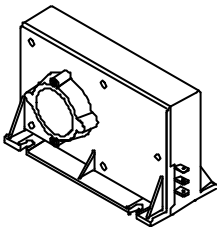
Current Transducer LB 1000-SI/SP2

I_{PN} = 1000 A

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



Electrical data

I_{PN}	Primary nominal r.m.s. current		1000		A
I_P	Primary current, measuring range		0 .. ± 1500		A
R_M	Measuring resistance		$R_{M\,min}$	$R_{M\,max}$	
	with ± 15 V	@ ± 1000 A_{max}	0	25	Ω
		@ ± 1500 A_{max}	0	5	Ω
I_{SN}	Secondary nominal r.m.s. current		200		mA
K_N	Conversion ratio		1 : 5000		
V_C	Supply voltage (± 5 %)		± 15		VDC
I_C	Current consumption		21 + I_S		mA

Accuracy - Dynamic performance data

X_G	Overall accuracy @ I_{PN} , T_A = 25°C		± 0.3		%
ε_L	Linearity error		< 0.1		%
			Typ	Max	
I_O	Offset current @ I_P = 0, T_A = 25°C			± 0.4	mA
I_{OT}	Thermal drift of I_O	+ 10°C .. + 50°C	± 0.1	± 0.2	mA
t_r	Response time [1] @ 90 % of I_{PN}		< 1		µs
di/dt	di/dt accurately followed		> 50		A/µs
f	Frequency bandwidth (- 1 dB)		DC .. 100		kHz

General data

T_A	Ambient operating temperature	+ 10 .. + 50	°C
T_S	Ambient storage temperature	- 25 .. + 85	°C
R_S	Secondary coil resistance @ T_A = 70°C	40	Ω
m	Mass	700	g
	Standards	EN 50178 : 1997	

Note : [1] With a di/dt of 100 A/µs

Features

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

Special features

- T_A = + 10°C .. + 50°C
- Shield between primary and secondary.

Advantages

- Better zero crossing performance
- 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.

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Isolation characteristics

V_d	R.m.s. voltage for AC isolation test, 50 Hz, 1 mn	6	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 µs	17	kV
		Min	
dCp	Creepage distance	54.5	mm
dCl	Clearance distance	44.4	mm
CTI	Comparative Tracking Index (Group IIIa)	225	

Application examples

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

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

	EN 50178	CEI 61010-1
dCp, dCl, $\hat{V}_w$	Rated isolation voltage	Nominal voltage
Single isolation	5000 V	Cat IIIa 5000 V rms
Reinforced isolation	2500 V	Cat IIIa 2500 V rms

Safety

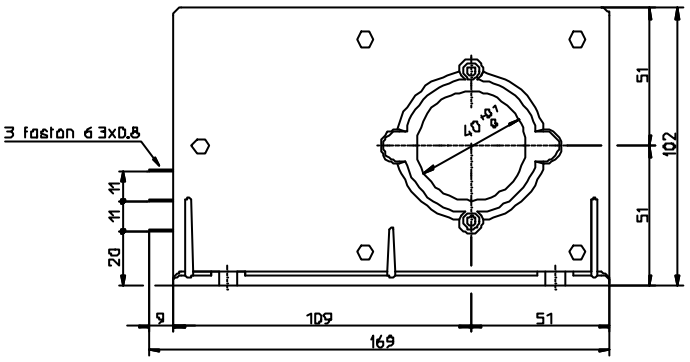
This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the following manufacturer's operating instructions.

Caution, risk of electrical shock

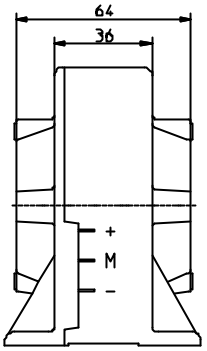
When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply).
Ignoring this warning can lead to injury and/or cause serious damage.
This transducer is a built-in device, whose conducting parts must be inaccessible after installation.
A protective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

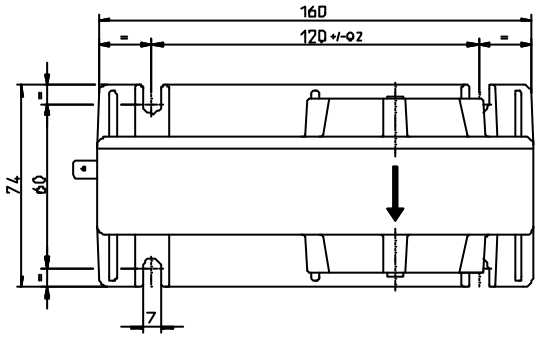
Dimensions LB 1000-SI/SP2 (in mm. 1 mm = 0.0394 inch)

Front view



Left view



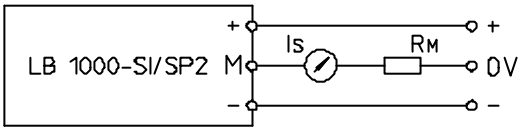


Top view

Secondary terminals

Terminal + : supply voltage + 15 V
Terminal M : measure
Terminal - : supply voltage - 15 V

Connection



Mechanical characteristics

• General tolerance	± 0.5 mm
• Fastening	4 slots ∅ 7 mm 4 M5 steel screws
Recommended fastening torque	4 Nm or 2.95 Lb. - Ft.
• Primary through-hole	∅ 40 mm
• Connection of secondary	Faston 6.3 x 0.8 mm.

Remarks

- $\mathbf{I}_S$ is positive when $\mathbf{I}_P$ 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.