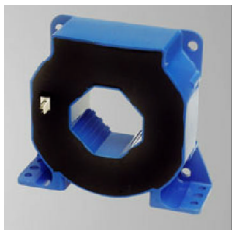
Current Transducer LF 305-S

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 ± 12 V	@ ± 300 A_{max}	0	39	Ω
		@ ± 500 A_{max}	0	12	Ω
	with ± 15 V	@ ± 300 A_{max}	0	58	Ω
		@ ± 500 A_{max}	0	22	Ω
	with ± 20 V	@ ± 300 A_{max}	15	93	Ω
		@ ± 500 A_{max}	15	45	Ω
I_{SN}	Secondary nominal r.m.s. current		150		mA
K_N	Conversion ratio		1 : 2000		
V_C	Supply voltage (± 5 %)		± 12 .. 20		V
I_C	Current consumption		16 (@±20V) + I_S		mA
V_d	R.m.s. voltage for AC isolation test, 50 Hz, 1 mn		3		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	- 10°C .. + 70°C	± 0.1	± 0.30	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		- 10 .. + 70	°C
T_S	Ambient storage temperature		- 25 .. + 85	°C
R_S	Secondary coil resistance @ T_A = 70°C		28	Ω
m	Mass		95	g
	Standards [3]		EN 50178	

Features

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

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.

Notes : [1] The result of the coercive field of the magnetic circuit
[2] With a di/dt of 100 A/µs
[3] A list of corresponding tests is available

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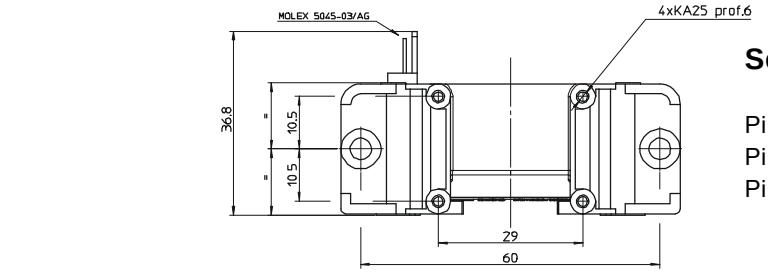
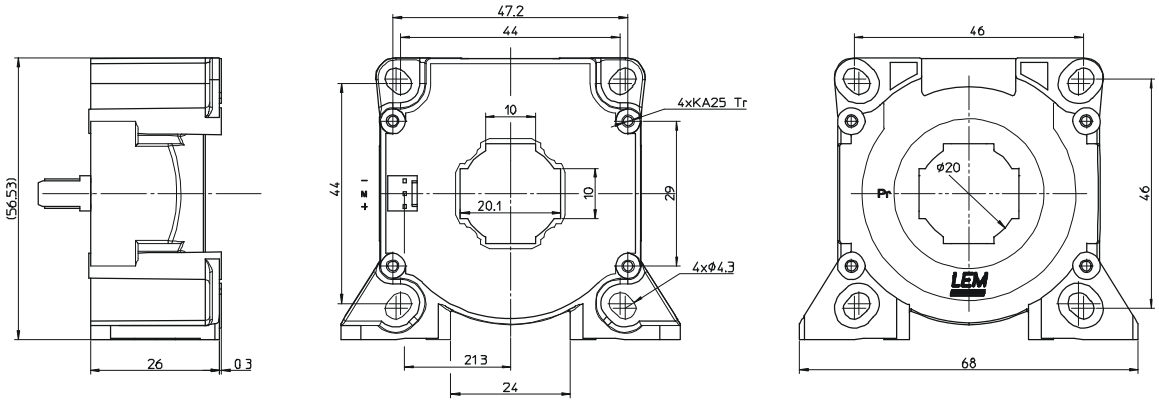
Dimensions LF 305-S (in mm. 1 mm = 0.0394 inch)

Bottom view

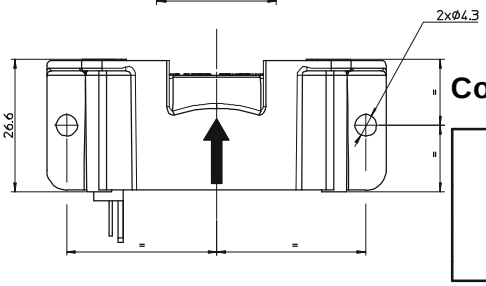


Secondary terminals

Pin + : supply voltage + 12 .. 20 V
Pin M : measure
Pin - : supply voltage - 12 .. 20 V



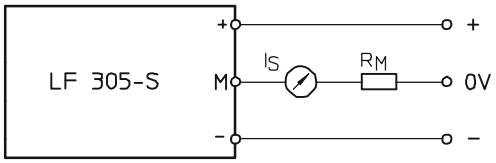
Right view



Back view

Top view

Connection



Mechanical characteristics

- General tolerance ± 0.5 mm
- Fastening see drawing
- Primary through-hole ∅ 20 mm
- Connection of secondary Molex 5045-03/AG

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.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.

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