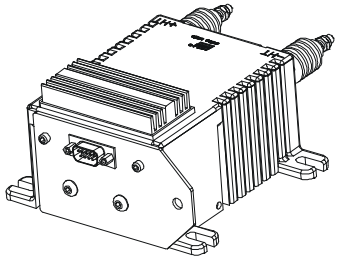
Voltage Transducer CV 4-4000/SP1

V_{PN} = 2800 V

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).

16292



Electrical data

V_{PN}	Primary nominal voltage rms	2800	V
V_{PM}	Primary voltage, measuring range	0 .. ± 4000	V
V_S	(Analog) secondary voltage @ $V_{P\ maxi}$	10	V
K_N	Conversion ratio	4000 V / 10 V	
R_L	Load resistance	³ 2	kΩ
C_L	Capacitive loading	£ 5	nF
V_C	Supply voltage (± 10 %)	± 24	V
I_C	Current consumption	35 + V_S / R_L	mA

Accuracy - Dynamic performance data

			Maxi	
X_G	Overall accuracy @ $V_{P\ maxi}$	T_A = 25°C	± 0.4	%
		- 40°C .. + 70°C	± 1.0	%
V_O	Offset voltage @ V_P = 0	T_A = 25°C	± 20	mV
		- 40°C .. + 70°C	± 60	mV
t_r	Response time [1] to 90 % of V_{PN} step		≅ 50	µs
BW	Frequency bandwidth (- 3 dB) @ 50 % of V_{PN}		DC .. 6	kHz

General data

T_A	Ambient operating temperature	- 40 .. + 70	°C
T_S	Ambient storage temperature	- 50 .. + 85	°C
P	Total primary power loss	2.8	W
R_1	Primary resistance	2.8	MΩ
m	Mass	750	g
	Standards	EN 50155: 1995	
		EN 50178: 1997	

Note: [1] With a dv/dt of 1000 V/µs.

Features

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

Special features

- V_C = ± 24 (± 10 %) V
- V_d = 9.5 kV
- T_A = - 40°C .. + 70°C
- Shield
- Connection to secondary circuit on SUB-D 9 Poles (male).

Advantages

- Excellent accuracy
- Very good linearity
- Low thermal drift.

Applications

- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Uninterruptible Power Supplies (UPS)
- Power supplies for welding applications
- Railway overhead line voltage measurement.

Application Domain

- Traction
- Industrial.

Voltage transducer CV 4-4000/SP1

Isolation characteristics

V_d	Rms voltage for AC isolation test, 50 Hz, 1 min	9.5 [2)]	kV
V_e	Partial discharge extinction voltage rms @ 10pC	3.75 Mini	kV
dCp	Creepage distance	185.1	mm
dCl	Clearance distance	118.5	mm
CTI	Comparative Tracking Index (Group I)	600	

Application 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
dCp, dCl, $\hat{V}_w$	Rated isolation voltage	Nominal voltage
Single isolation	8000 V	1000 V
Reinforced isolation	5600 V	1000 V

Note: [2)] Between primary and secondary + shield.

Safety

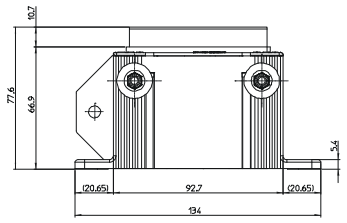
This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.

Caution, risk of electrical shock

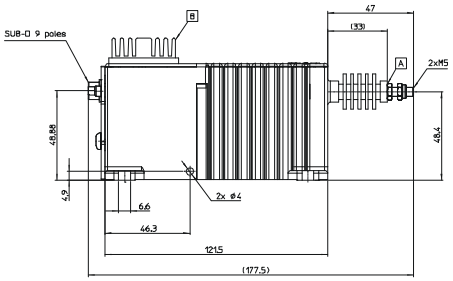
When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply).
Ignoring this warning can lead to injury and/or cause serious damage.
This transducer is a built-in device, whose conducting parts must be inaccessible after installation.
A protective housing or additional shield could be used.
Main supply must be able to be disconnected.

Dimensions CV 4-4000/SP1 (in mm. 1 mm = 0.0394 inch)

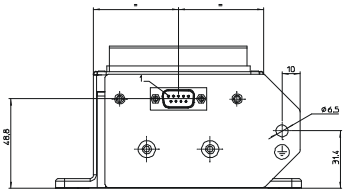
Right view



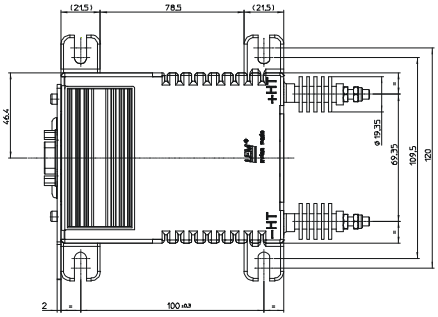
Front view



Left view



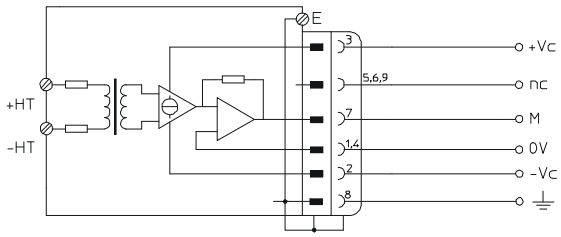
Top view



Secondary terminals

Pin	1	: 0 V
Pin	2	: supply voltage - 24 V
Pin	3	: supply voltage + 24 V
Pin	4	: 0 V (measure)
Pin	5	: NC
Pin	6	: NC
Pin	7	: output 10 V
Pin	8	: earth
Pin	9	: NC
Terminal	⏚	: earth

Connection



Mechanical characteristics

- General tolerance ± 0.5 mm
- Fastening of transducer 4 slots ∅ 6.6 mm
  4 steel screws M6
  Recommended fastening torque 5 Nm or 3.7 Lb. -Ft.
- Connection of primary M5 threaded studs
  Recommended fastening torque 2.2 Nm or 1.62 Lb. -Ft.
- Connection of secondary SUB-D 9 Poles (male)
- Connection to the ground hole ∅ 6.5 mm

Remark

- $\mathbf{V}_S$ is positive when $\mathbf{V}_P$ is applied on terminal +HT.