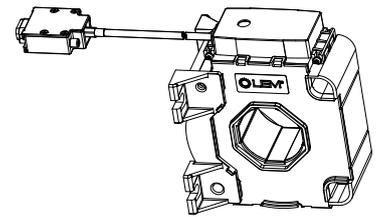


Current Transducer LTC 1000-SF/SP3

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



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



Electrical data

I_{PN}	Primary nominal RMS current	1000	A
I_{PM}	Primary current, measuring range @ $\pm 24 \text{ V}$	0 ... ± 2400 ¹⁾	A
\hat{I}_{Pmax}	Primary withstand peak current (maximum) Damped sinewave overload ^{2) 3)}	10/70	kA/ms
	Overload capability ^{2) 3)}	60/300	kA/ μ s
R_M	Measuring resistance	R_{Mmin} R_{Mmax}	Ω
	with $\pm 15 \text{ V}$	@ $\pm 1000 \text{ A}_{max}$ @ $\pm 1200 \text{ A}_{max}$	0 14 Ω 0 4 Ω
	with $\pm 24 \text{ V}$	@ $\pm 1000 \text{ A}_{max}$ @ $\pm 2000 \text{ A}_{max}$ @ $\pm 2200 \text{ A}_{max}$	0 55 Ω 0 4 Ω 0 1.4 Ω
I_{SN}	Secondary nominal RMS current	200	mA
N_P/N_S	Turns ratio	1 : 5000	
U_C	Supply voltage ($\pm 10 \%$)	± 15 ... 24	V
I_C	Current consumption	< 32 (@ $\pm 24 \text{ V}$) + I_S	mA

Accuracy - Dynamic performance data

ϵ_{tot}	Total error @ $I_{PN}, T_A = 25 \text{ }^\circ\text{C}$ @ $I_{PN}, T_A = -40 \text{ }^\circ\text{C} \dots +85 \text{ }^\circ\text{C}$	< ± 0.4 < ± 1	%
ϵ_L	Linearity error	< 0.1 Max	%
I_O	Offset current @ $I_P = 0, T_A = 25 \text{ }^\circ\text{C}$	± 0.5	mA
I_{OT}	Temperature variation of I_O	-40 $^\circ\text{C}$... +85 $^\circ\text{C}$ ± 1 -50 $^\circ\text{C}$... +85 $^\circ\text{C}$ $\pm \text{TBD}$ ⁴⁾	mA
t_{D90}	Delay time to 90 % of the final output value for I_{PN} step ⁵⁾ < 1		μ s
BW	Frequency bandwidth (-1 dB)	DC ... 100	kHz

General data

T_A	Ambient operating temperature	(-50) -40 ... +85	$^\circ\text{C}$
T_{Ast}	Ambient storage temperature	-50 ... +90	$^\circ\text{C}$
R_S	Resistance of secondary winding @ $T_A = 85 \text{ }^\circ\text{C}$	44	Ω
m	Mass	750	g
	Standards	EN 50155: 2017 ⁶⁾ UL 508: 2010 EN 50121-3-2: 2016	

Notes: ¹⁾ With a di/dt of > 5 A/ μ s

²⁾ Not measured

³⁾ @ 85 $^\circ\text{C}$ and $\pm 24 \text{ V}$ ($\pm 10 \%$)

⁴⁾ Test not carried out during the production

⁵⁾ For a $di/dt = 100 \text{ A}/\mu\text{s}$

⁶⁾ Additional information available on request.

Features

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

Special features

- $U_C = \pm 15 \dots 24 \text{ V}$ ($\pm 10 \%$)
- Connection of secondary on screened cable $3 \times 0.5 \text{ mm}^2$ and SUB-D 9P Gimota (female) connector
- Internal shield linked to the cable screen
- Hall sensor at East position (seen from cover plate side)
- Mounting feet at "west" position (see from cover plate side).

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).

Current Transducer LTC 1000-SF/SP3

Insulation coordination

U_d	RMS voltage for AC insulation test, 50 Hz, 1 min	13.4 ¹⁾	kV
		1.5 ²⁾	kV
U_t	Partial discharge RMS test voltage ($q_m < 10$ pC)	> 2.8 ³⁾	kV
		Min	
d_{cp}	Creepage distance	70	mm
d_{cl}	Clearance	59	mm
CTI	Comparative tracking index (group I)	600	

Notes: ¹⁾ Between primary and secondary + shield
²⁾ Between secondary and shield
³⁾ Test carried out with a busbar \varnothing 40 mm centred in the through-hole.

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).

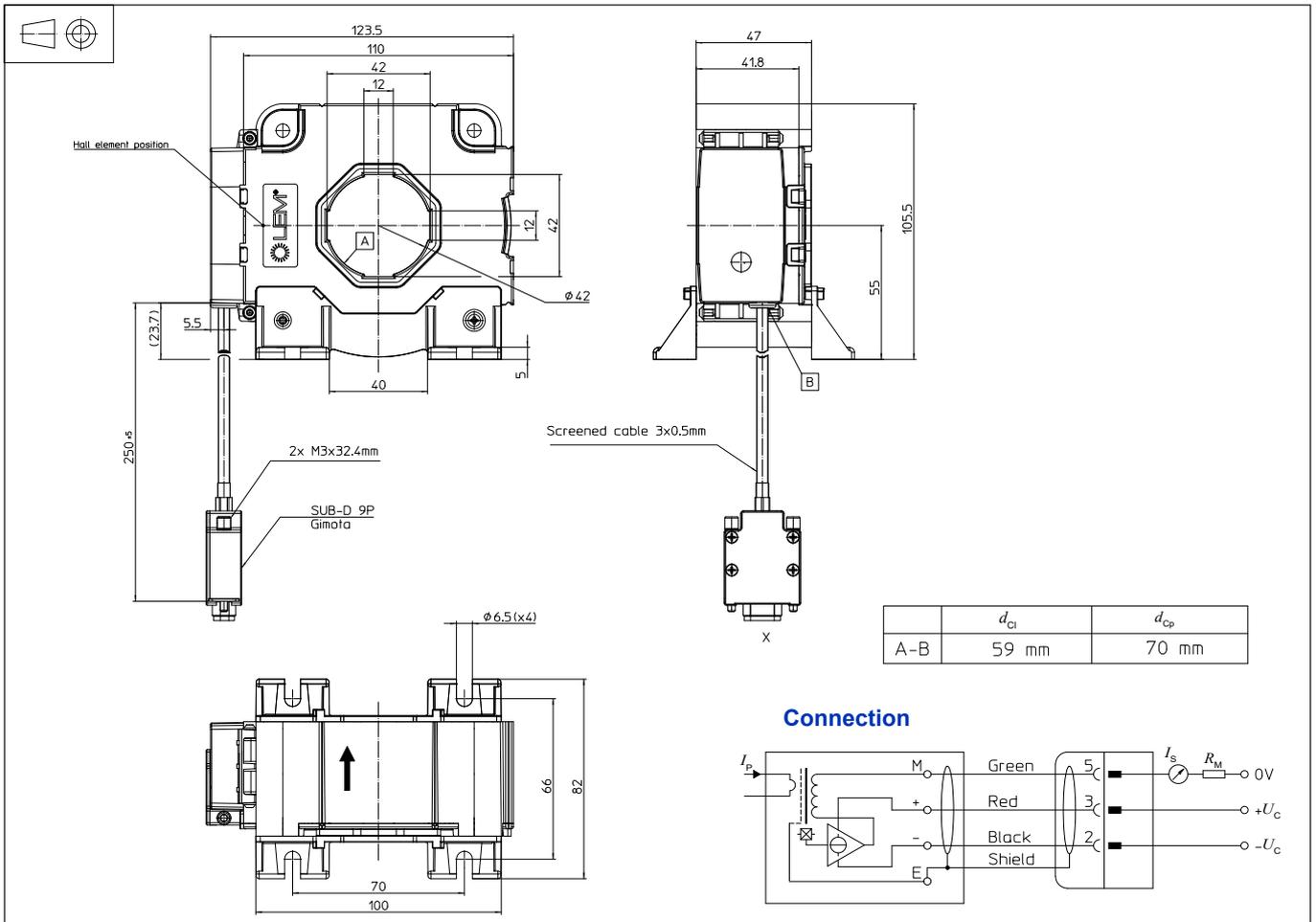
Ignoring this warning can lead to injury and/or cause serious damage.

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.

Dimensions LTC 1000-SF/SP3 (in mm)



Mechanical characteristics

- General tolerance ± 1 mm
- Transducer fastening 4 slots $\phi 6.5$ mm
4 M6 steel screws
Recommended fastening torque 5 N·m
- Primary through-hole $\phi 42$ mm
- Connection of secondary screened cable 3×0.5 mm² and SUB-D 9P (female)

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.
- 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.