

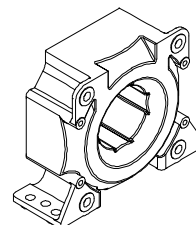
# Current Transducer LF 505-S

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

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 .. $\pm 800$	A		
$R_M$	Measuring resistance	$R_{M \min}$	$R_{M \max}$		
				with $\pm 15 \text{ V}$	@ $\pm 500 \text{ A}_{\max}$
		@ $\pm 800 \text{ A}_{\max}$	0	11	$\Omega$
	with $\pm 18 \text{ V}$	@ $\pm 500 \text{ A}_{\max}$	0	92	$\Omega$
		@ $\pm 800 \text{ A}_{\max}$	0	30	$\Omega$
	with $\pm 24 \text{ V}$	@ $\pm 500 \text{ A}_{\max}$	5	149	$\Omega$
	@ $\pm 800 \text{ A}_{\max}$	5	65	$\Omega$	
$I_{SN}$	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 @ $I_{PN}$ , $T_A = 25^\circ\text{C}$	$\pm 0.6$	%
$\epsilon_L$	Linearity	$< 0.1$	%
		Typ	Max
$I_O$	Offset current @ $I_P = 0$ , $T_A = 25^\circ\text{C}$	$\pm 0.4$	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 <sup>1)</sup> @ 90 % of $I_{PN}$	$< 1$	$\mu\text{s}$
$di/dt$	$di/dt$ accurately followed	$> 100$	A/ $\mu\text{s}$
$f$	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

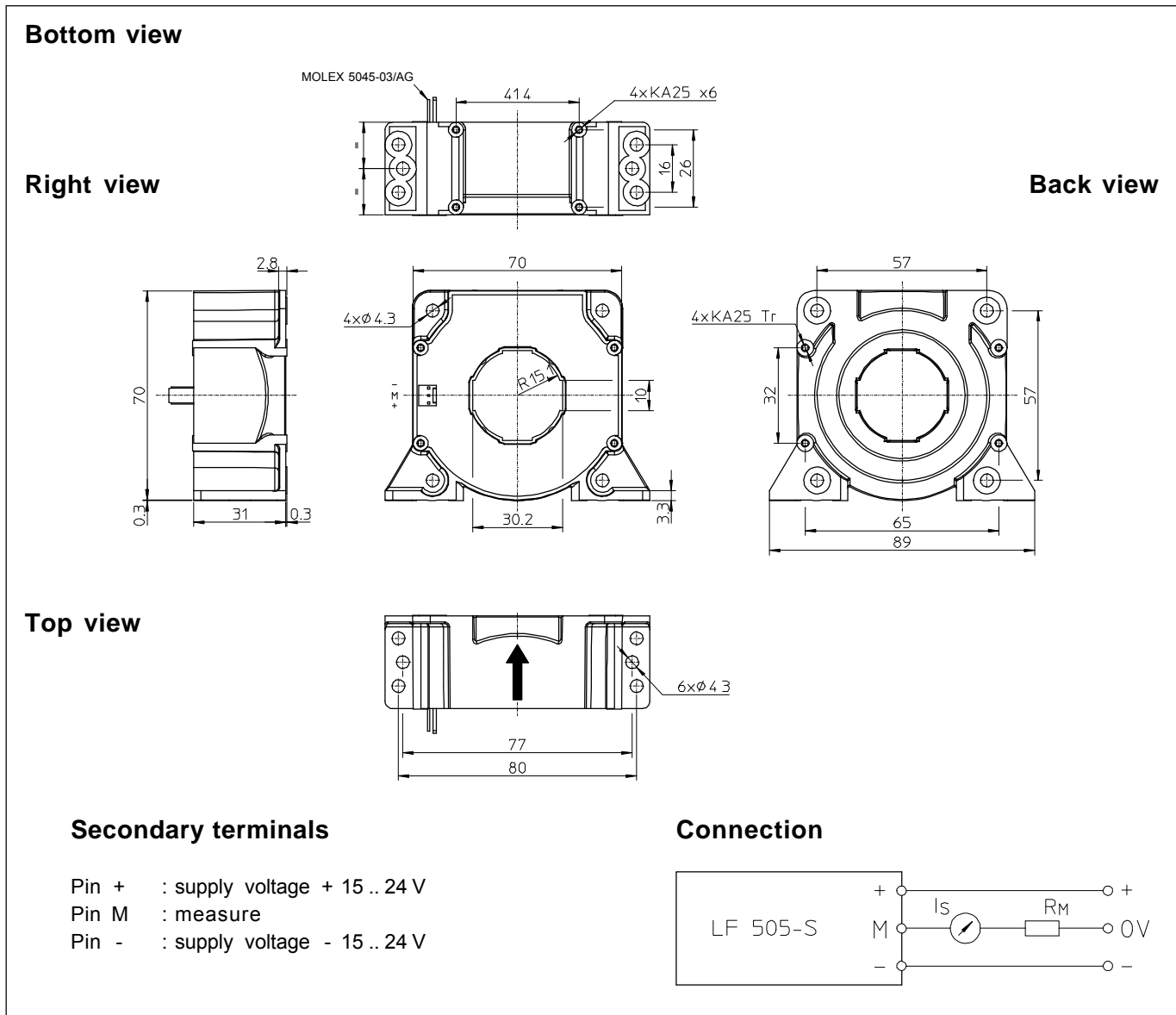
$T_A$	Ambient operating temperature	- 10 .. + 70	$^\circ\text{C}$
$T_S$	Ambient storage temperature	- 25 .. + 85	$^\circ\text{C}$
$R_S$	Secondary coil resistance @ $T_A = 70^\circ\text{C}$	70	$\Omega$
$m$	Mass	230	g
	Standards <sup>2)</sup>	EN 50155	
		EN 50178	

Notes : <sup>1)</sup> With a  $di/dt$  of 100 A/ $\mu\text{s}$

<sup>2)</sup> A list of corresponding tests is available

010327/4

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



## Mechanical characteristics

- General tolerance  $\pm 0.5$  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.