

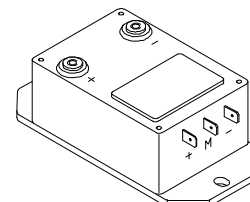
Voltage Transducer LV 100

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).



$$I_{PN} = 10 \text{ mA}$$

$$V_{PN} = 100 \dots 2500 \text{ V}$$



Electrical data

I_{PN}	Primary nominal r.m.s. current	10	mA		
I_P	Primary current, measuring range	0 .. ± 20	mA		
R_M	Measuring resistance	R_{Mmin}	R_{Mmax}		
		with $\pm 15 \text{ V}$	@ $\pm 10 \text{ mA}_{max}$	0	150 Ω
			@ $\pm 20 \text{ mA}_{max}$	0	50 Ω
I_{SN}	Secondary nominal r.m.s. current	50	mA		
K_N	Conversion ratio	10000 : 2000			
V_C	Supply voltage ($\pm 5 \%$)	± 15	V		
I_C	Current consumption	$10 + I_S$	mA		
V_d	R.m.s. voltage for AC isolation test ¹⁾ , 50 Hz, 1 mn	6	kV		

Accuracy - Dynamic performance data

X_G	Overall Accuracy @ I_{PN} , $T_A = 25^\circ\text{C}$	± 0.7	%	
e_L	Linearity	< 0.1	%	
I_O	Offset current @ $I_P = 0$, $T_A = 25^\circ\text{C}$	Typ	Max	
			± 0.2	mA
I_{OT}	Thermal drift of I_O $0^\circ\text{C} \dots +70^\circ\text{C}$	± 0.2	± 0.3	mA
t_r	Response time ²⁾ @ 90 % of V_{PN}	20 .. 100	μs	

General data

T_A	Ambient operating temperature	0 .. +70	$^\circ\text{C}$
T_S	Ambient storage temperature	-25 .. +85	$^\circ\text{C}$
R_P	Primary coil resistance @ $T_A = 70^\circ\text{C}$	1900	Ω
R_S	Secondary coil resistance @ $T_A = 70^\circ\text{C}$	60	Ω
m	Mass	460	g
	Standards	EN 50178	

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

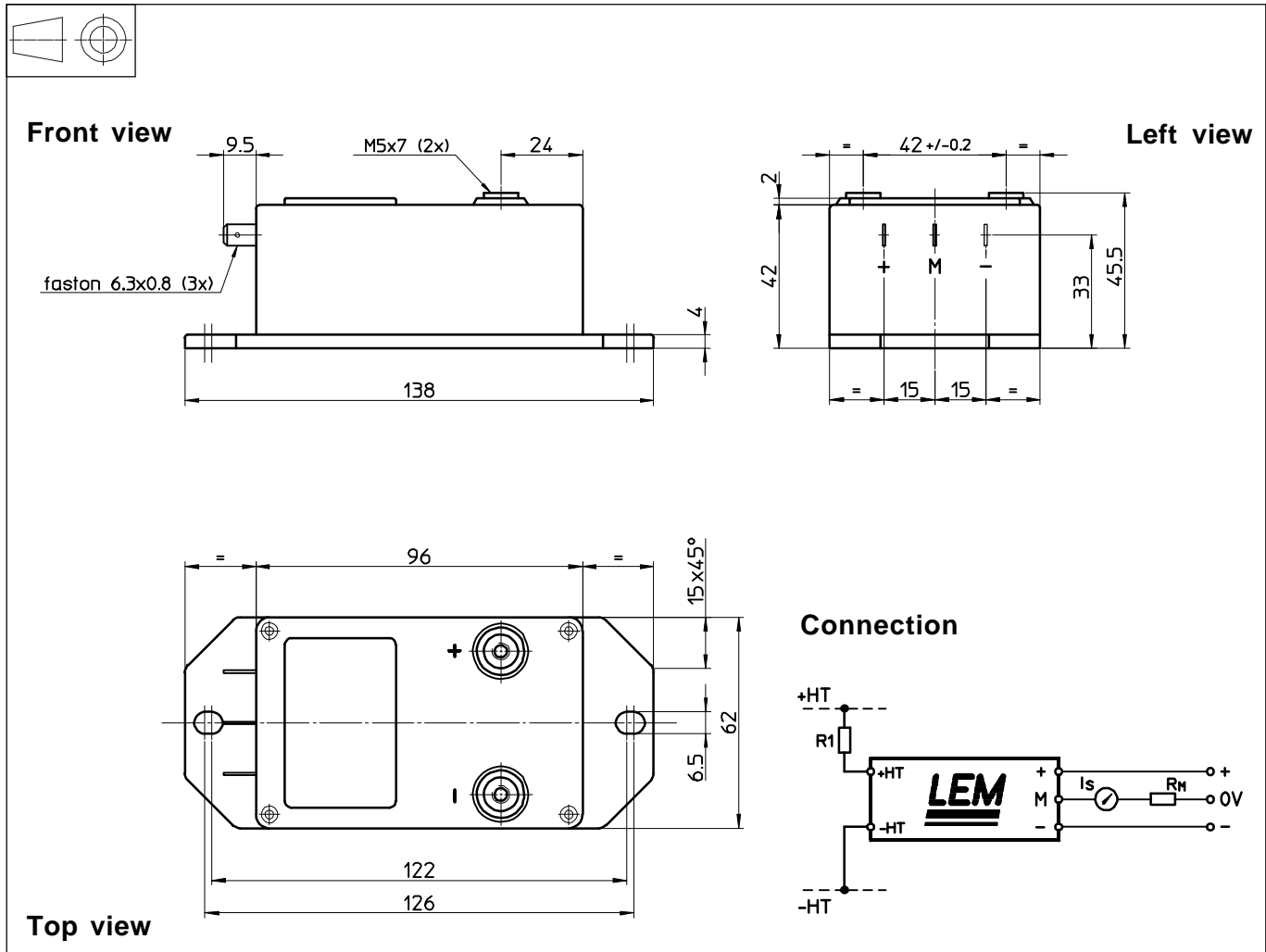
- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Power supplies for welding applications.

Notes : ¹⁾ Between primary and secondary

²⁾ $R_1 = 100 \text{ k}\Omega$ (L/R constant, produced by the resistance and inductance of the primary circuit).

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Dimensions LV 100 (in mm. 1 mm = 0.0394 inch)



Mechanical characteristics

- General tolerance ± 0.3 mm
- Transducer fastening 2 holes Ø 6.5 mm
M6 steel screws
Fastening torque max 5 Nm or 3.69 Lb - Ft.
- Connection of primary M5 screw terminals
Fastening torque max 2.2 Nm or 1.62 Lb - Ft.
- Connection of secondary Faston 6.3 x 0.8 mm

Remarks

- I_S is positive when 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 100

Primary resistor R₁ : the transducer's optimum accuracy is obtained at the nominal primary current. As far as possible, R₁ should be calculated so that the nominal voltage to be measured corresponds to a primary current of 10 mA.

Example: Voltage to be measured V_{PN} = 1000 V

a) R ₁ = 100 kΩ/40 W, I _p = 10 mA	Accuracy = ± 0.7 % of V _{PN} (@ T _A = +25°C)
b) R ₁ = 400 kΩ/ 5 W, I _p = 2.5 mA	Accuracy = ± 2.5 % of V _{PN} (@ T _A = +25°C)

Operating range (recommended) : taking into account the resistance of the primary windings (which must remain low compared to R₁, in order to keep thermal deviation as low as possible) and the isolation, this transducer is suitable for measuring nominal voltages from 100 to 2500 V.

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