Current Transducer LTS 15-NP

I_{PN} = 15 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).

Electrical data

I_{PN}	Primary nominal r.m.s. current		15	At
I_P	Primary current, measuring range		0 .. ± 48	At
$\hat{I}_{PDC}$	Overload capability		250	At
V_{OUT}	Analog output voltage @ I_P		2.5 ± (0.625·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 %)		83.33	Ω
TCR_{IM}	Thermal drift 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 / Max	
TCV_{OUT}	Thermal drift of V_{OUT} @ I_P = 0	- 10°C .. + 85°C	65 / 120	ppm/K
		- 40°C .. - 10°C	/ 170	ppm/K
$TC\varepsilon_G$	Thermal drift of the gain	- 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 @ 90 % of I_{PN}		< 400	ns
di/dt	di/dt accurately followed		> 35	A/µs
f	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 : 1997	
		IEC 60950-1 : 2001	

Notes : [1] Absolute value @ T_A = 25°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.

Application domain

- Industrial.

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Isolation characteristics

V_d	R.m.s. voltage for AC isolation test, 50/60 Hz, 1 mn	3	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 µs	>8	kV
		Min	
V_e	R.m.s. voltage for partial discharge extinction @ 10pC	>1.5	kV
		Min	
dCp	Creepage distance [4]	15.5	mm
dCl	Clearance distance [5]	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 : [4] On housing
[5] On PCB with soldering pattern UTEC93-703.

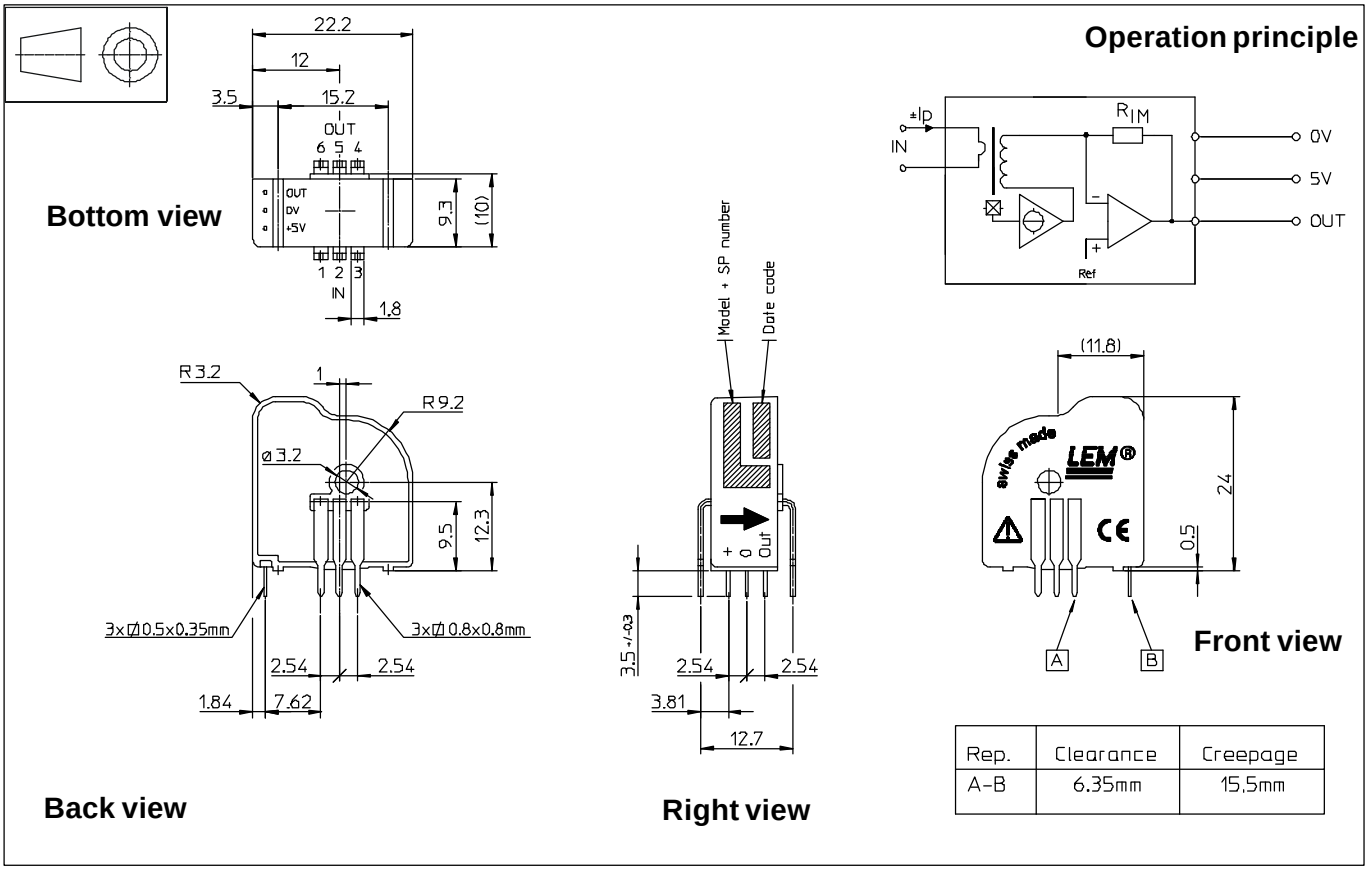
Safety

This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the following 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.

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



Rep.	Clearance	Creepage
A-B	6.35mm	15.5mm

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 ± 0.625	0.18	0.013	OUT 6 5 4 / IN 1 2 3
2	± 7.5	2.5 ± 0.625	0.81	0.05	OUT 6 5 4 / IN 1 2 3
3	± 5	2.5 ± 0.625	1.62	0.12	OUT 6 5 4 / IN 1 2 3

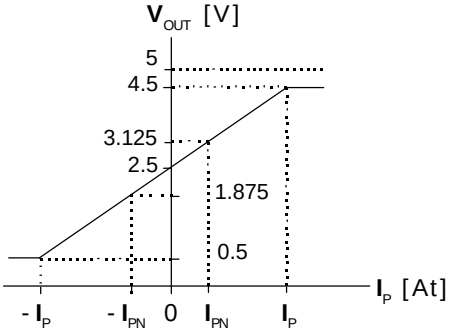
Mechanical characteristics

- 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 ∅ 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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