

Current Transducer LF 306-S/SP7

$$I_{PN} = 300 \text{ A}$$

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).



0618

Electrical data

I_{PN}	Primary nominal current rms	300	A
I_{PM}	Primary current, measuring range	0 .. ± 500	A
R_M	Measuring resistance @	$T_A = 70^\circ\text{C}$	
		$T_A = 85^\circ\text{C}$	
		R_{Mmin} R_{Mmax}	R_{Mmin} R_{Mmax}
	with $\pm 15 \text{ V}$	@ $\pm 300 \text{ A}_{max}$	15 56 22 54 Ω
		@ $\pm 500 \text{ A}_{max}$	15 20 22 ¹⁾ 22 ¹⁾ Ω
I_{SN}	Secondary nominal current rms	150	mA
K_N	Conversion ratio	1 : 2000	
V_C	Supply voltage ($\pm 5 \%$)	± 15	V
I_C	Current consumption	$20 + I_s$	mA

Features

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

Special features

- $T_A = -40^\circ\text{C} \dots +85^\circ\text{C}$
- Connection to secondary circuit on shielded cable GKW-LW/S 3 x 0.5 mm² (length 1m).

Accuracy - Dynamic performance data

X	Accuracy @ I_{PN} , $T_A = 25^\circ\text{C}$	± 0.4	%
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 ²⁾ @ $I_p = 0$, after an overload of $3 \times I_{PN}$		± 0.08 mA
I_{OT}	Temperature variation of I_O - $40^\circ\text{C} \dots +85^\circ\text{C}$	± 0.35	± 0.80 mA
t_{ra}	Reaction time @ 10 % of I_{PN}	< 500	ns
t_r	Response time ³⁾ to 90 % of I_{PN} step	< 1	μs
di/dt	di/dt accurately followed	> 100	A/ μs
BW	Frequency bandwidth (- 1 dB)	DC .. 100	kHz

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.

General data

T_A	Ambient operating temperature	- 40 .. + 85	$^\circ\text{C}$
T_S	Ambient storage temperature	- 45 .. + 90	$^\circ\text{C}$
R_S	Secondary coil resistance @ $T_A = 85^\circ\text{C}$	34	Ω
m	Mass	100	g
	Standards	EN 50155: 1995	

Applications

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

Application Domain

- Traction.

Notes : ¹⁾ @ $\pm 470 \text{ A}_{max}$

²⁾ The result of the coercive field of the magnetic circuit

³⁾ With a di/dt of 100 A/ μs .

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Isolation characteristics

V_d	Rms voltage for AC isolation test, 50 Hz, 1 min	6	kV
		Min	
dCp	Creepage distance	6.9	mm
dCl	Clearance distance	6.3	mm
CTI	Comparative Tracking Index (Group III a)	175	

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

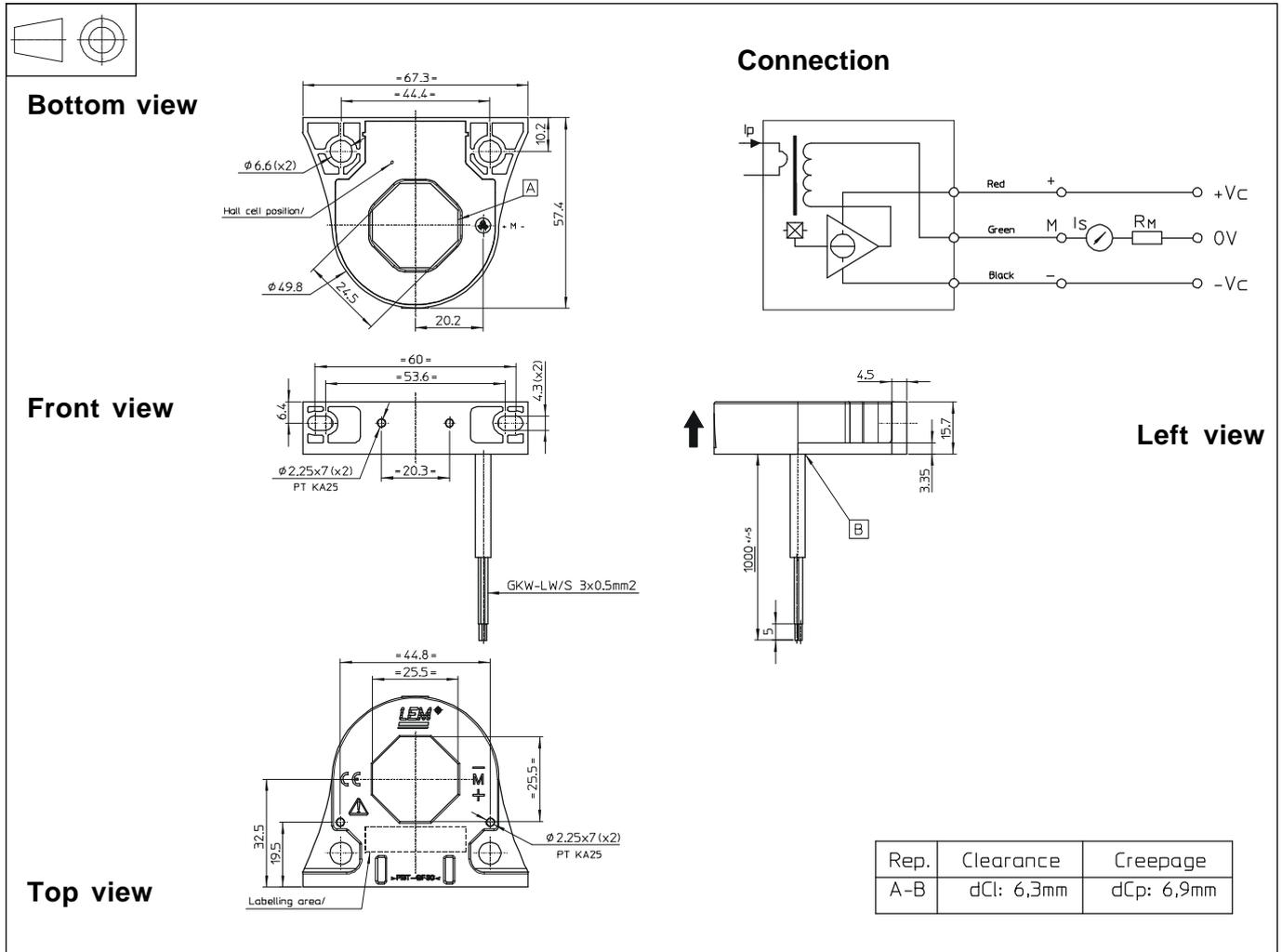
When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply).

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 LF 306-S/SP7 (in mm. 1 mm = 0.0394 inch)

Mechanical characteristics

- General tolerance ± 0.5 mm
- Transducer fastening
 - Vertical position
 - 2 oblong holes $\varnothing 4.3$ mm
 - 2 M4 steel screws
 - Recommended fastening torque
 - 3 Nm or 2.21 Lb.-Ft.
 - Or
 - 2 holes $\varnothing 2.25$ mm
 - 2 screws PTKA 25
- Recommended fastening torque
 - Or flat position
 - 0.3 Nm or 0.22 Lb.-Ft.
 - 2 holes $\varnothing 6.6$ mm
 - 2 M6 steel screws
- Recommended fastening torque
 - Or
 - 4.2 Nm or 3.1 Lb.-Ft.
 - 2 holes $\varnothing 2.25$ mm
 - 2 screws PTKA 25
- Recommended fastening torque
 - 0.3 Nm or 0.22 Lb.-Ft.
- Primary through-hole
 - 25.5 x 25.5 mm
- Connection of secondary
 - Shielded cable
 - GKW-LW/S 3 x 0.5 mm²

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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