Voltage Transducer LV 100/SP80

I_{PN} = 210 mA

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).

CE

Electrical data

I_{PN}	Primary nominal r.m.s. current		210		mA
I_P	Primary current, measuring range		0 .. ± 300		mA
R_M	Measuring resistance		$R_{M\,min}$	$R_{M\,max}$	
	with ± 15 V	@ ± 210 mA $_{max}$	0	110	Ω
		@ ± 300 mA $_{max}$	0	10	Ω
	with ± 24 V	@ ± 210 mA $_{max}$	0	300	Ω
		@ ± 300 mA $_{max}$	0	140	Ω
I_{SN}	Secondary nominal r.m.s. current		39.4		mA
K_N	Conversion ratio		750 : 4000		
V_C	Supply voltage (± 5 %)		± 15 .. 24		V
I_C	Current consumption		25 (@ ±24V) + I_S		mA
V_d	R.m.s. voltage for AC isolation test, 50 Hz, 1 mn		10		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	- 35°C .. + 75°C	± 0.2	± 0.4	mA
t_r	Response time [1] @ 90 % de V_{PN}		20 µs with a step of 2500V		
f	Frequency bandwidth (- 1dB)		DC .. 4		kHz

General data

T_A	Ambient operating temperature		- 35 .. + 75	°C
T_S	Ambient storage temperature		- 45 .. + 85	°C
R_P	Primary coil resistance @ T_A = 75°C		9.2	Ω
R_S	Secondary coil resistance @ T_A = 75°C		215	Ω
m	Mass		450	g
	Standards		EN 50155	

Note : [1] R_1 = 200 kΩ (L/R constant, produced by the resistance and inductance of the primary circuit).

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.

Special features

- K_N = 750 : 4000
- V_C = ± 15 .. 24 (± 5 %) V
- V_d = 10 kV
- T_A = - 35°C .. + 75°C
- Completety potted
- Connection to secondary circuit on M5 threaded studs
- Labeled with customer specification number.

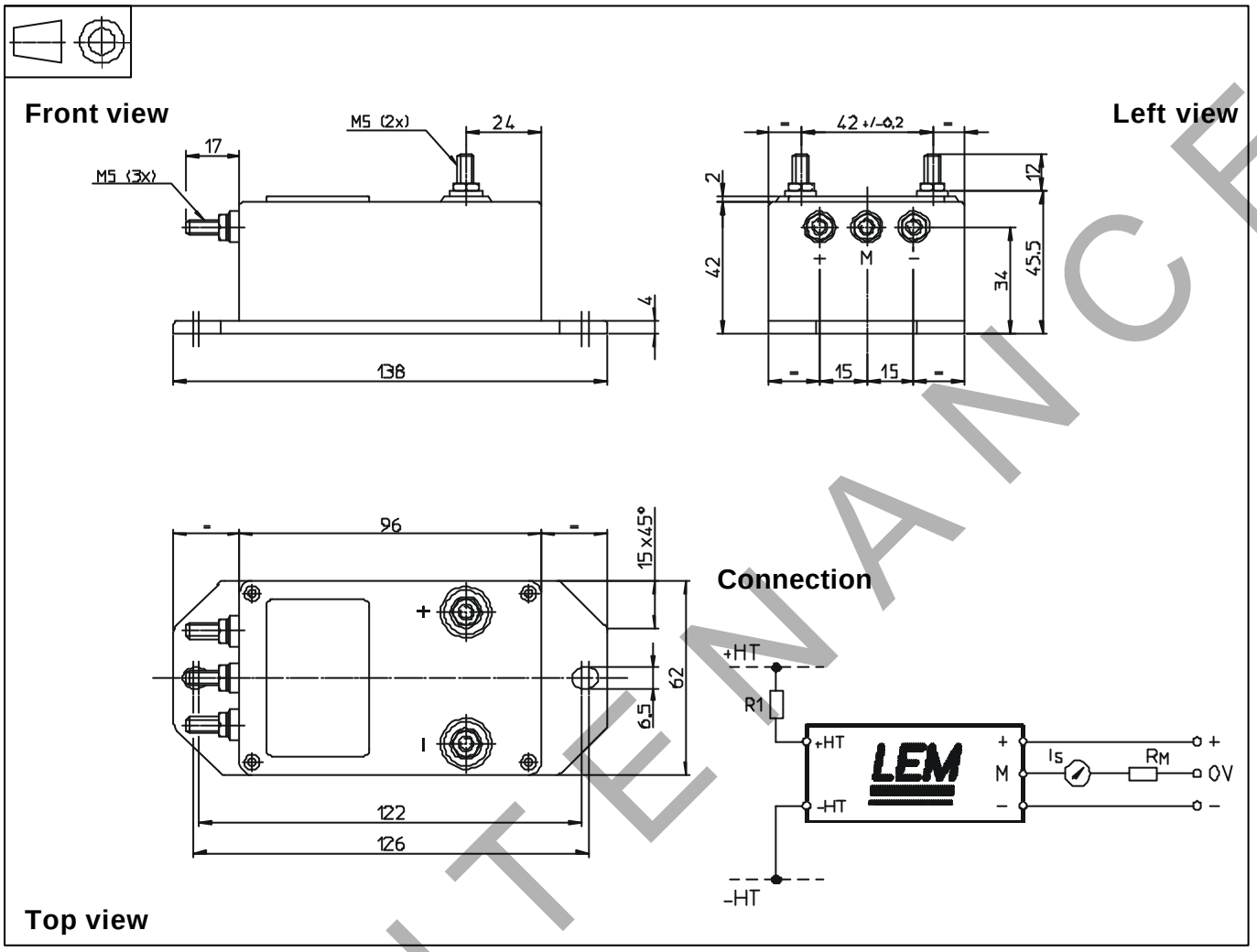
Advantages

- 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.

Dimensions LV 100/SP80 (in mm. 1 mm = 0.0394 inch)



Mechanical characteristics

• General tolerance	± 0.3 mm
• Transducer fastening	2 holes ∅ 6.5 mm
	M6 steel screws
Fastening torque max	5 Nm or 3.69 Lb - Ft.
• Connection of primary	M5 threaded studs
• Connection of secondary	M5 threaded studs
• Fastening torque max	2.2 Nm or 1.62 Lb - Ft

Remark

- $\mathbf{I}_S$ is positive when $\mathbf{V}_P$ is applied on terminal +HT.

Instructions for use of the voltage transducer model LV 100/SP80

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 210 mA.

Example: Voltage to be measured $\mathbf{V}_{PN}$ = 100 V a) $\mathbf{R}_1$ = 470 kΩ /21 W, $\mathbf{I}_P$ = 210 mA Accuracy = ± 0.7 % of $\mathbf{V}_{PN}$ (@ $\mathbf{T}_A$ = +25°C)
b) $\mathbf{R}_1$ = 1 kΩ / 10 W, $\mathbf{I}_P$ = 2.5 mA Accuracy = ± 1.5 % 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.

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