Voltage Transducer LV 100/SP69

I_{PN} = 25 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	25		mA
I_P	Primary current, measuring range	0 .. ± 50		mA
R_M	Measuring resistance	$R_{M\,min}$	$R_{M\,max}$	
	with ± 15 V @ ± 25 mA_{max}	0	180	Ω
	@ ± 50 mA_{max}	0	55	Ω
	with ± 24 V @ ± 25 mA_{max}	100	335	Ω
	@ ± 50 mA_{max}	100	135	Ω
I_{SN}	Secondary nominal r.m.s. current	50		mA
K_N	Conversion ratio	4000 : 2000		
V_C	Supply voltage (± 10 %)	± 15 .. 24		V
I_C	Current consumption	30 (@± 24V)+I_S		mA
V_d	R.m.s. voltage for AC isolation test , 50 Hz, 1 mn	9		kV

Accuracy - Dynamic performance data

X_G	Overall Accuracy @ I_{PN} , T_A = 25°C	± 0.7		%
e_L	Linearity error	< 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 - 25°C .. + 70°C	± 0.4	± 0.6	mA
	- 40°C .. + 85°C	± 0.6	± 1	mA
t_r	Response time [1)] @ 90 % of V_{PN}	10 .. 100		µs

General data

T_A	Ambient operating temperature	- 40 .. + 85	°C
T_S	Ambient storage temperature	- 45 .. + 90	°C
R_P	Primary coil resistance @ T_A = 85°C	290	Ω
R_S	Secondary coil resistance @ T_A = 85°C	65	Ω
m	Mass	460	g
	Standards	EN 50155 (95.11.01)	

Note : [1)] 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 collected 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 = 4000 : 2000
- V_C = ± 15 .. 24 (± 10%) V
- V_d = 9 kV
- T_A = - 40°C .. + 85°C
- Railway equipment.

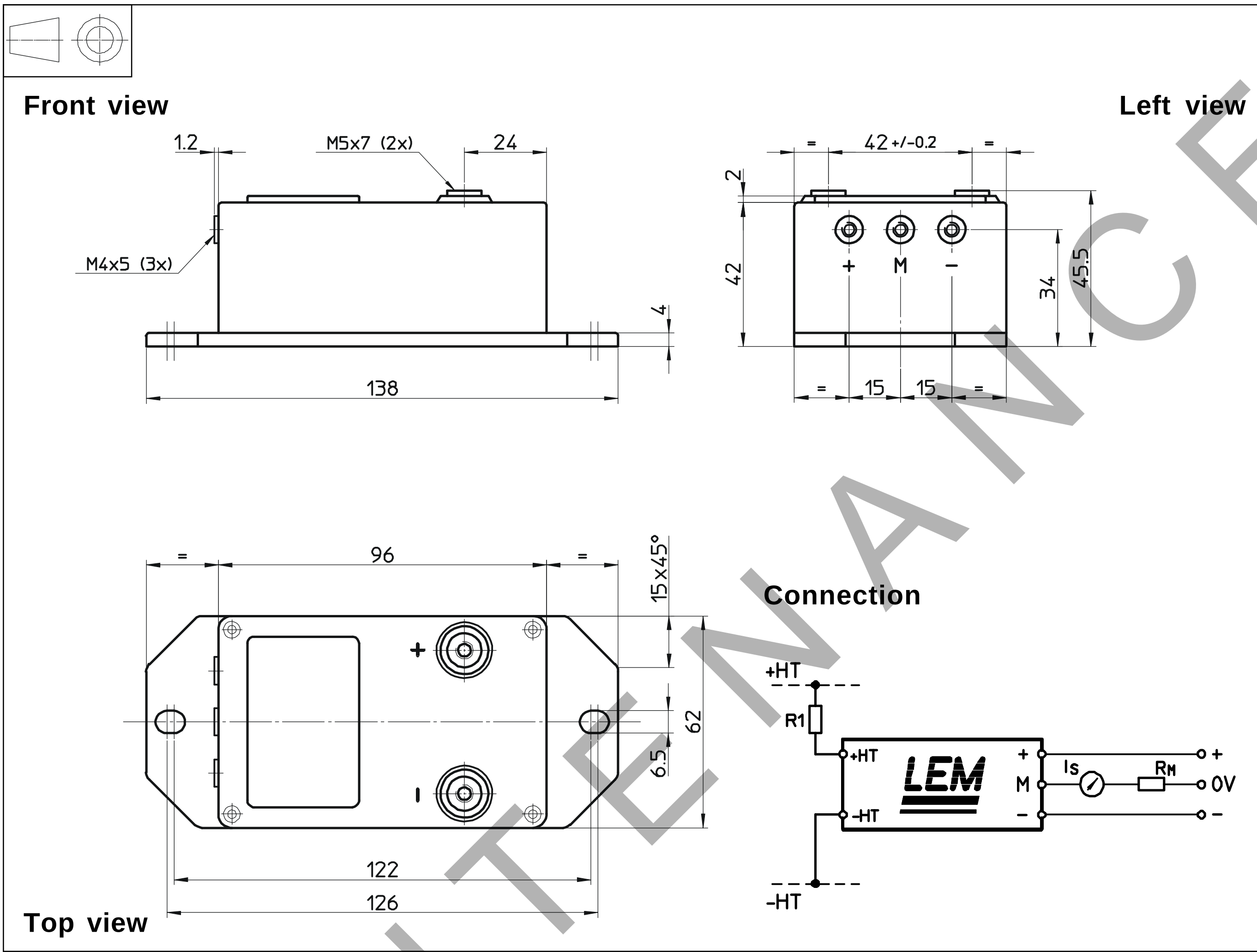
Advantages

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

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/SP69 (in mm. 1 mm = 0.0394 inch)



Mechanical characteristics

- General tolerance ± 0.3 mm
- Transducer fastening 2 holes ∅ 6.5 mm
  M6 steel screws
  Recommended fastening torque 5 Nm or 3.69 Lb - Ft.
- Connection of primary M5 screws terminals
  Recommended fastening torque 2.2 Nm or 1.62 Lb - Ft
- Connection of secondary M4 screws terminals
  Recommended fastening torque 1.2 Nm or .88 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/SP69

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 25 mA.

Example: Voltage to be measured $\mathbf{V}_{PN}$ = 400 V

a) $\mathbf{R}_1$ = 16 kΩ / 10 W, $\mathbf{I}_P$ = 25 mA — Accuracy = ± 0.7 % of $\mathbf{V}_{PN}$ (@ $\mathbf{T}_A$ = +25°C)
b) $\mathbf{R}_1$ = 64 kΩ /2.5 W, $\mathbf{I}_P$ = 6.25 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 1000 V.

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