

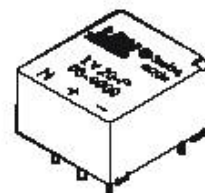
Voltage Transducer LV 20-P

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 .. ? 14	mA			
R_M	Measuring resistance	$R_M \text{ min } R_M \text{ max}$				
		with ? 12 V	@ ? 10 mA _{max}	30	190	Ω
			@ ? 14 mA _{max}	30	100	Ω
		with ? 15 V	@ ? 10 mA _{max}	100	350	Ω
		@ ? 14 mA _{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	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} , $T_A = 25^\circ\text{C}$	@ ? 12 .. 15 V	? 1.1	%	
		@ ? 15 V (? 5 %)	? 1.0	%	
ϵ_L	Linearity		< 0.2	%	
I_O	Offset current @ $I_P = 0$, $T_A = 25^\circ\text{C}$		Typ	Max	
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_f	Response time ²⁾ @ 90 % of $V_P \text{ max}$		40	?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	?C
T_S	Ambient storage temperature	- 25 .. + 85	?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

Example: Voltage to be measured $v_{PN} = 250 \text{ V}$

$R_1 = 35 \text{ k}\Omega / 2.5 \text{ W, IP = 10 mA}$ Accuracy $\pm 2\%$ of v_{PN} ($T_A = \pm 25^\circ\text{C}$)

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.

LEM reserves the right to carry out modifications on its transducers, in order to improve them, without previous notice.