Voltage Transducer CV 4-8000/SP2

U_{PN} = 4200 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		4200		V
U_{PM}	Primary voltage, measuring range		0 … ±8000		V
I_{SN}	Secondary nominal RMS current		20		mA
K_N	Conversion ratio		4200 V / 20 mA		
R_M	Measuring resistance		$R_{M\,min}$	$R_{M\,max}$	
	with ±15 V	@ ±4200 V $_{max}$	50	350	Ω
		@ ±8000 V $_{max}$	50	125	Ω
U_C	Supply voltage (±5 %)		±15		V
I_C	Current consumption		45 + I_S		mA

Accuracy - Dynamic performance data

		Max	
ε_{tot}	Total error @ @ U_{PN}, T_A = 25 °C	±1	%
	−25 °C ... +70 °C	±2	%
I_O	Offset current @ U_P = 0, T_A = 25 °C	±0.06	mA
	−25 °C ... +70 °C	±0.10	mA
$t_{D\,90}$	Delay time to 90 % of the final output value for I_{PN} step [1]	≈ 10	µs
BW	Frequency bandwidth (−3 dB) of U_{PN}	DC … 35	kHz

General data

T_A	Ambient operating temperature	−25 … +70	°C
$T_{A\,st}$	Ambient storage temperature	−45 … +90	°C
P_P	Total primary power loss	4.2	W
R_P	Resistance of primary (winding)	4.2	MΩ
m	Mass	640	g
	Standards	EN 50155: 2007 [2] EN 50121-3-2: 2015	

Features

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

Special features

- U_d = 16 kV
- U_t = 4.6 kV
- Current output.

Advantages

- Excellent accuracy
- Very good linearity
- Low temperature drift
- Optimized response time
- Wide frequency bandwidth
- High immunity to external interference.

Applications

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

Application Domain

- Railway (fixed installations and onboard).

Notes: [1] For a dv/dt = 1000 V/µs.

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

LEM International SA
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1217 Meyrin
www.lem.com

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Insulation coordination

U_d	RMS voltage for AC insulation test, 50/60 Hz, 1 min	16	kV
U_t	Partial discharge RMS test voltage (q_m< 10 pC)	4.6 Min	kV
d_{Cp}	Creepage distance	185.1	mm
d_{Cl}	Clearance	118.5	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.

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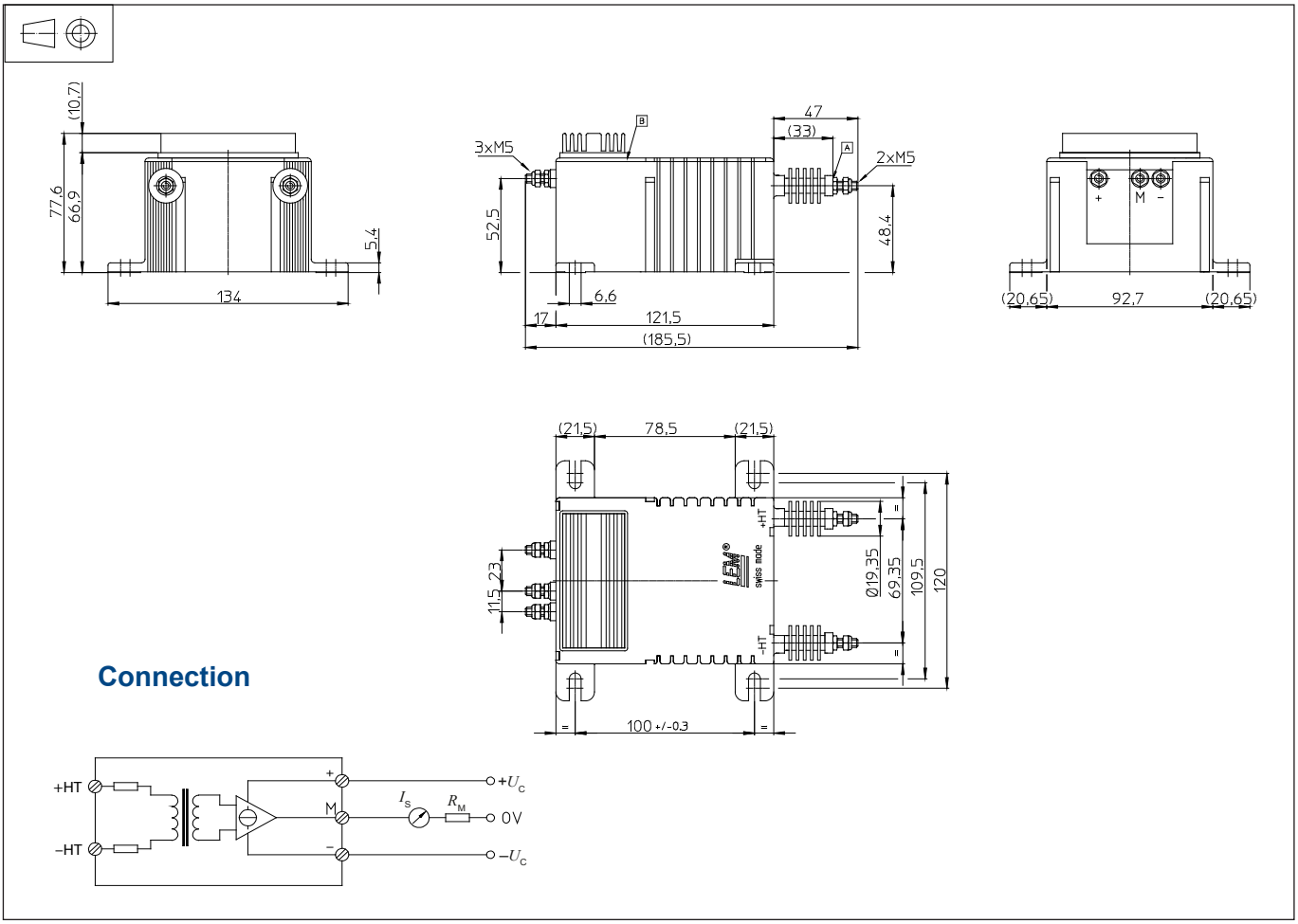
Dimensions CV 4-8000/SP2 (in mm)



Connection

Mechanical characteristics

• General tolerance	±0.5 mm
• Transducer fastening	4 slots ⌀ 6.6 mm 4 M6 steel screws
Recommended fastening torque	5 N·m
• Connection of primary	M5 threaded studs
Recommended fastening torque	2.2 N·m

Remarks

- I_S is positive when U_P is applied on terminal +HT.
- 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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