

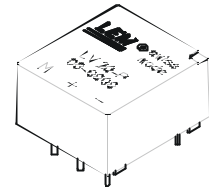
## Voltage Transducer LV 20-P

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 .. $\pm 14$	mA			
$R_M$	Measuring resistance	$R_{M \min}$	$R_{M \max}$			
				with $\pm 12 \text{ V}$	@ $\pm 10 \text{ mA}_{\max}$	30
			@ $\pm 14 \text{ mA}_{\max}$	30	100	$\Omega$
		with $\pm 15 \text{ V}$	@ $\pm 10 \text{ mA}_{\max}$	100	350	$\Omega$
	@ $\pm 14 \text{ mA}_{\max}$	100	190	$\Omega$		
$I_{SN}$	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 <sup>1)</sup> , 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 @ $I_{PN}, T_A = 25^\circ\text{C}$	@ $\pm 12 \dots 15 \text{ V}$	$\pm 1.1$	%
		@ $\pm 15 \text{ V} (\pm 5 \%)$	$\pm 1.0$	%
$e_L$	Linearity		< 0.2	%
$I_O$	Offset current @ $I_p = 0, T_A = 25^\circ\text{C}$	Typ	$\pm 0.20$	mA
		Max	$\pm 0.20$	mA
$I_{OT}$	Thermal drift of $I_O$	0 $^\circ\text{C}$ .. + 25 $^\circ\text{C}$	$\pm 0.10$	mA
		+ 25 $^\circ\text{C}$ .. + 70 $^\circ\text{C}$	$\pm 0.14$	mA
$t_r$	Response time <sup>2)</sup> @ 90 % of $V_{P \max}$	40	$\mu\text{s}$	

### 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 .. + 70	$^\circ\text{C}$
$T_S$	Ambient storage temperature	- 25 .. + 85	$^\circ\text{C}$
$R_p$	Primary coil resistance @ $T_A = 70^\circ\text{C}$	250	$\Omega$
$R_s$	Secondary coil resistance @ $T_A = 70^\circ\text{C}$	110	$\Omega$
$m$	Mass	22	g
	Standards <sup>3)</sup>	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.

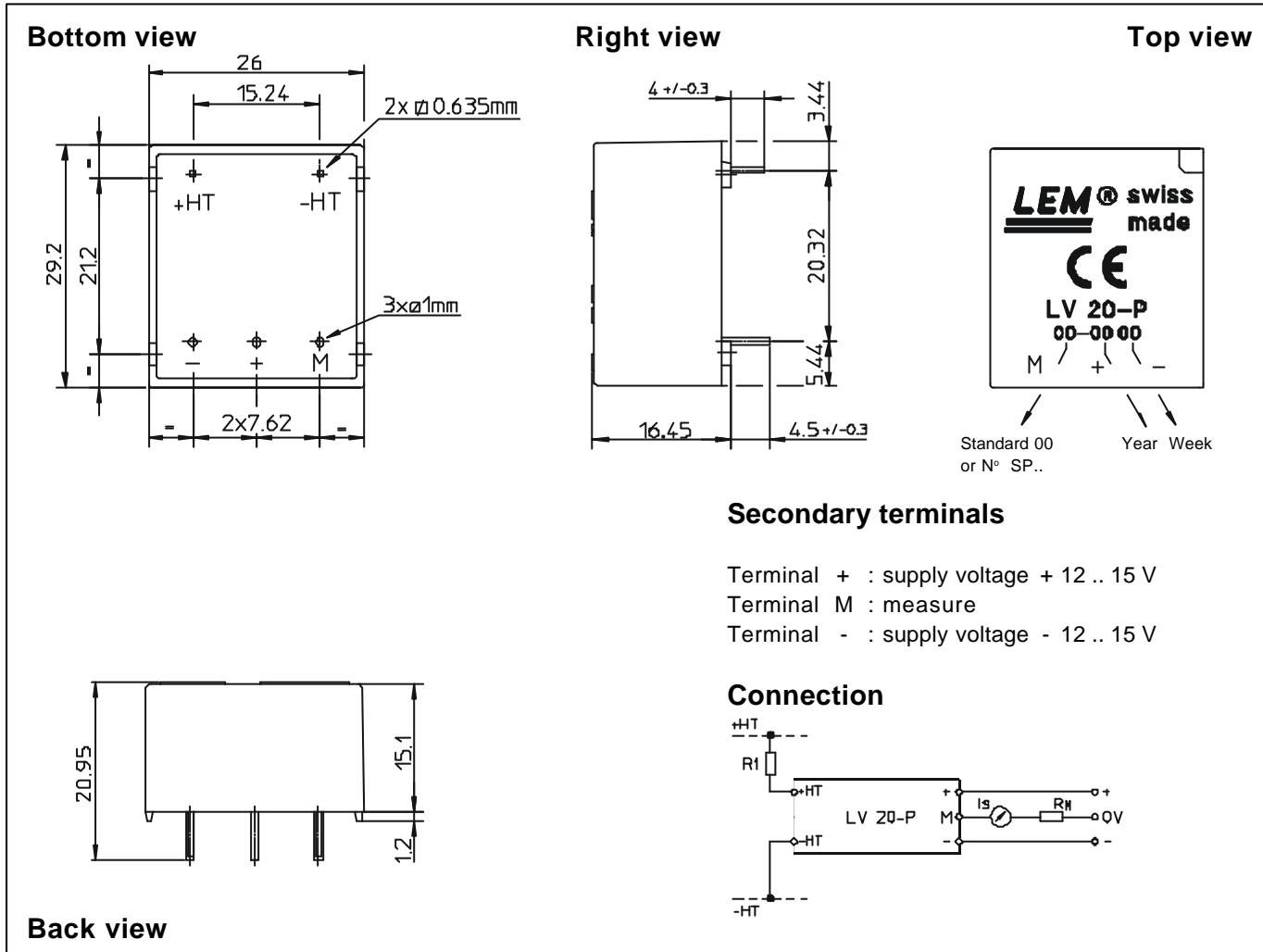
**Notes :** <sup>1)</sup> Between primary and secondary

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

<sup>3)</sup> A list of corresponding tests is available

010802/0

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



## Mechanical characteristics

- General tolerance  $\pm 0.2\text{ mm}$
- Fastening & connection of primary 2 pins  
0.635 x 0.635 mm
- Fastening & connection of secondary 3 pins  $\varnothing 1\text{ mm}$
- 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  $V_{PN} = 250\text{ V}$

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