

Current Transducer LB 500-S/SP1

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

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 .. ± 750	A
R_M	Measuring resistance	$R_{M \min}$ $R_{M \max}$	
	with $\pm 15 \text{ V}$	@ $\pm 500 \text{ A}_{\max}$	5 33 Ω
		@ $\pm 750 \text{ A}_{\max}$	5 15 Ω
I_{SN}	Secondary nominal r.m.s. current	200	mA
K_N	Conversion ratio	1 : 2500	
V_C	Supply voltage ($\pm 5 \%$)	± 15	V
I_C	Current consumption	$20 + I_S$	mA
V_d	R.m.s. voltage for AC isolation test, 50 Hz, 1 mn	6 ¹⁾	kV

Accuracy - Dynamic performance data

X	Accuracy @ I_{PN} , $T_A = 25^\circ\text{C}$	± 0.5	%
e_L	Linearity	< 0.1	%
I_O	Offset current @ $I_P = 0$, $T_A = 25^\circ\text{C}$	Typ	Max
I_{OT}	Thermal drift of I_O + $10^\circ\text{C} \dots + 50^\circ\text{C}$	± 0.500	mA
		± 0.064	mA
t_r	Response time ²⁾ @ 90 % of I_{PN}	< 1	μs
di/dt	di/dt accurately followed	> 50	A/ μs
f	Frequency bandwidth (- 1 dB)	DC .. 150	kHz
	Zero crossing distortion	negligeable	

General data

T_A	Ambient operating temperature	+ 10 .. + 50	$^\circ\text{C}$
T_S	Ambient storage temperature	- 25 .. + 85	$^\circ\text{C}$
R_S	Secondary coil resistance @ $T_A = 50^\circ\text{C}$	30	Ω
m	Mass	670	g
	Standards	EN 50178	

Features

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

Special features

- $V_C = \pm 15 (\pm 5 \%) \text{ V}$
- $K_N = 1 : 2500$
- Low thermal offset drift with temperature
- Better zero crossing performance
- $T_A = + 10^\circ\text{C} \dots + 50^\circ\text{C}$
- Shield between primary and secondary connected to V_C "- "

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

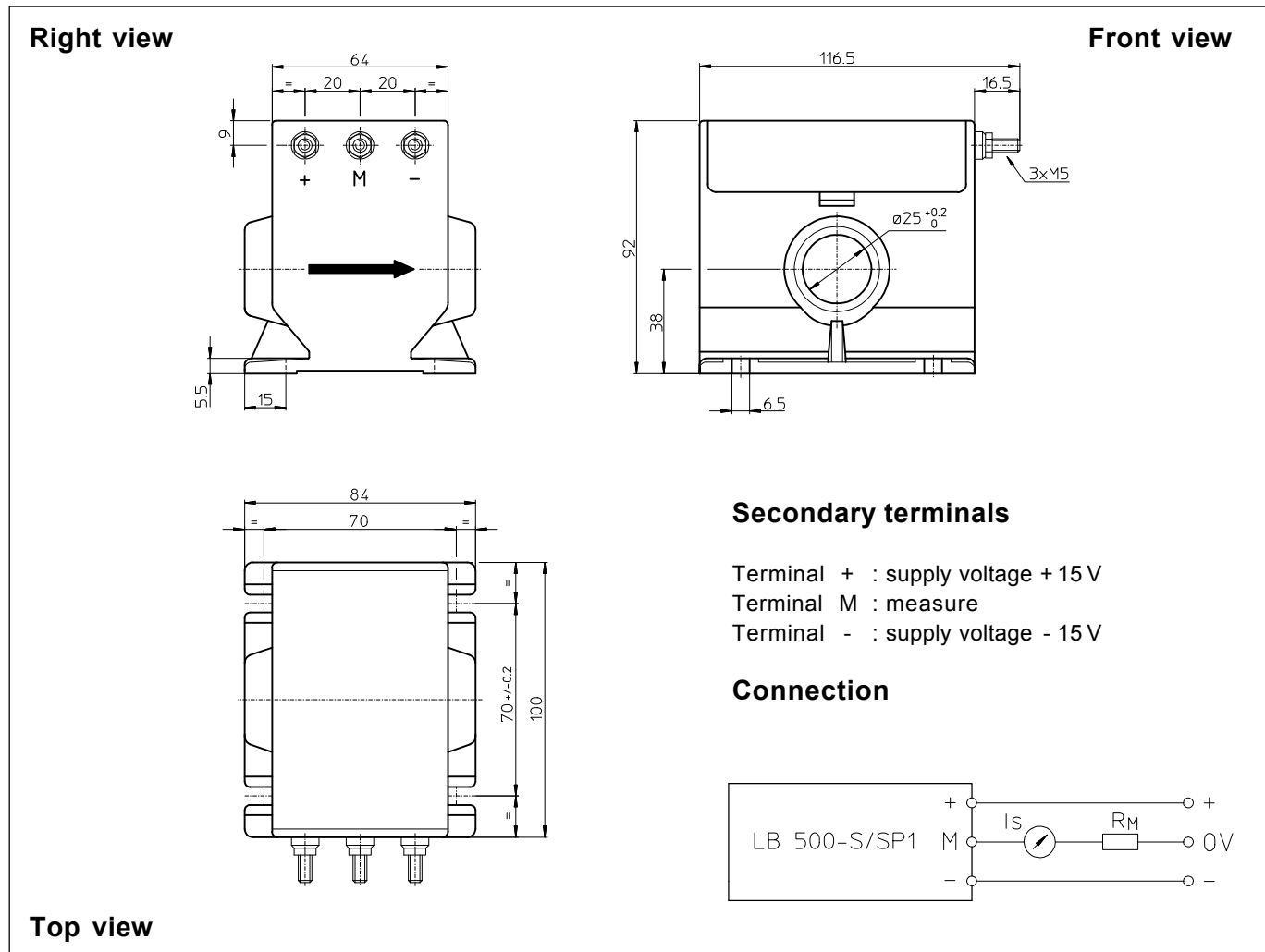
- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications
- HVDC transmissions.

Notes : ¹⁾ Between primary and secondary.

²⁾ With a di/dt of 100 A/ μs

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Dimensions LB 500-S/SP1 (in mm. 1 mm = 0.0394 inch)



Mechanical characteristics

- General tolerance: ± 0.5 mm
- Fastening: 4 slots $\varnothing 6.5$ mm
- Primary through-hole: $\varnothing 25$ mm
- Connection of secondary: M5 threaded studs
- Fastening torque: 2.2 Nm or 1.62 Lb. - Ft.

Remarks

- I_s is positive when I_p flows in the direction of the arrow.
- Temperature of the primary conductor should not exceed 70°C.
- Dynamic performances (di/dt and response time) are best with a single bar completely filling the primary hole.