

Voltage Transducer LV 25-400

For the electronic measurement of voltages: DC, AC, pulsed..., with galvanic isolation between the primary circuit (high voltage) and the secondary circuit (electronic circuit).

$$V_{PN} = 400 \text{ V}$$



0627

Electrical data

V_{PN}	Primary nominal voltage rms	400	V			
V_{PM}	Primary voltage, measuring range	0 .. ± 600	V			
I_{PN}	Primary nominal current rms	10	mA			
R_M	Measuring resistance	$R_{M \min}$	$R_{M \max}$			
				with $\pm 12 \text{ V}$	@ $\pm 400 \text{ V}_{\max}$	30
			@ $\pm 600 \text{ V}_{\max}$	30	100	Ω
		with $\pm 15 \text{ V}$	@ $\pm 400 \text{ V}_{\max}$	100	320	Ω
			@ $\pm 600 \text{ V}_{\max}$	100	180	Ω
I_{SN}	Secondary nominal current rms	25	mA			
K_N	Conversion ratio	400 V : 25 mA				
V_C	Supply voltage ($\pm 5 \%$)	$\pm 12 \dots 15$	V			
I_C	Current consumption	10 (@ $\pm 15 \text{ V}$) + I_S	mA			

Accuracy - Dynamic performance data

X_G	Overall accuracy @ V_{PN} , $T_A = 25^\circ\text{C}$	± 0.8	%
ϵ_L	Linearity error	< 0.2	%
I_O	Offset current @ $I_P = 0$, $T_A = 25^\circ\text{C}$	Typ	Max
I_{OT}	Temperature variation of I_O	- $25^\circ\text{C} \dots + 25^\circ\text{C}$	± 0.1 ± 0.60 mA
		+ $25^\circ\text{C} \dots + 70^\circ\text{C}$	± 0.1 ± 0.35 mA
t_r	Response time to 90 % of V_{PN} step	15	μs

General data

T_A	Ambient operating temperature	- 25 .. + 70	$^\circ\text{C}$
T_S	Ambient storage temperature	- 40 .. + 85	$^\circ\text{C}$
N_P	Turns ratio	2500 : 1000	
P	Total primary power loss	4	W
R_1	Primary resistance @ $T_A = 25^\circ\text{C}$	40	k Ω
R_S	Secondary coil resistance @ $T_A = 70^\circ\text{C}$	110	Ω
m	Mass	60	g
	Standards	EN 50178: 1997	

Features

- Closed loop (compensated) voltage transducer using Hall effect
- Isolated plastic case recognized according to UL 94-V0
- Primary resistor R_1 and transducer mounted on printed circuit board 128 x 60 mm.

Advantages

- Excellent accuracy
- Very good linearity
- Low temperature drift
- High immunity to external interference.

Applications

- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Uninterruptible Power Supplies (UPS)
- Power supplies for welding applications.

Application domain

- Industrial.

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Isolation characteristics

V_d	Rms voltage for AC isolation test ¹⁾ , 50 Hz, 1 min	4.1	kV
\hat{V}_w	Impulse withstand voltage 1.2/50 μ s	12	kV
		Min	
dCp	Creepage distance	13.8	mm
dCI	Clearance distance	13.8	mm
CTI	Comparative Tracking Index (group III b)	< 175	

Note: ¹⁾ Between primary and secondary.

Applications examples

According to EN 50178 and IEC 61010-1 standards and following conditions:

- Over voltage category OV 3
- Pollution degree PD2
- Non-uniform field

	EN 50178	IEC 61010-1
dCp, dCI, \hat{V}_w	Rated isolation voltage	Nominal voltage
Single isolation	1500 V	2500 V
Reinforced isolation	600 V	600 V

Safety



This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.



Caution, risk of electrical shock

When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply).

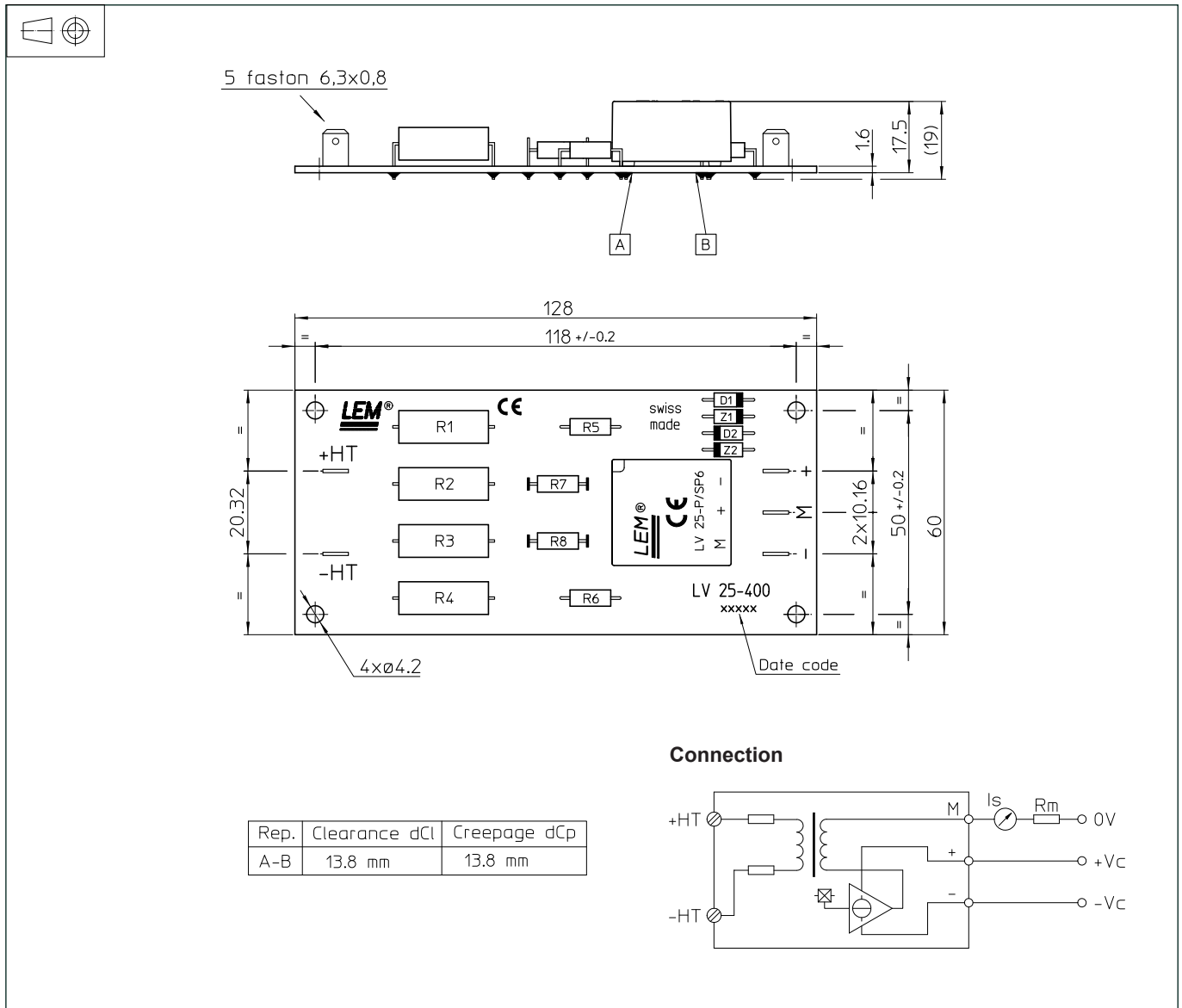
Ignoring this warning can lead to injury and/or cause serious damage.

This transducer is a build-in device, whose conducting parts must be inaccessible after installation.

A protective housing or additional shield could be used.

Main supply must be able to be disconnected.

Dimensions LV 25-400 (in mm)



Mechanical characteristics

- General tolerance ± 0.3 mm
- Transducer fastening 4 holes $\varnothing 4.2$ mm
The mounting must be done on a adapted holder with four M4 screws
- Connection of primary Faston 6.3 x 0.8 mm
- Connection of secondary Faston 6.3 x 0.8 mm

Remarks

- I_s is positive when V_p is applied on terminal +HT.
- The primary circuit of the transducer must be linked to the connections where the voltage has to be measured.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.