

Current Transducer LF 1005-S/SP12

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

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).



16158

Electrical data

I_{PN}	Primary nominal r.m.s. current	600	A
I_P	Primary current, measuring range	0 .. ± 1750	A
R_M	Measuring resistance	$R_{M \min}$ $R_{M \max}$	
	with $\pm 24 \text{ V}$	@ $\pm 600 \text{ A}_{\max}$	3 117 Ω
		@ $\pm 1750 \text{ A}_{\max}$	3 5 Ω
I_{SN}	Secondary nominal r.m.s. current	120	mA
K_N	Conversion ratio	1 : 5000	
V_C	Supply voltage (+ 5 %, -7%)	± 24	V
I_C	Current consumption	$28 + I_S$	mA

Accuracy - Dynamic performance data

X_G	Overall accuracy @ I_{PN} , $T_A = 25^\circ\text{C}$	± 0.5	%
ϵ_L	Linearity error	< 0.1	%
I_O	Offset current @ $I_P = 0$, $T_A = 25^\circ\text{C}$	Typ Max	
I_{OT}	Thermal drift of I_O - 40 $^\circ\text{C}$.. + 85 $^\circ\text{C}$	± 0.3 ± 0.8	mA
t_r	Response time ¹⁾ @ 90 % of I_{PN}	< 1	μs
di/dt	di/dt accurately followed	> 100	A/ μs
f	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	Secondary coil resistance @ $T_A = 85^\circ\text{C}$	53	Ω
m	Mass	550	g
	Standards	EN 50155 : 1995	

Features

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

Special features

- $I_P = 0 .. \pm 1750 \text{ A}$
- $V_C = \pm 24 (\pm 5\%, -7\%) \text{ V}$
- Secondary connection on screened cable 3 x 0.5 mm²
- 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 phases inverter
- Propulsion and braking chopper
- Propulsion converter
- Auxiliary converter
- Battery charger.

Application Domain

- Traction.

Note : ¹⁾ With a di/dt of 100 A/ μs .

Dimensions LF 1005-S/SP12

Isolation characteristics

V_d	R.m.s. voltage for AC isolation test, 50/60 Hz, 1 mn	5 ²⁾	kV
		1 ³⁾	kV
		Min	
dCp	Creepage distance	16.55 ⁴⁾	mm
dCl	Clearance distance	16.55 ⁴⁾	mm
CTI	Comparative Tracking Index (Group III a)	175	

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

³⁾ Between secondary and shield

⁴⁾ Distance without length cable.

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).

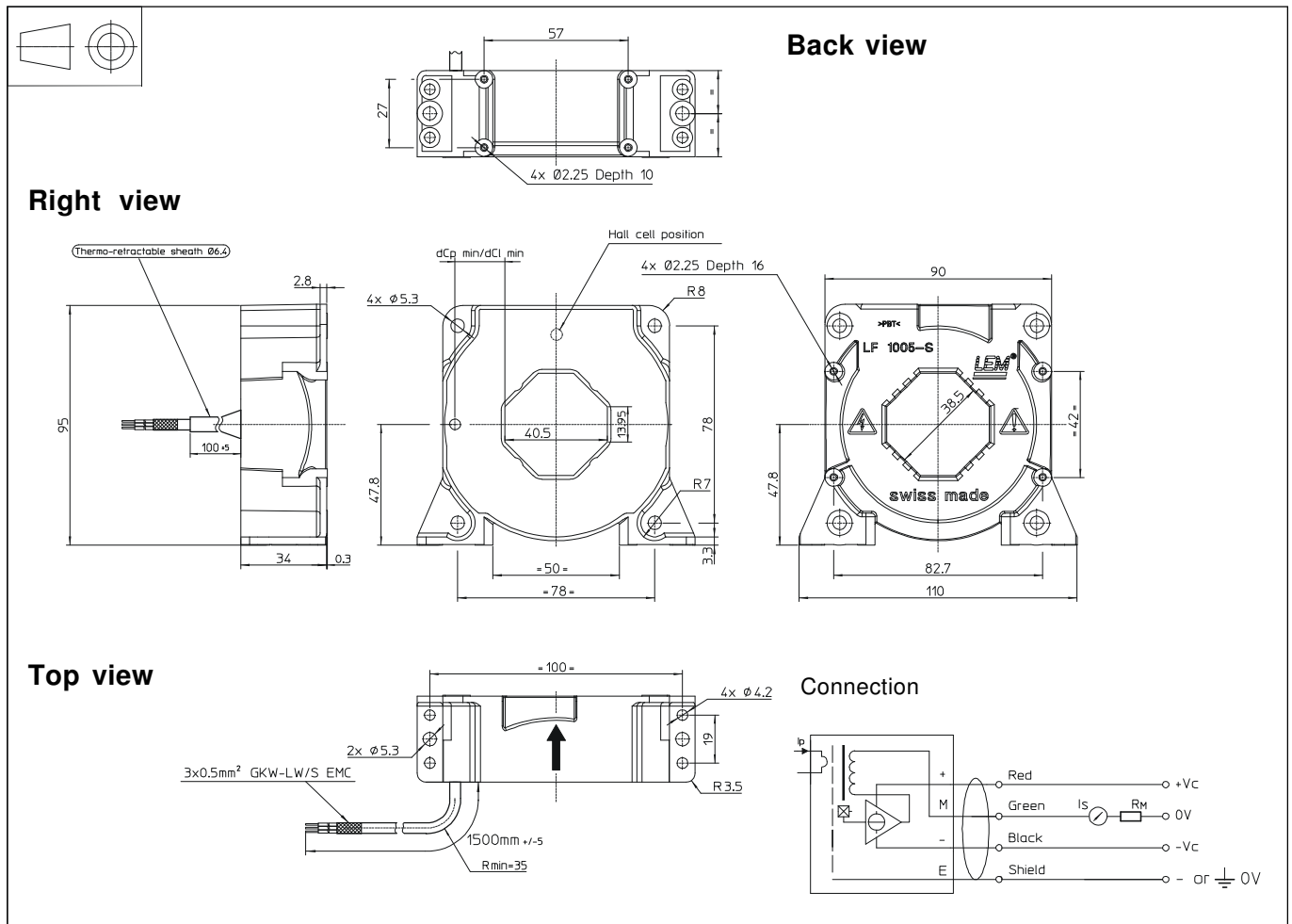
Ignoring this warning can lead to injury and/or cause serious damage.

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/SP12 (in mm. 1 mm = 0.0394 inch)



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 Nm or 2.92 Lb. - Ft.
 - or
 - 4 holes $\varnothing 4.2$ mm
 - 4 M4 steel screws
 - Recommended fastening torque 3.2 Nm or 2.34 Lb. - Ft.
 - or
 - 4 holes $\varnothing 2.25$ mm
 - depth 10 mm
 - 4xPT KA30 screws long 10 mm
 - Recommended fastening torque 0.9 Nm or 0.66 Lb. - Ft.
 - Horizontal position
 - 4 holes $\varnothing 5.3$ mm
 - 4 M5 steel screws
 - Recommended fastening torque 4 Nm or 2.92 Lb. - Ft.
 - or
 - 4 holes $\varnothing 2.25$ mm
 - depth 16 mm
 - 4xPT KA30 screws long 16 mm
 - Recommended fastening torque 1 Nm or 0.73 Lb. - Ft.
- Octagonal primary through-hole
 - 40.5 x 40.5 mm
 - $\varnothing 38.5$ mm max
- Connection of secondary
 - screened cable 3 x 0.5 mm²

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.

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LEM reserves the right to carry out modifications on its transducers, in order to improve them, without previous notice.

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