

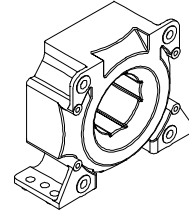
Current Transducer LF 505-S

$I_{PN} = 500 \text{ A}$

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).



Preliminary



Electrical data

I_{PN}	Primary nominal r.m.s. current	500	A		
I_p	Primary current, measuring range	0 .. ± 800	A		
R_M	Measuring resistance	$R_{M \min}$	$R_{M \max}$		
		with $\pm 15 \text{ V}$	@ $\pm 500 \text{ A}_{\max}$	0	60 Ω
			@ $\pm 800 \text{ A}_{\max}$	0	11 Ω
		with $\pm 18 \text{ V}$	@ $\pm 500 \text{ A}_{\max}$	0	92 Ω
	@ $\pm 800 \text{ A}_{\max}$	0	30 Ω		
	with $\pm 24 \text{ V}$	@ $\pm 500 \text{ A}_{\max}$	5	149 Ω	
		@ $\pm 800 \text{ A}_{\max}$	5	65 Ω	
I_{SN}	Secondary nominal r.m.s. current	100	mA		
K_N	Conversion ratio	1 : 5000			
V_C	Supply voltage ($\pm 5 \%$)	$\pm 15 \dots 24$	V		
I_C	Current consumption	24 (@ $\pm 18 \text{ V}$) + I_s	mA		
V_d	R.m.s. voltage for AC isolation test, 50 Hz, 1 mn	3	kV		

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.

Accuracy - Dynamic performance data

X_G	Overall accuracy @ $I_p, T_A = 25^\circ\text{C}$	± 0.6	%
\mathcal{E}_L	Linearity	< 0.1	%
		Typ	Max
I_o	Offset current @ $I_p = 0, T_A = 25^\circ\text{C}$	± 0.4	mA
I_{OT}	Thermal drift of I_o - $10^\circ\text{C} \dots +70^\circ\text{C}$	$\pm 0.3 \pm 0.5$	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 .. 100	kHz

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.

General data

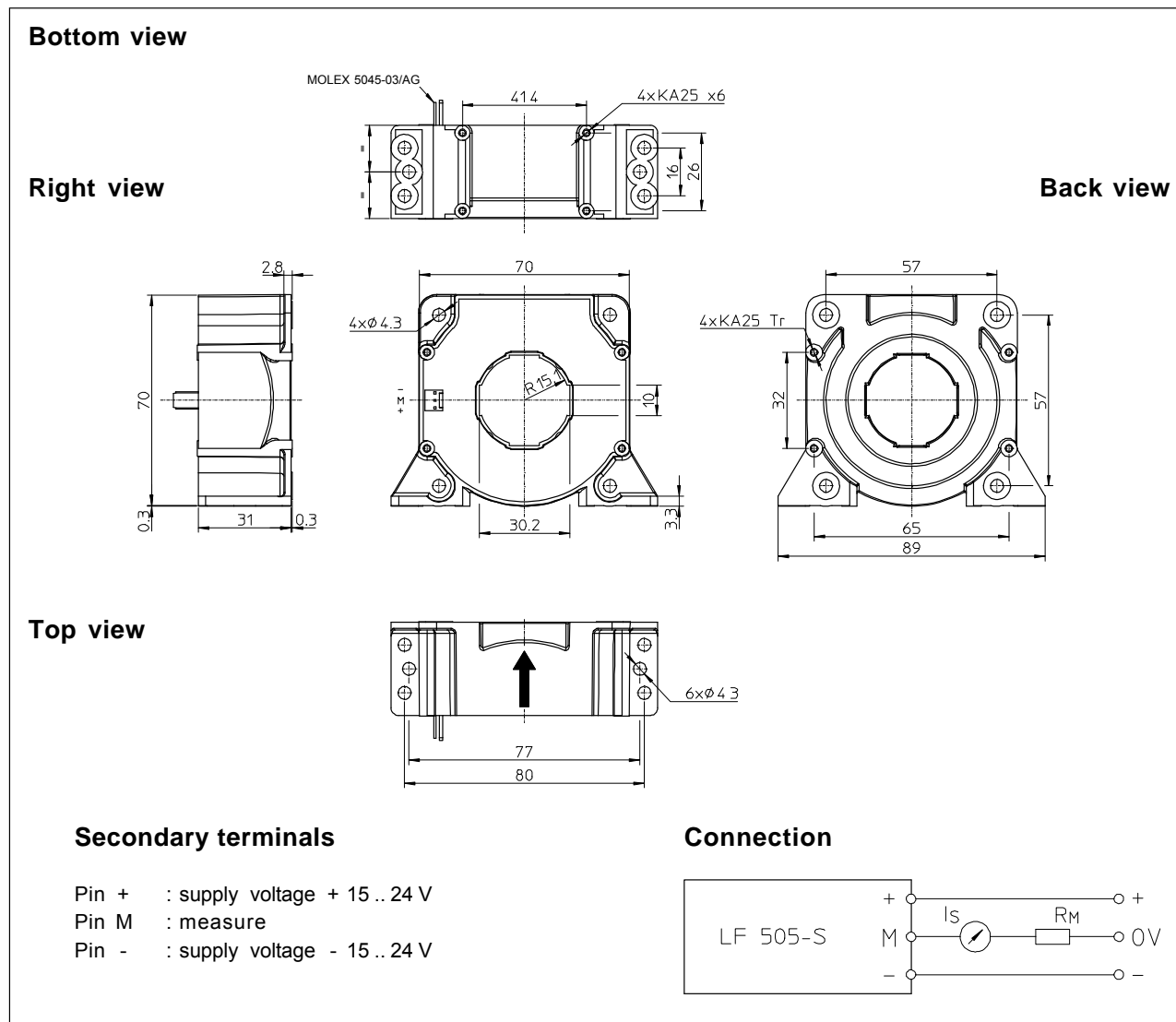
T_A	Ambient operating temperature	- 10 .. + 70	$^\circ\text{C}$
T_S	Ambient storage temperature	- 25 .. + 85	$^\circ\text{C}$
R_S	Secondary coil resistance @ $T_A = 70^\circ\text{C}$	70	Ω
m	Mass	230	g
	Standards ²⁾	EN 50155	
		EN 50178	

Notes : ¹⁾ With a di/dt of 100 A/ μs

²⁾ A list of corresponding tests is available

010327/4

Dimensions LF 505-S (in mm. 1 mm = 0.0394 inch)



Mechanical characteristics

- General tolerance ± 0.5 mm
- Fastening see drawing
- Primary through-hole 30.2 x 30.2 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.