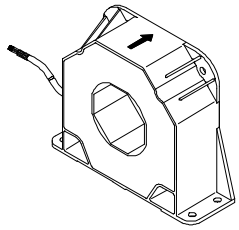
Current Transducer LF 2005-S/SP8

I_{PN} = 2000 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).

16143



Electrical data

I_{PN}	Primary nominal current rms				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			T_A = 85°C		
			$R_{M\,min}$	$R_{M\,max}$		$R_{M\,min}$	$R_{M\,max}$	
	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 current rms				400			mA
K_N	Conversion ratio				1 : 5000			
V_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_{OM}	Magnetic offset current @ I_P = 0 and specified R_M, after an overload of 3 x I_{PN}			± 0.2	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	Response time [3] to 90 % of I_{PN} step		< 1		µs
di/dt	di/dt 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	Secondary coil resistance	@ T_A = 70°C	24	Ω
		@ T_A = 85°C	25	Ω
m	Mass		1.5	kg
	Standards		EN 50155: 2001	

Notes: [1] Not measurable
[2] I_{PN} @ 85°C & Customer measuring resistance
[3] 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

- I_{PM} = 0 .. ± 3700 A
- V_d = 12 kV
- T_A = - 40°C (-50°C) .. + 85°C
- Secondary connection on screened cable 3 x 0.5 mm²
- Shield between primary and secondary connected to the cable screening
- Customer marking.

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 phases inverter
- Propulsion and braking chopper
- Propulsion converter
- Auxiliary converter
- Battery charger.

Application Domain

- Traction.

Current transducer LF 2005-S/SP8

Isolation characteristics

V_d	Rms voltage for AC isolation test, 50 Hz, 1 min	12 [4]	kV
		1.5 [5]	kV
V_e	Rms voltage for partial discharge extinction @ 10pC	4.3 [6]	kV
		Min	
dCp	Creepage distance	51.4	mm
dCl	Clearance distance	50.8	mm
CTI	Comparative Tracking Index (Group I)	600	

Notes: [4] Between primary and secondary + shield
[5] Between shield and secondary
[6] Test carried out with a non-insulation busbar, dimension 290 x 50 x 10mm, centered in the through hole.

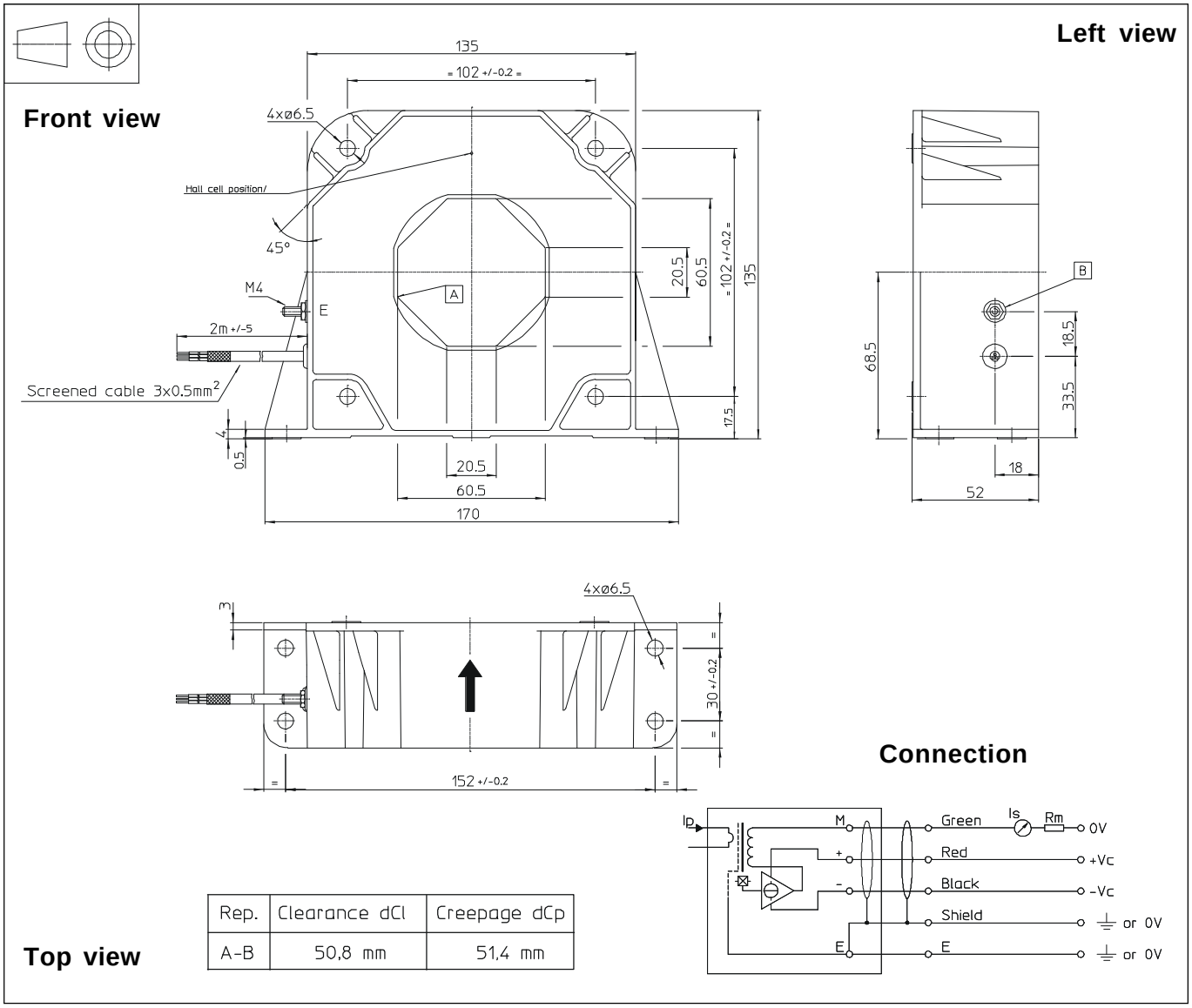
Safety

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 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 LF 2005-S/SP8 (in mm. 1 mm = 0.0394 inch)



Rep.	Clearance dCl	Creepage dCp
A-B	50,8 mm	51,4 mm

Mechanical characteristics

• General tolerance	± 0.5 mm
• Transducer fastening	
Vertical or flat lying position	4 holes ∅ 6.5 mm
	4 M6 steel screws
Recommended fastening torque	4.20 Nm or 3.10 Lb. - Ft.
• Primary through-hole	60.5 x 20.5 mm
Or	∅ 56 mm
• Connection of secondary	screened cable 3 x 0.5 mm²
• Connection to shield	M4 threaded stud
Recommended fastening torque	1.2 Nm or 0.88 Lb. - Ft.

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.