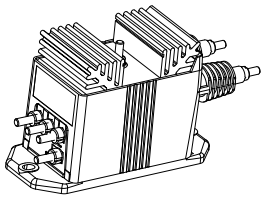
Voltage Transducer LV 100-2000/SP15

V_{PN} = 2000 V

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



Electrical data

V_{PN}	Primary nominal voltage rms		2000		V
V_{PM}	Primary voltage, measuring range		0 .. ± 3000		V
I_{PN}	Primary nominal current rms		5		mA
R_M	Measuring resistance		$R_{M\,min}$	$R_{M\,max}$	
	with ± 15 V	@ ± 2000 V $_{max}$	0	210	Ω
		@ ± 3000 V $_{max}$	0	120	Ω
	with ± 24 V	@ ± 2000 V $_{max}$	0	410	Ω
		@ ± 3300 V $_{max}$	0	250	Ω
I_{SN}	Secondary nominal current rms		50		mA
K_N	Conversion ratio		2000 V / 50		mA
V_C	Supply voltage (± 10 %)		± 15 .. 24		V
I_C	Current consumption		< 37 + I_S		mA

Accuracy - Dynamic performance data

X_G	Overall accuracy @ V_{PN} , T_A = 25°C		± 0.9		%
ε_L	Linearity error		< 0.1		%
			Typ	Max	
I_O	Offset current @ I_P = 0, T_A = 25°C			± 0.2	mA
I_{OT}	Temperature variation of I_O	- 40°C .. + 75°C	0.4	± 1.0	mA
t_r	Response time to 90 % of V_{PN} step		70		µs

General data

T_A	Ambient operating temperature	- 40 .. + 75	°C
T_S	Ambient storage temperature	- 40 .. + 85	°C
N	Turns ratio	20000 : 2000	
P	Total primary power loss	10	W
R_1	Primary resistance @ T_A = 25°C	400	kΩ
R_S	Secondary coil resistance @ T_A = 75°C	56	Ω
m	Mass	790	g
	Standards	EN 50155: 1995	

Features

- Closed loop (compensated) voltage transducer using the Hall effect
- Isolated plastic case recognized according to UL 94-V0
- Primary resistor R_1 incorporated into the housing.

Special features

- V_C = ± 15 .. 24 (± 10 %) V
- V_d = 9 kV [1)]
- T_A = - 40°C .. + 75°C
- VRT Burn-in
- Shield between primary and secondary
- Connection to secondary circuit on M5 threaded studs
- Labeled with customer part number.

Advantages

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

Applications

- Single or three phases inverter
- Propulsion and braking chopper
- Propulsion converter
- Auxiliary converter
- Battery charger.

Application Domain

- Traction.

Voltage Transducer LV 100-2000/SP15

Isolation characteristic

V_d	Rms voltage for AC isolation test, 50 Hz, 1 min	9 [1)]	kV
		1 [2)]	kV
		Min	
dCp	Creepage distance	164.8	mm
dCl	Clearance distance	47.1	mm
CTI	Comparative Tracking Index (group I)	600	

Notes: [1)] Between primary and secondary + shield + heat sink
[2)] Between secondary and shield.

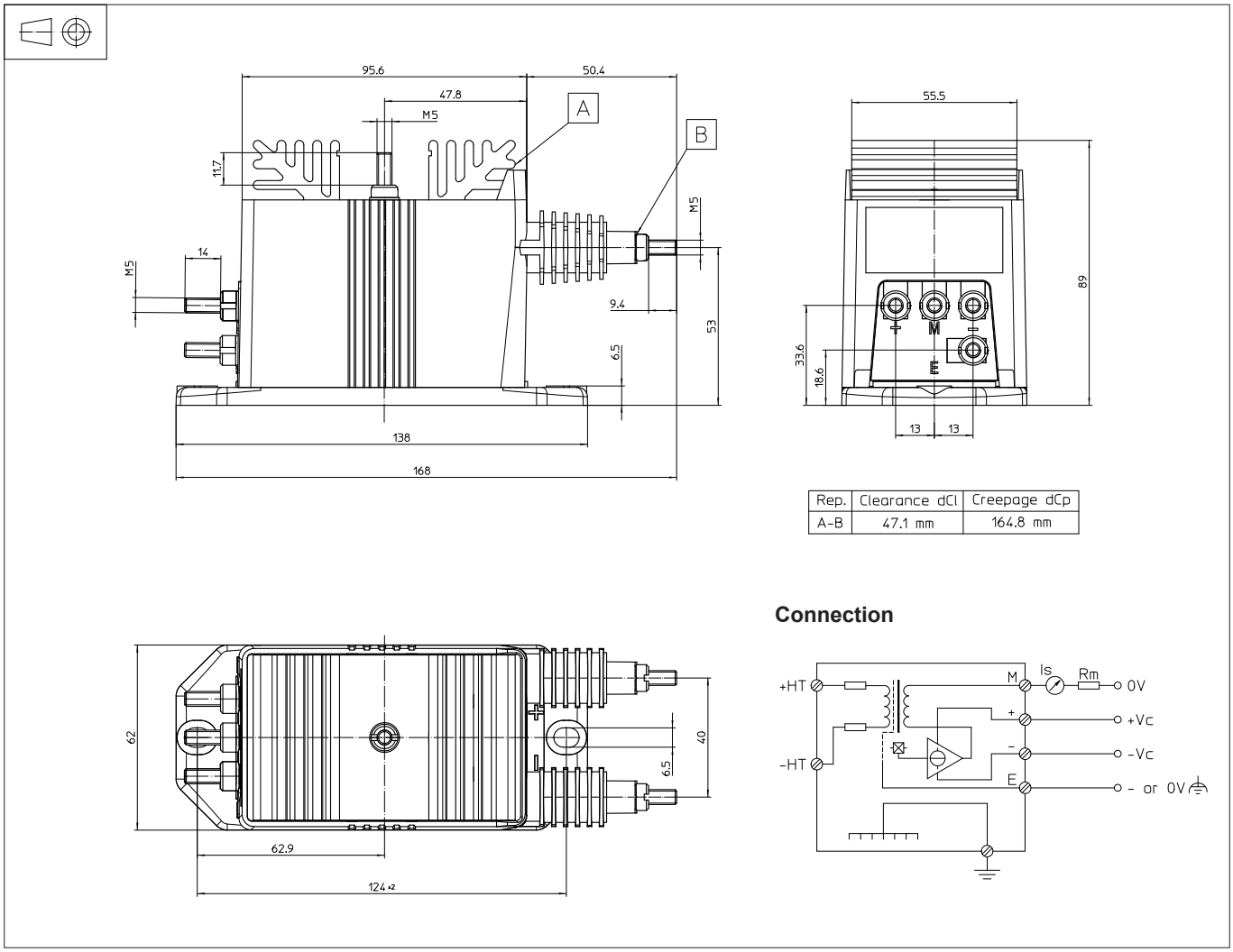
Safety

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 100-2000/SP15 (in mm.)



Rep.	Clearance dCl	Creepage dCp
A-B	47.1 mm	164.8 mm

Connection

Mechanical characteristics

- General tolerance ± 0.3 mm
- Transducer fastening 2 holes Ø 6.5 mm
  2 x M6 steel screws
  Recommended fastening torque 5 Nm
- Connection of primary 2 M5 threaded studs
- Connection of secondary 4 M5 threaded studs
- Connection to the ground M5 threaded stud
- Recommended fastening torque 2.2 Nm

Remarks

- $\mathbf{I}_S$ is positive when $\mathbf{V}_P$ is applied on terminal + HT.
- The primary circuit of the transducer must be linked to the connections where the voltage has to be measured.