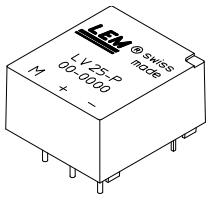
Voltage Transducer LV 25-P

I_{PN} = 10 mA

V_{PN} = 10 .. 500 V

For the electronic measurement of voltages : DC, AC, pulsed..., with a galvanic isolation between the primary circuit (high voltage) and the secondary circuit (electronic circuit).



Electrical data

I_{PN}	Primary nominal r.m.s. current		10		mA
I_P	Primary current, measuring range		0 .. ± 14		mA
R_M	Measuring resistance		$R_{M\,min}$	$R_{M\,max}$	
	with ± 12 V	@ ± 10 mA_{max}	30	190	Ω
		@ ± 14 mA_{max}	30	100	Ω
	with ± 15 V	@ ± 10 mA_{max}	100	350	Ω
		@ ± 14 mA_{max}	100	190	Ω
I_{SN}	Secondary nominal r.m.s. current		25		mA
K_N	Conversion ratio		2500 : 1000		
V_C	Supply voltage (± 5 %)		± 12 .. 15		V
I_C	Current consumption		10 (@ ±15 V) + I_S		mA
V_d	R.m.s. voltage for AC isolation test [1], 50 Hz, 1 mn		2.5		kV

Accuracy - Dynamic performance data

X_G	Overall Accuracy @ I_{PN}, T_A = 25°C	@ ± 12 .. 15 V	± 0.9		%
		@ ± 15 V (± 5 %)	± 0.8		%
ε_L	Linearity		< 0.2		%
			Typ	Max	
I_O	Offset current @ I_P = 0, T_A = 25°C			± 0.15	mA
I_{OT}	Thermal drift of I_O	0°C .. + 25°C	± 0.06	± 0.25	mA
		+ 25°C .. + 70°C	± 0.10	± 0.35	mA
t_r	Response time [2] @ 90 % of $V_{P\,max}$		40		µs

General data

T_A	Ambient operating temperature		0 .. + 70	°C
T_S	Ambient storage temperature		- 25 .. + 85	°C
R_P	Primary coil resistance @ T_A = 70°C		250	Ω
R_S	Secondary coil resistance @ T_A = 70°C		110	Ω
m	Mass		22	g
	Standards [3]		EN 50178	

Notes : [1] Between primary and secondary

[2] R_1 = 25 kΩ (L/R constant, produced by the resistance and inductance of the primary circuit)

[3] A list of corresponding tests is available

Features

- Closed loop (compensated) voltage transducer using the Hall effect
- Insulated plastic case recognized according to UL 94-V0.

Principle of use

- For voltage measurements, a current proportional to the measured voltage must be passed through an external resistor R_1 which is selected by the user and installed in series with the primary circuit of the transducer.

Advantages

- Excellent accuracy
- Very good linearity
- Low thermal drift
- Low response time
- High bandwidth
- High immunity to external interference
- Low disturbance in common mode.

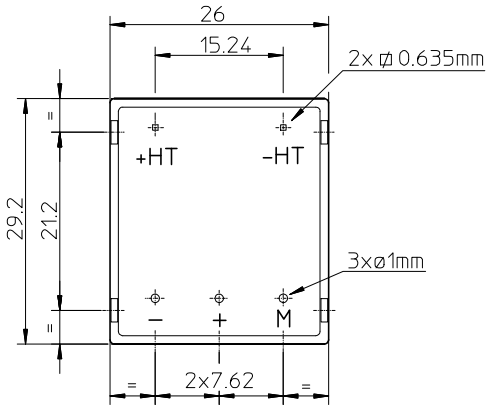
Applications

- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Power supplies for welding applications.

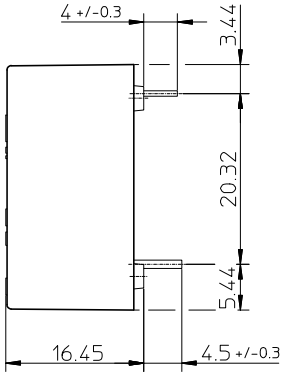
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Dimensions LV 25-P (in mm. 1 mm = 0.0394 inch)

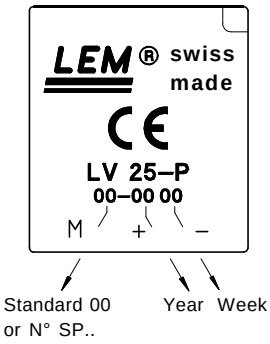
Bottom view

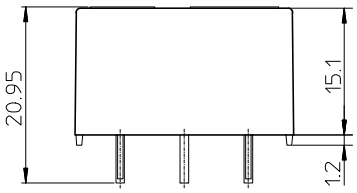


Right view



Top view

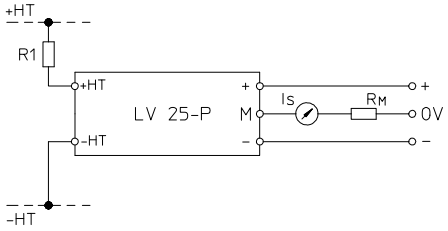




Secondary terminals

Terminal + : supply voltage + 12 .. 15 V
Terminal M : measure
Terminal - : supply voltage - 12 .. 15 V

Connection



Back view

Mechanical characteristics

• General tolerance	± 0.2 mm
• Fastening & connection of primary	2 pins 0.635 x 0.635 mm
• Fastening & connection of secondary	3 pins ∅ 1 mm
• Recommended PCB hole	1.2 mm

Remarks

- $\mathbf{I}_S$ is positive when $\mathbf{V}_P$ is applied on terminal +HT.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.

Instructions for use of the voltage transducer model LV 25-P

Primary resistor $\mathbf{R}_1$: the transducer's optimum accuracy is obtained at the nominal primary current. As far as possible, $\mathbf{R}_1$ should be calculated so that the nominal voltage to be measured corresponds to a primary current of 10 mA.

Example: Voltage to be measured $\mathbf{V}_{PN}$ = 250 V
a) $\mathbf{R}_1$ = 25 kΩ / 2.5 W, $\mathbf{I}_P$ = 10 mA Accuracy = ± 0.8 % of $\mathbf{V}_{PN}$ (@ $\mathbf{T}_A$ = + 25°C)
b) $\mathbf{R}_1$ = 50 kΩ / 1.25 W, $\mathbf{I}_P$ = 5 mA Accuracy = ± 1.6 % of $\mathbf{V}_{PN}$ (@ $\mathbf{T}_A$ = + 25°C)

Operating range (recommended) : taking into account the resistance of the primary windings (which must remain low compared to $\mathbf{R}_1$ in order to keep thermal deviation as low as possible) and the isolation, this transducer is suitable for measuring nominal voltages from 10 to 500 V.

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