

Current Transducer LTC 1000-SF

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



Electrical data

I_{PN}	Primary nominal RMS current		1000		Α	
I_{PM}	Primary current, measuring range @ ±24 V		0 ±2400 ¹⁾		Α	
\hat{I}_{Pmax}	Primary withstand peak current (maximum)		10/10		kA/ms	
R_{M}	Measuring resistance			$R_{\rm M\; min}$	$R_{ m M\ max}$	
	with ±15 V	@ $\pm 1000 A_{max}$		0	15	Ω
		@ ±1200 A _{max}		0	7	Ω
	with ±24 V	@ $\pm 1000 A_{max}$		0	50	Ω
		@ $\pm 2000 A_{max}$		0	7	Ω
I_{SN}	Secondary nominal RMS	S current		200		mA
$N_{\rm P}\!/N_{\rm S}$	Turns ratio			1:5000		
U_{C}	Supply voltage (±5 %)			±15	. 24	V
$I_{\mathtt{C}}$	Current consumption			< 32 (@) ±24 V) +	-I _s mA

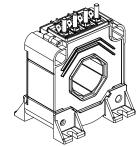
Accuracy - Dynamic performance data

$\varepsilon_{\mathrm{tot}}$	Total error @ I_{PN} , $T_A = 25 ^{\circ}\text{C}$	< ±0.4	%
	@ I_{PN} , $T_A = -40 ^{\circ}\text{C} \dots +85 ^{\circ}\text{C}$	< ±1	%
$\varepsilon_{\rm L}$	Linearity error	< 0.1	%
		Max	
I_{O}	Offset current @ I_P = 0, T_A = 25 °C	±0.5	mA
$I_{{\rm O}T}$	Temperature variation of $I_{\rm O}$ = -40 °C +85 °C	±1.0	mA
$t_{\mathrm{D}90}$	Delay time to 90 % of the final output value for $I_{\rm PN}$ ste	ep ²⁾ < 1	μs
BW	Frequency bandwidth (-1 dB)	DC 100	kHz

General data

$T_{\rm A} \\ T_{\rm Ast}$	Ambient operating temperature Ambient storage temperature	-40 +85 -45 +90	°C °C	
$R_{\rm S}$	Resistance of secondary winding @ $T_{\rm A}$ = 85 °C	44	Ω	
m	Mass	780	g	
	Standards	EN 50155: 20	EN 50155: 2017 ³⁾ UL 508: 2010	
		UL 508: 2010		
		EN 50121-3-2: 2016		

 $I_{\rm DN} = 1000 \, {\rm A}$



Features

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

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 choppers
- Propulsion converters
- Auxiliary converters
- · Battery chargers.

Application Domain

Railway (fixed installations and onboard).

Notes: 1) For a $di/dt = 5 \text{ A/}\mu\text{s}$

²⁾ For a di/dt = 100 A/µs

3) Additional information available on request.



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Insulation coordination					
$U_{\rm d}$	RMS voltage for AC insulation test, 50 Hz, 1 min	13.4 ¹⁾ 1.5 ²⁾	kV kV		
$U_{\rm t}$	Partial discharge RMS test voltage ($q_{\rm m}$ < 10 pC)	> 2.8 ³⁾ Min	kV		
d_{Cp}	Creepage distance	66.70	mm		
$d_{Cp} \ d_{Cl}$	Clearance	45.90	mm		
CTI	Comparative tracking index (group I)	600			

Notes: 1) Between primary and secondary + shield

Safety

This transducer must be used in limited-energy secondary circuits according to IEC 61010-1.



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.

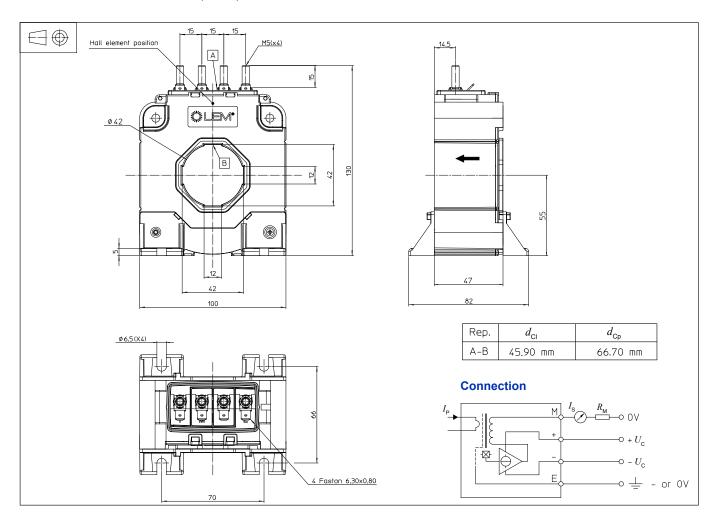
Main supply must be able to be disconnected.

²⁾ Between secondary and shield

³⁾ Test carried out with a busbar Ø 40 mm centred in the through-hole.



Dimensions LTC 1000-SF (in mm)



Mechanical characteristics

General tolerance

Transducer fastening

Recommended fastening torque 4.7 N·m

Primary through-hole

Connection of secondary Recommended fastening torque 2.2 N·m

±1 mm

4 slots Ø 6.5 mm

4 M6 steel screws

Ø 42 mm

4 M5 threaded studs

Faston 6.3 × 0.8 mm

Remarks

- $I_{\rm S}$ is positive when $I_{\rm P}$ flows in the direction of the arrow.
- Temperature of the primary conductor should not exceed 100 °C.
- 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/.
- Dynamic performances (di/dt and delay time) are best with a single bar completely filling the primary hole.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.