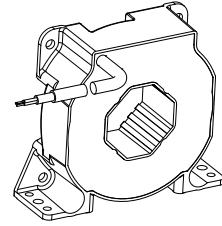


Current Transducer LF 1005-S/SP12

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



$$I_{PN} = 600 \text{ A}$$



Features

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

Special features

- $I_{PM} = 0 \dots \pm 1750 \text{ A}$
- $U_C = \pm 24 \text{ (} + 5 \% , - 7 \% \text{) V}$
- Secondary connection on screened cable $3 \times 0.5 \text{ mm}^2$
- Shield between primary and secondary connected to the cable screening
- Protection diodes against inversion polarity
- The internal protection against overvoltage.

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.

Electrical data

I_{PN}	Primary nominal rms current	600	A
I_{PM}	Primary current, measuring range	$0 \dots \pm 1750$	A
R_M	Measuring resistance @ $T_A = 85 \text{ }^\circ\text{C}$		
	with $\pm 24 \text{ V}$	@ $\pm 600 \text{ A}_{\text{max}}$ @ $\pm 1750 \text{ A}_{\text{max}}$	$R_{M \text{ min}}$ 3 $R_{M \text{ max}}$ 117 Ω 3 5 Ω
I_{SN}	Secondary nominal rms current	120	mA
K_N	Conversion ratio	1 : 5000	
U_C	Supply voltage (+ 5 %, - 7 %)	± 24	V
I_C	Current consumption ($\pm 1 \text{ mA}$)	$28 + I_S$	mA

Accuracy - Dynamic performance data

X_G	Accuracy @ $I_{PN}, T_A = 25 \text{ }^\circ\text{C}$	± 0.5	%
ϵ_L	Linearity error	< 0.1	%
I_O	Offset current @ $I_P = 0, T_A = 25 \text{ }^\circ\text{C}$	Typ ± 0.3 Max ± 0.4	mA
I_{OT}	Temperature variation of I_O - 40 $^\circ\text{C}$.. + 85 $^\circ\text{C}$	± 0.3 ± 0.8	mA
t_r	Step of response time ¹⁾ to 90 % of I_{PN}	< 1	μs
di/dt	di/dt accurately followed	> 100	A/ μs
BW	Frequency bandwidth (- 1 dB)	DC .. 150	kHz

General data

T_A	Ambient operating temperature	- 40 .. + 85	$^\circ\text{C}$
T_S	Ambient storage temperature	- 45 .. + 100	$^\circ\text{C}$
R_S	Resistance of secondary winding @ $T_A = 85 \text{ }^\circ\text{C}$	53	Ω
m	Mass	550	g
	Standards	EN 50155: 2001 UL 508: 2010	

Note: ¹⁾ With a di/dt of 100 A/ μs .

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Insulation coordination

U_d	Rms voltage for AC insulation test, 50 Hz, 1 min	5 ²⁾	kV
		1 ³⁾	kV
		Min	
d_{cp}	Creepage distance	28 ⁴⁾	mm
d_{cl}	Clearance	28 ⁴⁾	mm
CTI	Comparative tracking index (group IIIa)	175	

Notes: ²⁾ With a non-insulated primary bar which completely fills the through-hole

³⁾ Between primary and shield

⁴⁾ Distance without cable length.

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).

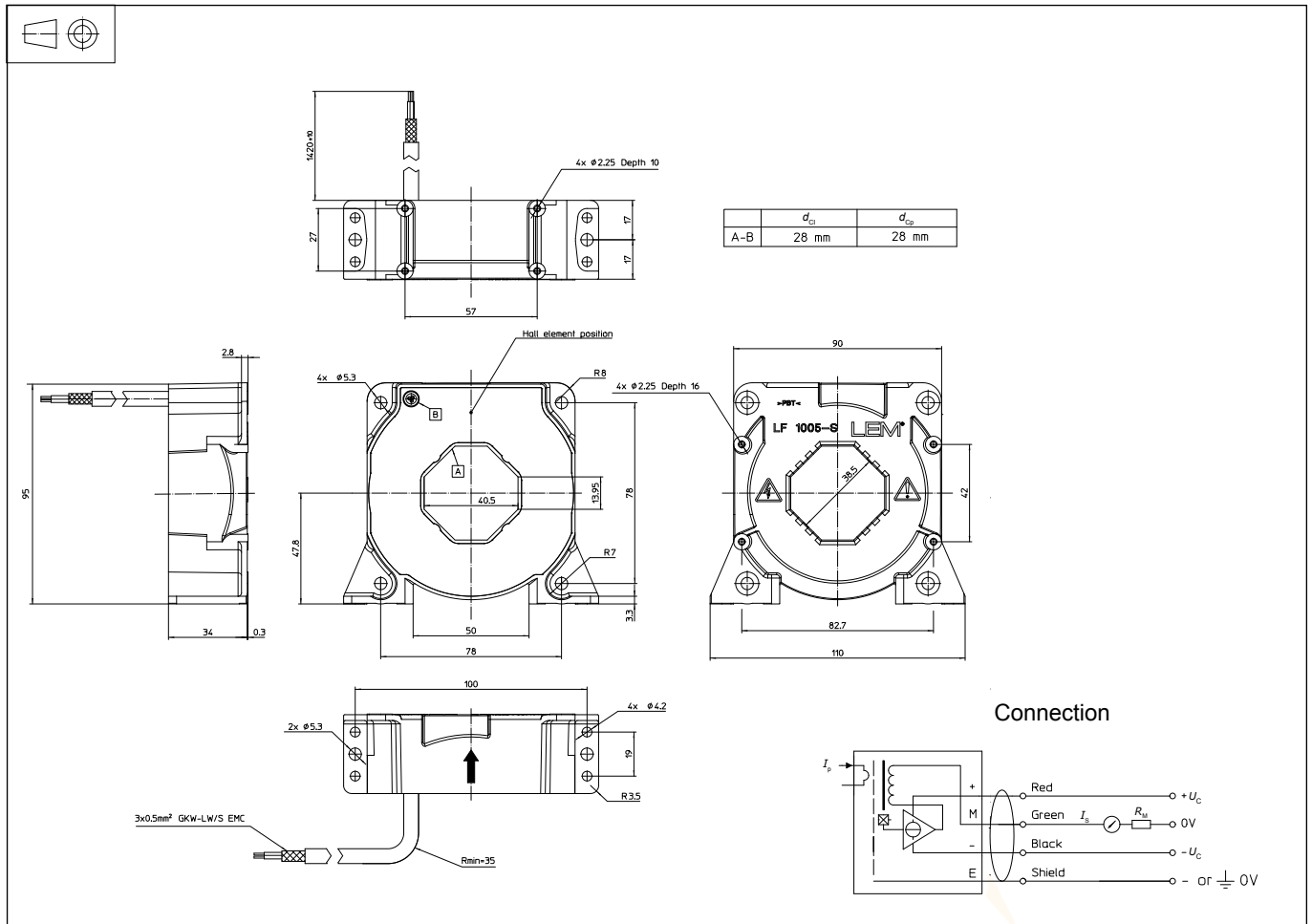
Ignoring this warning can lead to injury and/or cause serious damage.

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 1005-S/SP12 (in mm)



Mechanical characteristics

- General tolerance ± 0.5 mm
- Transducer fastening
 - Vertical position
 - 2 holes $\varnothing 5.3$ mm
 - 2 M5 steel screws
 - Recommended fastening torque 4 N·m
 - or
 - 4 holes $\varnothing 4.2$ mm
 - 4 M4 steel screws
 - Recommended fastening torque 3.2 N·m
 - or
 - 4 holes $\varnothing 2.25$ mm
 - depth 10 mm
 - 4 × PT KA30 screws
 - length 10 mm
- Transducer fastening
 - Horizontal position
 - 4 holes $\varnothing 5.3$ mm
 - 4 M5 steel screws
 - Recommended fastening torque 4 N·m
 - or
 - 4 holes $\varnothing 2.25$ mm
 - depth 16 mm
 - 4 × PT KA30 screws
 - length 16 mm

- Recommended fastening torque 1 N·m
- Primary through-hole
 - 40.5×13 mm
 - or
 - $\varnothing 38$ mm
- Connection of secondary Screened cable 3×0.5

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 (di/dt and response time) are best with a single bar completely filling the primary hole.