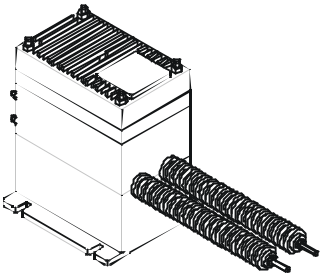
# Voltage Transducer LV 200-AW/2/SP7

# $I_{PN}$ = 20 mA

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 | | 20 | | mA |
| $I_P$ | Primary current, measuring range | | 0 .. ± 40 | | mA |
| $R_M$ | Measuring resistance | | $R_{M\,min}$ | $R_{M\,max}$ | |
| | | @ ± 20 mA $_{max}$ | 0 | 93 | Ω |
| | | @ ± 40 mA $_{max}$ | 0 | 31 | Ω |
| $I_{SN}$ | Secondary nominal r.m.s. current | | 100 | | mA |
| $K_N$ | Conversion ratio | | 10000 : 2000 | | |
| $V_C$ | Supply voltage (± 10 %) | | ± 17 .. 28 | | V |
| $I_C$ | Current consumption | | 90(@±28V)+$I_S$ | | mA |
| $V_d$ | R.m.s. voltage for AC isolation test, 50 Hz, 1 mn | | 28 [1] | | kV |
| | | | 2 [2] | | kV |

## Accuracy - Dynamic performance data

| | | | | | |
|---|---|---|---|---|---|
| $X_G$ | Overall Accuracy @ $I_{PN}$ , $T_A$ = 25°C | | ± 0.5 | | % |
| $\varepsilon_L$ | Linearity | | < 0.1 | | % |
| | | | Typ | Max | |
| $I_O$ | Offset current @ $I_P$ = 0, $T_A$ = 25°C | | | ± 0.3 | mA |
| $I_{OT}$ | Thermal drift of $I_O$ | - 25°C .. + 70°C | ± 0.4 | ± 0.7 | mA |
| $t_r$ | Response time [3] @ 90 % of $V_{PN}$ | | 20 .. 100 | | µs |

## General data

| | | | |
|---|---|---|---|
| $T_A$ | Ambient operating temperature | - 25 .. + 70 | °C |
| $T_S$ | Ambient storage temperature | - 40 .. + 85 | °C |
| $R_P$ | Primary coil resistance @ $T_A$ = 25°C | 550 | Ω |
| $R_S$ | Secondary coil resistance @ $T_A$ = 70°C | 40 | Ω |
| m | Mass | 3 | kg |
| | Standards [4] | EN 50178 (01.10.97) | |

## Features

- Closed loop (compensated) voltage transducer using the Hall effect
- Insulated plastic case recognized according to UL 94-V0
- Accessible electronic circuit
- Shield between primary and secondary circuit.

## 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.

## Special Features

- $I_p$ = 0 .. ± 40 mA
- $V_d$ = 28 kV [1].

## Advantages

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

## 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 + shield
[2] Between secondary and shield
[3] $R_1$ = 50 kΩ (L/R constant, produced by the resistance and inductance of the primary circuit)
[4] A list of corresponding tests is available.

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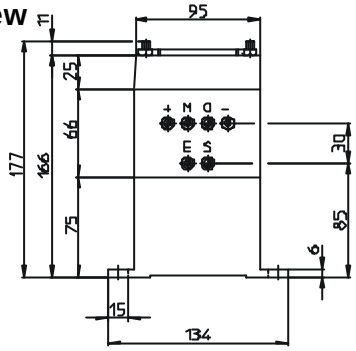
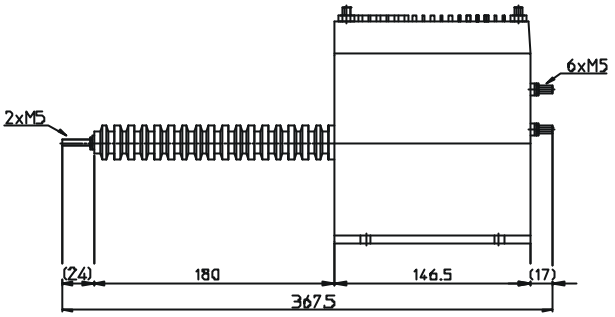
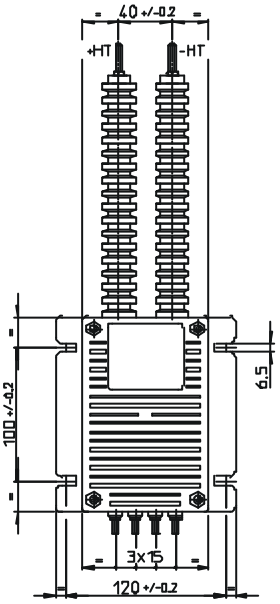
## Dimensions LV 200-AW/2/SP7 (in mm. 1 mm = 0.0394 inch)

**Front view**




**Left view**



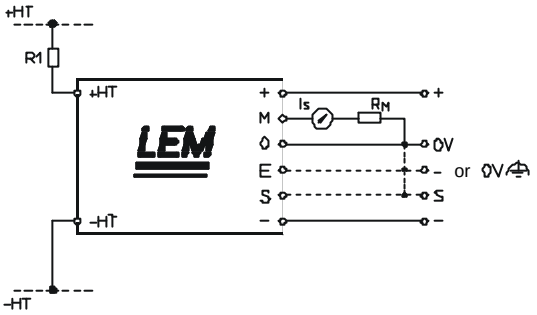




**Top view**

### Secondary terminals

Terminal + : supply voltage + 17 .. 28 V
Terminal M : measure
Terminal 0 : 0 V
Terminal E : screen
Terminal S : shield
Terminal - : supply voltage - 17 .. 28 V

### Connection




### Mechanical characteristics

| | |
|---|---|
| • General tolerance | ± 0.5 mm |
| • Transducer fastening | 4 slots ∅ 6.5 mm |
| | 4 M6 steel screws |
| Recommended fastening torque | 4.5 Nm or 3.32 Lb - Ft. |
| • Connection of primary | M5 threaded studs |
| • Connection of secondary | M5 threaded studs |
| • Recommended fastening torque | 2.2 Nm or 1.62 Lb - Ft. |

### Remarks

- $\mathbf{I}_S$ is positive when $\mathbf{V}_P$ is applied on terminal +HT.
- The shield (terminal E) and the screen (terminal S) must be connected to 0 V or terminal -.

**Instructions for use of the voltage transducer model LV 200-AW/2/SP7**

Primary resistor $\mathbf{R}_1$ : the transducer's optimum accuracy is obtained at the nominal primary current. As far as possible, $\mathbf{R}_1$ should be calculated so that the nominal voltage to be measured corresponds to a primary current of 20 mA.

Example: Voltage to be measured $\mathbf{V}_{PN}$ = 1000 V
a) $\mathbf{R}_1$ = 50 kΩ/40 W, $\mathbf{I}_P$ = 20 mA Accuracy = ± 0.5 % of $\mathbf{V}_{PN}$ (@ $\mathbf{T}_A$ = +25°C)
b) $\mathbf{R}_1$ = 200 kΩ/10 W, $\mathbf{I}_P$ = 5 mA Accuracy = ± 2.0 % of $\mathbf{V}_{PN}$ (@ $\mathbf{T}_A$ = +25°C)

Operating range (recommended) : taking into account the resistance of the primary windings (which must remain low compared to $\mathbf{R}_1$ in order to keep thermal deviation as low as possible) and the isolation, this transducer is suitable for measuring nominal voltages from 100 to 2500 V.