Current Transducer LF 1005-S/SP33

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).

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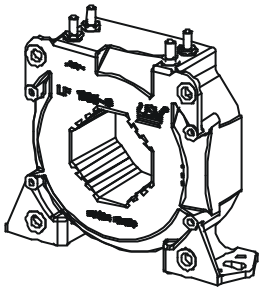


Electrical data

I_{PN}	Primary nominal current rms		1000		A
I_{PM}	Primary current, measuring range		0 .. ± 2000		A
R_M	Measuring resistance		$R_{M\ mini}$	$R_{M\ maxi}$	
	with ± 24 V	@ ± 1000 A_{maxi}	8.5	60	Ω
		@ ± 1500 A_{maxi}	8.5	25	Ω
		@ ± 2000 A_{maxi}	8.5	8.5	Ω
I_{SN}	Secondary nominal current rms		200		mA
K_N	Conversion ratio		1 : 5000		
V_C	Supply voltage (± 7 %)		± 24		V
I_C	Current consumption		28 + I_S		mA

Accuracy - Dynamic performance data

X_G	Overall accuracy @ I_{PN}, T_A = 25 °C		± 0.5		%
ε_L	Linearity error		< 0.1		%
			Typ	Maxi	
I_O	Offset current @ I_P = 0, T_A = 25 °C			± 0.4	mA
I_{OT}	Temperature variation of I_O	- 40 °C .. + 85 °C	± 0.3	± 0.8	mA
t_r	Response time [1] to 90 % of I_{PN} step		< 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	°C
T_S	Ambient storage temperature	- 45 .. + 90	°C
R_S	Secondary coil resistance @ T_A = 85 °C	45	Ω
m	Mass	500	g
	Standards	EN 50155: 1995	

Note: [1] 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

- V_C = ± 24 (± 7 %) V
- V_d = 6 kV
- T_A = - 40 °C .. + 85 °C
- Shield between primary and secondary
- Connection to secondary circuit on M4 threaded studs

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.

Voltage transducer LF 1005-S/SP33

Isolation characteristics

V_d	Rms voltage for AC isolation test, 50 Hz, 1 min	6 [2)3)]	kV
		1 [4)]	kV
		Mini	
dCp	Creepage distance	33.6	mm
dCl	Clearance distance	33.6	mm
CTI	Comparative Tracking Index (Group III a)	175	

Notes: [2)] With a primary bar which fills the through-hole
[3)] Between primary and secondary + shield
[4)] Between shield and secondary.

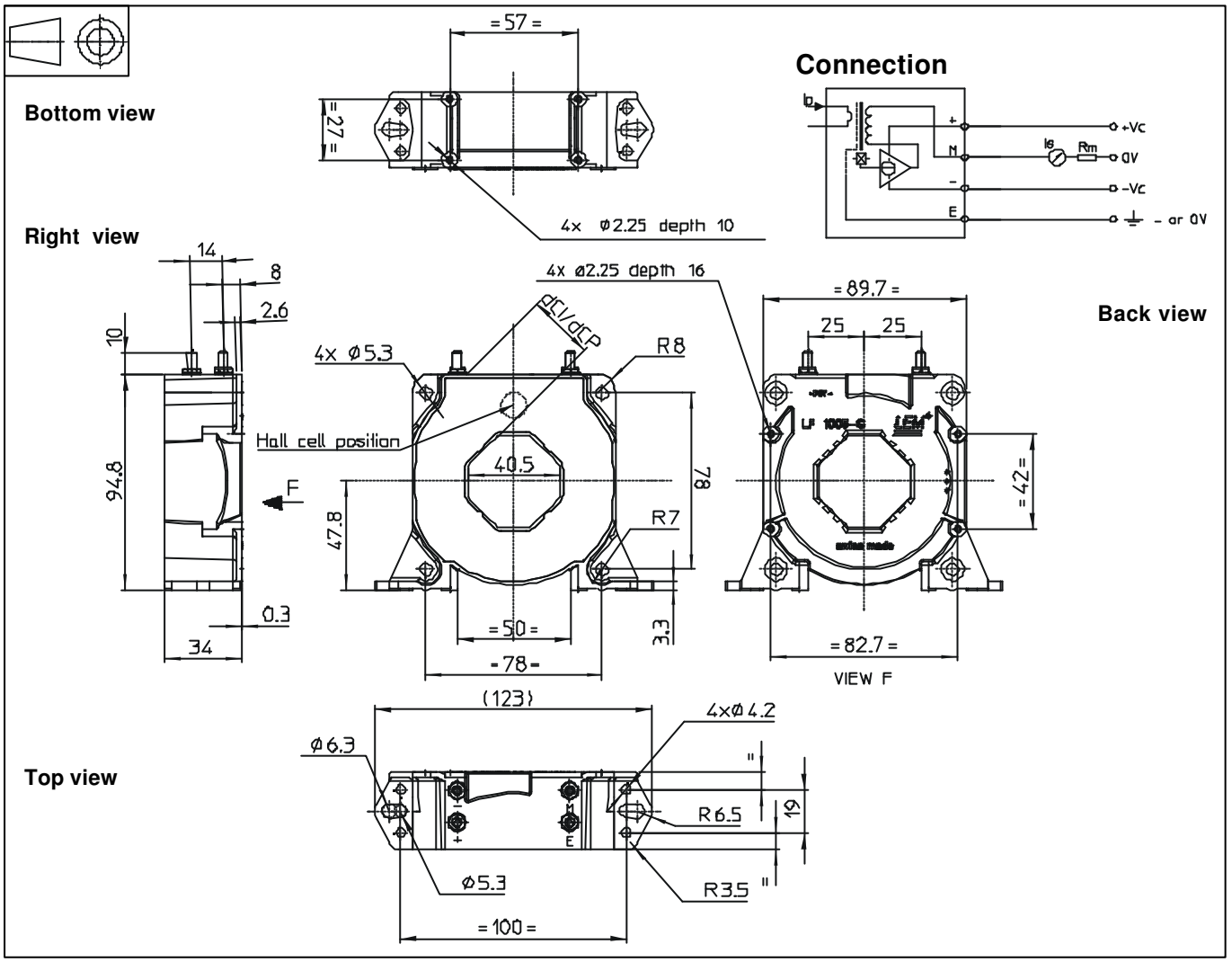
Safety

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 1005-S/SP33 (in mm. 1 mm = 0.0394 inch)



Mechanical characteristics

• General tolerance	± 0.5 mm
• Transducer fastening	
Vertical position:	2 holes ∅ 5.3 mm 2 M5 steel screws
Recommended fastening torque	4 Nm or 2.52 Lb. - Ft.
or	2 holes ∅ 6.3 mm 2 M6 steel screws
Recommended fastening torque	5 Nm or 3.69 Lb. - Ft.
or	4 holes ∅ 4.2 mm 4 M4 steel screws
Recommended fastening torque	3.2 Nm or 2.02 Lb. - Ft.
or	4 holes ∅ 2.25 mm depth 10 mm 4 x PT KA30 screws long 10 mm
Recommended fastening torque	0.9 Nm or 0.57 Lb. - Ft.
• Transducer fastening	
Horizontal position:	4 holes ∅ 5.3 mm
Recommended fastening torque	4 Nm or 2.52 Lb. - Ft.
or	4 holes ∅ 2.25 mm depth 16 mm 4 x PT KA30 screws long 16 mm
Recommended fastening torque	1 Nm or 0.63 Lb. - Ft.
• Primary through-hole	40.5 x 13.5 mm
or	∅ 38 mm
• Connection of secondary	M4 threaded studs
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.