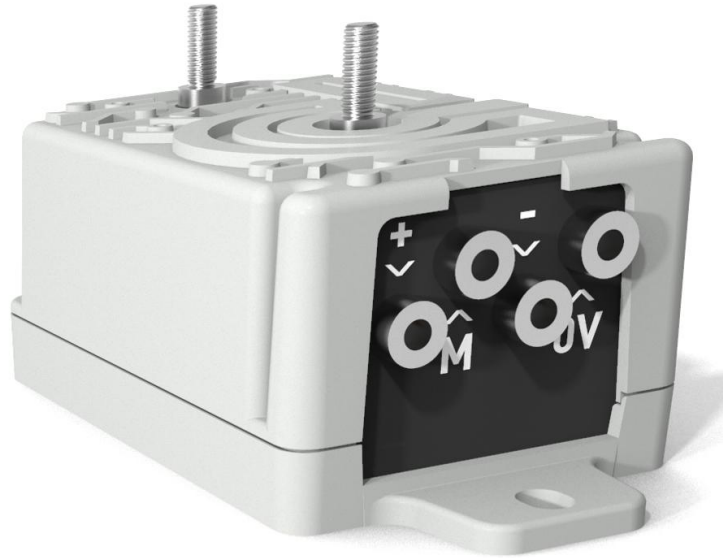


Voltage Sensor - VenuS 1500 V



PVS1500T-1FVAA0 STANDARD

Measuring DC, AC., and pulsating voltages with a galvanic insulation between primary and secondary circuits.



KEY FEATURES

- Bipolar and insulated measurement up to 2250 V
- Bipolar voltage output 6.6667 Vrms for 1500 Vrms
- Primary Input connections designed for M5 studs
- Special designed output connections M5 inserts with W shape

APPLICATIONS



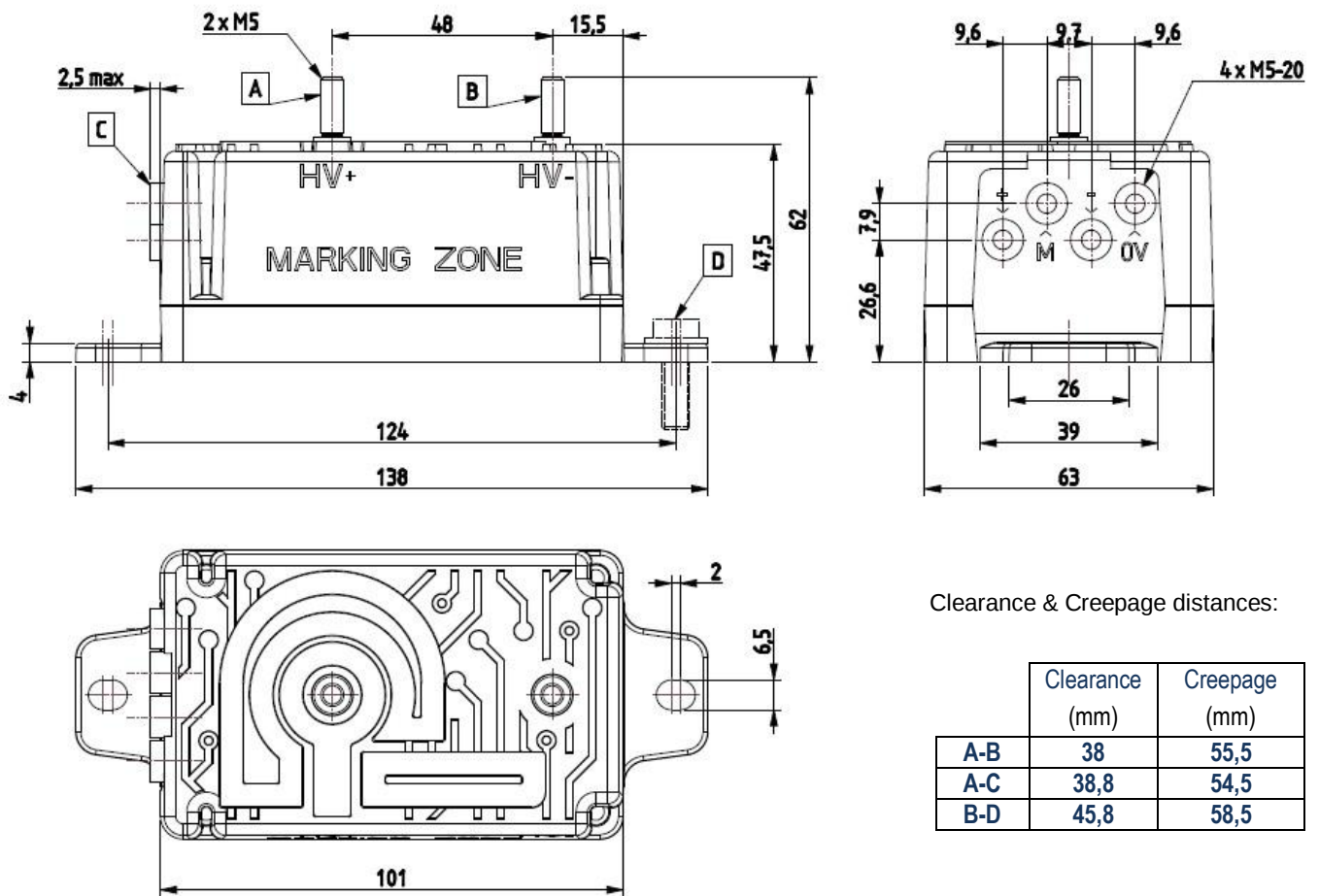
RAILWAY



INDUSTRIAL
VEHICLES



Overall dimensions

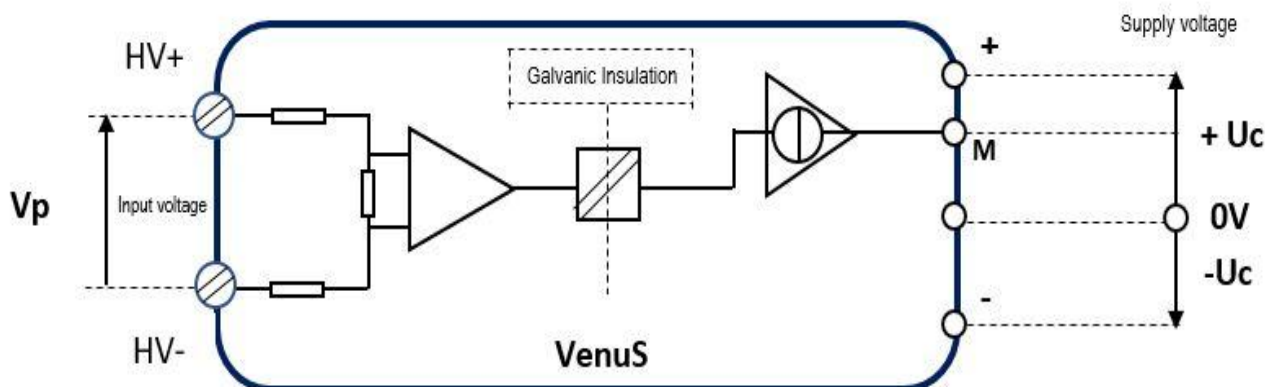


Mechanical characteristics

- General tolerance: ± 1 mm
- Outline: 138mm(Z)X63mm(X)x62mm(Y)
- Sensor fixing: 2x M6 screws
- Primary connection: 2x M5 Threaded studs
- Secondary connection: 4x M5 threaded inserts (W shape) - 20 mm max scew length
- Recommended M5 tightening torque: 2,2 N.m max
- Mass: < 280g
- Assembly requirements: Operational in any position



Synoptic (voltage output)



Voltage range

Parameters	Symbol	Unit	Value
Operating primary voltage	V_{PN}	V_{rms}	1500
Maximum primary voltage (measuring range)	V_{Pmax}	V_{peak}	± 2250
Operating secondary supply voltage range	U_c	V_{DC}	± 24
Maximum secondary supply voltage range (Peak)	U_{cmax}	V_{DC}	± 34
Minimum secondary supply voltage range	U_{cmin}	V_{DC}	± 15

Operating at mentioned maximums voltage for an extended period may degrade reliability.

Using the device beyond these voltage ranges may cause permanent damage that could not be considered as under Petercem's responsibility.

Temperature range

Parameters	Symbol	Unit	Min	Max
Operating temperature range	T_o	$^{\circ}C$	-40	+85
Storage temperature range	T_s	$^{\circ}C$	-50	+90
Room temperature	T_A	$^{\circ}C$	20	25

All mentioned electrical performances in this data sheet apply only in the operating temperature range unless otherwise specified.

Operating at mentioned extreme temperatures for an extended period may degrade reliability.

Using the device beyond these temperature ranges may cause permanent damage that could not be considered as under Petercem's responsibility.



Insulation properties

Parameters	Symbol	Unit	Value	Comments
Dielectric test AC, 50 Hz, 1min	U_d	kV _{rms}	8,5	100% tested
Impulse withstand voltage 1.2/50 μs	Ū_w	kV	16	
Partial discharges ; Extinction voltage(@ 10pC, 50Hz)	U_e	kV _{rms}	2,7	
Insulation resistance	R_{INS}	MΩ	200	@500Vdc
Primary resistance	P_r	MΩ	11,3	
Case material (according to UL94)	-	-	V0	
Comparative tracking index	CTI	-	600	
Clearance distance	Cl.	mm	See dimension values on page 2	
Creepage distance	Cr.	mm		
Maximum DC common mode voltage	U_{HT+} + U_{HT-} U_{HT+} - U_{HT-I}	kV	≤ 4.2 ≤ V _{PM}	



Electrical performances

Parameters	Symbol	Unit	Min.	Typ.	Max.	Comments
Secondary output RMS voltage at V_{PN}	V_{SN}	V		6.6667		
Maximum secondary voltage at $V_{P\ max}$	V_S	V	-10		10	
Overall accuracy	X_G	% of V_{PN}	-1		+1	-40.....+85°C
Accuracy at T_A	X_G	% of V_{PN}	-0.5		+0.5	25°C
Frequency bandwidth at 14 kHz	BW	dB		-3		
Measuring resistance	R_M	Ω	20000			
Current consumption at $U_c = \pm 24V$ at $V_P = 0\ V$	I_c	mA		70		
Offset voltage	U_0	mV	-7	0	7	
Linearity drift over $V_{P\ max}$ range	ϵ_L	% of V_{PN}	-0.5		0.5	
Total primary power loss at V_{PN}	P_P	W		0.35		
Start-up time	t_{start}	ms			250	
Dv/dt correctly followed	Dv/dt	V/ μ S			24	
Response time	T_{D10}	μ S	40			
Sensitivity error	ϵ_S	%	-0,2		+0,2	
Sensitivity	S	mV/V		4.444		
Rise time of U_c (10-90%)	t_{rise}	ms			100	

Particularities

Parameters	Symbol	Unit	Min.	Typ.	Max.	Comments
Burn in test according to cycle						FPTC404304



Standards

Standards	Revision
EN 50155: OT6, ST0, H2, PC2	2021
EN 50124-1	2017
EN 50121-3-2	2019
EN 50 128	2011
EN 50178	1997
EN 45545 HL2	2013
IEC 61010	2016
UL 508	2003 (Pending)
UL 94-V0	2022

Conditions for Acceptance:

1. These components must be installed within an appropriate enclosure for their intended end-use application.
2. The device's Basic Insulation Level is rated at 16kV, which has been verified through Impulse Withstand Testing. If a higher BIL rating is requested, we need to plan more tests on our VenuS and the cost of the tests will be borne by the applicant.



Safety warnings

This sensor must be used in electrical circuits according to EN61010-1.



This sensor must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the system instructions and internal customer rules.



Caution: risk of electrical shock. When operating the sensor, certain parts can carry hazardous voltages (primary bar, power supply...). Ignoring this warning can lead to injury and/or cause serious damage.



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MAFELEC TEAM

