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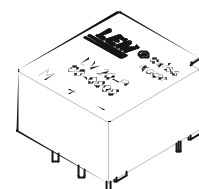
Voltage Transducer LV 20-P

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).



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

$$V_{PN} = 10 \dots 500 \text{ V}$$



Electrical data

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

Features

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

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.

Accuracy - Dynamic performance data

X_G	Overall Accuracy @ $I_{PN}, T_A = 25^\circ\text{C}$	@ $\pm 12 \dots 15 \text{ V}$	± 1.1	%
		@ $\pm 15 \text{ V} (\pm 5 \%)$	± 1.0	%
ϵ_L	Linearity		< 0.2	%
I_O	Offset current @ $I_p = 0, T_A = 25^\circ\text{C}$	Typ	± 0.20	mA
		Max	± 0.20	mA
I_{OT}	Thermal drift of I_O	0°C .. + 25°C	± 0.10	mA
		+ 25°C .. + 70°C	± 0.14	mA
t_r	Response time ²⁾ @ 90 % of $V_{P \text{ max}}$	40	μs	

Advantages

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

General data

T_A	Ambient operating temperature	$0 \dots + 70$	$^\circ\text{C}$
T_S	Ambient storage temperature	$- 25 \dots + 85$	$^\circ\text{C}$
R_p	Primary coil resistance @ $T_A = 70^\circ\text{C}$	250	Ω
R_s	Secondary coil resistance @ $T_A = 70^\circ\text{C}$	110	Ω
m	Mass	22	g
	Standards ³⁾	EN 50178	

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.

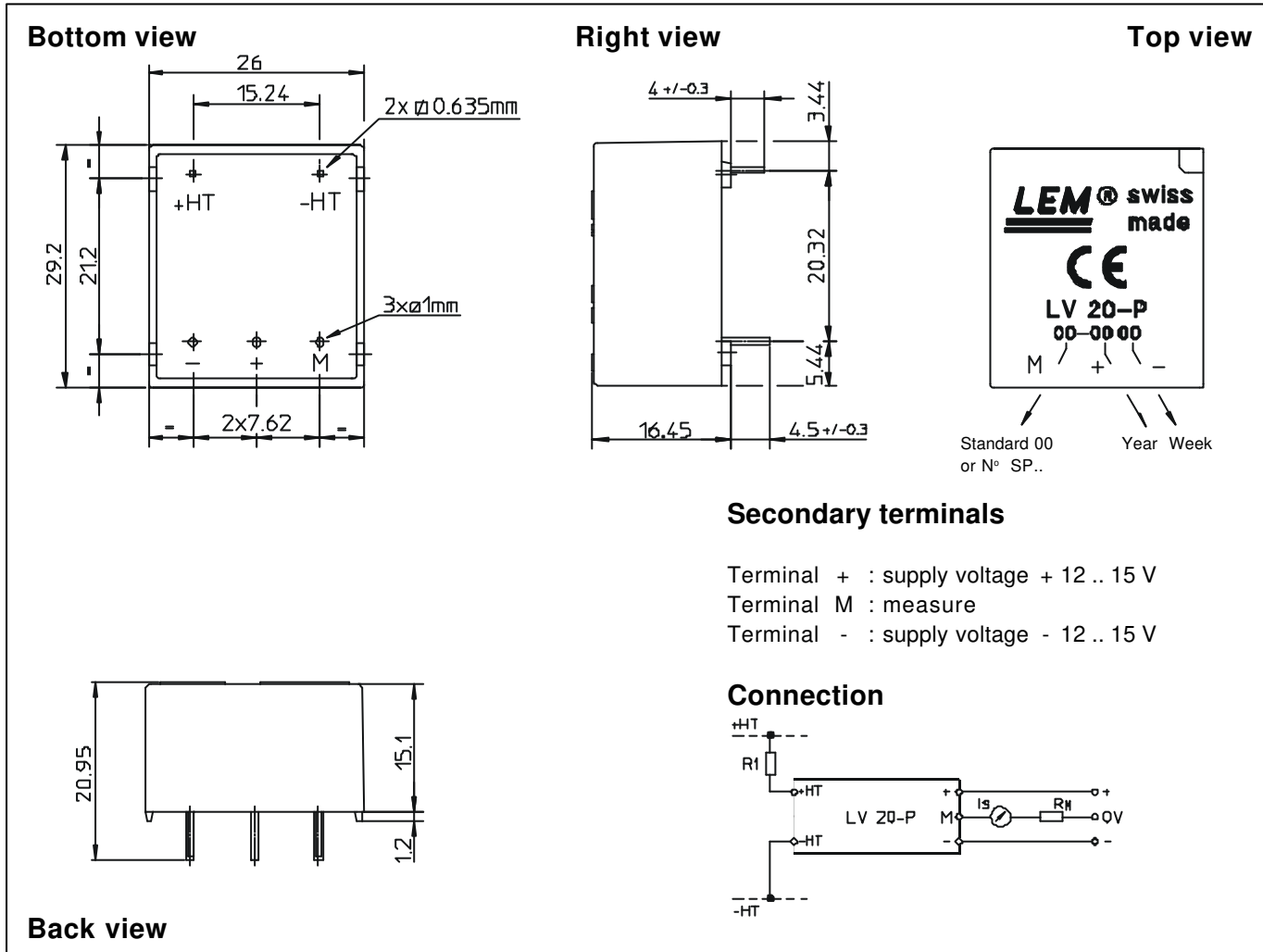
Notes : ¹⁾ Between primary and secondary

²⁾ $R_1 = 25 \text{ k}\Omega$ (L/R constant, produced by the resistance and inductance of the primary circuit)

³⁾ A list of corresponding tests is available

010802/0

Dimensions LV 20-P (in mm. 1 mm = 0.0394 inch)



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 $\varnothing 1$ mm
- Recommended PCB hole 1.2 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 20-P

Primary resistor R_1 : the transducer's optimum accuracy is obtained at the nominal primary current. As much as possible, 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 $V_{PN} = 250$ V

a) $R_1 = 25$ k Ω / 2.5 W, $I_p = 10$ mA Accuracy = ± 1 % of V_{PN} (@ $T_A = +25^\circ\text{C}$)
 b) $R_1 = 50$ k Ω / 1.25 W, $I_p = 5$ mA Accuracy = ± 2 % of V_{PN} (@ $T_A = +25^\circ\text{C}$)

Operating range (recommended) : taking into account the resistance of the primary windings (which must remain low compared to 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.