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Material list	4	1	A4	2	EN	LF 2005-S SP13 materials.pdf	PDF (Adobe Acrobat 5.0)

SOMMAIRE

1 DESCRIPTION 2

2 OPERATING PRINCIPLE 2

3 TECHNICAL CHARACTERISTIC 2

4 DATA SHEET 3

5 SECURITY ADVICES 5

 5.1 Installation..... 5

 5.2 Function..... 5

6 ELIMINATION..... 5

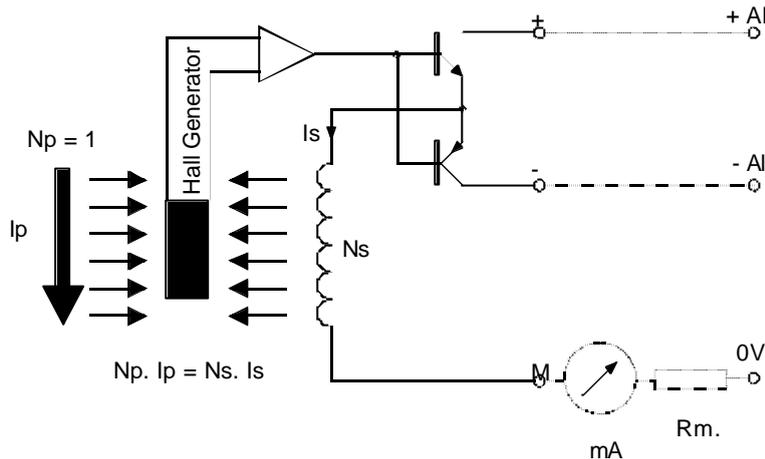
 6.1 Materials used in the transducer 5

1 DESCRIPTION

The LF 2005-S/SP13 current transducer is mounted in a thermoplastic self-extinguishing housing. The housing includes the magnetic and electronic circuits. It supports the connections of the measuring circuit.

It is wholly molded in order to ensure the rigidity within the housing and the insulation between the primary and secondary circuits.

2 OPERATING PRINCIPLE



3 TECHNICAL CHARACTERISTIC

The datasheet on the following page includes all the necessary data :

- electrical characteristics
- accuracy
- general characteristics
- specificities
- dimensions
- connections

Complementary information :

- Protection degree : IP54
- Reliability of the current transducer LF2005-S/SP6:

<i>Environment / Temperature</i>	GM/30°C	GM/40°C	GM/50°C
Total Failure Rate (FIT)	2.883 *10 ⁻⁶	3.434 *10 ⁻⁶	4.085 *10 ⁻⁶
MTBF (Hours)	346'906	291'209	244'791

4 DATA SHEET



Current Transducer LF 2005-S/SP13

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

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).



Electrical data

I_{In}	Primary nominal r.m.s. current	2000	A
I_p	Primary current, measuring range	0 ... ± 3500	A
I_c	Overload capability @ 10 ms	20	kA
R_m	Measuring resistance	R_{min} R_{max}	
	with ± 15 V	@ ± 2000 A _{max}	0 4 Ω
	with ± 24 V	@ ± 2000 A _{max}	0 23 Ω
		@ ± 3100 A _{max}	0 6 Ω
		@ ± 3500 A _{max}	0 2 Ω
I_{Out}	Secondary nominal r.m.s. current	400	mA
K_N	Conversion ratio	1 : 5000	
V_C	Supply voltage ¹⁾	± 15 ... 24	V
I_C	Current consumption	33 (@ ± 24V) + I_C	mA
V_i	R.m.s. voltage for AC isolation test, 50 Hz, 1 min	10 ²¹	kV
		100 ²⁾	V
V_s	R.m.s. voltage for partial discharges extinction @ 10 pC	> 4.8	kV

Accuracy - Dynamic performance data

X_C	Overall accuracy @ I_{In} , $T_A = 25^\circ\text{C}$	± 0.3	%
E_L	Linearity	< 0.1	%
I_0	Offset current @ $I_p = 0$, $T_A = 25^\circ\text{C}$	Typ	Max
I_{dr}	Thermal drift of I_0	-25°C ... +80°C	± 0.5 mA
		-40°C ... -25°C	± 0.4 mA
			± 1.5 mA
t_r	Response time ⁴⁾ @ 90% of I_{In}	< 1	µs
d/dt	d/dt accurately followed	> 100	A/µs
f	Frequency bandwidth (-1dB)	DC ... 150	kHz

General data

T_a	Ambient operating temperature	-40 ... +80	°C
T_s	Ambient storage temperature	-50 ... +85	°C
R_s	Secondary coil resistance @	$T_A = 70^\circ\text{C}$	24.8 Ω
		$T_A = 80^\circ\text{C}$	25.6 Ω
m	Mass	1.5	kg
	Standards ⁵⁾	EN 50155	

- NOTES : ¹⁾ ± 15 V (-5%) ... ± 24 V (+20%)
²⁾ Between primary and secondary + shield
³⁾ Between secondary and shield
⁴⁾ With a drift of 100 A/µs
⁵⁾ All of corresponding tests is available.

Features

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

Special features

- $V_C = \pm 15 \dots 24 \text{ V}^1$
- $V_i = 10 \text{ kV}^2$
- $T_A = -40^\circ\text{C} \dots +80^\circ\text{C}$
- Internal shield connected to V_C^-
- Connection to secondary circuit on LEMDEEJ 1B.305.CYC.

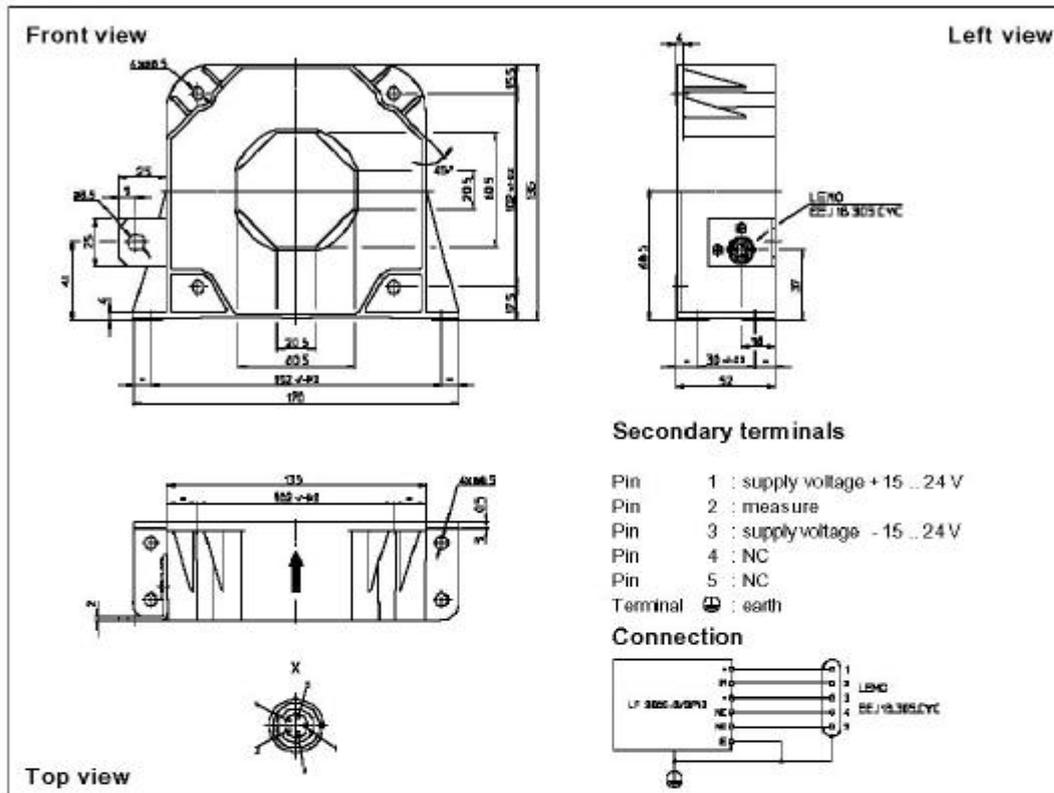
Advantages

- 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.

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Dimensions LF 2005-S/SP13 (in mm, 1 mm = 0.0394 inch)

Mechanical characteristics

- General tolerance ± 0.5 mm
- Fastening 4 holes $\varnothing 6.5$ mm
- Primary through-hole 60.5 x 60.5 mm
- Connection of secondary LEM0 EEJ.1B.305.CYC
- Connection to the ground hole $\varnothing 8.5$ mm

Remarks

- I_p 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.

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

5 SECURITY ADVICES

5.1 Installation

The LEM current transducers are designed for measurement high electrical currents, with a high galvanic isolation level. They are installed in equipment designed in the same way to make usage of high current and voltages. When mounting a transducer, the operator will follow the mounting instruction and security rules indicated for the profession. The secondary cables will be installed and maintained at the right distance, corresponding to the isolation level indicated for the installation.

Mechanical fastening of the transducer will be done with the appropriate means (see indication on the datasheet, page 4). Fastening torque will be followed.

5.2 Function

During function, the transducer is not dangerous as such, but the primary conductor installed into the primary hole. Safety for person is not different as the one given for the installation. The electrical isolation level is indicated in the datasheet (page 3).

6 ELIMINATION

The transducer is completely moulded. Therefore a separation of the various parts is possible only with difficulties. The elimination would so follow the way and mean dedicated to electronic devices.

6.1 Materials used in the transducer

UCLEM		90.14.69.013.0		LF 2005-S/SP13											
UCLEM		Number		Description											
Elements	Weight (gr)	Materials Name	Type	Composition	Manufacturer	Class UL	Standard	Density							
Housing Moulding Product 1	212.3	TECHNYL A20 V25	Plastic	PA 6.6+25% Glass Fiber	RHONE POULENC	V-0	I4 / F3	1.38							
Moulding Product 2	60.0	RTV627 Basis,Hardener	Plastic	Elastomer silicon Bi compound 1/1		V-0	I1 F0	1.39							
Moulding Product 2	480.0	TEDISTAC/SOSTAC D45003	Plastic	Polyurethan isocbi-compound (Polyether 100 / Diisocyanat 10)	STAC	V-0	I3 F1	1.45							
Magnetical Circuit	110.0	Iron-Silicon	Metal	Iron-Silicon (25% Si)	Parmag Ltd.										
Magnetical Core Protection	1.0	PP NAT.	Plastic	PP NAT (HB)											
Printed Circuit Board A	19.4	FR4	Plastic	Epoxy resin + 40%GF	Isola, and others	V-0	I1 F3	1.85							
Secondary Winding Wire	670.0	Copper wire - LOTAN C13P	Metal	Copper wire Enamelled with Polyurethan varnish	HUBER+SUHNER	V-0	no class								
Total	1452.7														
UCLEM		Number		Description											
Elements	% of recyclable materials	End of life indicator			Waste production	Material warning	Temp. 0.45 Mpa	Temp. 1.0 Mpa	Calorific Value	Mechanical Charpy [KJ/m2]	Mechanical load [KJ/m2]	CTI	Dielectric strenght	Magnetic coercivity	Magnetic induction
Housing Moulding Product 1	0	0	0	0	0	0	None	250	250	0	73 [J/m2]	375	16		
Moulding Product 2	0	0	0	0	0	0	Diisocyanat					600	22		
Magnetical Circuit	100	0	100	100	0	0	None								
Magnetical Core Protection	0	0	0	0	0	0									
Printed Circuit Board A	0	0	0	0	0	0					0.45 [KJ/m2]	min. 175			
Secondary Winding Wire	100	100	100	100	0	1									
Total															