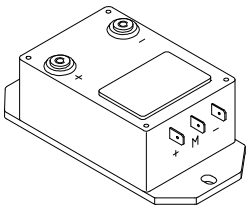
Voltage Transducer LV 100

I_{PN} = 10 mA

V_{PN} = 100 .. 2500 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 .. ± 20		mA
R_M	Measuring resistance		$R_{M\,min}$	$R_{M\,max}$	
	with ± 15 V	@ ± 10 mA $_{max}$	0	150	Ω
		@ ± 20 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 (± 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°C		± 0.7		%
ε_L	Linearity		< 0.1		%
			Typ	Max	
I_O	Offset current @ I_P = 0, T_A = 25°C			± 0.2	mA
I_{OT}	Thermal drift of I_O	0°C .. + 70°C	± 0.2	± 0.3	mA
t_r	Response time [2] @ 90 % of $V_{P\,max}$		20 .. 100		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	1900	Ω
R_S	Secondary coil resistance @ T_A = 70°C	60	Ω
m	Mass	460	g
	Standards [3]	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 kΩ (L/R constant, produced by the resistance and inductance of the primary circuit)

[3] A list of corresponding tests is available

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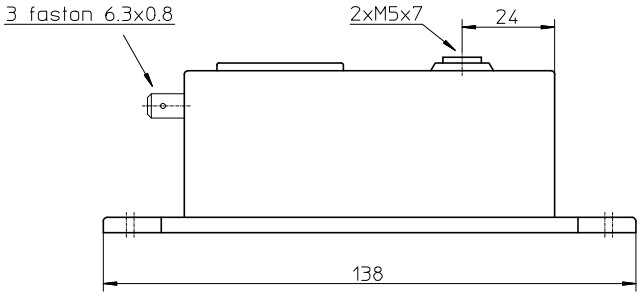
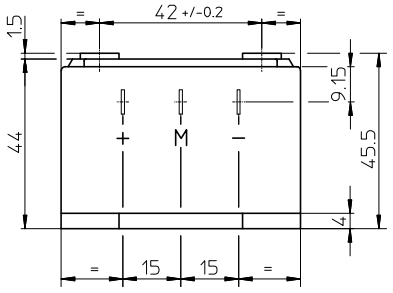
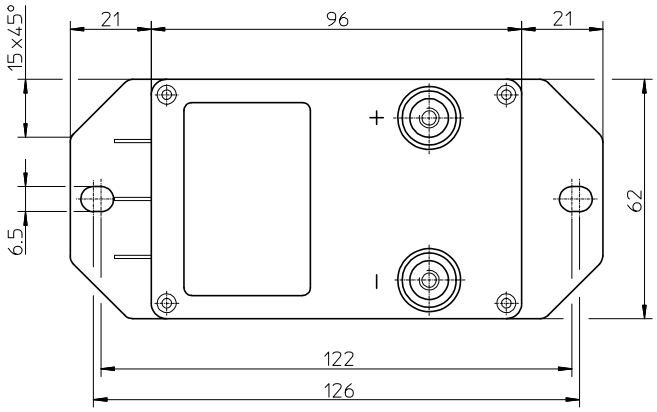
Dimensions LV 100 (in mm. 1 mm = 0.0394 inch)

Front view



Left view



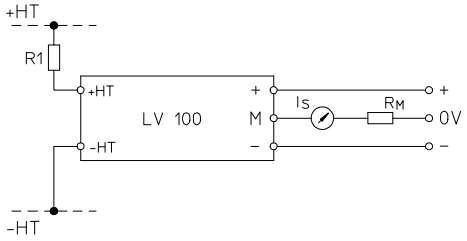


Top view

Secondary terminals

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

Connection



Mechanical characteristics

• General tolerance	± 0.3 mm
• Fastening	2 holes ∅ 6.5 mm
• Connection of primary	M5 screw terminals
Fastening torque	2.2 Nm or 1.62 Lb - Ft.
• Connection of secondary	Faston 6.3 x 0.8 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 100

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 $\mathbf{V}_{PN}$ = 1000 V
a) $\mathbf{R}_1$ = 100 kΩ/40 W, $\mathbf{I}_P$ = 10 mA Accuracy = ± 0.7 % of $\mathbf{V}_{PN}$ (@ $\mathbf{T}_A$ = +25°C)
b) $\mathbf{R}_1$ = 400 kΩ/ 5 W, $\mathbf{I}_P$ = 2.5 mA Accuracy = ± 2.5 % 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 100 to 2500 V.