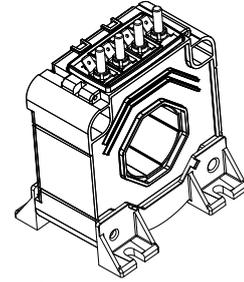# Current Transducer LTC 1000-SF/SP13

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

5 YEAR WARRANTY by LEM CE c**UL**us R☑HS

I_{PN} = **1000 A**

Electrical data

				$R_{M\ min}$	$R_{M\ max}$	
I_{PN}	Primary nominal RMS current		1000			A
I_{PM}	Primary current, measuring range @ ±24 V		0 ... ±3000			A
R_M	Measuring resistance					
	with ±15 V	@ ±1000 A $_{max}$		0	22	Ω
		@ ±1500 A $_{max}$		0	7	Ω
	with ±24 V	@ ±1000 A $_{max}$		2	55	Ω
		@ ±2800 A $_{max}$		2	3.5	Ω
		@ ±3000 A $_{max}$		2	2	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		< 33 (@ ±24 V) + I_S			mA

Accuracy - Dynamic performance data

ε_{tot}	Total error @ I_{PN}, T_A = 25 °C	< ±0.4	%
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 to 90 % of the final output value for I_{PN} step [1] < 1		µs
BW	Frequency bandwidth (−1 dB)	DC ... 100	kHz

General data

T_A	Ambient operating temperature	−40 ... +85	°C
$T_{A\ st}$	Ambient storage temperature	−45 ... +90	°C
R_S	Resistance of secondary winding @ T_A = 85 °C	26	Ω
m	Mass	900	g
	Standards	EN 50155: 2017 [2]	
		EN 50121-3-2: 2016	

Features

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

Special features

- I_{PM} = 0 ... ±3000 A
- 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 chopper
- Propulsion converter
- Auxiliary converter
- Battery charger.

Application Domain

- Railway (fixed installations and onboard).

Notes: [1] For a di/dt = 100 A/µs

[2] Additional information available on request.

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Insulation coordination			
U_d	RMS voltage for AC insulation test, 50/60 Hz, 1 min	13.4	kV
		1.5 [1]	kV
U_t	Partial discharge RMS test voltage (q_m < 10 pC)	> 2.8 [2] Min	kV
d_{Cp}	Creepage distance	75.3	mm
d_{Cl}	Clearance	45.8	mm
CTI	Comparative tracking index (group I)	600	

Notes: [1] Between secondary and shield
[2] With a primary bar ∅ 40 mm.

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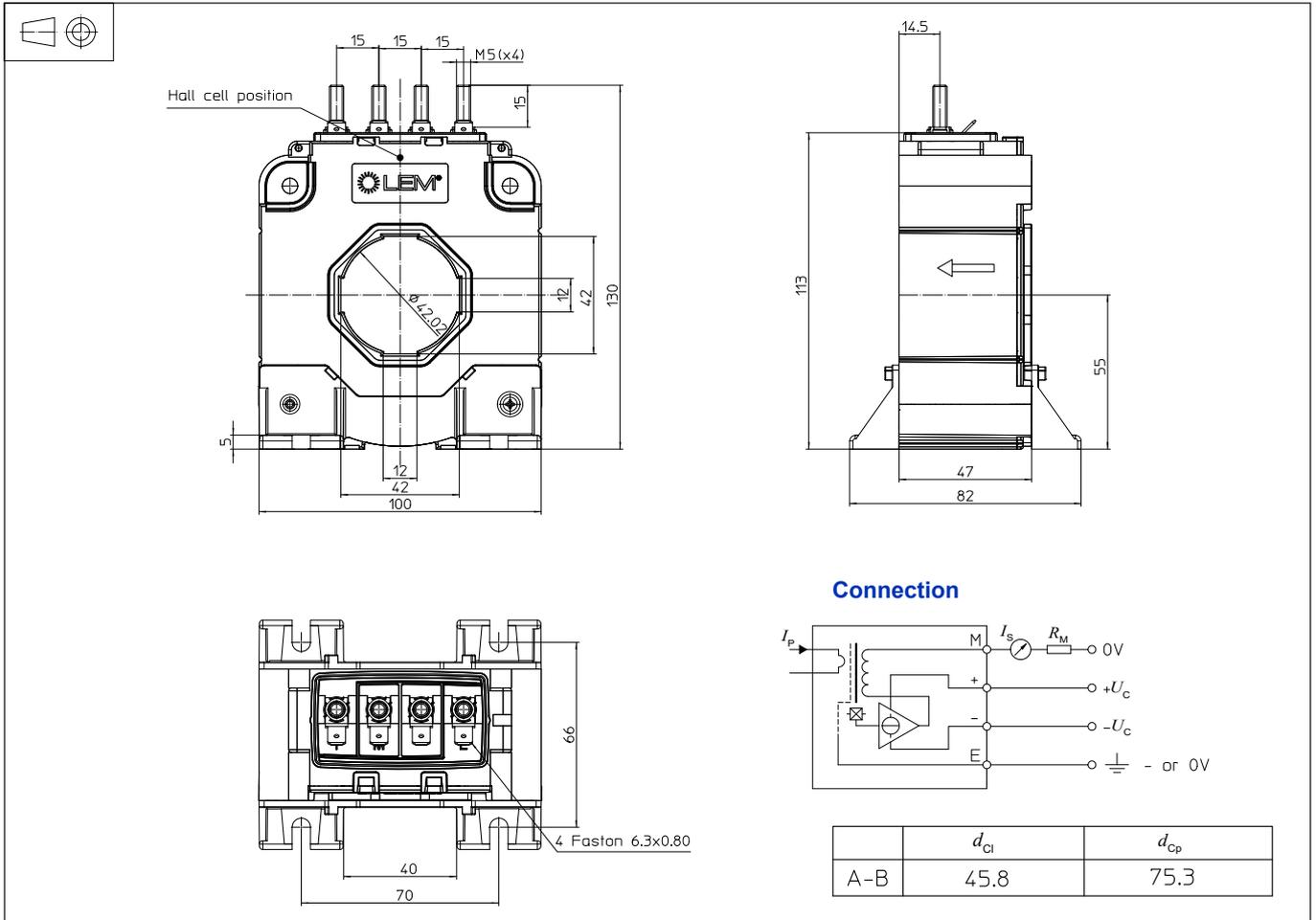Ignoring this warning can lead to injury and/or cause serious damage.
This transducer is a build-in device, whose conducting parts must be inaccessible after installation.
A protective housing or additional shield could be used.
Main supply must be able to be disconnected.

Dimensions LTC 1000-SF/SP13 (in mm)

Hall cell position

15 15 15 M5(x4)
15
Ø42±0.2
12
42
130
5
12
42
100

14.5
113
55
47
82

Connection

I_P — M — I_S — R_M — 0V
+ — $+U_C$
– — $-U_C$
E — — or 0V

66
4 Faston 6.3x0.80
40
70

	d_{Cl}	d_{Cp}
A–B	45.8	75.3

Mechanical characteristics

- General tolerance   ±1 mm
- Transducer fastening   4 slots Ø 6.5 mm
                                             4 steel screws M6
  Recommended fastening torque   4.7 Nm
- Primary through-hole   Ø 42 mm
- Connection of secondary   M5 threaded studs
                                             Faston 6.3 × 0.8 mm
  Recommended fastening torque   2.2 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 delay time) are best with a single bar completely filling the primary hole.