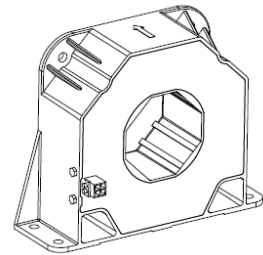


Current Transducer LF 2005-S/SP23

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



$$I_{PN} = 2000 \text{ A}$$



Electrical data

I_{PN}	Primary nominal RMS current	2000	A
I_{PM}	Primary current, measuring range	0 ... ± 3000	A
R_M	Measuring resistance @ $T_A = 70^\circ\text{C}$		
		$R_{M \min}$ $R_{M \max}$	
	with $\pm 15 \text{ V}$ @ $\pm 2000 \text{ A}_{\max}$	0 8	Ω
	@ $\pm 2200 \text{ A}_{\max}$	0 5	Ω
	with $\pm 24 \text{ V}$ @ $\pm 2000 \text{ A}_{\max}$	5 29	Ω
	@ $\pm 3000 \text{ A}_{\max}$	5 11	Ω
		@ $\pm 2800 \text{ A}$	Ω
I_{SN}	Secondary nominal RMS current	400	mA
K_N	Conversion ratio	1 : 5000	
U_C	Supply voltage ($\pm 5\%$)	$\pm 15 \dots 24$	V
I_C	Current consumption	33 (@ $\pm 24 \text{ V}$) + I_S	mA

Accuracy - Dynamic performance data

X_G	Overall accuracy @ I_{PN} , $T_A = 25^\circ\text{C}$	± 0.3	%
ϵ_L	Linearity error	< 0.1	%
I_O	Offset current @ $I_P = 0$, $T_A = 25^\circ\text{C}$	Typ ± 0.5	mA
I_{OT}	Temperature variation of I_O	Max ± 0.4	mA
	-25 $^\circ\text{C}$... +70 $^\circ\text{C}$	± 0.2	mA
	-25 $^\circ\text{C}$... +85 $^\circ\text{C}$	± 0.2	mA
	-40 $^\circ\text{C}$... -25 $^\circ\text{C}$	± 1.5	mA
t_r	Response time ¹⁾ to 90 % of I_{PN} step	< 1	μs
BW	Frequency bandwidth (-1 dB)	DC ... 100	kHz

General data

T_A	Ambient operating temperature	-40 ... +85	$^\circ\text{C}$
T_S	Ambient storage temperature	-40 ... +85	$^\circ\text{C}$
R_S	Secondary coil resistance @ $T_A = 70^\circ\text{C}$	25	Ω
	@ $T_A = 85^\circ\text{C}$	26	Ω
m	Mass	1.5	kg
	Standard	EN 50178: 1997	

Note: ¹⁾ For a $di/dt = 50 \text{ A}/\mu\text{s}$.

Features

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

Special feature

- Secondary connection on Molex Mini-Fit jr. 5569 - Gold-plated pins.

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 drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications.

Application domain

- Industrial.

Current Transducer LF 2005-S/SP23

Insulation coordination

U_d	RMS voltage for AC insulation test, 50 Hz, 1 min	6	kV
		Min	
d_{cp}	Creepage distance	51	mm
d_{cl}	Clearance	29	mm
CTI	Comparative Tracking Index (group I)	600	

Applications examples

According to EN 50178 and IEC 61010-1 standards and following conditions:

- Over voltage category OV 3
- Pollution degree PD2
- Non-uniform field

	EN 50178	IEC 61010-1
d_{cp}, d_{cl}, U_{Ni}	Rated insulation voltage	Nominal voltage
Basic insulation	6300 V	6300 V
Reinforced insulation	3200 V	3200 V

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).

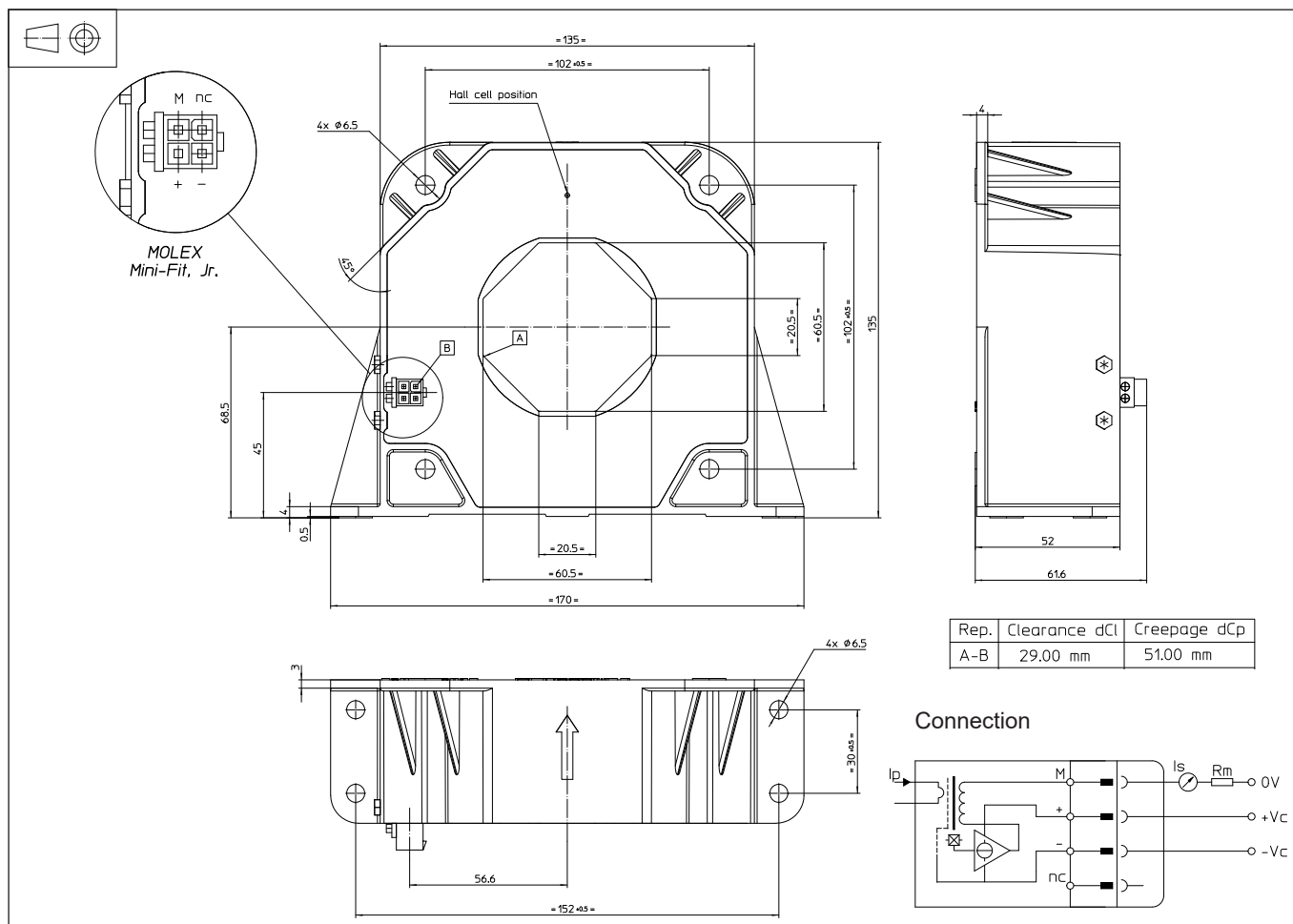
Ignoring this warning can lead to injury and/or cause serious damage.

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 2005-S/SP23 (in mm)



Mechanical characteristics

- General tolerance: ± 1 mm
- Transducer fastening: 4 holes $\varnothing 6.5$ mm
- Flat or vertical position: 4 steels screws M6
- Recommended fastening torque: 5.5 N $\varnothing$ m
- Primary through-hole: 60.5 $\times$ 20.5 mm
- Or: $\varnothing$ max 56 mm
- Connection of secondary: MOLEX Mini-fit jr.
- 5569 Gold-plated pins.

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.
- 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/>.

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