Current Transducer LF 305-S/SP1

I_{PN} = 300 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).

Preliminary

Electrical data

I_{PN}	Primary nominal r.m.s. current		300		A
I_P	Primary current, measuring range		0 .. ± 500		A
R_M	Measuring resistance		$R_{M\,min}$	$R_{M\,max}$	
	with ± 15 V	@ ± 300 A_{max}	5	58	Ω
		@ ± 500 A_{max}	5	22	Ω
I_{SN}	Secondary nominal r.m.s. current		150		mA
K_N	Conversion ratio		1 : 2000		
V_C	Supply voltage (± 5 %)		± 15		V
I_C	Current consumption		16 + I_S		mA
V_d	R.m.s. voltage for AC isolation test, 50 Hz, 1 mn		6		kV

Accuracy - Dynamic performance data

X_G	Overall accuracy @ I_{PN} , T_A = 25°C		± 0.4		%
ε_L	Linearity		< 0.1		%
			Typ	Max	
I_O	Offset current @ I_P = 0, T_A = 25°C			± 0.20	mA
I_{OM}	Residual current [1] @ I_P = 0, after an overload of 3 x I_{PN}			± 0.08	mA
I_{OT}	Thermal drift of I_O	- 25°C .. + 85°C	± 0.30	± 0.70	mA
t_{ra}	Reaction time @ 10 % of I_{PN}		< 500		ns
t_r	Response time [2] @ 90 % of I_{PN}		< 1		µs
di/dt	di/dt accurately followed		> 100		A/µs
f	Frequency bandwidth (- 1 dB)		DC .. 100		kHz

General data

T_A	Ambient operating temperature		- 25 .. + 85	°C
T_S	Ambient storage temperature		- 40 .. + 90	°C
R_S	Secondary coil resistance @ T_A = 85°C		29	Ω
m	Mass		95	g
	Standard		EN 50178	

Notes : [1] The result of the coercive field of the magnetic circuit
[2] 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

- I_P = 0 .. ± 500 A
- V_C = ± 15 (± 5 %) V
- T_A = - 25°C .. + 85°C

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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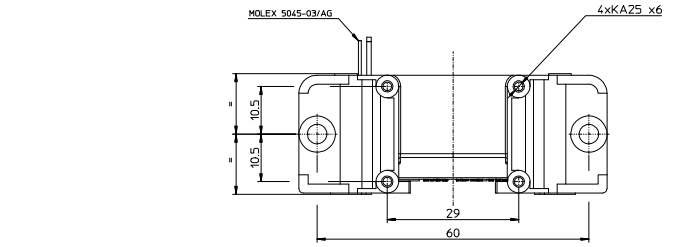
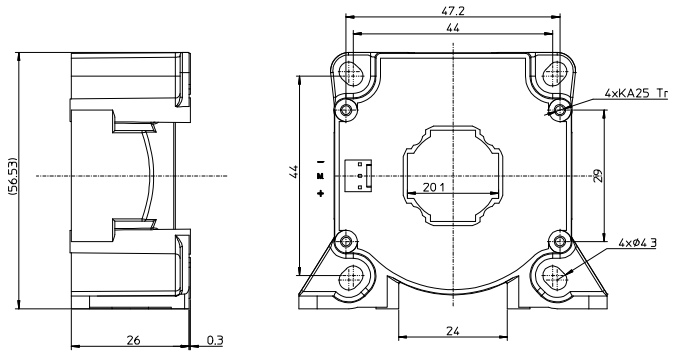
Dimensions LF 305-S/SP1 (in mm. 1 mm = 0.0394 inch)

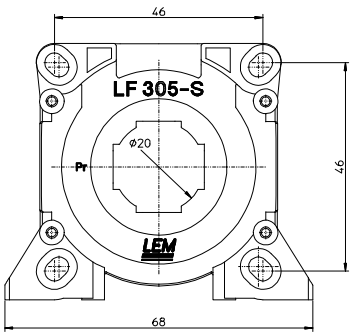
Front view





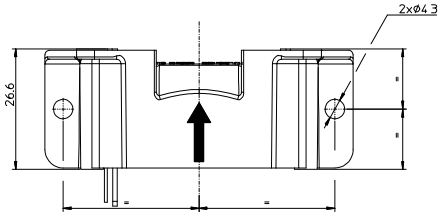
Secondary terminals

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

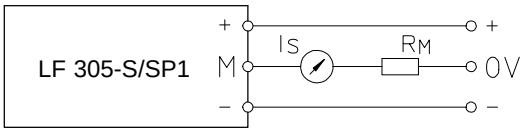


Right view

Bottom view



Connection



Back view

Mechanical characteristics

• General tolerance	± 0.5 mm
• Fastening	4 holes ∅ 4.3 mm
or	2 holes ∅ 4.3 mm
or	3 x 4 PT KA25 screws
• Primary through-hole	∅ 20 mm
• Connection of secondary	Molex 5045-03/AG

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.