

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

## Accuracy - Dynamic performance data

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

## 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	$\Omega$
$m$	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.

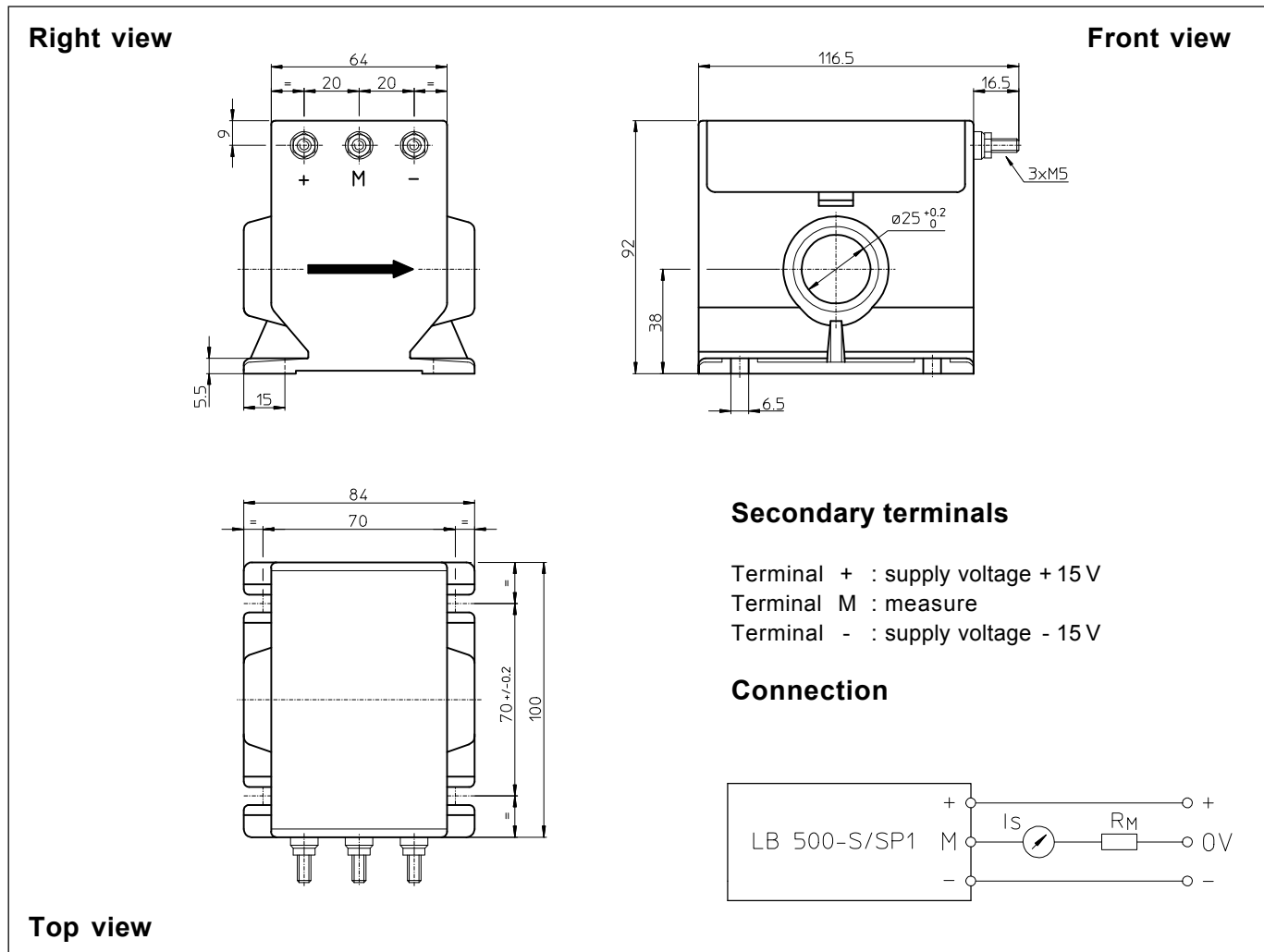
## Applications

- 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 : <sup>1)</sup> Between primary and secondary.

<sup>2)</sup> With a di/dt of 100 A/ $\mu\text{s}$

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



## Mechanical characteristics

- General tolerance  $\pm 0.5$  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.