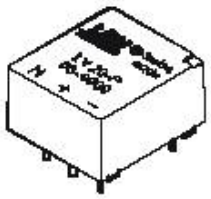
Voltage Transducer LV 20-P

I_{PN} = 10 mA

V_{PN} = 10 .. 500 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 .. ? 14		mA
R_M	Measuring resistance		R_M min	R_M max	
	with ? 12 V	@ ? 10 m A $_{max}$	30	190	Ω
		@ ? 14 m A $_{max}$	30	100	Ω
	with ? 15 V	@ ? 10 m A $_{max}$	100	350	Ω
		@ ? 14 m A $_{max}$	100	190	Ω
I_{SN}	Secondary nominal r.m.s. current		25		mA
K_N	Conversion ratio		2500 : 1000		
v_C	Supply voltage (? 5 %)		? 12 .. 15		V
I_C	Current consumption		10 (@?15V) + I_S		m A
v_d	R.m.s. voltage for AC isolation test [1], 50 Hz, 1 mn		2.5		kV

Accuracy - Dynamic performance data

x_G	Overall Accuracy @ I_{PN} , T_A = 25?C	@ ? 12 .. 15 V	? 1.1		%
		@ ? 15 V (? 5 %)	? 1.0		%
ε_L	Linearity		< 0.2		%
			Typ	Max	
I_O	Offset current @ I_P = 0, T_A = 25?C			? 0.20	mA
I_{OT}	Thermal drift of I_O	0?C .. + 25?C	? 0.10	? 0.30	mA
		+ 25?C .. + 70?C	? 0.14	? 0.40	mA
t_r	Response time [2] @ 90 % of V_P max		40		?s

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		250	Ω
R_S	Secondary coil resistance @ T_A = 70?C		110	Ω
m	Mass		22	g
	Standards [3]		EN 50178	

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.

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 :

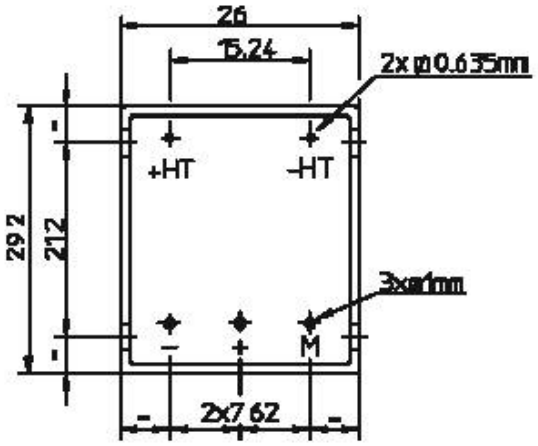
[1] Between primary and secondary

[2] **R** 1 = 25 k Ω (L/R constant, produced by the resistance and inductance of the primary circuit)

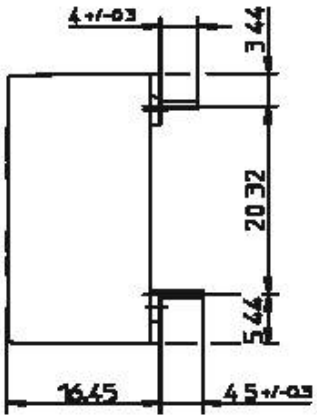
[3] A list of corresponding tests is available

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

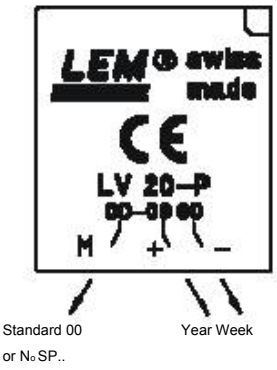
Bottom view



Right view



Top view



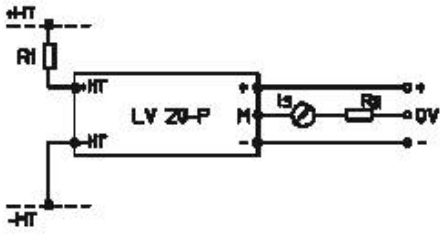
Standard 00
or N° SP..

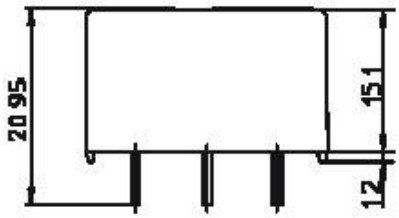
Year Week

Secondary terminals

Terminal + : supply voltage + 12 .. 15 V
Terminal M : measure
Terminal - : supply voltage - 12 .. 15 V

Connection





Back view

Mechanical characteristics

- General tolerance ± 0.2 mm
- Fastening & connection of primary 3 pins 0.635 x 0.635 mm
- Fastening & connection of secondary 3 pins ∅ 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.

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

b) R_1 = 50 kΩ / 4.25 W, IP = 10 mA Accuracy ≡ ? 1 % of v_{PN} (@ T_A ≡ ‡ 25?C)

b) R_1 = 50 kΩ / 4.25 W, IP = 5 mA Accuracy ≡ ? 2 % 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 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.
