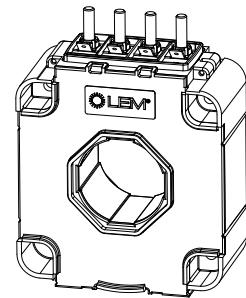# Current Transducer LTC 600-S

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

I_{PN} **= 500 A**

5 YEAR WARRANTY by LEM $\quad$ CE $\quad$ c UL us $\quad$ RoHS

Electrical data

			$R_{M\,min}$	$R_{M\,max}$	
I_{PN}	Primary nominal RMS current		500		A
I_{PM}	Primary current, measuring range @ ±24 V		0 ... ±1500		A
$\hat{I}_{P\,max}$	Primary withstand peak current (maximum)		10/10		kA/ms
R_M	Measuring resistance				
	with ±15 V	@ ±500 A $_{max}$	0	70	Ω
		@ ±1200 A $_{max}$	0	5	Ω
	with ±24 V	@ ±500 A $_{max}$	0	150	Ω
		@ ±1500 A $_{max}$	0	20	Ω
I_{SN}	Secondary nominal RMS current		100		mA
N_P/N_S	Turns ratio		1 : 5000		
U_C	Supply voltage (±5 %)		±15 ... 24		V
I_C	Current consumption		< 32 (@ ±24 V) + I_S		mA

Accuracy - Dynamic performance data

ε_{tot}	Total error @ I_{PN}, T_A = 25 °C		< ±0.7		%
	@ I_{PN}, T_A = −40 °C ... +85 °C		< ±1.6		%
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		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		44	Ω
m	Mass		750	g
	Standards		EN 50155: 2017 [2]	
			UL 508: 2010	

Notes: [1] For a di/dt = 100 A/µs

[2] Additional information available on request.

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).

Current Transducer LTC 600-S

Insulation coordination			
U_d	RMS voltage for AC insulation test, 50 Hz, 1 min	13.4 [1]	kV
		1.5 [2]	kV
U_e	Partial discharge extinction RMS voltage @ 10 pC	> 2.8 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.

Safety

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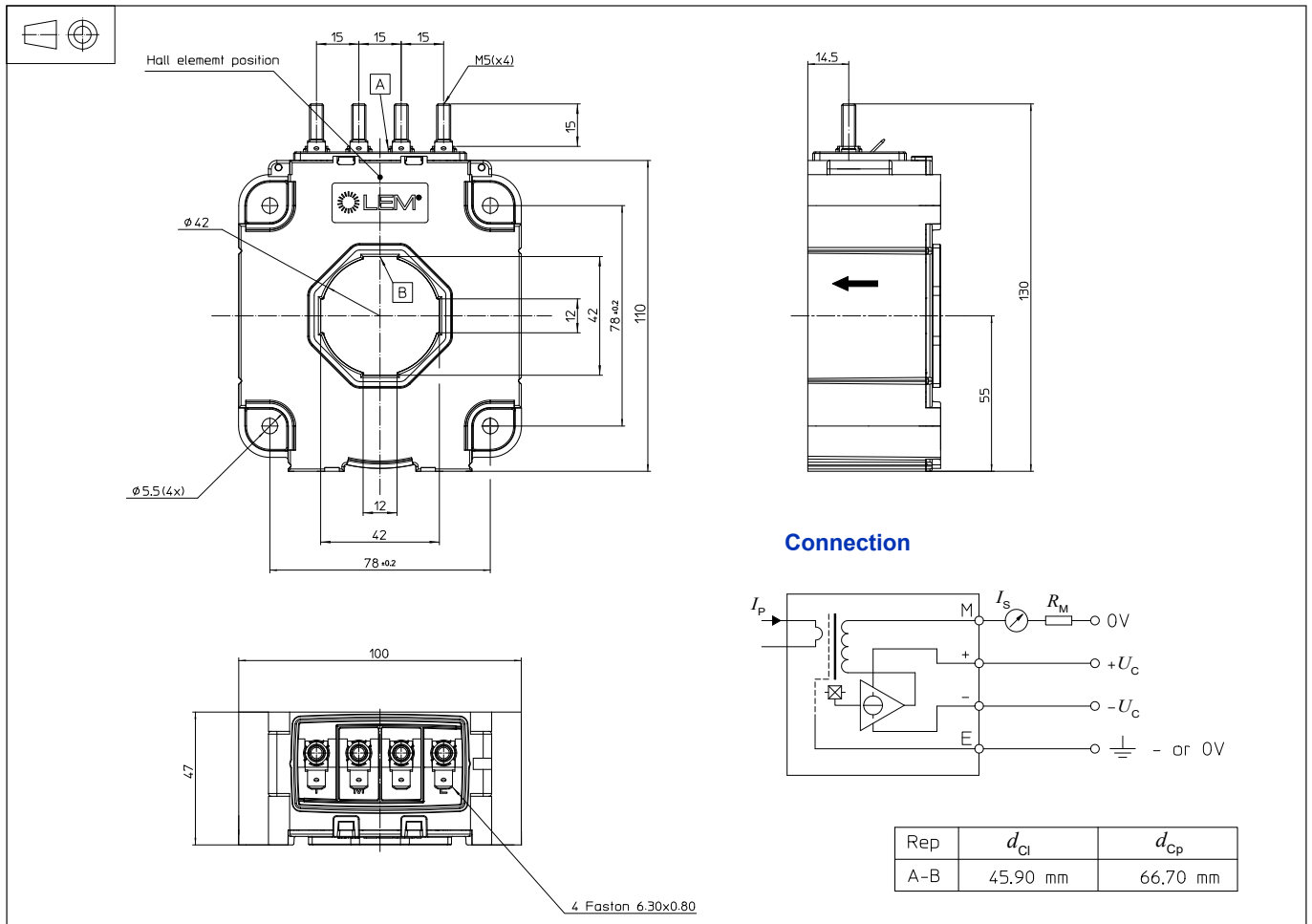

This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.

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.
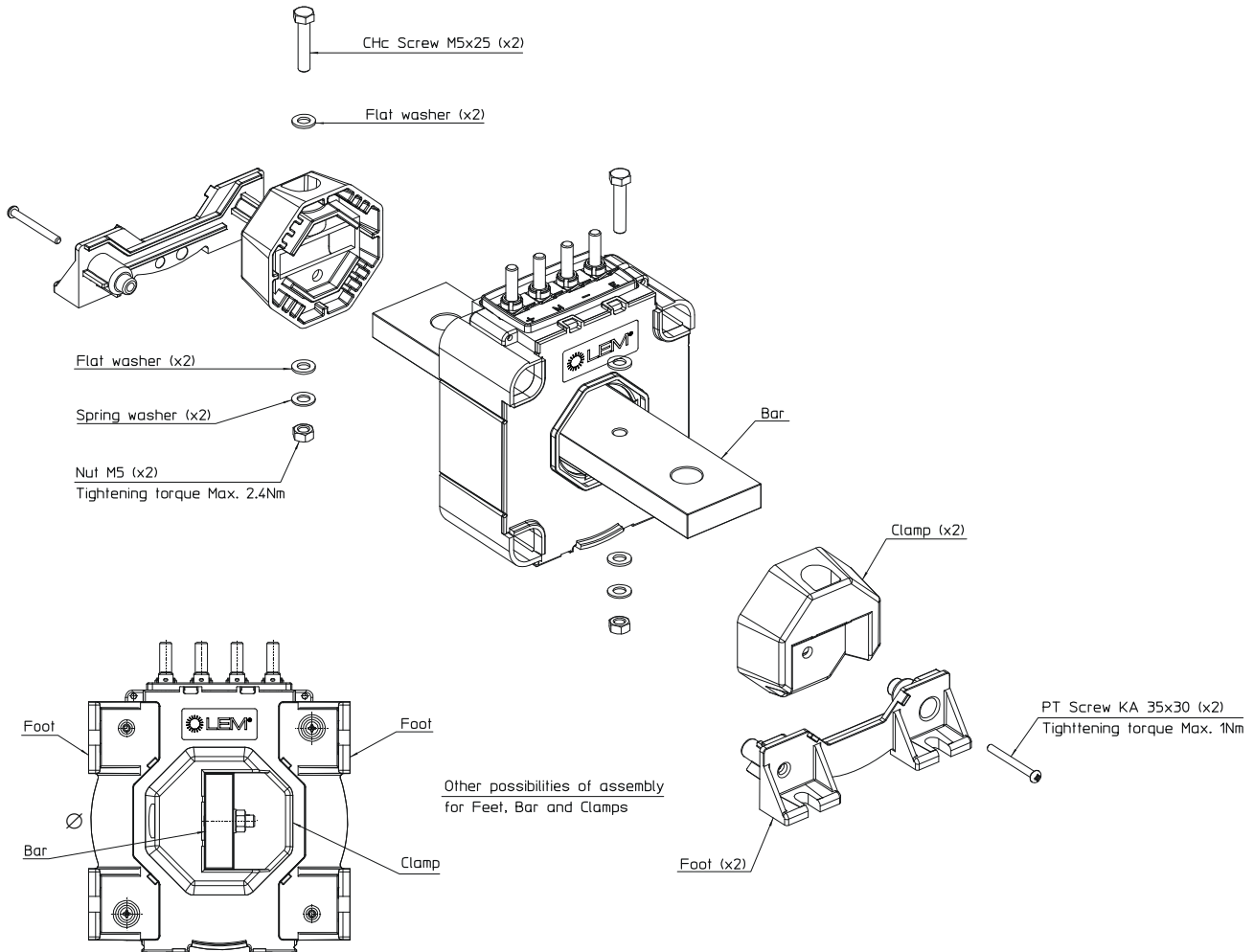
Dimensions LTC 600-S (in mm)

Hall element position

15 15 15

M5(x4)

A

⌀ 42

B

78 ±0.2

110

42

12

⌀ 5.5(4x)

12

42

78 ±0.2

14.5

15

130

55

100

47

4 Faston 6.30x0.80

Connection

I_P M I_S R_M 0V

+ $+U_C$

− $-U_C$

E ⊥ − or 0V

Rep	d_{Cl}	d_{Cp}
A–B	45.90 mm	66.70 mm

Mechanical characteristics

- General tolerance   ±1 mm
- Transducer fastening   4 holes ⌀ 5.5 mm
      4 M5 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.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.

LTC 600-S / Mechanical adaptation accessories

CHc Screw M5x25 (x2)

Flat washer (x2)

Flat washer (x2)

Spring washer (x2)

Nut M5 (x2)
Tightening torque Max. 2.4Nm

Bar

Clamp (x2)

PT Screw KA 35x30 (x2)
Tighttening torque Max. 1Nm

Foot

Foot

Ø

Bar

Clamp

Other possibilities of assembly
for Feet, Bar and Clamps

Foot (x2)

Lines	Accessories	References
1	Busbar KIT * (busbar : 210 × 40 × 12 mm)	93.34.61.100.0
2	Busbar KIT * (busbar : 185 × 40 × 8 mm)	93.34.61.102.0
3	Busbar KIT * (busbar : 285 × 36 × 12 mm)	93.34.61.103.0
4	Busbar KIT * (busbar : 260 × 36 × 12 mm)	93.34.61.104.0
5	Busbar KIT * (busbar : 195 × 36 × 10 mm)	93.34.61.105.0
6	Busbar KIT * (busbar : 36 mm ∅ × 325 mm)	93.34.61.106.0
7	Busbar KIT * (busbar : 185 × 40 × 10 mm)	93.34.61.107.0
8	Busbar KIT * (busbar : 180 × 40 × 12 mm)	93.34.61.108.0
9	Busbar Fastening Kit (M5 × 25)** dedicated to busbars from lines 1 to 5 and lines 7, 8.	93.34.61.200.0
10	Busbar Fastening Kit (M5 × 40)** dedicated to busbar from line 6	93.34.61.201.0
11	Feet fixing Kit ***	93.34.63.100.0

*   including all the necessary for its mounting such as screws, washers, nuts, 2 clamps, busbar.

**   as with * but without the busbar.

*** including screws and 2 feet.

⚠ RMS voltage value for partial discharge extinction depends on the busbar.
Refer to the datasheet of the corresponding product.