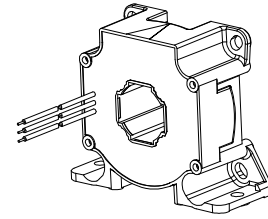


# Current Transducer LF 305-S/SP7

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

$$I_{PN} = 250 \text{ A}$$



## Electrical data

$I_{PN}$	Primary nominal RMS current	250	A	
$I_{PM}$	Primary current, measuring range	0 ... $\pm 350$	A	
$R_M$	Measuring resistance with $\pm 15 \text{ V}$	$R_{M \min}$	$R_{M \max}$	
		@ $\pm 250 \text{ A}_{\max}$	19 67	$\Omega$
		@ $\pm 350 \text{ A}_{\max}$	19 39	$\Omega$
$I_{SN}$	Secondary nominal RMS current	125	mA	
$N_P/N_S$	Turns ratio	1 : 2000		
$U_C$	Supply voltage ( $\pm 5 \%$ )	$\pm 15$	V	
$I_C$	Current consumption	$16 + I_S$	mA	

## Accuracy - Dynamic performance data

$\epsilon_{\text{tot}}$	Total error @ $I_{PN}, T_A = 25 \text{ }^\circ\text{C}$	$\pm 0.5$	%	
$\epsilon_L$	Linearity error	< 0.1	%	
$I_{OE}$	Electrical offset current @ $I_P = 0, T_A = 25 \text{ }^\circ\text{C}$	Typ	Max	
			$\pm 0.2$	mA
$I_{OM}$	Magnetic offset current <sup>1)</sup> @ $I_P = 0$ and specified $R_M$ , after an overload of $3 \times I_{PN}$		$\pm 0.2$	mA
$I_{OT}$	Temperature variation of $I_O$	$-40 \text{ }^\circ\text{C} \dots +85 \text{ }^\circ\text{C}$	$\pm 0.2$ $\pm 0.5$	mA
$t_{D10}$	Delay time to 10 % of the final output value for $I_{PN}$ step < 500		ns	
$t_{D90}$	Delay time to 90 % of the final output value for $I_{PN}$ step <sup>2)</sup> < 1		$\mu\text{s}$	
$BW$	Frequency bandwidth ( $-3 \text{ dB}$ )	DC ... 100	kHz	

## General data

$T_A$	Ambient operating temperature	$-40 \dots +85$	$^\circ\text{C}$
$T_{A \text{st}}$	Ambient storage temperature	$-45 \dots +90$	$^\circ\text{C}$
$R_S$	Resistance of secondary winding @ $T_A = 85 \text{ }^\circ\text{C}$	32	$\Omega$
$m$	Mass	100	g
	Standards	EN 50155: 2017 <sup>3)</sup> EN 50121-3-2: 2016	

**Notes:** <sup>1)</sup> The result of the coercive force ( $H_c$ ) of the magnetic circuit  
<sup>2)</sup> For a  $di/dt = 100 \text{ A}/\mu\text{s}$   
<sup>3)</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

- $U_C = \pm 15 (\pm 5 \%) \text{ V}$
- $U_d = 3.6 \text{ kV}$
- Connection to secondary circuit via cable
- Not protected against an overload from the power supply.

## Advantages

- Excellent accuracy
- Very good linearity
- Low temperature drift
- Optimized delay time
- Wide frequency bandwidth
- No insertion losses
- High immunity to external interference
- Current overload capability.

## Applications

- Single or three phases inverters
- Propulsion and braking chopper
- Propulsion converter
- Auxiliary converter
- Battery charger.

## Application domain

- Railway (fixed installations and onboard).

## Current Transducer LF 305-S/SP7

### Insulation coordination

$U_d$	RMS voltage for AC insulation test, 50 Hz, 1 min	3.6	kV
$U_{Ni}$	Impulse withstand voltage 1.2/50 $\mu$ s	9	kV
		Min	
$d_{Cp}$	Creepage distance	10.1	mm
$d_{Cl}$	Clearance	10.1	mm
$CTI$	Comparative tracking index (group IIIa)	175	

## 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).

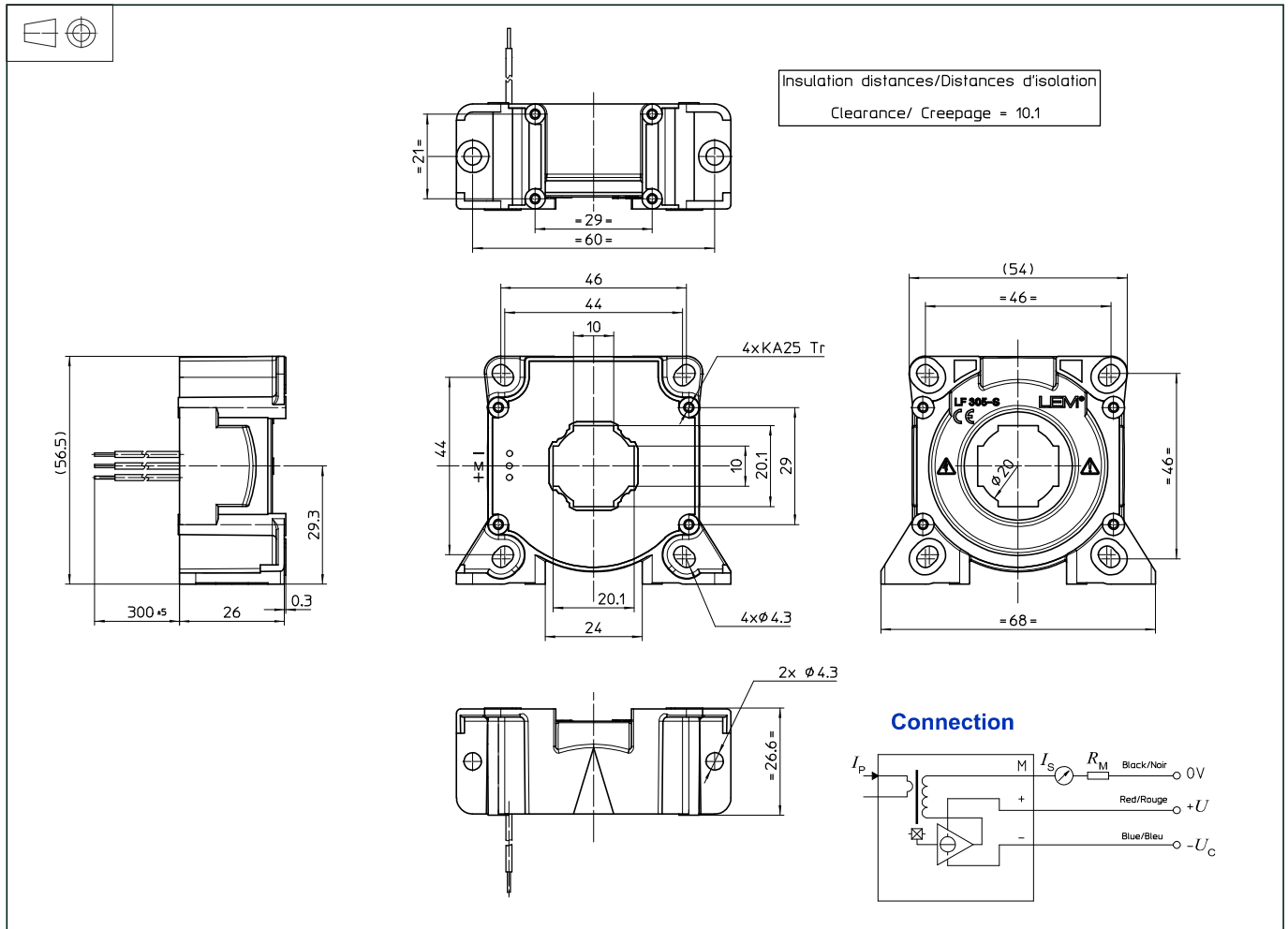
Ignoring this warning can lead to injury and/or cause serious damage.

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 LF 305-S/SP7 (in mm)



### Mechanical characteristics

- General tolerance  $\pm 0.5$  mm
- Transducer fastening
  - Vertical position: 2 holes  $\varnothing 4.3$  mm, 2 M4 steel screws
  - Recommended fastening torque: 2.9 N·m
  - Horizontal position: 4 holes  $\varnothing 4.3$  mm, 4 M4 steel screws
  - Recommended fastening torque: 2.9 N·m
- Primary through-hole:  $\varnothing 20$  mm
- Connection of secondary: via cable with 5 mm stripped, tinned leads

### 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.