

# Current Transducer LT 100-S/SP63

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

$$I_{PN} = 100 \text{ A}$$



## Electrical data

$I_{PN}$	Primary nominal RMS current	100	A
$I_{PM}$	Primary current, measuring range	0 ... $\pm 200$	A
$R_M$	Measuring resistance with $\pm 12 \text{ V}$	@ $\pm 100 \text{ A}_{max}$	$R_{Mmin}$ 0 $R_{Mmax}$ 75 $\Omega$
		@ $\pm 200 \text{ A}_{max}$	0    25 $\Omega$
	with $\pm 18 \text{ V}$	@ $\pm 100 \text{ A}_{max}$	30    135 $\Omega$
		@ $\pm 200 \text{ A}_{max}$	30    55 $\Omega$
$I_{SN}$	Secondary nominal RMS current	100	mA
$N_P/N_S$	Turns ratio	1 : 1000	
$U_C$	Supply voltage ( $\pm 5 \%$ )	$\pm 12 \dots 18$	V
$I_C$	Current consumption @ $U_C = \pm 18 \text{ V}$ , @ $I_P = 0 \text{ A}$	< 28	mA

## Accuracy - Dynamic performance data

$\epsilon_{tot}$	Total error @ $I_{PN}$ , $T_A = 25 \text{ }^\circ\text{C}$	$\pm 0.6$	%
$\epsilon_L$	Linearity error	< 0.1	%
$I_O$	Offset current @ $I_P = 0$ , $T_A = 25 \text{ }^\circ\text{C}$	Typ	Max
			$\pm 0.4$ mA
$I_{OT}$	Temperature variation of $I_O$ $-30 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$	$\pm 0.3$ $\pm 0.5$	mA
$t_{D90}$	Delay time to 90 % of the final output value for $I_{PN}$ step <sup>1)</sup>	< 1	$\mu\text{s}$
$BW$	Frequency bandwidth (-1 dB)	DC ... 150	kHz

## General data

$T_A$	Ambient operating temperature	$-30 \dots +70$	$^\circ\text{C}$
$T_{Ast}$	Ambient storage temperature	$-40 \dots +85$	$^\circ\text{C}$
$R_S$	Resistance of secondary winding @ $T_A = 70 \text{ }^\circ\text{C}$	25	$\Omega$
$m$	Mass	185	g
	Standards <sup>2)</sup>	EN 50155: 2001 EN 50121-3-2: 2016	

**Notes:** <sup>1)</sup> For a  $di/dt = 100 \text{ A}/\mu\text{s}$   
<sup>2)</sup> Additional information available on request  
 Deviation of the offset during the test IEC 61000-4-6 between 1 MHz & 3 MHz.

## Features

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

## Special features

- $T_A = -30 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
- Internal shield connected on Faston "E"
- Customer number dedicated
- Potted.

## Advantages

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

## Applications

- Single or three phase inverters
- Propulsion and braking choppers
- Propulsion converters
- Auxiliary converters
- Battery chargers.

## Application Domain

- Railway (fixed installations and onboard).

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**Insulation coordination**

$U_d$	RMS voltage for AC insulation test, 50 Hz, 1 min	5 <sup>1)</sup>	kV
		1 <sup>2)</sup>	kV
		Min	
$d_{cp}$	Creepage distance	37.6	mm
$d_{cl}$	Clearance	33.3	mm
$CTI$	Comparative tracking index (group IIIa)	225	

**Notes:** <sup>1)</sup> Between primary and secondary + shield  
<sup>2)</sup> Between secondary and 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.

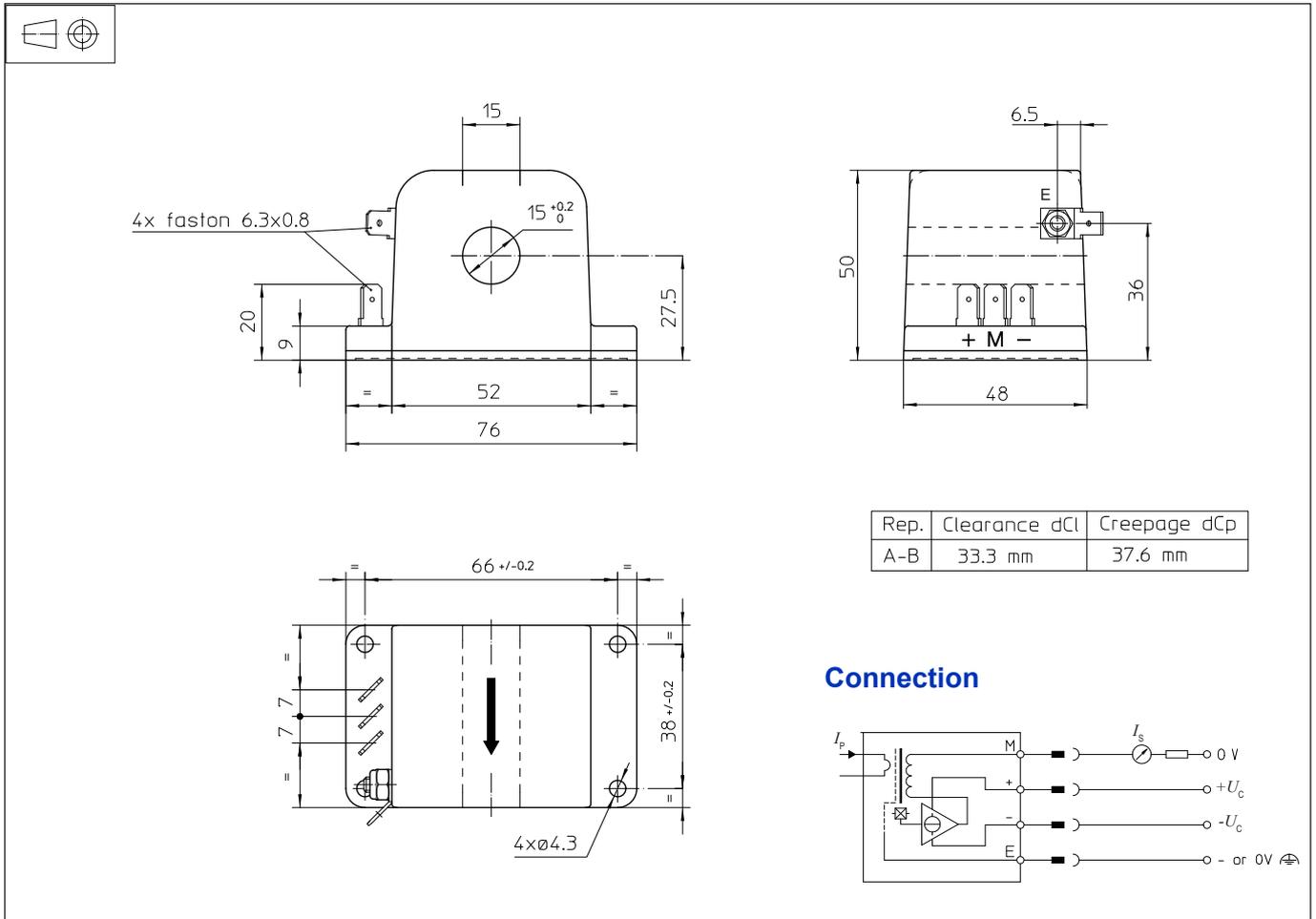


Caution, risk of electrical shock

When operating the transducer, certain parts of the module can carry hazardous voltage (e.g. 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 100-S/SP63 (in mm)



### Mechanical characteristics

- General tolerance  $\pm 0.5$  mm
- Transducer fastening 4 holes  $\varnothing 4.3$  mm  
4 M4 steel screws
- Recommended fastening torque 3.2 N·m
- Primary through-hole  $\varnothing 15$  mm
- Connection of secondary 4 Faston 6.3 × 0.8 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.
- In order to achieve the best magnetic coupling, the primary windings have to be wound over the top edge of the device.
- To measure nominal currents of less than 100 A, the optimum accuracy is obtained by having several primary turns (nominal current × number of turns = 100 At).
- Dynamic performances ( $di/dt$  and delay time) are best with a single bar completely filling the primary hole.
- Installation of the transducer must be done unless otherwise specified on the datasheet, according to LEM Transducer Generic Mounting Rules. Please refer to LEM document N°ANE120504 available on our Web site: <https://www.lem.com/en/file/3137/download/>.

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