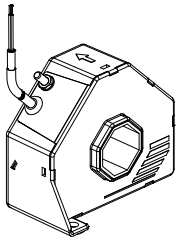
Current Transducer LA 305-S/SP19

I_{PN} = 500 A

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



Electrical data

I_{PN}	Primary nominal RMS current			500				A
I_{PM}	Primary current, measuring range (@ ±24 V)			0 ... ±1000				A
$\hat{I}_{P\,max}$	Primary withstand peak current (maximum)			40				kA
				T_A = 70°C		T_A = 85°C		
R_M	Measuring resistance			$R_{M\,min}$	$R_{M\,max}$	$R_{M\,min}$	$R_{M\,max}$	
	with ±15 V	@ ±600 A $_{max}$		0	13	0	10	Ω
		@ ±650 A $_{max}$		0	8	0	5	Ω
		@ ±680 A $_{max}$		0	6	0	3	Ω
	with ±24 V	@ ±600 A $_{max}$		3	13	3	10	Ω
		@ ±950 A $_{max}$		3	8	3	5	Ω
		@ ±1000 A $_{max}$		3	6	3	3	Ω
I_{SN}	Secondary nominal RMS current			142.8				mA
N_P/N_S	Turns ratio			1 : 3500				
U_C	Supply voltage (±5 %)			±15 ... 24				V
I_C	Current consumption @ ±24 V			28 + I_S				mA

Accuracy - Dynamic performance data

ε_{tot}	Total error @ I_{PN}, T_A = 25 °C		±0.8		%
ε_L	Linearity error		< 0.1		%
			Typ	Max	
I_{OE}	Electrical offset current @ I_P = 0, T_A = 25 °C			±0.15	mA
I_{OM}	Magnetic offset current [1] @ I_P = 0 and specified R_M, after an overload of 3 x I_{PN}			±0.30	mA
I_{OT}	Temperature variation of I_O [2]	−40 °C ... +70 °C	±0.30	±0.60	mA
		−50 °C ... +85 °C	±0.30	±0.80	mA
$t_{D\,10}$	Delay time to 10 % of the final output value for I_{PN} step			< 500	ns
$t_{D\,90}$	Delay time to 90 % of the final output value for I_{PN} step [3]			< 1	µs
BW	Frequency bandwidth (−3 dB)		DC ... 100		kHz

General data

T_A	Ambient operating temperature		−40 (−50) [4] ... +85	°C
$T_{A\,st}$	Ambient storage temperature		−50 ... +90	°C
R_S	Resistance of secondary winding	@ T_A = 70 °C	70	Ω
		@ T_A = 85 °C	73	Ω
m	Mass		350	g
	Standards		EN 50155	

Notes: [1] The result of the coercive force (Hc) of the magnetic circuit
[2] $I_O = I_{OE} + I_{OM}$
[3] For a di/dt = 100 A/µs
[4] No guarantee on this value, tests not carried out during production.

Features

- Closed loop (compensated) current transducer using Hall effect
- Insulating plastic case recognized according to UL 94-V0
- Copyright protected.

Special features

- I_{PN} = 500 A
- I_{PM} = 0 ... ±1000 A (@ ±24 V)
- N_P/N_S = 1 : 3500
- U_C = ±15 ... 24 (±5 %) V
- T_A = −40 °C (−50 °C) [3] ... +85 °C
- Connection to secondary circuit on shielded cable 3*0.5 mm²
- Internal shield connected to shielded cable
- Serigraphy with customer specification number.

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

- AC variable speed drives and servo motor drives
- Static converters for DC motor drivers
- Battery supplied applications
- Uninterruptible power supplies
- Switched mode power supplies
- Power supplies for welding applications.

Application domain

- Railway.

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Insulation characteristics

U_d	RMS voltage for AC insulation test, 50 Hz, 1 min	6	kV
$U_{PD\,t}$	Partial discharge RMS test voltage (q_m < 10 pC)	< 2.8	kV
		Min	
d_{Cp}	Creepage distance	26	mm
d_{Cl}	Clearance	25.5	mm
CTI	Comparative Tracking Index (group IIIa)	250	

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.

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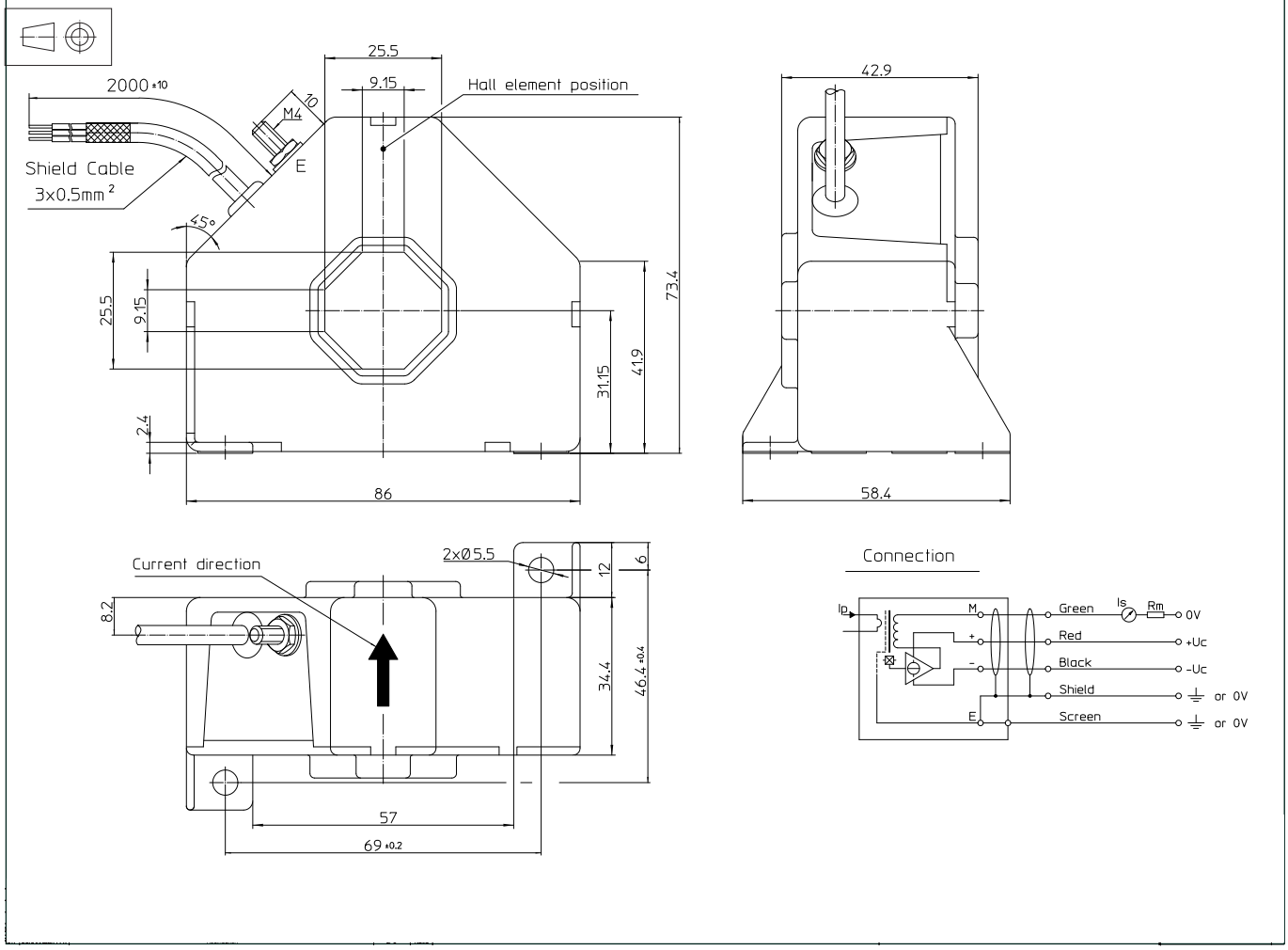
Dimensions LA 305-S/SP19 (in mm)



Mechanical characteristics

- General tolerance ±0.5 mm
- Transducer fastening 2 holes Ø 5.5 mm, 2 M5 steel screws
  Recommended fastening torque 4 N·m or 2.95 Lb.-Ft.
- Primary through-hole 25.5 x 25.5 mm
- Connection of secondary shielded cable 3*0.5 mm²
- Connection of screen M4 threaded studs
  Recommended fastening torque 1.2 N·m or 0.88 Lb.-Ft.

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.

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