

# Current Transducer LF 1005-S/SP14

$I_{PN} = 1000 \text{ A}$

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).



16199

## Electrical data

$I_{PN}$	Primary nominal r.m.s. current	1000	A
$I_p$	Primary current, measuring range	0 .. $\pm 1500$	A
$R_M$	Measuring resistance with $\pm 24 \text{ V}$	$R_{M \text{ min}}$	$R_{M \text{ max}}$
		@ $\pm 1000 \text{ A}_{\text{max}}$	3    50 $\Omega$
		@ $\pm 1500 \text{ A}_{\text{max}}$	3    15 $\Omega$
$I_{SN}$	Secondary nominal r.m.s. current	200	mA
$K_N$	Conversion ratio	1 : 5000	
$V_C$	Supply voltage ( $\pm 5 \%$ )	$\pm 24$	V
$I_C$	Current consumption	$28 + I_s$	mA
$V_d$	R.m.s. voltage for AC isolation test, 50 Hz, 1 mn	$6^{1) 2)}$	kV
		$1^{3)}$	kV

## Features

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

## Special features

- $V_C = \pm 24 (\pm 5 \%) \text{ V}$
- $V_d = 6 \text{ kV}$
- $T_A = -40^\circ\text{C} \dots +85^\circ\text{C}$
- Shield between primary and secondary
- Connection to secondary circuit on M4 threaded studs
- Railway equipment.

## Accuracy - Dynamic performance data

$X_G$	Overall accuracy @ $I_{PN}, T_A = 25^\circ\text{C}$	$\pm 0.5$	%
$\epsilon_L$	Linearity	$< 0.1$	%
$I_o$	Offset current @ $I_p = 0, T_A = 25^\circ\text{C}$	Typ	Max
			$\pm 0.4$ mA
$I_{OT}$	Thermal drift of $I_o$ -40°C .. +85°C	$\pm 0.3$	$\pm 0.8$ mA
$t_r$	Response time <sup>4)</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 .. 150	kHz

## 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.

## General data

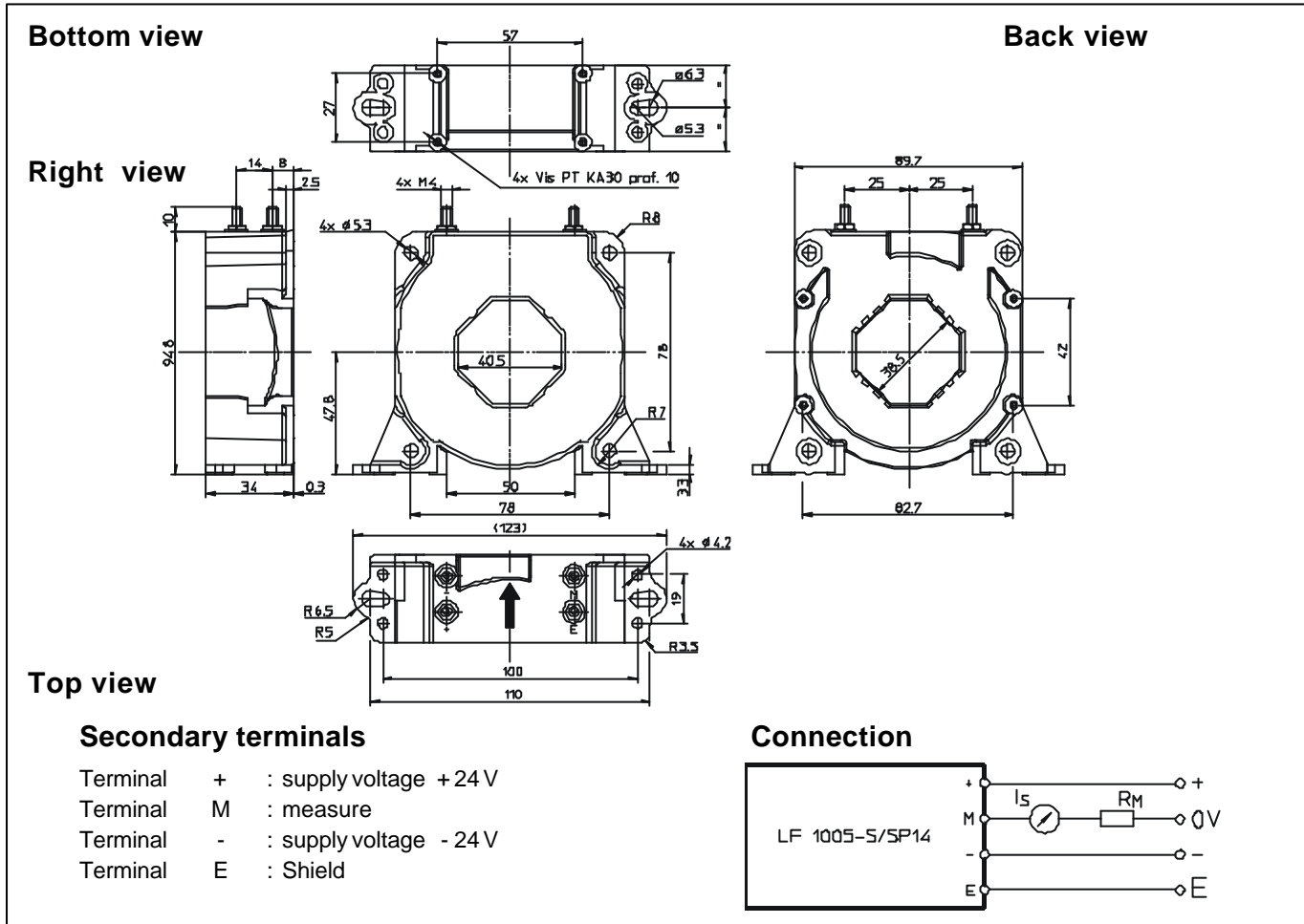
$T_A$	Ambient operating temperature	-40 .. +85	$^\circ\text{C}$
$T_S$	Ambient storage temperature	-45 .. +100	$^\circ\text{C}$
$R_S$	Secondary coil resistance @ $T_A = 85^\circ\text{C}$	55	$\Omega$
$m$	Mass	500	g
	Standards	EN 50155	

## 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) With a primary bar which fills the through-hole  
 2) Between primary and secondary + shield  
 3) Between secondary and shield  
 4) With a di/dt of 100 A/ $\mu\text{s}$ .

## Dimensions LF 1005-S/SP14 (in mm. 1 mm = 0.0394 inch)



### Mechanical characteristics

- General tolerance  $\pm 0.5$  mm
- Transducer fastening
  - Vertical position
    - 2 holes  $\varnothing 5.3$  mm
    - 2 M5 steel screws
    - Fastening torque, max. 4 Nm or 2.92 Lb. - Ft.
    - or
    - 2 holes  $\varnothing 6.3$  mm
    - 2 M6 steel screws
    - Fastening torque, max. 5 Nm or 3.69 Lb. - Ft.
    - or
    - 4 holes  $\varnothing 4.2$  mm
    - 4 M4 steel screws
    - Fastening torque, max. 3.2 Nm or 2.34 Lb. - Ft.
    - or
    - 4 holes  $\varnothing 2.25$  mm depth 10 mm
    - 4 x PT KA30 screws long 10 mm
    - Fastening torque, max. 0.9 Nm or 0.66 Lb. - Ft.
  - Horizontal position
    - 4 holes  $\varnothing 5.3$  mm
    - 4 M5 steel screws
    - Fastening torque, max. 4 Nm or 2.92 Lb. - Ft.
    - or
    - 4 holes  $\varnothing 2.25$  mm depth 16 mm
    - 4 x PT KA30 screws long 16 mm
    - Fastening torque, max. 1 Nm or 0.73 Lb. - Ft.
- Primary through-hole 40.5 x 40.5 mm
- Connection of secondary M4 threaded studs
- Fastening torque, max. 1.2 Nm or .88 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 100°C.
- Dynamic performances (di/dt and response time) are best with a single bar completely filling the primary hole.