Current Transducer LF 2005-S/SP11

I_{PN} = 2000 A

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

CE RoHS

Electrical data

I_{PN}	Primary nominal rms current	2000	A
I_{PM}	Primary current, measuring range (@ ± 24 V)	0 .. ± 3700	A
$\hat{I}_P$	Overload capability [1] @ 10 ms	80	kA
R_M	Measuring resistance @		

		T_A = 70 °C $R_{M\,min}$	$R_{M\,max}$		T_A = 85 °C $R_{M\,min}$	$R_{M\,max}$	
with ± 15 V	@ ± 1800 A_{max}	0	24.4	@ ± 1760 A [2]	0	10	Ω
	@ ± 2100 A_{max}	0	5.5	@ ± 2050 A [2]	0	5	Ω
	@ ± 2200 A_{max}	0	4.2		0	3	Ω
with ± 24 V	@ ± 2000 A_{max}	3	27.2		3	26	Ω
	@ ± 3000 A_{max}	3	10.2	@ ± 2900 A [2]	3	10	Ω
	@ ± 3500 A_{max}	3	5.3	@ ± 3400 A [2]	3	5	Ω
	@ ± 3700 A_{max}	3	3.7	@ ± 3630 A [2]	3	3	Ω

I_{SN}	Secondary nominal rms current	400	mA
K_N	Conversion ratio	1 : 5000	
U_C	Supply voltage (± 10 %)	± 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		± 0.4		%
ε_L	Linearity error		< 0.1		%
			Typ	Max	
I_O	Offset current @ I_P = 0, T_A = 25 °C			± 0.5	mA
I_{OT}	Temperature variation of I_O	- 40 °C .. + 70 °C	± 0.2	± 0.5	mA
		- 50 °C .. + 85 °C		± 0.8	mA
t_r	Step response time [3] to 90 % of I_{PN}		< 1		μs
d*i*/d*t*	d*i*/d*t* accurately followed		> 100		A/μs
BW	Frequency bandwidth (- 1 dB)		DC .. 100		kHz

General data

T_A	Ambient operating temperature		- 40 (- 50) .. + 85	°C
T_S	Ambient storage temperature		- 50 .. + 85	°C
R_S	Resistance of secondary winding	@ T_A = 70 °C	24	Ω
		@ T_A = 85 °C	25.2	Ω
m	Mass		1.5	kg
	Standard		EN 50155: 2001	

Notes: [1] Not measurable
[2] I_P @ 85 °C & customer measuring resistance
[3] With a d*i*/d*t* of 100 A/μs.

Features

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

Special features

- I_{PM} = 0 .. ± 3700 A
- U_d = 12 kV
- T_A = - 40 °C (- 50 °C) .. + 85 °C
- Connection of secondary on shielded cable 3 x 0.5 mm² and connector SUB-D 9P Gimota (female) + screw M3 × 32.4 mm
- Shield between primary and secondary connected to the cable screening and M4
- Current direction.

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

Application Domain

- Traction.

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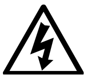
Insulation coordination

U_d	Rms voltage for AC insulation test, 50 Hz, 1 min	12 [1)]	kV
		1.5 [2)]	kV
U_e	Partial discharge extinction voltage rms @ 10 pC	≥ 4.3 [3)]	kV
		Min	
d_{Cp}	Creepage distance	51.2	mm
d_{Cl}	Clearance	51.2	mm
CTI	Comparative tracking index (group I)	600	

Notes: [1)] Between primary and secondary + internal shield + shielded cable
[2)] Between internal shield + shielded cable and secondary
[3)] With a non insulated primary bar of 290 × 50 × 10 mm, centered in the through-hole.

Safety

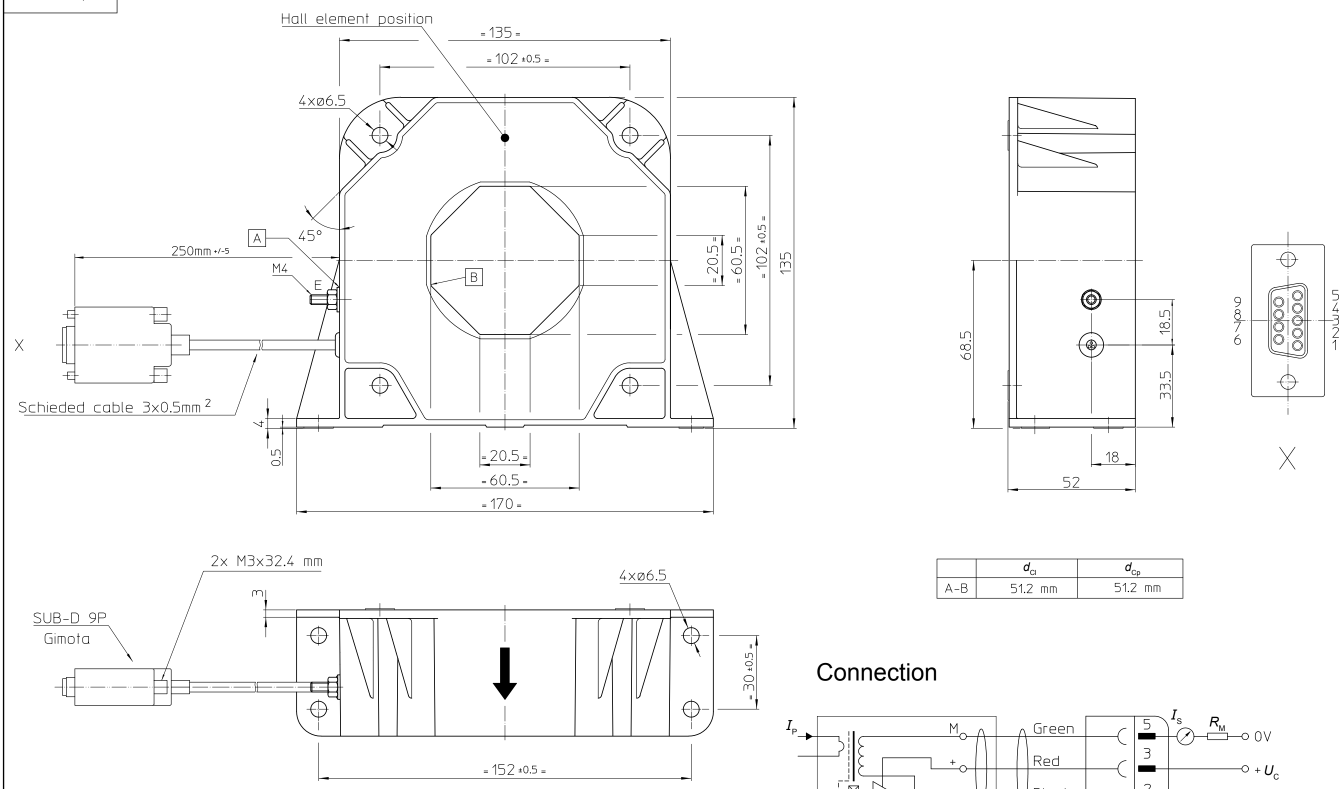
This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.



Caution, risk of electrical shock

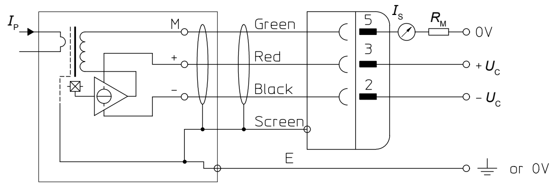
When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply).
Ignoring this warning can lead to injury and/or cause serious damage.
This transducer is a build-in device, whose conducting parts must be inaccessible after installation.
A protective housing or additional shield could be used.
Main supply must be able to be disconnected.

Dimensions LF 2005-S/SP11 (in mm)



	d_{Cl}	d_{Cp}
A-B	51.2 mm	51.2 mm

Connection



Mechanical characteristics

- General tolerance ± 1 mm
- Transducer fastening
  Vertical or flat position 4 holes Ø 6.5 mm
  4 M6 steel screws
  Recommended fastening torque 4.2 N·m
- Primary through-hole 60.5 × 20.5 mm
  Or Ø max 56 mm
- Connection of secondary shielded cable 3 × 0.5 mm²
  and SUB-D 9P (female) +
  screw M3 × 32.4 mm
- Connection to shield M4 threaded stud
  Recommended fastening torque 1.2 N·m

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: **Products/Product Documentation**.
- Dynamic performances (d*i*/d*t* and response time) are best with a single bar completely filling the primary hole.