

# Current Transducer LF 505-S/SP23

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

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).



## Electrical data

$I_{PN}$	Primary nominal r.m.s. current	500	A
$I_P$	Primary current, measuring range	0 .. $\pm 1000$	A
$R_M$	Measuring resistance with $\pm 24 \text{ V}$	$R_{M \min}$	$R_{M \max}$
		@ $\pm 500 \text{ A}_{\max}$	0    114 $\Omega$
		@ $\pm 1000 \text{ A}_{\max}$	0    9 $\Omega$
$I_{SN}$	Secondary nominal r.m.s. current	100	mA
$K_N$	Conversion ratio	1 : 5000	
$V_C$	Supply voltage ( $\pm 5 \%$ )	$\pm 24$	V
$I_C$	Current consumption	$34 + I_S$	mA
$V_d$	R.m.s. voltage for AC isolation test, 50 Hz, 1 mn	6 <sup>1)</sup>	kV
		0.5 <sup>2)</sup>	kV

## Features

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

## Special features

- $I_P = 0 .. \pm 1000 \text{ A}$
- $V_C = \pm 24 (\pm 5 \%) \text{ V}$
- $T_A = -40^\circ\text{C} .. +85^\circ\text{C}$
- Shield between primary and secondary
- Connection to secondary on screened cable 3 x 0.5 mm<sup>2</sup>.

## Accuracy - Dynamic performance data

$X_G$	Overall accuracy @ $I_{PN}, T_A = 25^\circ\text{C}$	$\pm 0.6$	%
$\mathcal{E}_L$	Linearity error	$< 0.1$	%
$I_O$	Offset current @ $I_P = 0, T_A = 25^\circ\text{C}$	Typ	Max
		$\pm 0.3$	$\pm 0.4$ mA
$I_{OT}$	Thermal drift of $I_O$ - 40°C .. + 85°C	$\pm 0.3$	$\pm 0.8$ mA
$t_r$	Response time <sup>3)</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

## Advantages

- Excellent accuracy
- Very good linearity
- Low temperature drift
- Optimized response time
- Wide frequency bandwidth
- No insertion losses.

## General data

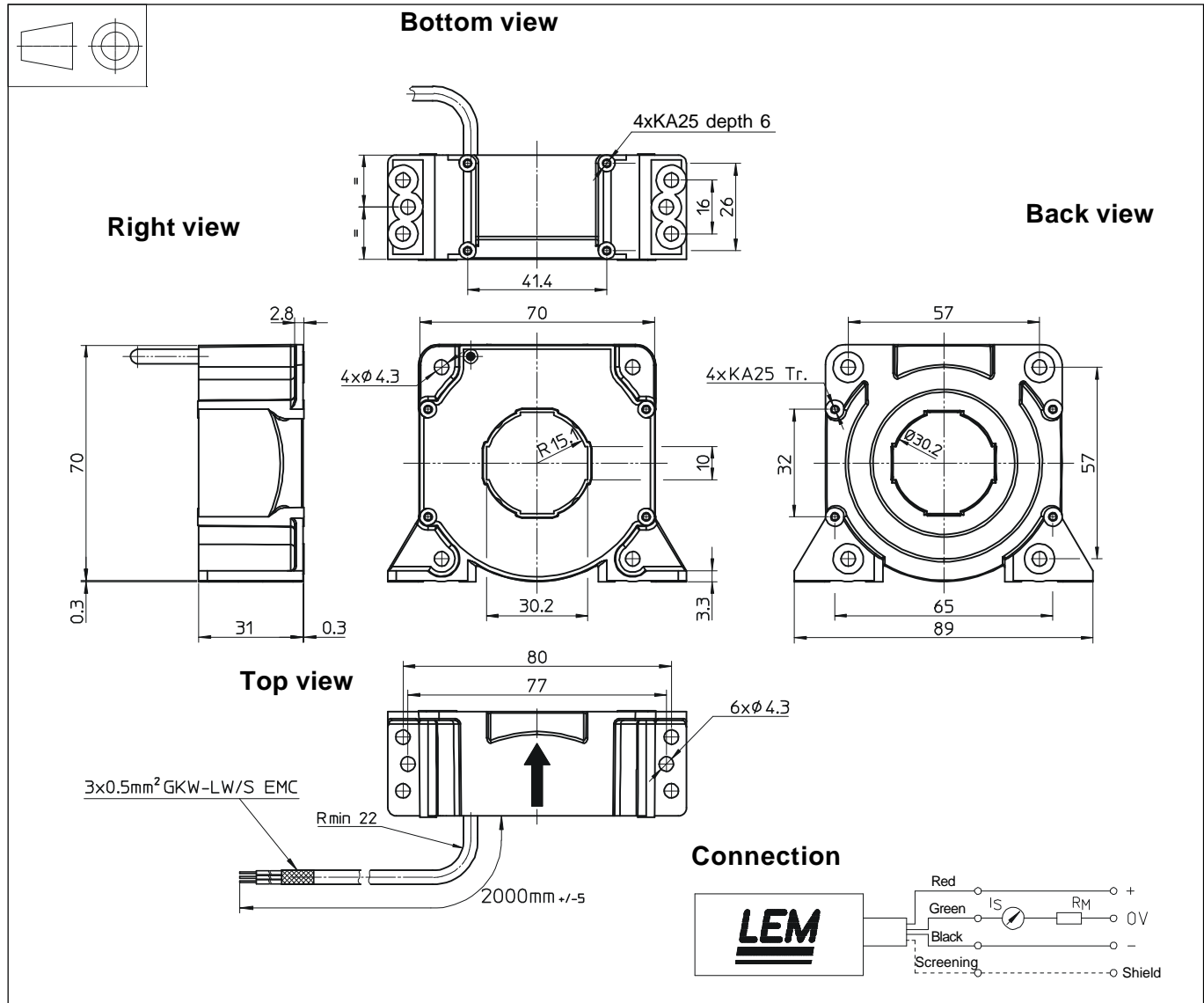
$T_A$	Ambient operating temperature	- 40 .. + 85	$^\circ\text{C}$
$T_S$	Ambient storage temperature	- 45 .. + 90	$^\circ\text{C}$
$R_S$	Secondary coil resistance @ $T_A = 85^\circ\text{C}$	96	$\Omega$
$m$	Mass	230	g
	Standards	EN 50155 (95.11.01) EN 50178 (97.10.01)	

## 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 :** <sup>1)</sup> Between primary and secondary + shield insulation voltage of the cable confirmed by Huber & Suhner  
<sup>2)</sup> Between secondary and shield  
<sup>3)</sup> With a di/dt of 100 A/ $\mu\text{s}$ .

## Dimensions LF 505-S/SP23 (in mm. 1 mm = 0.0394 inch)



### Mechanical characteristics

- General tolerance  $\pm 0.5$  mm
- Transducer fastening
  - Vertical or flat lying position 4 or 6 holes  $\varnothing 4.3$  mm
  - 4 or 6 steel screws M4
  - Recommended fastening torque 3.2 Nm or 2.36 Lb.-Ft.
  - Or vertical position 4 holes  $\varnothing 1.9$  mm, Depth:6 mm
  - 4 screws PTKA25, length: 6 mm
  - Recommended fastening torque 0.7 Nm or 0.52 Lb.-Ft.
  - Or flat lying position 4 holes  $\varnothing 1.9$  mm, crossing
  - 4 screws PTKA25, length:10 mm
- Primary through-hole  $\varnothing 30.2$  mm
- Connection of secondary screened cable 3 x 0.5 mm<sup>2</sup>

### 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.