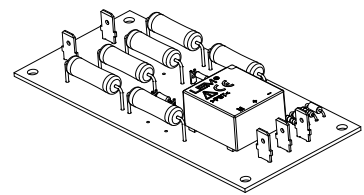


Voltage Transducer LV 25-1000/SP1

For the electronic measurement of voltages: DC, AC, pulsed..., with galvanic separation between the primary circuit and the secondary circuit.

$$U_{PN} = 1000 \text{ V}$$



Electrical data

| | | | | | | |
|-------------------------|----------------------------------|------------------------------------|-------------------------------|----------|-----|----------|
| U_{PN} | Primary nominal RMS voltage | 1000 | V | | | |
| U_{PM} | Primary voltage, measuring range | 0 ... ± 1500 | V | | | |
| I_{PN} | Primary nominal RMS current | 8 | mA | | | |
| R_M | Measuring resistance | $R_{M \min}$ | $R_{M \max}$ | | | |
| | | | | | | |
| | | with $\pm 12 \text{ V}$ | @ $\pm 1000 \text{ V}_{\max}$ | 0 | 165 | Ω |
| | | | @ $\pm 1500 \text{ V}_{\max}$ | 0 | 70 | Ω |
| with $\pm 15 \text{ V}$ | @ $\pm 1000 \text{ V}_{\max}$ | 0 | 255 | Ω | | |
| | @ $\pm 1500 \text{ V}_{\max}$ | 0 | 135 | Ω | | |
| I_{SN} | Secondary nominal RMS current | 25 | mA | | | |
| N_P/N_S | Turns ratio | 1000 V : 25 | mA | | | |
| U_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

| | | | | | |
|-------------------------|---|---|------------|------------|----|
| ϵ_{tot} | Total error @ $U_{PN}, T_A = 25 \text{ }^\circ\text{C}$ | ± 1 | % | | |
| ϵ_L | Linearity error | < 0.2 | % | | |
| I_O | Offset current @ $U_P = 0, T_A = 25 \text{ }^\circ\text{C}$ | Typ | Max | | |
| | | | ± 0.15 | mA | |
| I_{OT} | Temperature variation of I_O | $-30 \text{ }^\circ\text{C} \dots +25 \text{ }^\circ\text{C}$ | ± 0.10 | ± 0.50 | mA |
| | | $+25 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$ | ± 0.10 | ± 0.40 | mA |
| t_{D90} | Delay time to 90 % of I_{PN} | < 40 | us | | |
| BW | Frequency bandwidth (-1 dB) | DC ... 10 | kHz | | |

General data

| | | | |
|-----------|---|--|------------------|
| T_A | Ambient operating temperature | $-30 \dots +70$ | $^\circ\text{C}$ |
| T_S | Ambient storage temperature | $-40 \dots +85$ | $^\circ\text{C}$ |
| N_P/N_S | Turns ratio | 3116 : 998 | |
| P_P | Total primary power loss | 8 | W |
| R_P | Resistance of primary @ $T_A = 25 \text{ }^\circ\text{C}$ | 125 | k Ω |
| R_S | Resistance of secondary winding @ $T_A = 70 \text{ }^\circ\text{C}$ | 110 | Ω |
| m | Mass | 60 | g |
| | Standards | EN 50178: 1997 EN 50155: 2007 UL 508: 2010 | |

Features

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

Special features

- $T_A = -30 \dots +70 \text{ }^\circ\text{C}$
- Coated.

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 domains

- Industrial
- Railway (fixed installations and onboard).

Voltage Transducer LV 25-1000/SP1

Insulation coordination

| | | | |
|----------|--|------|----|
| U_d | RMS voltage for AC insulation test, 50 Hz, 1 min | 4.1 | kV |
| | | Min | |
| d_{Cp} | Creepage distance ¹⁾ | 13.8 | mm |
| d_{Ci} | Clearance | 13.8 | mm |
| CTI | Comparative tracking index (group IIIa) | 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 |
|--------------------------|--------------------------|-----------------|
| d_{Cp}, d_{Ci}, U_{Ni} | Rated insulation voltage | Nominal voltage |
| Basic insulation | 1500 V | NA |
| Reinforced insulation | 600 V | 600 V |

Safety

This transducer must be used in limited-energy secondary circuits according to IEC 61010-1.



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).

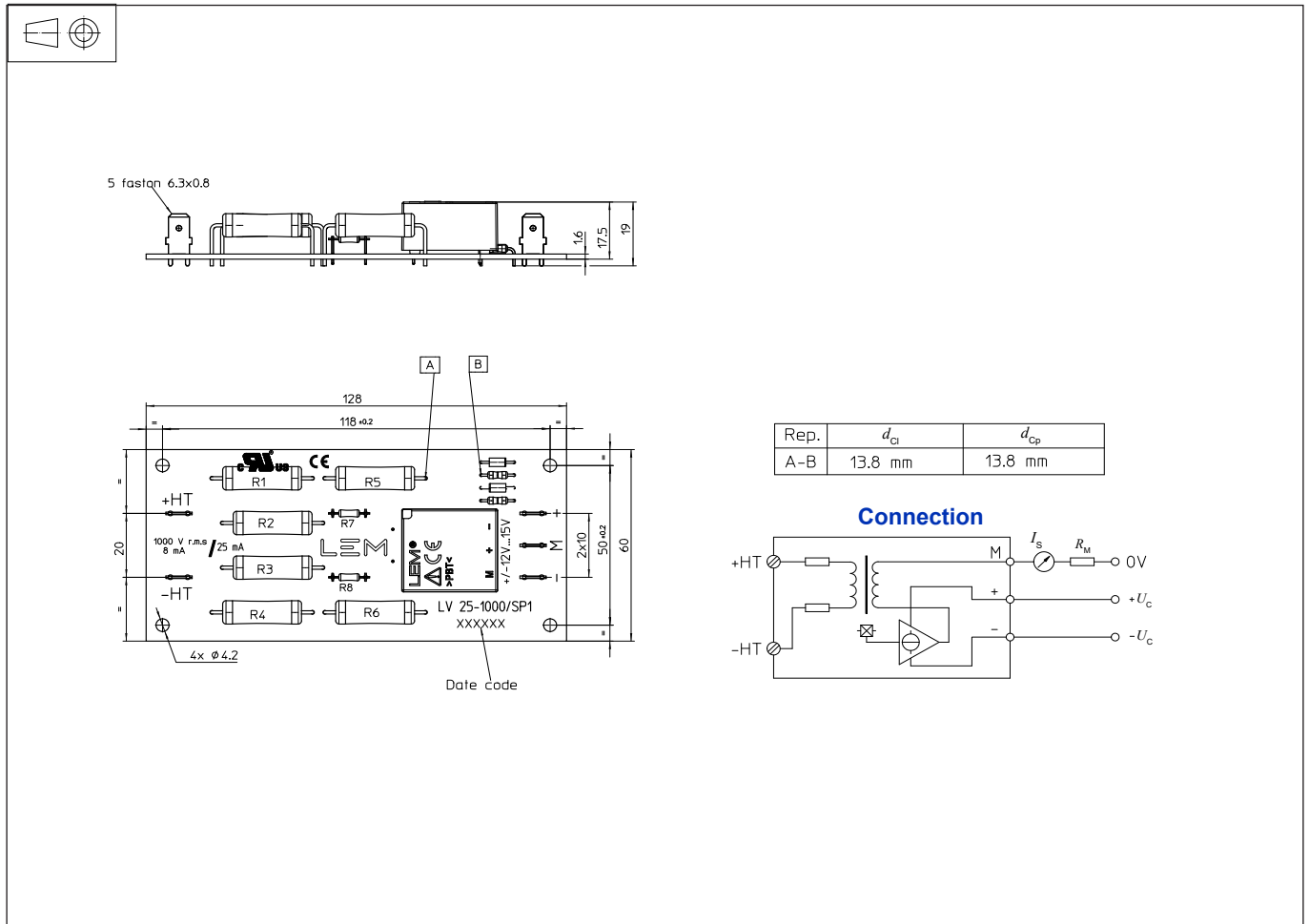
Ignoring this warning can lead to injury and/or cause serious damage.

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 25-1000/SP1 (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 6.3×0.8 mm
- Connection of secondary Faston 6.3×0.8 mm

Remarks

- I_s is positive when U_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.
- Installation of the transducer must be done unless otherwise specified on the datasheet, according to LEM Transducer Generic Mounting Rules. Please refer to LEM document N°ANE120504 available on our Web site: <https://www.lem.com/en/file/3137/download/>.