

## **Current Transducer LTS 15-NP**

For the electronic measurement of currents: DC, AC, pulsed, mixed with galvanic isolation between the primary circuit (high power) and the secondary circuit (electronic circuit).













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I <sub>PN</sub>	Primary nominal current rms		15	At
I <sub>PM</sub>	Primary current, measuring range		0 ± 48	At
Î	Overload capability		250	At
<b>V</b> <sub>OUT</sub>	Output voltage (Analog) @ I <sub>P</sub>		$2.5 \pm (0.625)$	$I_P/I_{PN}$ ) V
	$I_{P} = 0$		2.5 1)	V
G	Sensitivity		41.6	mV/A
$N_s$	Number of secondary turns (± 0.1 %)		2000	
$R_{\scriptscriptstyle \perp}$	Load resistance		$\geq 2$	kΩ
$R_{\text{\tiny IM}}$	Internal measuring resistance (± 0.5 %)		83.33	Ω
TCR <sub>IM</sub>	Temperature coefficient of R <sub>IM</sub>		< 50	ppm/K
$V_{\rm c}$	Supply voltage (± 5 %)		5	V
$I_{c}$	Current consumption @ $V_c$ = 5 V	Тур	28+ <b>I</b> <sub>S</sub> <sup>2)</sup> +( <b>V</b> <sub>O</sub>	$_{\rm JT}/\mathbf{R}_{\rm L})\mathrm{mA}$

## **Accuracy - Dynamic performance data**

X	Accuracy @ $I_{PN}$ , $T_A = 25^{\circ}C$	± 0.2	%
	Accuracy with $\mathbf{R}_{\text{IM}} @ \mathbf{I}_{\text{PN}}$ , $\mathbf{T}_{\text{A}} = 25^{\circ}\text{C}$	± 0.7	%
$\mathcal{E}_{\scriptscriptstyle L}$	Linearity error	< 0.1	%
		Тур	Max
$TCV_OUT$	Temperature coefficient of $V_{OUT} @ I_P = 0 - 10^{\circ}C + 85$	5°C 65	120 ppm/K
	- 40°C 10	°C 65	170 ppm/K
TCG	Temperature coefficient of <b>G</b> - 40°C + 85	5°C	50 <sup>3)</sup> ppm/K
$V_{\text{OM}}$	Magnetic offset voltage		
	after an overload of 3 x $I_{PN}$		± 0.5 mV
	5 x I <sub>PN</sub>		± 2.0 mV
	10 x I <sub>PN</sub>		± 2.0 mV
<b>t</b> <sub>ra</sub>	Reaction time @ 10 % of I <sub>PN</sub>	< 100	ns
t,	Response time to 90 % of I <sub>PN</sub> step	< 400	ns
di/dt	di/dt accurately followed	> 35	A/µs
BW	Frequency bandwidth (0 0.5 dB)	DC	100 kHz
	(- 0.5 1 dB)	DC	200 kHz

## General data

$T_{_{A}}$	Ambient operating temperature	- 40 + 85	°C
$T_s$	Ambient storage temperature	- 40 + 100	°C
m	Mass	10	g
	Standards	EN 50178: 199	7
		IEC 60950-1: 2	001

Notes: 1) Absolute value @  $T_A$  = 25°C, 2.475 <  $V_{OUT}$  < 2.525

- 2)  $I_{g} = I_{p}/N_{g}$
- 3) Only due to TCR<sub>IM</sub>.

# Features

- Closed loop (compensated) multirange current transducer using the Hall effect
- Unipolar voltage supply
- Isolated plastic case recognized according to UL 94-V0
- Compact design for PCB mounting
- 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.

#### **Application domain**

Industrial.

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#### **Current Transducer LTS 15-NP**

Iso	Isolation characteristics				
$\mathbf{V}_{d}$	Rms voltage for AC isolation test, 50 Hz, 1 min	3	kV		
$\hat{\mathbf{V}}_{w}$	Impulse withstand voltage 1.2/50 μs	> 8	kV		
		Min			
<b>V</b> <sub>e</sub>	Rms voltage for partial discharge extinction @ 10pC	> 1.5 Min	kV		
dCp	Creepage distance 1)	15.5	mm		
dCI	Clearance distance 2)	6.35	mm		
CTI	Comparative Tracking Index (group IIIa)	175			

Notes: 1) On housing

## **Applications examples**

According to EN 50178 and IEC 61010-1 standards and following conditions:

- Over voltage category OV 3
- Pollution degree PD2
- Non-uniform field

	EN 50178	IEC 61010-1	
dCp, dCl, $\hat{\mathbf{V}}_{_{\mathbf{W}}}$	Rated insulation voltage	Nominal voltage	
Single insulation	600 V	600 V	
Reinforced insulation	300 V	300 V	

## **Safety**



This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.



Caution, risk of electrical shock

When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply).

Ignoring this warning can lead to injury and/or cause serious damage.

This transducer is a build-in device, whose conducting parts must be inaccessible after installation.

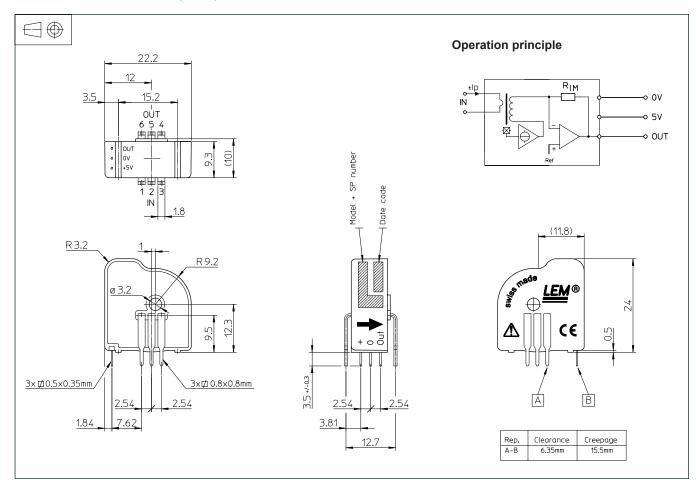
A protective housing or additional shield could be used.

Main supply must be able to be disconnected.

<sup>&</sup>lt;sup>2)</sup> On PCB with soldering pattern UTEC93-703.



#### **Dimensions LTS 15-NP** (in mm)



Number of primary turns	Primary nominal current rms I <sub>PN</sub> [A]	Nominal output voltage $\mathbf{V}_{\scriptscriptstyle{\mathrm{OUT}}}$ [ V ]	Primary resistance $\mathbf{R}_{P}$ [ $m\Omega$ ]	Primary insertion inductance L <sub>P</sub> [ µH ]	Recommended connections
1	± 15	2.5 ± 0.625	0.18	0.013	6 5 4 OUT 000 000 IN 1 2 3
2	± 7.5	2.5 ± 0.625	0.81	0.05	6 5 4 OUT 0 0 0 IN 1 2 3
3	± 5	2.5 ± 0.625	1.62	0.12	6 5 4 OUT 0 0 0 IN 1 2 3

#### **Mechanical characteristics**

General tolerance ± 0.2 mm

• Fastening & connection of primary 6 pins 0.8 x 0.8 mm

Recommended PCB hole 1.3 mm

Fastening & connection of secondary 3 pins 0.5 x 0.35 mm

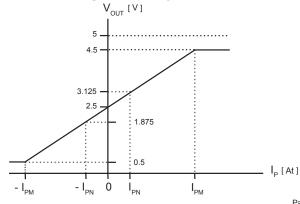
Recommended PCB hole 0.8 mm

Additional primary through-hole Ø 3.2 mm

#### **Remarks**

- ${\bf V}_{\rm OUT}$  swings above 2.5 V when  ${\bf I}_{\rm P}$  flows from terminals 1, 2, 3 to terminals 6, 5, 4 (with the arrow).
- Temperature of the primary jumper should not exceed 100°C.

## **Output Voltage - Primary Current**



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