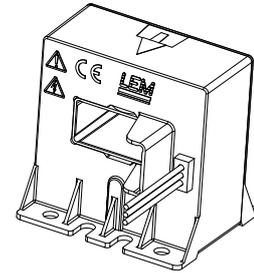


# Current Transducer LAC 300-S/SP7

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

$$I_{PN} = 400 \text{ A}$$



## Electrical data

$I_{PN}$	Primary nominal RMS current	400	A
$I_{PM}$	Primary current, measuring range @ 70 °C	0 ... ±1000	A
$R_M$	Measuring resistance @ $T_A = 75 \text{ °C}$ with ±15 V @ ±1000 A <sub>max</sub>	$R_{M \text{ min}}$ 0 $R_{M \text{ max}}$ 5	Ω
$I_{SN}$	Secondary nominal RMS current	133	mA
$N_P/N_S$	Turns ratio	1 : 3000	
$U_C$	Supply voltage (±5 %)	±15	V
$I_C$	Current consumption	16 + $I_S$	mA

## Accuracy - Dynamic performance data

$\epsilon_{\text{tot}}$	Total error @ $I_P, T_A = 25 \text{ °C}$	±1.2	%
$\epsilon_L$	Linearity error	< 0.1	%
$I_O$	Offset current @ $I_P = 0, T_A = 25 \text{ °C}$	Typ ±0.15	mA
$I_{OM}$	Magnetic offset current @ $I_P = 0$ and specified $R_M$ , after an overload of $3 \times I_{PN}$	±0.15	mA
$I_{OT}$	Temperature variation of $I_O$ -40 °C ... +85 °C	±0.2 ±0.50	mA
$t_{D90}$	Delay time to 90 % of the final output value for $I_{PN}$ step <sup>1)</sup> < 1		µs
$BW$	Frequency bandwidth (-3 dB)	DC ... 50	kHz

## General data

$T_A$	Ambient operating temperature	-40 ... +75	°C
$T_{Ast}$	Ambient storage temperature	-45 ... +85	°C
$R_S$	Resistance of secondary winding @ $T_A = 85 \text{ °C}$	37	Ω
$m$	Mass	140	g
	Standards <sup>2)</sup>	EN 50155: 2017 UL 508: 2010 EN 50121-3-2: 2016	

Notes: <sup>1)</sup> For a  $di/dt = 50 \text{ A/}\mu\text{s}$   
<sup>2)</sup> 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

- $R_S = 37 \text{ }\Omega$
- $N_P/N_S = 1 : 3000$
- Customer label 41A296328AKP12.

## 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/SP7

### Insulation coordination

$U_d$	RMS voltage for AC insulation test, 50 Hz, 1 min	5.5 Min	kV
$d_{cp}$	Creepage distance	23.7	mm
$d_{cl}$	Clearance	14	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).

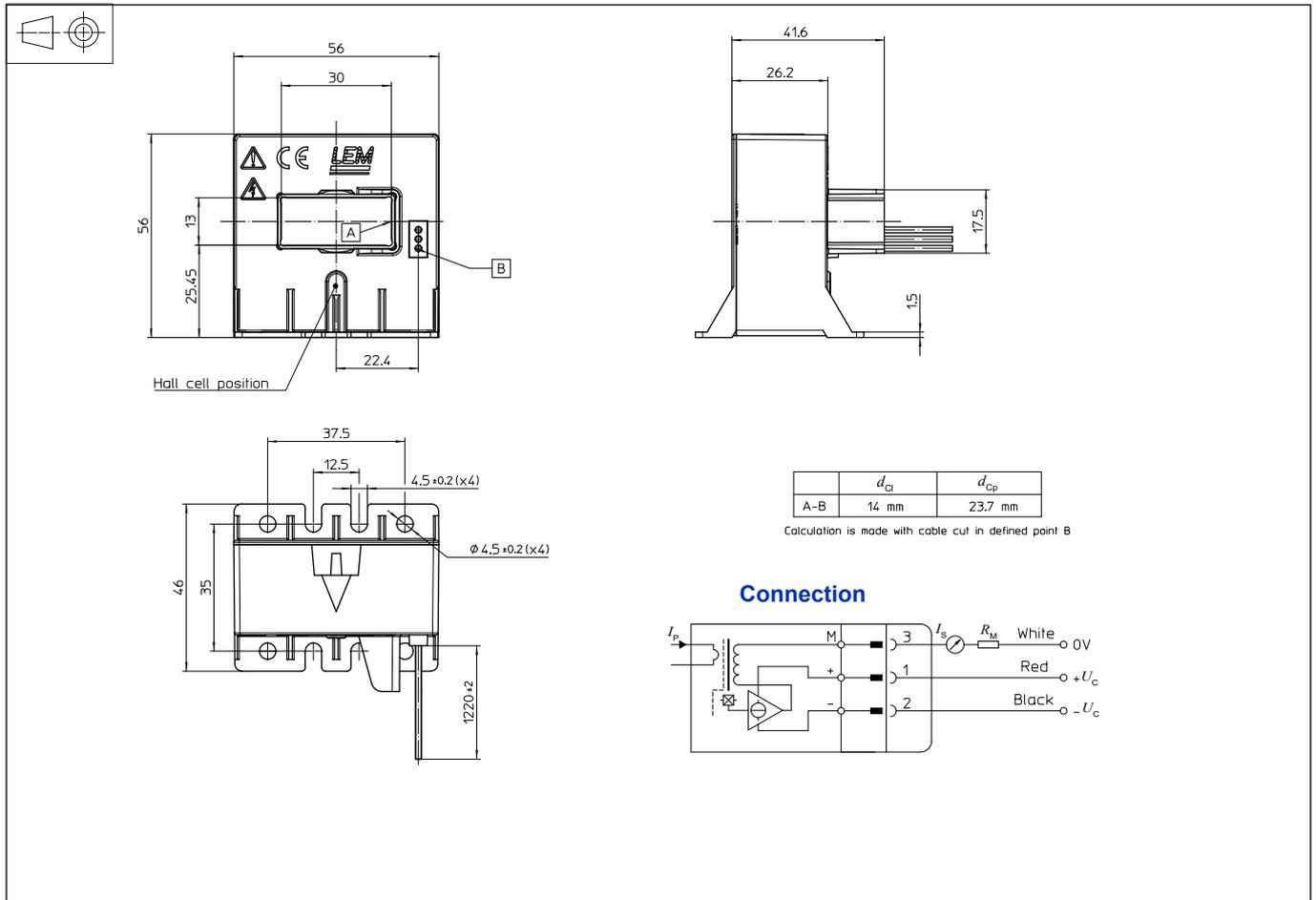
Ignoring this warning can lead to injury and/or cause serious damage.

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/SP7 (in mm)



## Mechanical characteristics

- General tolerance  $\pm 0.5$  mm
- Transducer fastening
  - 4 holes  $\phi 4.5$  mm
  - 4 M4 steel screws
- Recommended fastening torque
  - 2.9 N·m
  - or
  - 4 slots  $\phi 4.5$  mm
  - 4 M4 steel screws
- Recommended fastening torque 2.9 N·m
- Primary through-hole 13 × 30 mm
- Connection of secondary cable 20AWG.

## Remarks

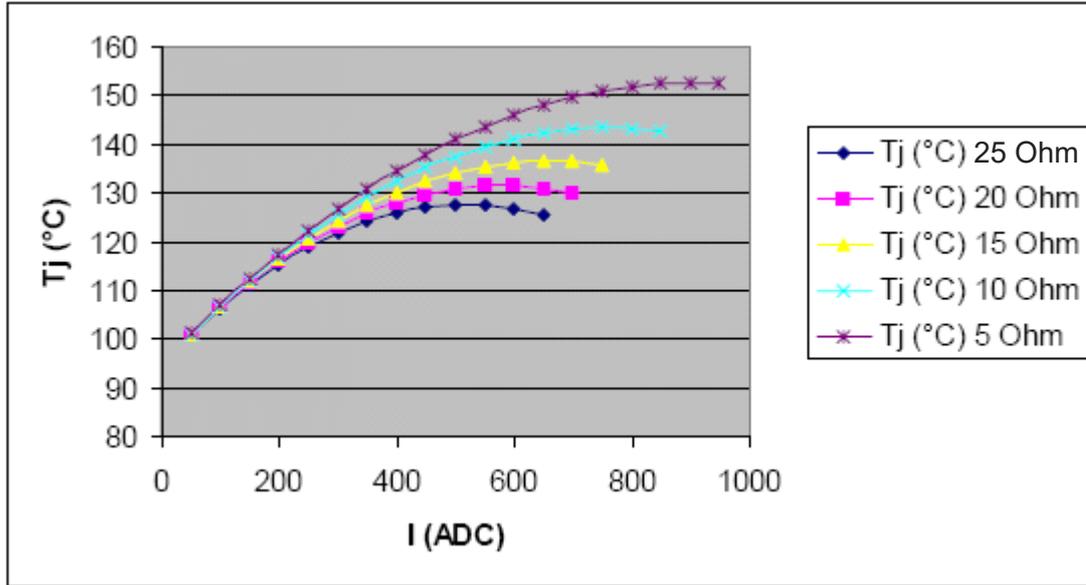
- $I_s$  is positive when  $I_p$  flows in the direction of the arrow.
- Temperature of the primary conductor should not exceed 100 °C.
- Installation of the transducer must be done unless otherwise specified on the datasheet, according to LEM Transducer Generic Mounting Rules. Please refer to LEM document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

### Current Derating LAC 300-S/SP7

**Conditions:**

Supply =  $\pm 15\text{ V} \pm 5\%$

Ambient temperature =  $85\text{ }^\circ\text{C}$

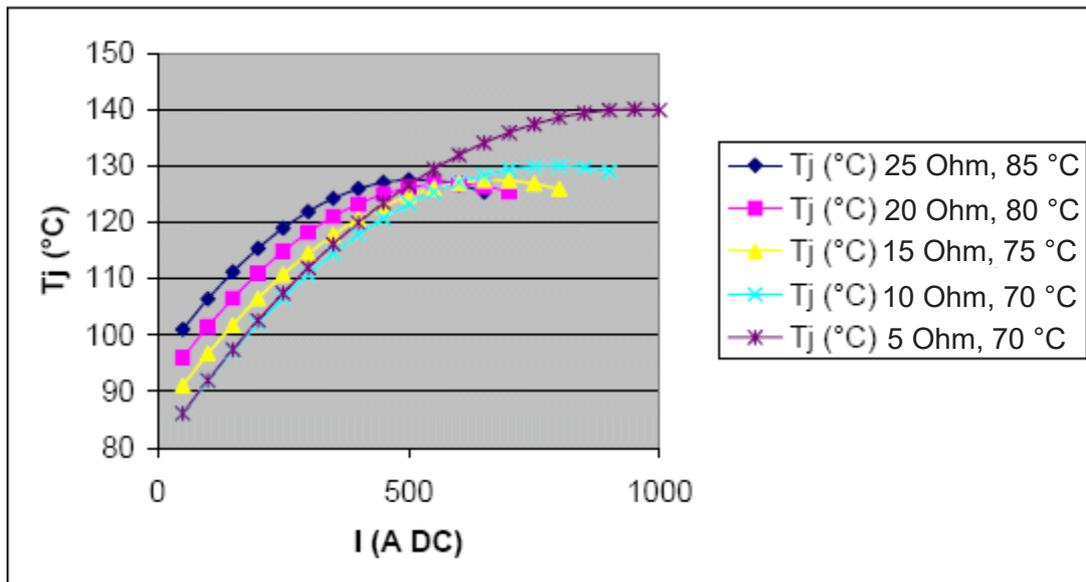


	$T_j$ ( $^\circ\text{C}$ ) 25 Ohm	$T_j$ ( $^\circ\text{C}$ ) 20 Ohm	$T_j$ ( $^\circ\text{C}$ ) 15 Ohm	$T_j$ ( $^\circ\text{C}$ ) 10 Ohm	$T_j$ ( $^\circ\text{C}$ ) 5 Ohm
$I_{\text{peak}}$ (A)	660	715	780	865	970

**Conditions:**

Supply =  $\pm 15\text{ V} \pm 5\%$

Ambient temperature is adjusted in order to have around  $125\text{ }^\circ\text{C}$  @ 500 A.



	$T_j$ ( $^\circ\text{C}$ ) 25 Ohm, 85 $^\circ\text{C}$	$T_j$ ( $^\circ\text{C}$ ) 20 Ohm, 80 $^\circ\text{C}$	$T_j$ ( $^\circ\text{C}$ ) 15 Ohm, 75 $^\circ\text{C}$	$T_j$ ( $^\circ\text{C}$ ) 10 Ohm, 70 $^\circ\text{C}$	$T_j$ ( $^\circ\text{C}$ ) 5 Ohm, 70 $^\circ\text{C}$
$I_{\text{peak}}$ (A)	660	726	800	900	1000