

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 .. ± 48	At
\hat{I}_{PDC}	Overload capability	250	A
V_{OUT}	Analog output voltage @ 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	k Ω
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
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 μ s	> 8	kV

Accuracy - Dynamic performance data

X	Accuracy @ I_{PN} , $T_A = 25^\circ\text{C}$	± 0.2	%
	Accuracy with R_{IM} @ I_{PN} , $T_A = 25^\circ\text{C}$	± 0.7	%
\mathcal{E}_L	Linearity error	< 0.1	%
TCV_{OUT}	Thermal drift of V_{OUT} @ $I_P = 0$	- 10°C .. + 85°C	Typ 65, Max 120 ppm/K
		- 40°C .. - 10°C	170 ppm/K
TCE_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 $3 \times I_{PN}$		± 0.5 mV
		$5 \times I_{PN}$	± 2.0 mV
		$10 \times I_{PN}$	± 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/ μ 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	- 40 .. + 85	$^\circ\text{C}$
T_S	Ambient storage temperature	- 40 .. + 100	$^\circ\text{C}$
	Insulating material group	III a	
m	Mass	10	g
	Standards	EN 50178(97.10.01)	
		IEC 60950-1(01.10.26)	

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.

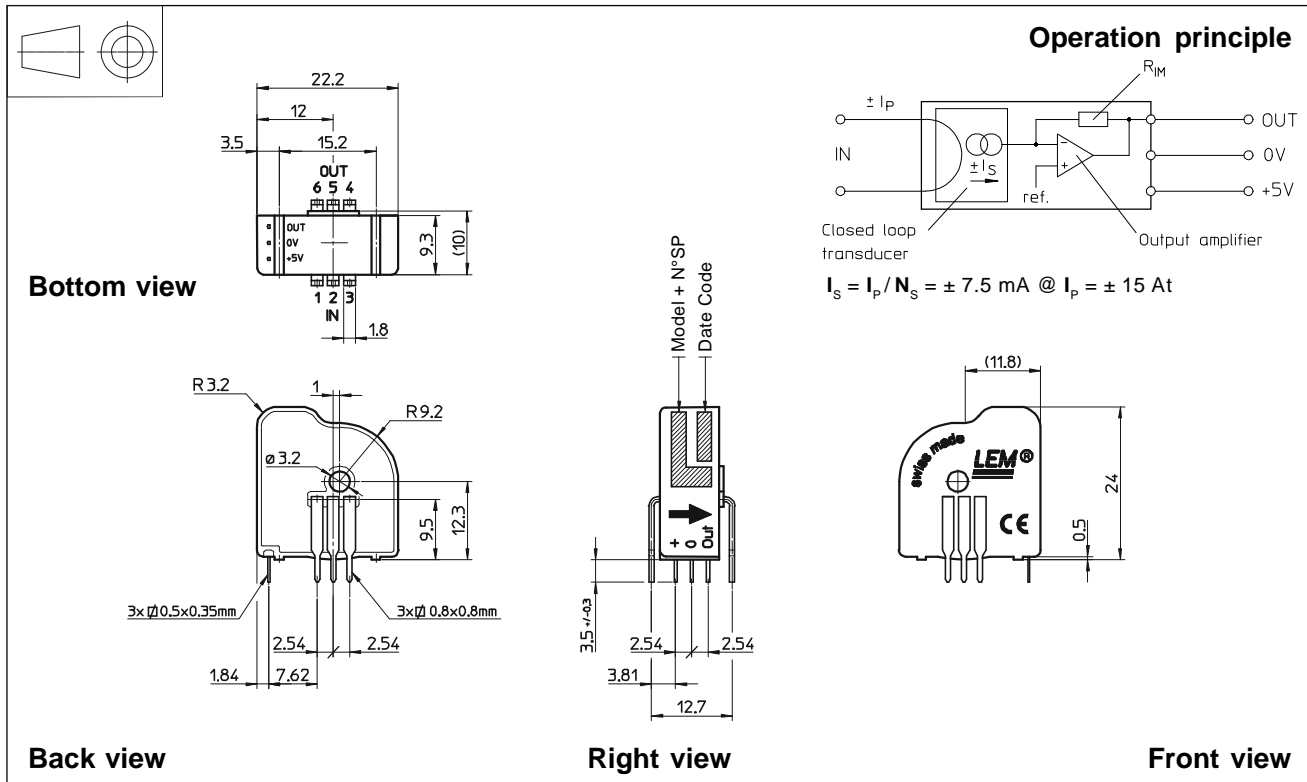
Applications

- 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)



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	
2	± 7.5	2.5 ± 0.625	0.81	0.05	
3	± 5	2.5 ± 0.625	1.62	0.12	

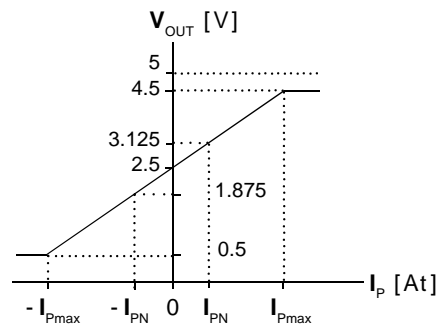
Mechanical characteristics

- 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 Ø 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



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