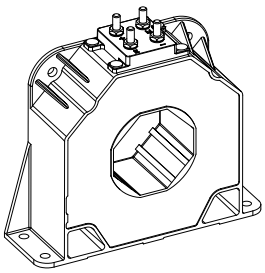
Current Transducer LF 2005-S/SP37

I_{PN} = 2000 A

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



Electrical data

I_{PN}	Primary nominal current rms			2000	A
I_{PM}	Primary current, measuring range @ ± 24 V			0 .. ± 3000	A
R_M	Measuring resistance			$R_{M\,min}$	$R_{M\,max}$
	with ± 15 V	@ ± 2000 A_{max}		0	7 Ω
		@ ± 2500 A_{max}		0	0.5 Ω
	with ± 24 V	@ ± 2000 A_{max}		3	28 Ω
		@ ± 3000 A_{max}		3	10 Ω
I_{SN}	Secondary nominal current rms			400	mA
K_N	Conversion ratio			1 : 5000	
V_C	Supply voltage (± 5 %)			± 15 .. 24	V
I_C	Current consumption			33 (@ ± 24 V) + I_S	mA

Accuracy - Dynamic performance data

X_G	Overall accuracy @ I_{PN}, T_A = 25°C		± 0.5	%
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_r	Response time [1] to 90 % of I_{PN} step		< 1	µs
di/dt	di/dt accurately followed		> 50	A/µs
BW	Frequency bandwidth (- 1 dB)		DC .. 100	kHz

General data

T_A	Ambient operating temperature	- 40 .. + 85	°C
T_S	Ambient storage temperature	- 45 .. + 90	°C
R_S	Secondary coil resistance @ T_A = 85°C	25	Ω
m	Mass	2.5	kg
	Standard	EN 50155: 2001	

Note: [1] With a di/dt of 100 A/µs.

Features

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

Special features

- V_d = 12 kV
- T_A = - 40°C .. + 85°C
- Connection to secondary on UNC 10 threaded studs
- Labelling with customer number EMD 40125221.

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

- Traction.

LEM reserves the right to carry out modifications on its transducers, in order to improve them, without prior notice

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Isolation characteristics

V_d	Rms voltage for AC insulation test, 50 Hz, 1 min	12 [1)]	kV
		1 [2)]	kV
		Min	
dCp	Creepage distance	55.4	mm
dCl	Clearance	53.2	mm
CTI	Comparative Tracking Index (group I)	600	

Notes: [1)] Between primary and secondary
[2)] Between secondary and shield.

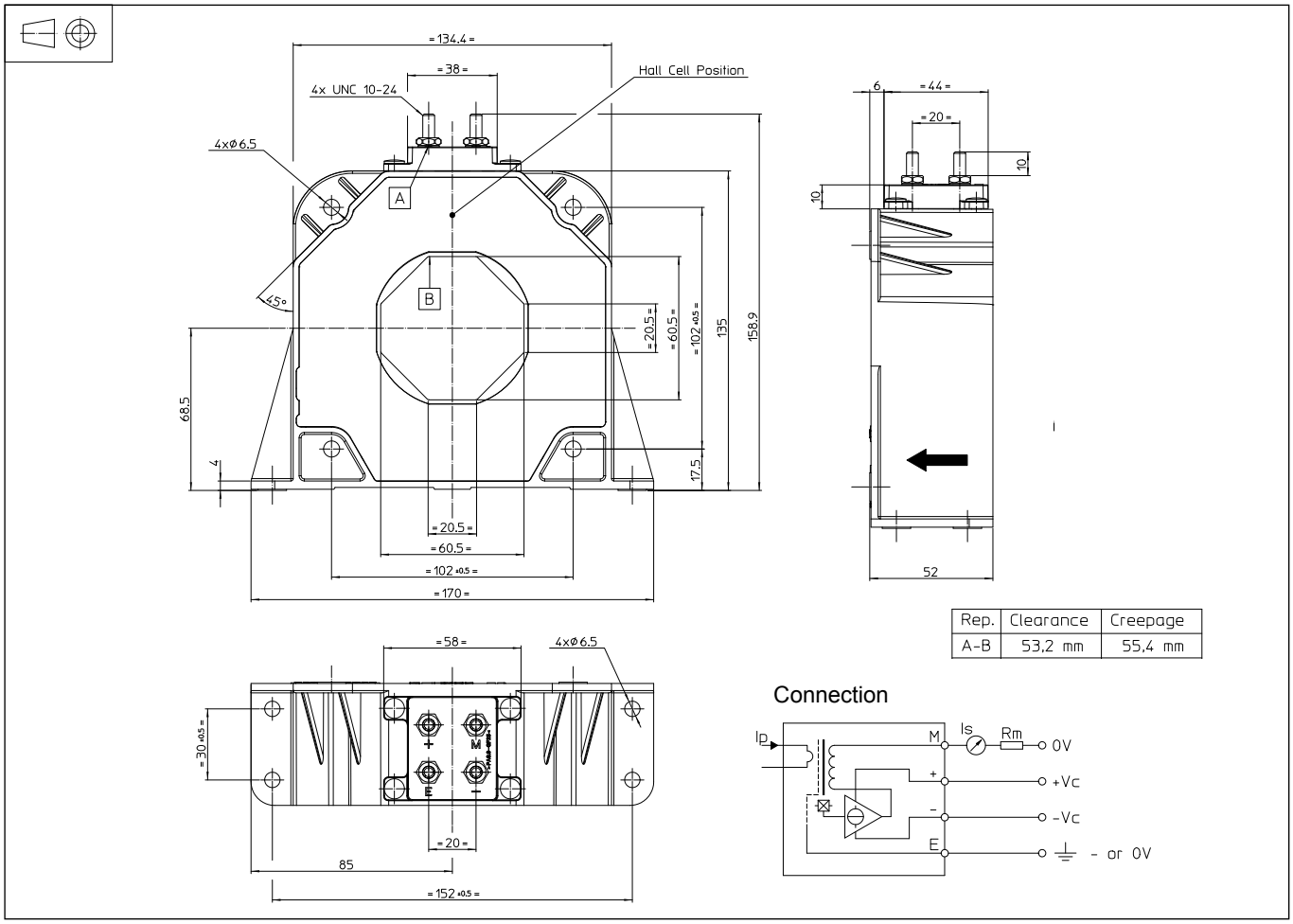
Safety

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 2005-S/SP37 (in mm)



Rep.	Clearance	Creepage
A-B	53.2 mm	55.4 mm

Mechanical characteristics

- General tolerance ± 1 mm
- Transducer fastening 4 holes Ø 6.5 mm
  Vertical position 4 M6 steel screws
  Recommended fastening torque 5.5 Nm
  Or
  Horizontal position 4 holes Ø 6.5 mm
  4 M6 steel screws
  Recommended fastening torque 5.5 Nm
- Primary through-hole 60.5 x 20.5 mm
- Connection of secondary 4 UNC 10-24
  Recommended fastening torque 2.2 Nm

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 response time) are best with a single bar completely filling the primary hole.

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