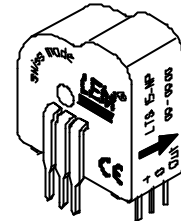


# Current Transducer LTS 15-NP

$I_{PN} = 5 - 7.5 - 15 \text{ A}$

For the electronic measurement of currents : DC, AC, pulsed, mixed, 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	15	At
$I_P$	Primary current, measuring range	0 .. $\pm 45$	At
$V_{OUT}$	Analog output voltage @ $I_P$	$2.5 \pm (0.625 \cdot I_P / I_{PN})$	V
	$I_P = 0$	2.5 <sup>1)</sup>	V
$N_S$	Number of secondary turns ( $\pm 0.1 \%$ )	2000	
$R_L$	Load resistance	$\geq 2$	k $\Omega$
$R_{IM}$	Internal measuring resistance ( $\pm 0.5 \%$ )	83.33	$\Omega$
$TCR_{IM}$	Thermal drift of $R_{IM}$	$< 50$	ppm/K
$V_C$	Supply voltage ( $\pm 5 \%$ )	5	V
$I_C$	Current consumption @ $V_C = 5 \text{ V}$	Typ $23 + I_S^2 + (V_{OUT} / R_L)$	m A
$V_d$	R.m.s. voltage for AC isolation test, 50/60 Hz, 1 mn	3	kV
$V_e$	R.m.s. voltage for partial discharge extinction @ 10 pC	$> 1.5$	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 $\mu$ s	$> 8$	kV

## Accuracy - Dynamic performance data

$X$	Accuracy @ $I_{PN}, T_A = 25^\circ\text{C}$	$\pm 0.2$	%
	Accuracy with $R_{IM}$ @ $I_{PN}, T_A = 25^\circ\text{C}$	$\pm 0.7$	%
$\epsilon_L$	Linearity	$< 0.1$	%
$TCV_{OUT}$	Thermal drift of $V_{OUT}$ @ $I_P = 0$	-10 $^\circ\text{C}$ .. +85 $^\circ\text{C}$	Typ 100, Max 150 ppm/K
$TCE_G$	Thermal drift of the gain	-10 $^\circ\text{C}$ .. +85 $^\circ\text{C}$	50 <sup>3)</sup> ppm/K
$V_{OM}$	Residual voltage @ $I_P = 0$ , after an overload of	$3 \times I_{PN}$ $5 \times I_{PN}$ $10 \times I_{PN}$	$\pm 0.5$ mV $\pm 2.0$ mV $\pm 2.0$ mV
$t_{ra}$	Reaction time @ 10 % of $I_{PN}$	$< 50$	ns
$t_r$	Response time @ 90 % of $I_{PN}$	$< 400$	ns
$di/dt$	di/dt accurately followed	$> 35$	A/ $\mu$ s
$f$	Frequency bandwidth (0 .. -0.5 dB)	DC .. 100	kHz
	(-0.5 .. 1 dB)	DC .. 200	kHz

## General data

$T_A$	Ambient operating temperature	-10 .. +85	$^\circ\text{C}$
$T_S$	Ambient storage temperature	-25 .. +100	$^\circ\text{C}$
	Insulating material group	IIIa	
$m$	Mass	10	g
	Standards	EN 50178 EN 60950	

**Notes :** 1) Absolute value @  $T_A = 25^\circ\text{C}$ ,  $2.475 < V_{OUT} < 2.525$

2) Please see the operation principle on the other side

3) Only due to  $TCR_{IM}$

## Features

- Closed loop (compensated) multi-range current transducer using the Hall effect
- Unipolar voltage supply
- Compact design for PCB mounting
- Insulated plastic case recognized according to UL 94-V0
- Incorporated measuring resistance
- Extended measuring range.

## Advantages

- Excellent accuracy
- Very good linearity
- Very 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.

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## Dimensions LTS 15-NP (in mm. 1 mm = 0.0394 inch)

### Bottom view

### Operation principle

Closed loop transducer  
Output amplifier  
 $I_s = I_p / N_s = \pm 7.5 \text{ mA} @ I_p = \pm 15 \text{ At}$

### Back view

### Right view

### Front view

Number of primary turns	Primary nominal r.m.s. current $I_{PN}$ [A]	Nominal output voltage $V_{OUT}$ [V]	Primary resistance $R_P$ [mΩ]	Primary insertion inductance $L_P$ [μH]	Recommended connections
1	± 15	$2.5 \pm 0.625$	0.18	0.013	
2	± 7.5	$2.5 \pm 0.625$	0.81	0.05	
3	± 5	$2.5 \pm 0.625$	1.62	0.12	

### Mechanical characteristics

- General tolerance: ± 0.2 mm
- Fastening & connection of primary: 6 pins 0.7 x 0.8 mm  
Recommended PCB hole: 1.3 mm
- Fastening & connection of secondary: 3 pins 0.5 x 0.35 mm  
Recommended PCB hole: 0.8 mm
- Additional primary through-hole: ∅ 3.2 mm

### Remark

- $V_{OUT}$  is positive when  $I_p$  flows from terminals 1, 2, 3 to terminals 6, 5, 4.

### Output Voltage - Primary Current

