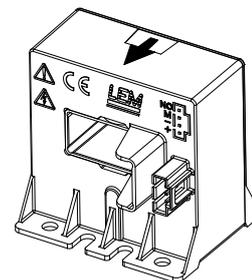# Current Transducer LAC 300-S/SP3

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🆄us RoHS

I_{PN} = 400 A

Electrical data

I_{PN}	Primary nominal RMS current		400	A
I_P	Primary current < 500 ms		500	A
I_{PM}	Primary current, measuring range @ 85 °C		0 ... ±600	A
R_M	Measuring resistance @ T_A = 85 °C	$R_{M\,min}$ $R_{M\,max}$		
	with ±15 V @ ±600 A $_{max}$	0 15		Ω
I_{SN}	Secondary nominal RMS current		80	mA
N_P/N_S	Turns ratio		1 : 5000	
U_C	Supply voltage (±5 %)		±15	V
I_C	Current consumption		25 + I_S	mA

Accuracy - Dynamic performance data

		Typ	Max	
ε_{tot}	Total error @ I_{PN}, T_A = 25 °C		±1.1	%
ε_L	Linearity error		< 0.1	%
I_O	Offset current @ I_P = 0, T_A = 25 °C		±0.15	mA
I_{OM}	Magnetic offset current @ I_P = 0 and specified R_M, after an overload of 3 × I_{PN}		±0.15	mA
I_{OT}	Temperature variation of I_O −40 °C ... +85 °C	±0.2	±0.50	mA
$t_{D\,90}$	Delay time to 90 % of the final output value for I_{PN} step [1] < 1			µs
BW	Frequency bandwidth (−3 dB)	DC ... 50		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	101	Ω
m	Mass	137	g
	Standards [2]	EN 50155: 2017 UL 508: 2010 EN 50121-3-2: 2016	

Notes: [1] For a di/dt = 50 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.

Special features

- I_{PM} = 0 ... ±600 A
- N_P/N_S = 1 : 5000.

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 phases inverters
- Propulsion and braking choppers
- Propulsion converters
- Auxiliary converters
- Battery chargers.

Application Domain

- Railway (fixed installations and onboard).

Current Transducer LAC 300-S/SP3

	Insulation coordination			
U_d	RMS voltage for AC insulation test, 50 Hz, 1 min	5.5 Min	kV
d_{Cp}	Creepage distance	21.2	mm
d_{Cl}	Clearance	11.2	mm
CTI	Comparative tracking index (group I)	600	

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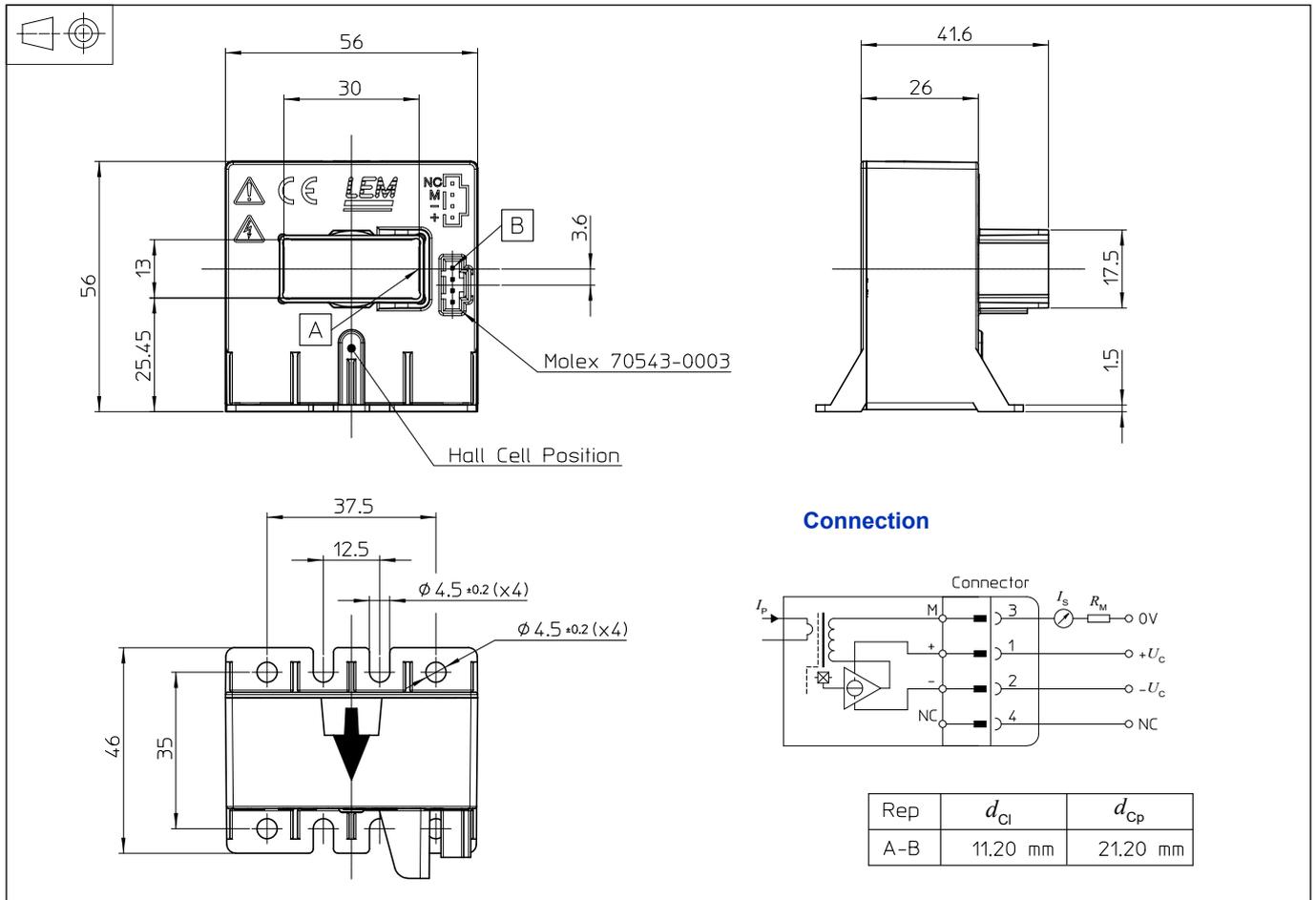Ignoring this warning can lead to injury and/or cause serious damage.
This transducer is a build-in device, whose conducting parts must be inaccessible after installation.
A protective housing or additional shield could be used.
Main supply must be able to be disconnected.

Dimensions LAC 300-S/SP3 (in mm)

Mechanical characteristics

- General tolerance — ±0.5 mm
- Transducer fastening — 4 holes ⌀ 4.5 mm

  4 M4 steel screws

  Recommended fastening torque — 2.9 N·m

  or — 4 slots ⌀ 4.5 mm

  4 M4 steel screws

  Recommended fastening torque — 2.9 N·m
- Primary through-hole — 13 × 30 mm
- Connection of secondary — Molex serie 70543-0003

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 ($\mathrm{d}i/\mathrm{d}t$ and delay time) are best with a single bar completely filling the primary hole.