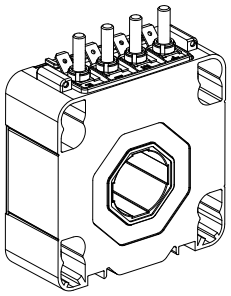
Current Transducer LTC 500-S

I_{PN} = 500 A

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			500	A
I_{PM}	Primary current, measuring range @ ±24 V			0 ... ±1200	A
R_M	Measuring resistance			$R_{M\,min}$ $R_{M\,max}$	
	with ±15 V	@ ±500 A_{max}		0 50	Ω
		@ ±900 A_{max}		0 7	Ω
	with ±24 V	@ ±500 A_{max}		0 110	Ω
		@ ±1200 A_{max}		0 20	Ω
I_{SN}	Secondary nominal RMS current			125	mA
N_P/N_S	Turns ratio			1 : 4000	
U_C	Supply voltage (±5 %)			±15 ... 24	V
I_C	Current consumption			< 35 (@ ±24 V) + I_S	mA

Accuracy - Dynamic performance data

ε_{tot}	Total error @ I_{PN}, T_A = 25 °C			< ±0.6	%
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		±0.8	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			47	Ω
m	Mass			400	g
	Standards			EN 50155: 2017 [2]	
				EN 50121-3-2: 2006	

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 inverter
- 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 Hz, 1 min	12 [1)] 1.5 [2)]	kV kV
U_e	Partial discharge extinction RMS voltage @ 10 pC [3)]	> 2.8 Min	kV
d_{Cp}	Creepage distance	50	mm
d_{Cl}	Clearance	44	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 ⌀ 25 mm centred in the through-hole.

Safety

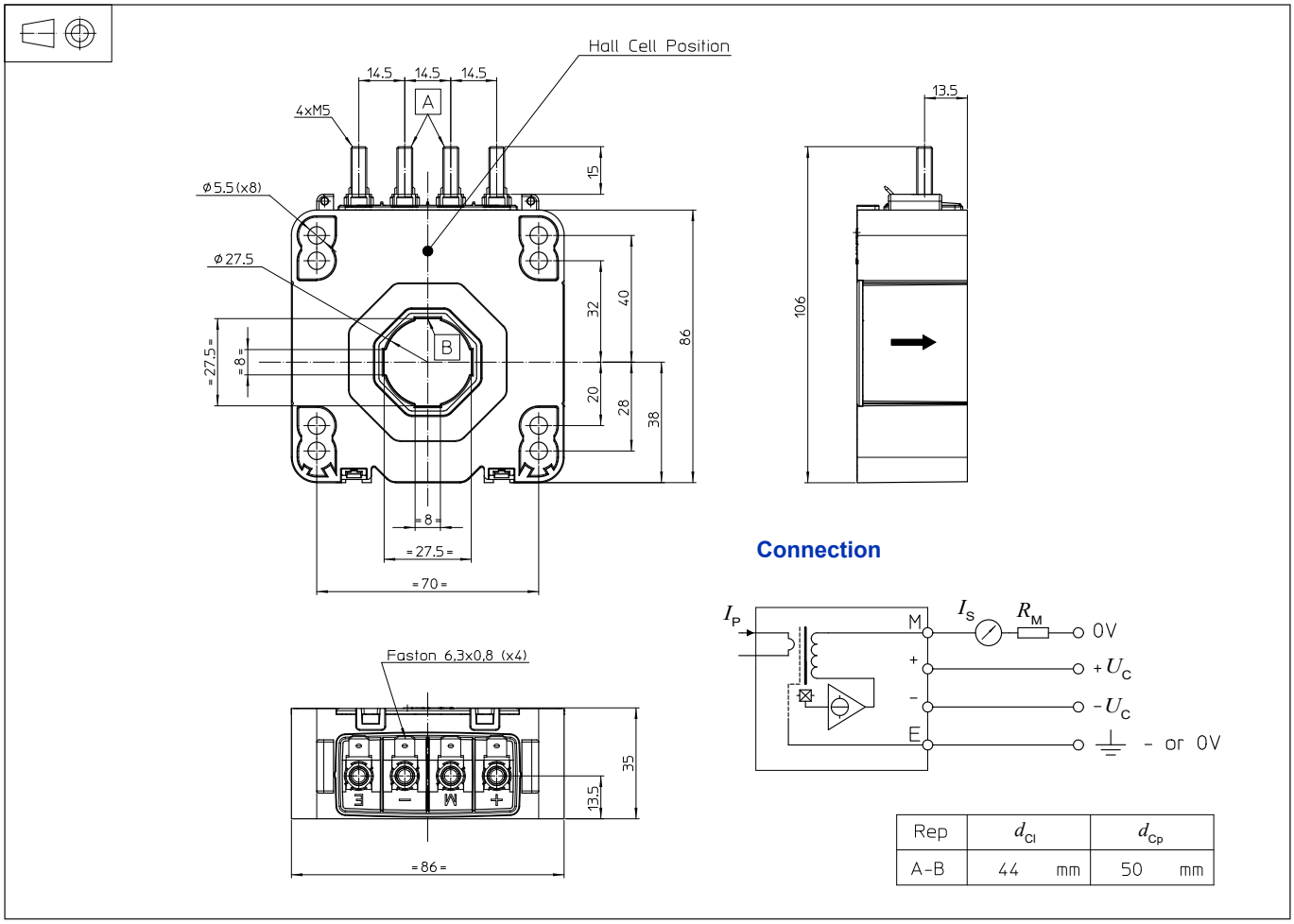
This transducer must be used in limited-energy secondary circuits according to IEC 61010-1.

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 500-S (in mm)



Connection

Rep	d_{Cl}		d_{Cp}	
A-B	44	mm	50	mm

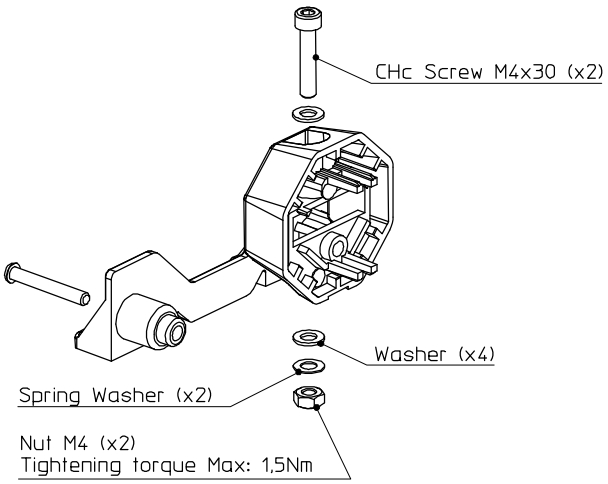
Mechanical characteristics

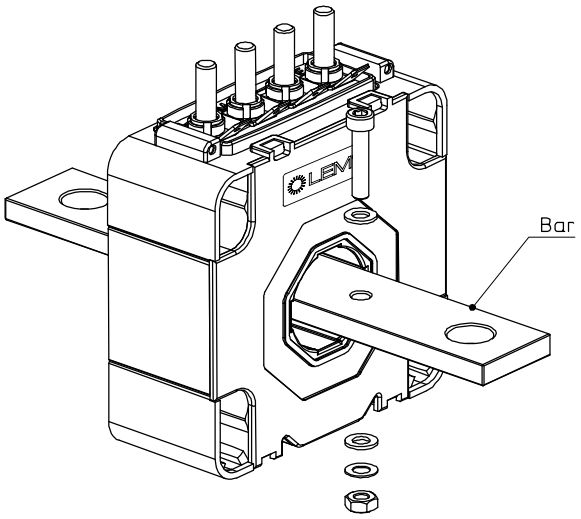
• General tolerance	±1 mm
• Transducer fastening	8 holes ⌀ 5.5 mm
	4 M5 steel screws
Recommended fastening torque	3.4 Nm
• Primary through-hole	⌀ 27.5 mm
• Connection of secondary	4 M5 threaded studs
Recommended fastening torque	2.2 Nm
	Faston 6.3 × 0.8 mm

Remarks

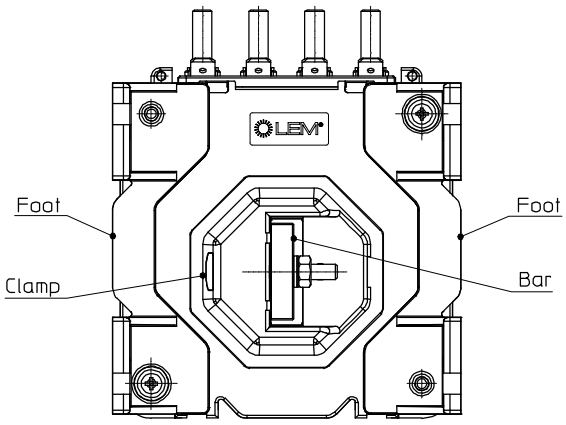
- I_S is positive when I_P flows in the direction of the arrow.
- Temperature of the primary conductor should not exceed 100 °C.
- Installation of the transducer must be done unless otherwise specified on the datasheet, according to LEM Transducer Generic Mounting Rules. Please refer to LEM document 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.

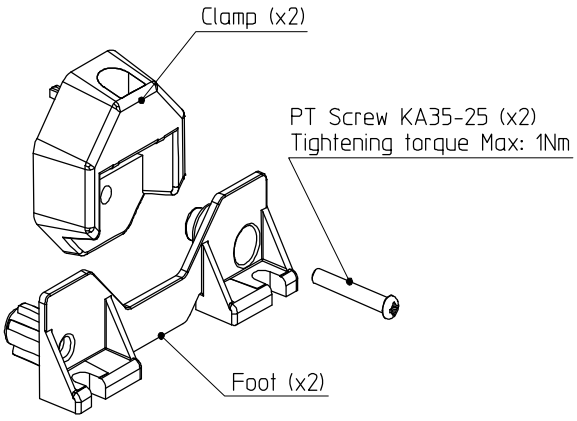
LTC 500-S / Mechanical adaptation accessories





Other possibilities of assembly
of Feet, Bar and Clamps





Accessories	References
Busbar Kit * (busbar : 155 × 25 × 6 mm)	93.34.41.100.0
Busbar Kit * (busbar : 112 × 25 × 6 mm)	93.34.41.101.0
Busbar Fastening Kit **	93.34.41.200.0
Feet fixing Kit ***	93.34.43.100.0

* 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.