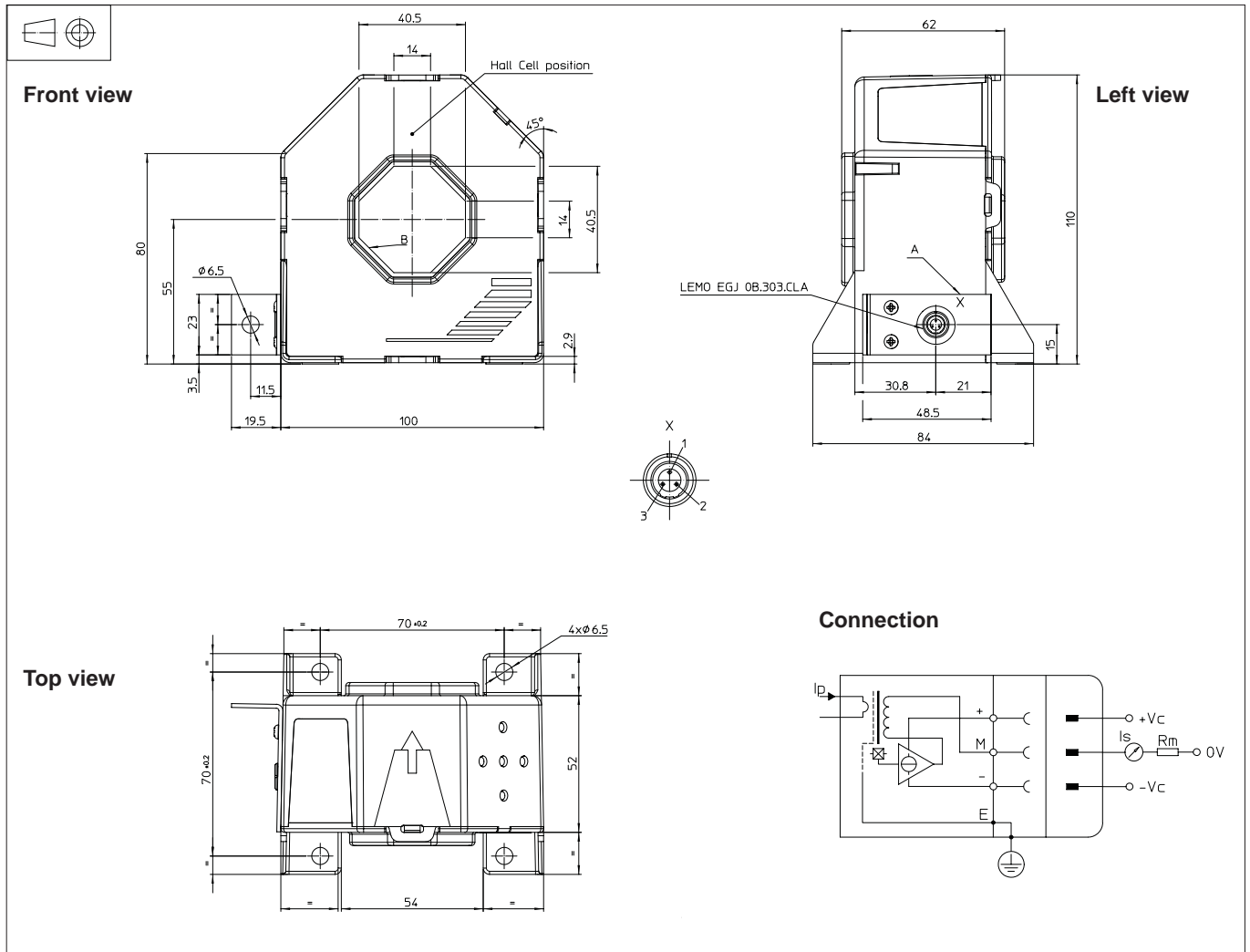
Ignoring this warning can lead to injury and/or cause serious damage.

This transducer is a 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 505-S/SP24 (in mm. 1 mm = 0.0394 inch)



Mechanical characteristics

- General tolerance ± 0.5 mm
- Transducer fastening
 - 4 holes $\phi 6.5$ mm
 - 4 steel screws M6
- Recommended fastening torque 4.20 Nm or 3.10 Lb.-Ft.
- Primary through-hole
 - 40.5 x 14 mm
 - 36 mm max.
- Connection of secondary LEMO EGJ 0B.303.CLA
- Connection internal and external shields
 - holes $\phi 6.5$ mm

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.