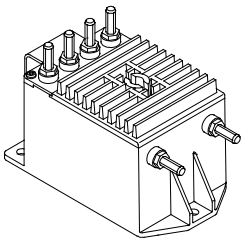
# Voltage Transducer CV 3-200/SP6

$U_{PN}$ = 100 V

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



## Electrical data

| | | | | |
|---|---|---|---|---|
| $U_{PN}$ | Primary nominal RMS voltage | | 100 | V |
| $U_{PM}$ | Primary voltage, measuring range | | 0 … ±150 | V |
| $U_S$ | Secondary voltage @ $U_{P\,max}$ | | 5 | V |
| $N_P/N_S$ | Turns ratio | | 120 V : 5 | V |
| $R_L$ | Load resistance | | ≥ 1 | kΩ |
| $C_L$ | Load capacitance | | ≤ 5 | nF |
| $U_C$ | Supply voltage (±10 %) | | ±15 ... 24 | V |
| $I_C$ | Current consumption | (@ ±15 V) | 35 + $U_S$ / $R_L$ | mA |
| | | (@ ±24 V) | 40 + $U_S$ / $R_L$ | mA |

## Accuracy - Dynamic performance data

| | | | Max | |
|---|---|---|---|---|
| $\varepsilon_{tot}$ | Total error @ $U_{PN}$, $T_A$ = | 25 °C | ±0.25 | % |
| | | −25 ... +75 °C | ±0.6 | % |
| $U_O$ | Offset voltage @ $U_P$ = 0, $T_A$ = 25 °C | | ±5 | mV |
| | | −25 ... +75 °C | ±10 | mV |
| $t_{D\,90}$ | Delay time to 90 % of the final output value for $U_{PN}$ step [1] | | 0.3 | µs |
| $BW$ | Frequency bandwidth (−1 dB) @ $U_{PN}$ | | DC … 700 | kHz |

## General data

| | | | |
|---|---|---|---|
| $T_A$ | Ambient operating temperature | −25 ... +75 | °C |
| $T_{A\,st}$ | Ambient storage temperature | −40 ... +85 | °C |
| $P_P$ | Total primary power loss | 1.6 | W |
| $R_P$ | Resistance of primary (winding) | 6.4 | kΩ |
| $m$ | Mass | 560 | g |
| | Standards | EN 50155: 2007 [2] | |
| | | EN 50121-3-2: 2015 | |

Notes: [1] For a $dv/dt$ = 200 V/µs

[2] Variation of the offset during the test IEC 61000-4-3 between 100 to 200 MHz.

## Features

- Closed loop (compensated) voltage transducer using the Hall effect
- Insulating plastic case recognized according to UL 94-V0.

## Special features

- $U_{PM}$ = 0 ... ±150 V
- $N_P/N_S$ = 120 V : 5 V
- $U_C$ = ±15 ... 24 (±10 %) V
- $U_d$ = 2.5 kV
- $T_A$ = −25 ... +75 °C
- VRT Burn-in.

## Advantages

- Excellent accuracy
- Very good linearity
- Low temperature drift
- Optimized delay time
- Wide frequency bandwidth
- High immunity to external interference
- Low disturbance in common mode.

## Applications

- Single or three phase inverters
- Propulsion and braking choppers
- Propulsion converters
- Auxiliary converters
- Battery chargers.

## Application Domain

- Railway (fixed installations and onboard).



LEM reserves the right to carry out modifications on its transducers, in order to improve them.

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### Insulation coordination

| | | | |
|---|---|---|---|
| $U_d$ | RMS voltage for AC insulation test, 50 Hz, 1 min | 2.5 | kV |
| $U_t$ | Partial discharge RMS test voltage ($q_m$< 10 pC) | 2 | kV |
| | | Min | |
| $d_{Cp}$ | Creepage distance | 83.8 | mm |
| $d_{Cl}$ | Clearance | 76.4 | mm |
| $CTI$ | Comparative tracking index (group I) | 600 | |

### 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 (e.g. primary connections, 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.

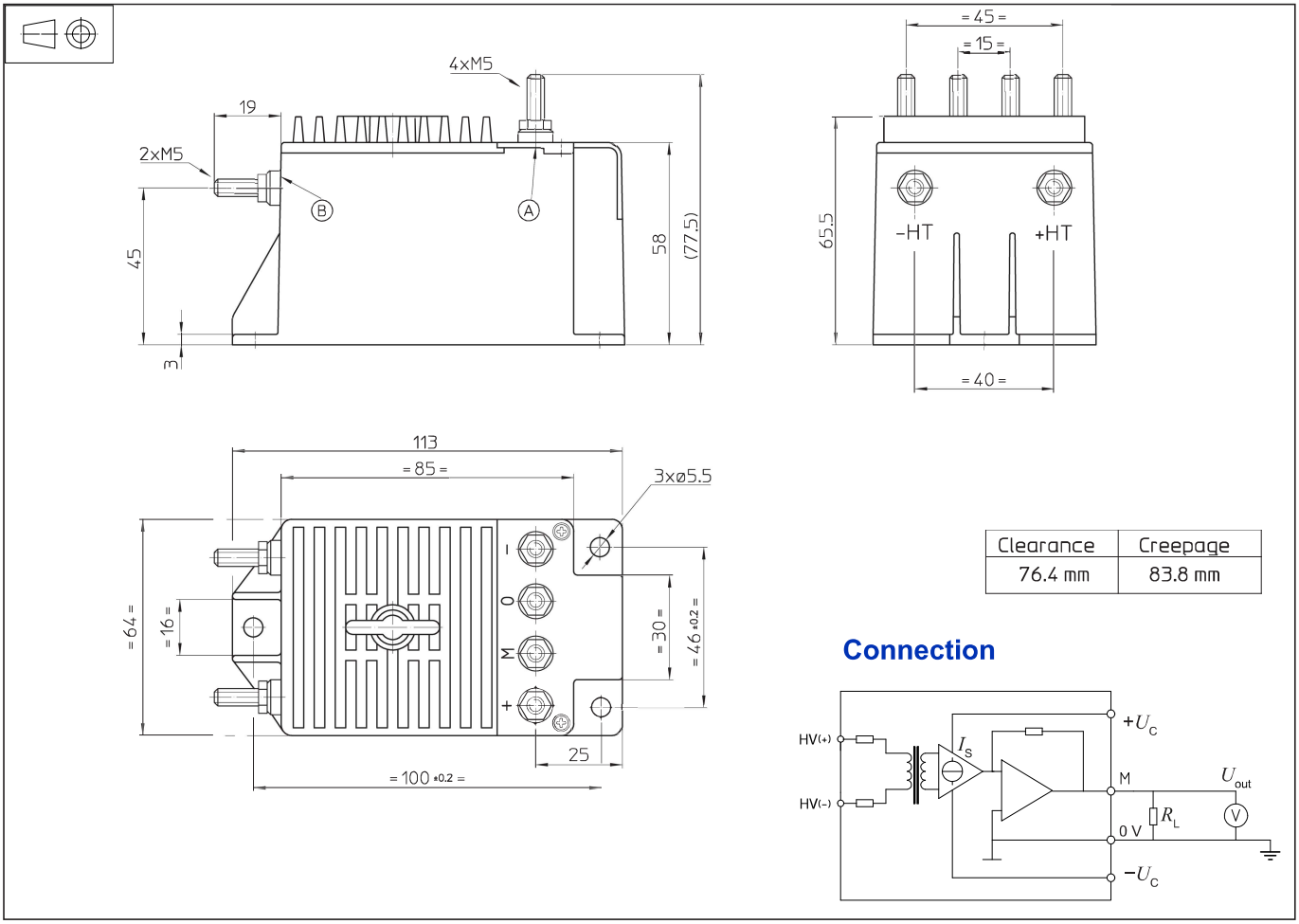


01August2023/Version 7

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## Dimensions CV 3-200/SP6 (in mm)




| Clearance | Creepage |
|---|---|
| 76.4 mm | 83.8 mm |

### Connection




## Mechanical characteristics

- General tolerance ±0.3 mm
- Transducer fastening 3 holes ⌀ 5.5 mm
  3 steel screws M5
  Recommended fastening torque 3.8 N·m
- Connection of primary 2 threaded studs M5
- Connection of secondary 4 threaded studs M5
  Recommended fastening torque 2.2 N·m

## Remarks

- $U_S$ is positive when $U_P$ is applied on terminal +HV.
- EMC tested with a shielded secondary cable. 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





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