

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 .. ± 1000	A	
R_M	Measuring resistance with $\pm 24 \text{ V}$	$R_{M \min}$	$R_{M \max}$	
		@ $\pm 500 \text{ A}_{\max}$	0 114	Ω
		@ $\pm 1000 \text{ A}_{\max}$	0 9	Ω
I_{SN}	Secondary nominal r.m.s. current	100	mA	
K_N	Conversion ratio	1 : 5000		
V_C	Supply voltage ($\pm 5 \%$)	± 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 ¹⁾	kV	
		0.5 ²⁾	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 mm².

Accuracy - Dynamic performance data

X_G	Overall accuracy @ $I_{PN}, T_A = 25^\circ\text{C}$	± 0.6	%	
\mathcal{E}_L	Linearity error	< 0.1	%	
I_O	Offset current @ $I_P = 0, T_A = 25^\circ\text{C}$	Typ	Max	
			± 0.4	mA
I_{OT}	Thermal drift of I_O - 40°C .. + 85°C	± 0.3	± 0.8	mA
t_r	Response time ³⁾ @ 90 % of I_{PN}	< 1	μs	
di/dt	di/dt accurately followed	> 100	A/ μs	
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

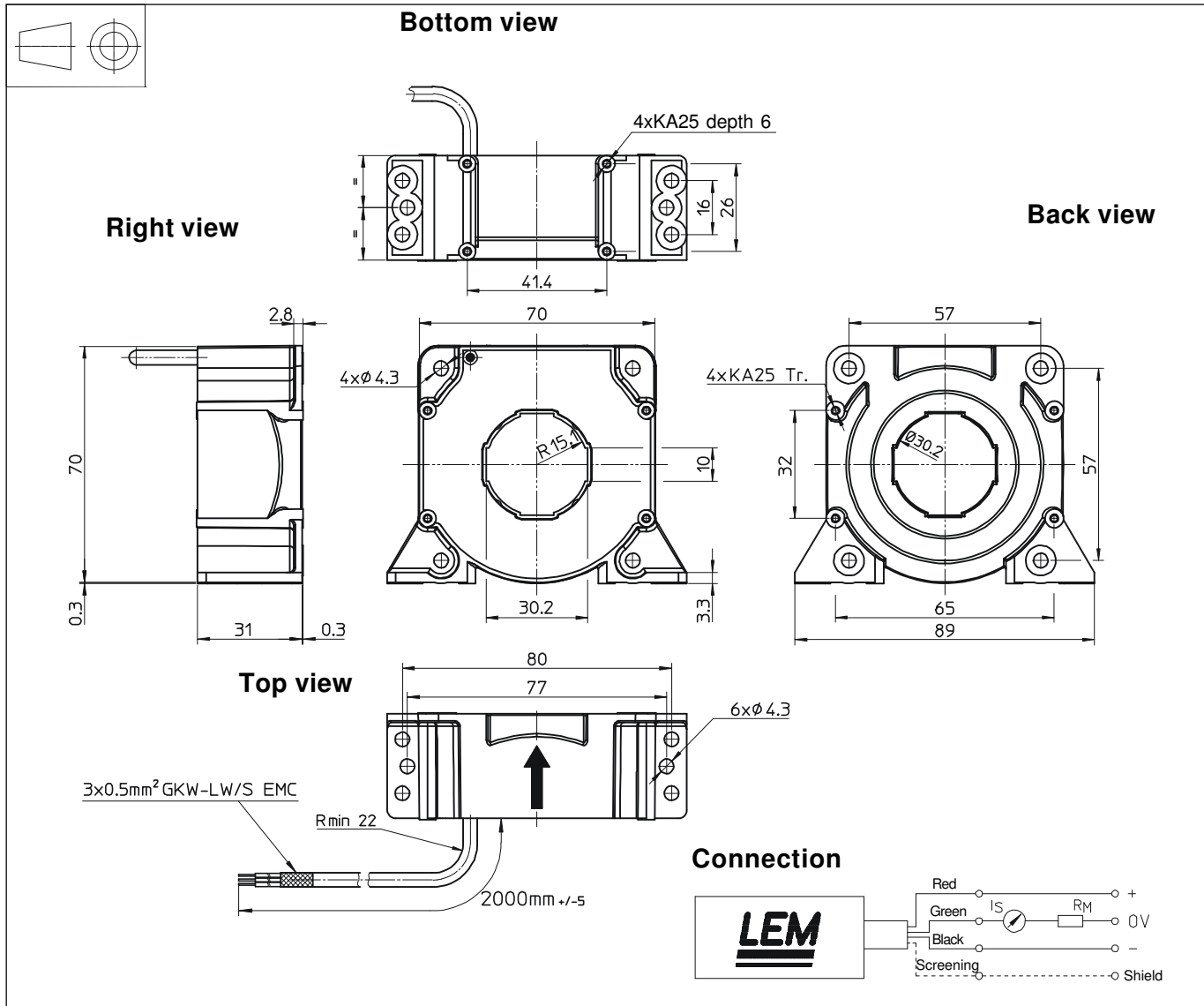
T_A	Ambient operating temperature	- 40 .. + 85	$^\circ\text{C}$
T_S	Ambient storage temperature	- 45 .. + 90	$^\circ\text{C}$
R_S	Secondary coil resistance @ $T_A = 85^\circ\text{C}$	96	Ω
m	Mass	230	g
	Standards	EN 50155 (95.11.01)	
		EN 50178 (97.10.01)	

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 : ¹⁾ Between primary and secondary + shield insulation voltage of the cable confirmed by Huber & Suhner
²⁾ Between secondary and shield
³⁾ With a di/dt of 100 A/ μs .

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



Mechanical characteristics

- General tolerance ± 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 mm²

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.