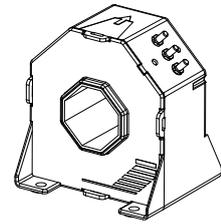


# Current Transducer LT 1005-S/SP4

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



**$I_{PN} = 1000 \text{ A}$**



## Electrical data

$I_{PN}$	Primary nominal current rms	1000	A		
$I_{PM}$	Primary current, measuring range @ $\pm 24 \text{ V}$	0 .. $\pm 2000$	A		
$R_M$	Measuring resistance	$T_A = 70^\circ\text{C}$			
		$R_{M \min}$	$R_{M \max}$		
		with $\pm 15 \text{ V}$	@ $\pm 1000 \text{ A}_{\max}$	0	24
		@ $\pm 1500 \text{ A}_{\max}$	0	7	
		$T_A = 85^\circ\text{C}$			
		$R_{M \min}$	$R_{M \max}$		
		with $\pm 24 \text{ V}$	@ $\pm 1000 \text{ A}_{\max}$	5	58
		@ $\pm 2000 \text{ A}_{\max}$	5	16	
$I_{SN}$	Secondary nominal current rms	250	mA		
$K_N$	Conversion ratio	1 : 4000			
$V_C$	Supply voltage ( $\pm 5 \%$ )	$\pm 15 \dots 24$	V		
$I_C$	Current consumption	30 (@ $\pm 24 \text{ V}$ ) + $I_S$	mA		

## Accuracy - Dynamic performance data

$X_G$	Overall accuracy <sup>1)</sup> @ $I_{PN}$ , $T_A = 25^\circ\text{C}$	$\pm 0.4$	%
$\varepsilon_L$	Linearity error	$< 0.1$	%
$I_O$	Offset current @ $I_p = 0$ , $T_A = 25^\circ\text{C}$	Typ	Max
$I_{OT}$	Temperature variation of $I_O$	- $40^\circ\text{C} \dots - 25^\circ\text{C}$	$\pm 0.50$ mA
		- $25^\circ\text{C} \dots + 85^\circ\text{C}$	$\pm 0.80$ mA
$t_r$	Response time <sup>2)</sup> to 90 % of $I_{PN}$ step	$< 1$	$\mu\text{s}$
$di/dt$	di/dt accurately followed	$> 50$	A/ $\mu\text{s}$
<b>BW</b>	Frequency bandwidth (- 1 dB)	DC .. 150	kHz

## General data

$T_A$	Ambient operating temperature	- 40 .. + 85	$^\circ\text{C}$
$T_S$	Ambient storage temperature	- 50 .. + 95	$^\circ\text{C}$
$R_S$	Secondary coil resistance	@ $T_A = 70^\circ\text{C}$	26 $\Omega$
		@ $T_A = 85^\circ\text{C}$	29 $\Omega$
<b>m</b>	Mass		850 g
		Standards	EN 50155: 2001

## Features

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

## Special features

- $K_N = 1 : 4000$
- $V_d = 12 \text{ kV}$
- $T_A = - 40^\circ\text{C} \dots + 85^\circ\text{C}$
- Potted
- Connection to secondary circuit on M4 threaded studs
- Personalized label.

## 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 phase inverters
- Propulsion and braking chopper
- Propulsion converter
- Auxiliary converter
- Battery charger.

## Application Domain

- Traction.

Notes: <sup>1)</sup> The overall accuracy is  $\pm 1.5 \%$  at ambient temperature  $-50^\circ\text{C}$ , including a maximum offset drift 2.2 mA  
<sup>2)</sup> With a di/dt of 100 A/ $\mu\text{s}$ .

## Current Transducer LT 1005-S/SP4

### Isolation characteristics

$V_d$	Rms voltage for AC insulation test, 50 Hz, 1 min	12	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 $\mu$ s	38	kV
		Min	
<b>dCp</b>	Creepage distance	61.9	mm
<b>dCl</b>	Clearance	53.1	mm
<b>CTI</b>	Comparative Tracking Index (group IIIa)	225	

### 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).

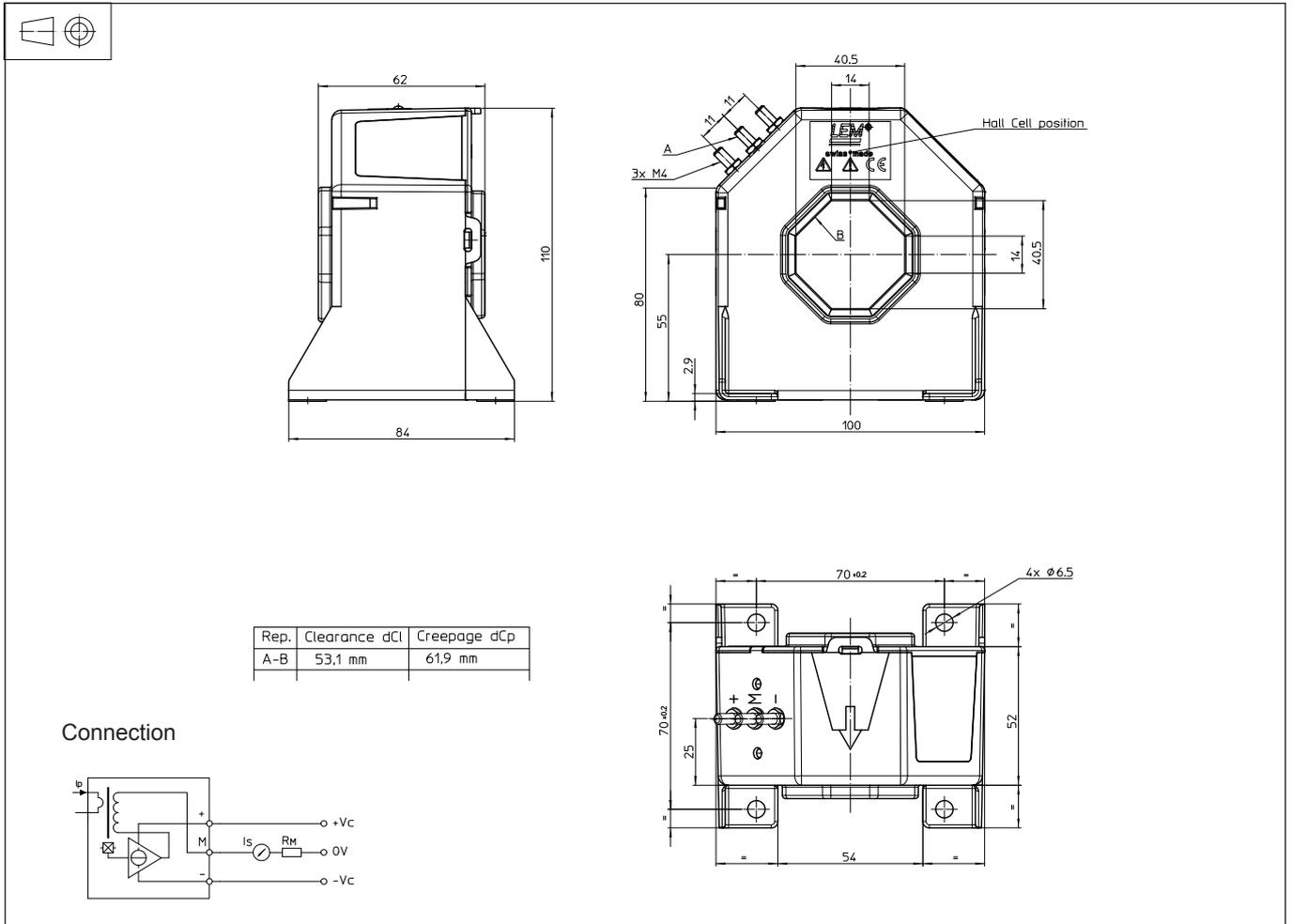
Ignoring this warning can lead to injury and/or cause serious damage.

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 1005-S/SP4 (in mm)



### Mechanical characteristics

- General tolerance  $\pm 1$  mm
- Transducer fastening
  - 4 holes  $\varnothing 6.5$  mm
  - 4 M6 steel screws
- Recommended fastening torque 4.20 Nm
- Primary through-hole
  - 40.5 x 14 mm
  - or  $\varnothing 36$  mm max
- Connection of secondary
  - M4 threaded studs
  - Recommended fastening torque 1.2 Nm

### 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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