Current Transducer LTS 6-NP

I_{PN} = 6 At

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).

16065

Electrical data

I_{PN}	Primary nominal current rms		6	At
I_{PM}	Primary current, measuring range		0 .. ± 19.2	At
$\hat{I}_{PDC}$	Overload capability (direct current)		250	At
V_{OUT}	Output voltage (Analog) @ I_P		$2.5 \pm (0.625 \cdot I_P/I_{PN})$	V
	$I_P = 0$		2.5 [1]	V
N_S	Number of secondary turns (± 0.1 %)		2000	
R_L	Load resistance		≥ 2	kΩ
R_{IM}	Internal measuring resistance (± 0.5 %)		208.33	Ω
TCR_{IM}	Temperature coefficient of R_{IM}		< 50	ppm/K
V_C	Supply voltage (± 5 %)		5	V
I_C	Current consumption @ V_C = 5 V	Typ	$28+I_S$ [2] $+(V_{OUT}/R_L)$	mA

Accuracy - Dynamic performance data

X	Accuracy @ I_{PN} , T_A = 25°C		± 0.2		%
	Accuracy with R_{IM} @ I_{PN} , T_A = 25°C		± 0.7		%
ε_L	Linearity error		< 0.1		%
			Typ	Maxi	
TCV_{OUT}	Temperature coefficient of V_{OUT} @ I_P = 0	- 10°C .. + 85°C	80	200	ppm/K
		- 40°C .. - 10°C		250	ppm/K
TCG	Temperature coefficient of G	- 40°C .. + 85°C		50 [3]	ppm/K
V_{OM}	Residual voltage @ I_P = 0, after an overload of 3 x I_{PN}			± 0.5	mV
		5 x I_{PN}		± 2.0	mV
		10 x I_{PN}		± 2.0	mV
t_{ra}	Reaction time @ 10 % of I_{PN}		< 100		ns
t_r	Response time to 90 % of I_{PN} step		< 400		ns
di/dt	di/dt accurately followed		> 15		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
	Insulating material group	IIIa	
m	Mass	10	g
	Standards [4]	EN 50178: 1997 IEC 60950-1 : 2001	

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

[2] $I_S = I_P/N_S$

[3] Only due to TCR_{IM}

[4] Specification according to IEC 61000-4-3 are not guaranteed between 95 and 110 MHz (value higher by 5% than the specification).

Features

- Closed loop (compensated) multi-range current transducer using the Hall effect
- Unipolar voltage supply
- Compact design for PCB mounting
- Isolated 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.

Application domain

- Industrial.

Copyright protected.

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Isolation characteristics

V_d	Rms voltage for AC isolation test, 50 Hz, 1 min	3	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 µs	> 8	kV
		Mini	
V_e	Rms voltage for partial discharge extinction @ 10pC	> 1.5	kV
		Mini	
dCp	Creepage distance [5]	15.5	mm
dCl	Clearance distance [6]	6.35	mm
CTI	Comparative Tracking Index (Group III a)	175	

Application 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, $\hat{V}_w$	Rated isolation voltage	Nominal voltage
Single isolation	600 V	600 V
Reinforced isolation	300 V	300 V

Notes: [5] On housing
[6] On PCB with soldering pattern UTEC93-703.

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.



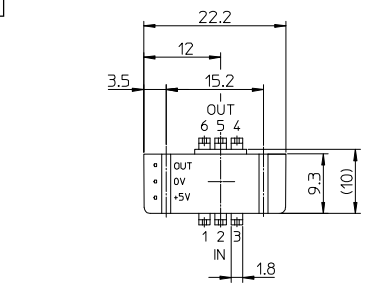
Caution, risk of electrical shock

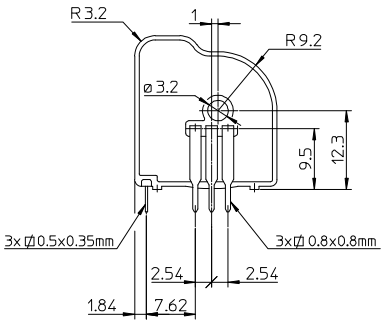
When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply).
Ignoring this warning can lead to injury and/or cause serious damage.
This transducer is a built-in device, whose conducting parts must be inaccessible after installation.
A protective housing or additional shield could be used.
Main supply must be able to be disconnected.

LEM reserves the right to carry out modifications on its transducers, in order to improve them, without prior notice.

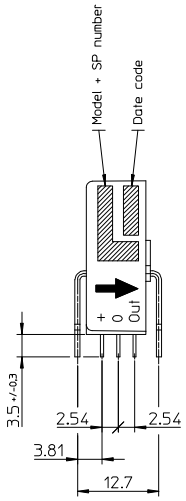
Dimensions LTS 6-NP (in mm. 1 mm = 0.0394 inch)

Bottom view



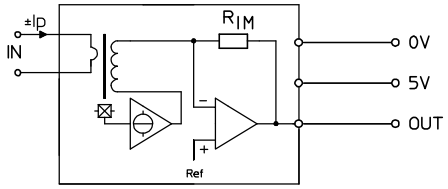


Back view

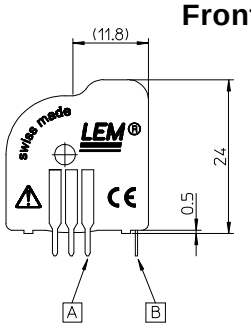


Right view

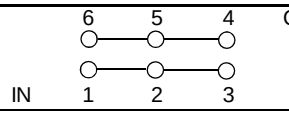
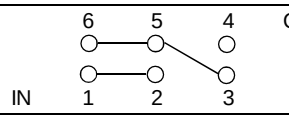
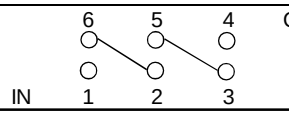
Operation principle



Front view



Rep.	Clearance	Creepage
A-B	6.35mm	15,5mm

Number of primary turns	Primary nominal current rms I_{PN} [A]	Nominal output voltage V_{OUT} [V]	Primary resistance R_P [mΩ]	Primary insertion inductance L_P [µH]	Recommended connections
1	± 6	2.5 ± 0.625	0.18	0.013	
2	± 3	2.5 ± 0.625	0.81	0.05	
3	± 2	2.5 ± 0.625	1.62	0.12	

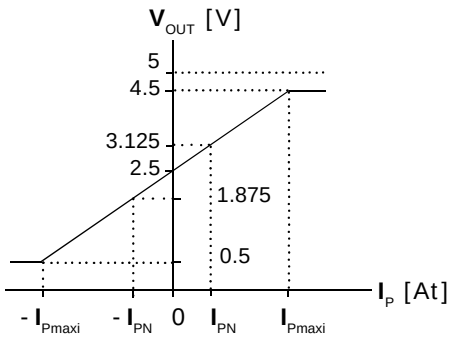
Mechanical characteristics

- 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 ∅ 3.2 mm

Remarks

- V_{OUT} is positive when I_P flows from terminals 1, 2, 3 to terminals 6, 5, 4.
- Temperature of the primary jumper should not exceed 100°C.

Output Voltage - Primary Current



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