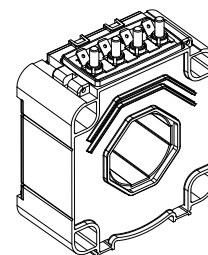# Current Transducer LTC 1000-S/SP1

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

I_{PN} = **1000 A**

CE   c**UL**us   R☑HS

Electrical data

I_{PN}	Primary nominal RMS current		1000	A
I_{PM}	Primary current, measuring range @ ±24 V		0 ... ±2400 [1]	A
$\hat{I}_P$	Maximum withstand primary peak current		10/10	kA/ms
R_M	Measuring resistance		$R_{M\,min}$ $R_{M\,max}$	
	with ±15 V	@ ±1000 A $_{max}$	0 20	Ω
		@ ±1200 A $_{max}$	0 15	Ω
	with ±24 V	@ ±1000 A $_{max}$	5 55	Ω
		@ ±2000 A $_{max}$	5 15	Ω
I_{SN}	Secondary nominal RMS current		250	mA
N_P/N_S	Turns ratio		1 : 4000	
U_C	Supply voltage (±5 %)		±15 ... 24	V
I_C	Current consumption		< 32 (@ ±24 V) + I_S	mA

Accuracy - Dynamic performance data

ε_S	Sensitivity error @ I_{PN}, T_A = 25 °C		< ±0.4	%
	@ I_{PN}, T_A = −40 °C ... +85 °C		< ±0.8	%
ε_L	Linearity error		< 0.1	%
			Max	
I_O	Offset current @ I_P = 0, T_A = 25 °C		±0.5	mA
I_{OT}	Temperature variation of I_O	−40 °C ... +85 °C	±1.0	mA
$t_{D\,90}$	Delay time [2] to 90 % of I_{PN}		< 1	µs
BW	Frequency bandwidth (−1 dB)		DC ... 100	kHz

General data

T_A	Ambient operating temperature		−40 ... +85	°C
T_S	Ambient storage temperature		−45 ... +90	°C
R_S	Resistance of secondary winding	@ T_A = 25 °C	22	Ω
		@ T_A = 85 °C	27	Ω
m	Mass		730	g
	Standards		EN 50155: 2007	
			UL 508: 2010	

Features

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

Special features

- N° DTR 0000042433
- N_P/N_S = 1 : 4000.

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

- Traction.

Notes: [1] For a di/dt ≥ 5 A/µs

      [2] For a di/dt = 100 A/µs.

LEM

Current Transducer LTC 1000-S/SP1

Insulation coordination			
U_d	RMS voltage for AC insulation test, 50 Hz, 1 min	13.4 [1]	kV
		1 [2]	kV
U_e	Partial discharge extinction RMS voltage	≥ 2.8 [3] Min	kV
d_{Cp}	Creepage distance	66.7	mm
d_{Cl}	Clearance	45.9	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 ⌀ 40 mm centred in the through-hole.

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).
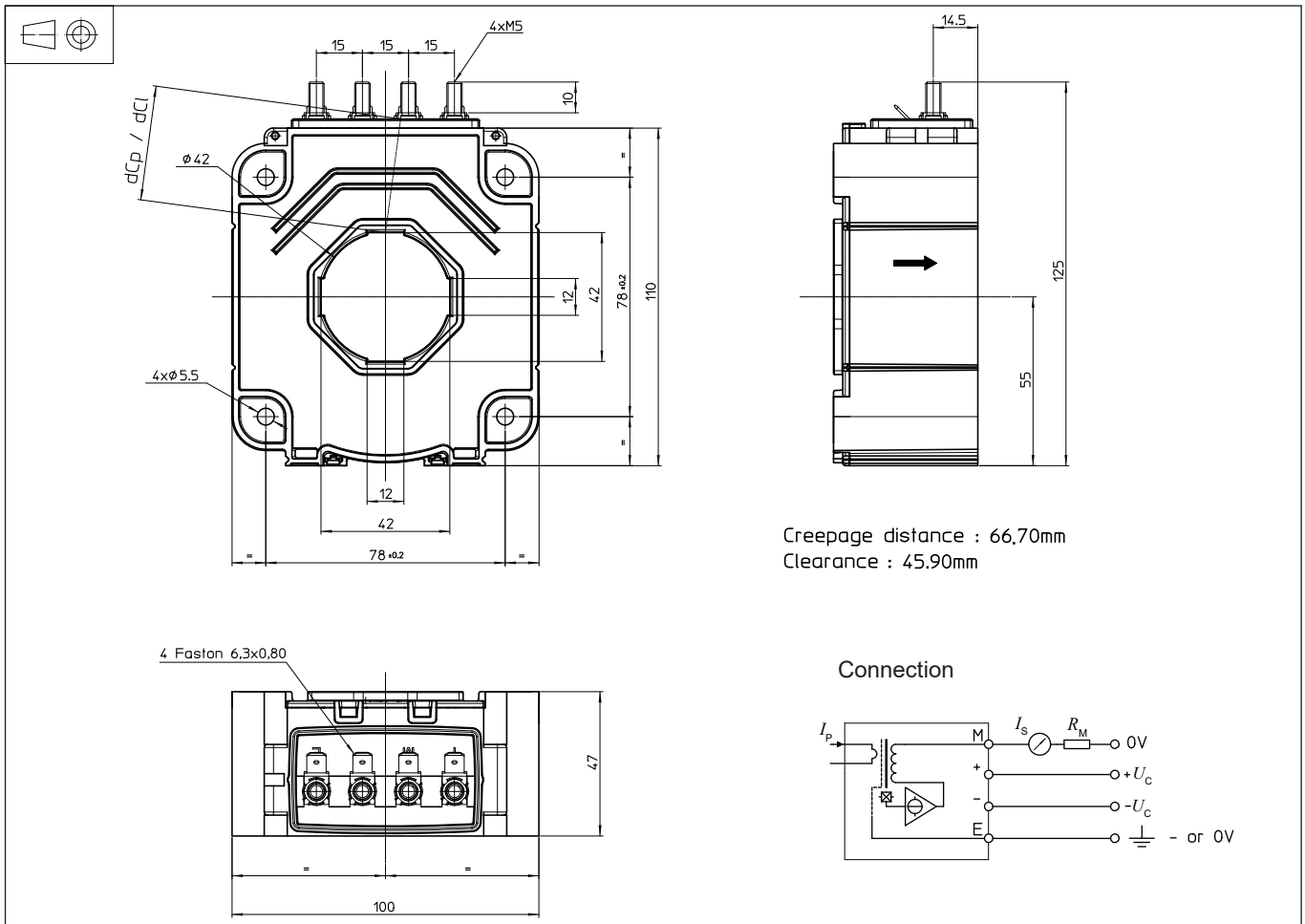Ignoring this warning can lead to injury and/or cause serious damage.
This transducer is a build-in device, whose conducting parts must be inaccessible after installation.
A protective housing or additional shield could be used.
Main supply must be able to be disconnected.

Dimensions LTC 1000-S/SP1 (in mm)

Creepage distance : 66.70mm
Clearance : 45.90mm

Connection

Mechanical characteristics

- General tolerance   ±0.5 mm
- Transducer fastening   4 holes ∅ 5.5 mm
                        4 M5 steel screws
  Recommended fastening torque   4 N·m
- Primary through-hole   ∅ 42 mm
- Connection of secondary   4 M5 threaded studs
  Recommended fastening torque   2.2 N·m
                        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.
- 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.