

Technical Specification

Hall Effect Voltage Sensor HEVS4000

Features :

- High accuracy
- Very good linearity
- Easy installation
- Can be customized
- Low temperature drift
- High immunity to external interference
- Robust Design for Harsh Environments
- High Galvanic Isolation



RÖHS
COMPLIANT



Hall Effect closed-loop voltage sensors are designed to provide accurate and reliable voltage measurements in extreme conditions, particularly for high-voltage applications ranging from **1000V to 5000V**. These sensors offer exceptional performance in harsh environments, with high galvanic isolation and precision, ensuring both safety and accuracy.

The **closed-loop Hall Effect** mechanism compensates for magnetic field variations, providing high precision and low drift over time, even in fluctuating temperatures or challenging environmental conditions like dust, humidity, or high altitudes.

Application Domains:

- Railway
- Industrial

Standards :

- IEC60950-1:2001
- EN50178:1981
- EN50155:2021
- EN60947-1:2004

Applications :

Variable speed drives
Welding machine
Battery supplied applications
Uninterruptible Power Supplies
Electrochemical.
Substations.
Auxiliary converters

Supply Voltage
± 15 v...±24v

Galvanic Isolation
12 Kv

Operating temperature
-40°C ... + 85°C

Part Number	Primary Nominal Voltage	Primary Voltage Measuring Range
HEVS4000	4000V	±6000 V

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Specifications:

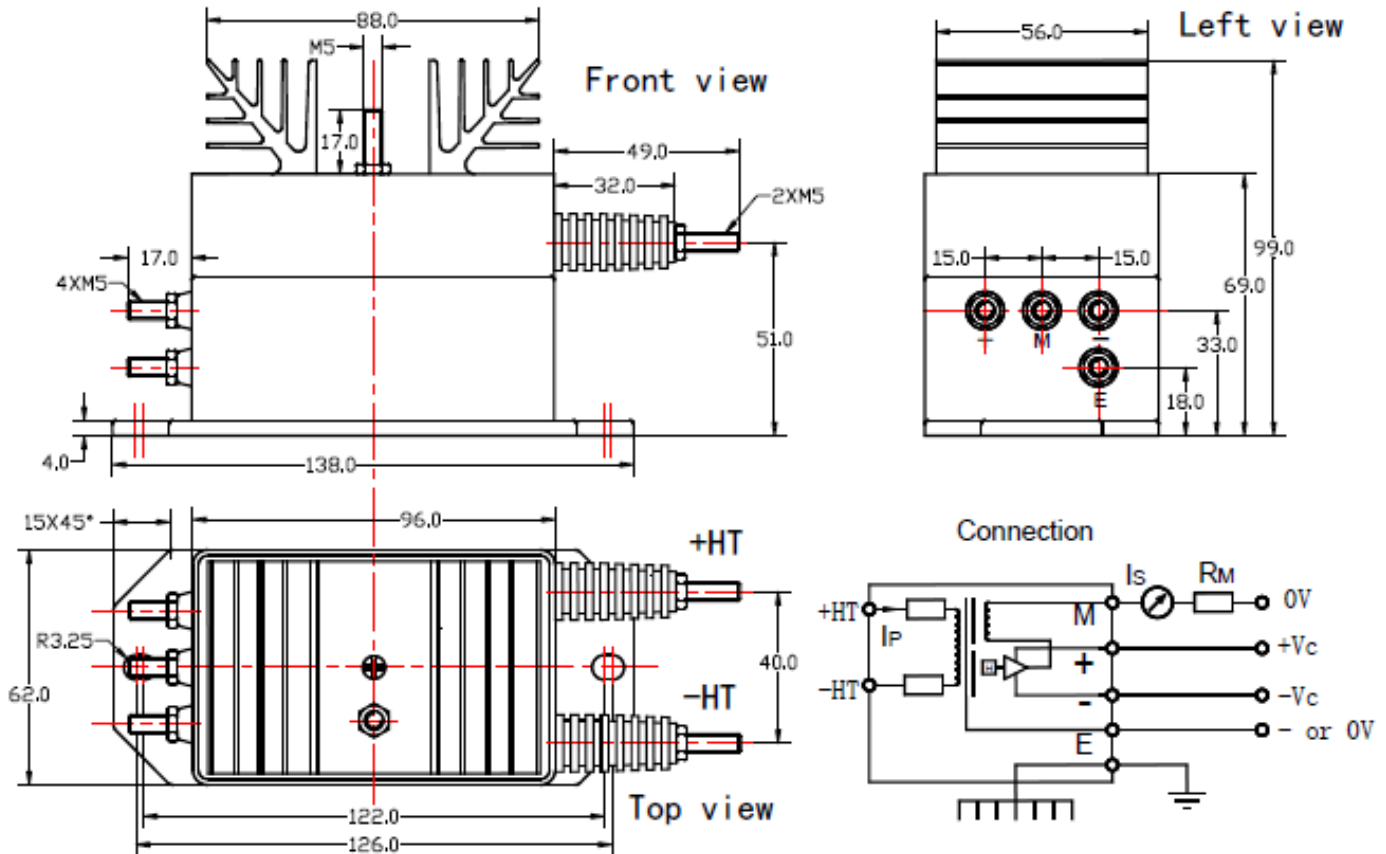
$T_A = +25^{\circ}\text{C}$, $V_{CC} = \pm 24\text{V}$

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Primary nominal r.m.s Voltage	VPN		-	4000	-	V
Primary Voltage measuring range	VPM		-6000	-	6000	V
Total Input Consumption	Pp		-	10.00	-	W
Rated Input Current	Ip		-	2.50	-	mA
Turn Ration	Np/Ns		40000 / 2000			
Primary Resistance	Rp	@ $T_A = 25^{\circ}\text{C}$		1600		K Ω
Secondary Coil Resistance	Rs	@ $+85^{\circ}\text{C}$	-	55	-	Ω
Rated Output	Isn	@ $V_p = \pm V_{pn}$	-50	-	+50	mA
Measuring Resistance		@ $\pm 15\text{V}$	0	210	-	Ω
Supply Voltage	Vc	$\pm 10\%$	± 15	0	± 24	V
Consumption Current			$20 + I_p \times (N_p/N_s)$			mA
Offset Current		@ $V_p = 0$ $T_A = 25^{\circ}\text{C}$	-	$\leq \pm 0.2$	-	mA
Offset Drift		@ $-40 \sim +85^{\circ}\text{C}$		$\leq \pm 1.5$		mV/ $^{\circ}\text{C}$
Linearity		@ $V_p = 0 \sim \pm V_{pn}$		≤ 0.1		%FS
Overall Accuracy		@ V_{pn} , $T_A = 25^{\circ}\text{C}$		± 1		%
Response Time				≤ 200		μs
Galvanic Isolation		@ 50Hz, AC, 1min^1		12.0		Kv
		@ 50HZ, AC, 1min^2		2.0		
Operating temperature			-40	-	+85	$^{\circ}\text{C}$
Storage temperature			-40	-	+125	$^{\circ}\text{C}$
Mass				850		g

1. Between primary and secondary + shield
2. Between secondary and shield

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DIMENSIONS



All dimensions are in : mm

General Tolerance : $\pm 1\text{mm}$

Primary connection : M5 threaded studs

Tightening torque : 2.2 N.m

Secondary connection : M5 threaded studs

Tightening torque : 2.2 N.m

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1. General Safety Warnings

- **Intended Use:** This transducer is designed for installation in electrical and electronic systems. It must be used in compliance with applicable international standards, such as **IEC 61010-1**, as well as local regulations and codes.
- **Applicable Standards:** The transducer must be operated according to the Adisens's operating instructions to ensure compliance with relevant safety standards, including:
 - **IEC 61010-1:** Safety requirements for electrical equipment for measurement, control, and laboratory use.
 - **EN 50178:** Safety requirements for electronic equipment for power installations.
- **Installation by Qualified Personnel:** Only qualified professionals, trained in handling high-voltage systems and electrical components, should install, commission, and maintain the transducer. Misuse or incorrect installation may result in electric shock, fire, or severe equipment damage.

2. Electrical Shock Risk

- **Risk of Electric Shock:** This transducer operates in high-voltage environments. It must be handled with care to avoid direct contact with live electrical components. There is a risk of serious injury or death from electric shock if proper precautions are not taken.
- **Limited-Energy Secondary Circuits:** To ensure safe operation, this transducer must be used exclusively within limited-energy secondary circuits, as specified by **IEC 61010-1**, which governs the safe design of electrical circuits to reduce the risk of injury and electrical hazards.
- **Isolation Requirements:** This transducer provides galvanic isolation between the primary (high-power) and secondary (low-power) circuits. However, the device should not be assumed to provide absolute protection against electric shock. Always de-energize circuits before installation or maintenance.

3. Installation Precautions

- **Environmental Conditions:** The transducer is designed to operate in controlled environments. Ensure that the operating temperature, humidity, and surrounding conditions comply with the transducer's specifications provided in the technical datasheet. Avoid exposure to moisture, corrosive environments, or areas prone to electrical interference.
- **Mounting:** Secure the transducer properly in a location that prevents movement or vibration during operation. Improper mounting may cause electrical arcing or contact with live components.
- **Grounding:** Ensure that the transducer is correctly grounded in accordance with the electrical system design. This will help prevent electric shock and improve system safety and performance.

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4. Operational Guidelines

- **Operating Limits:** Operate the transducer strictly within the specified voltage, current, and temperature ranges. Overloading the transducer beyond its rated capacity may result in equipment failure or create safety hazards.
- **Routine Maintenance:** Inspect the transducer regularly for signs of wear, damage, or abnormal operation. Discontinue use if any issues are detected and consult the manufacturer for replacement or repair.

5. Handling and Storage

- **Handling Precautions:** Avoid direct contact with transducer terminals during handling. Always handle the device with protective gear, including insulated gloves, to avoid accidental electric shock.
- **Storage Conditions:** Store the transducer in a clean, dry, and temperature-controlled environment. Prolonged exposure to harsh conditions may degrade performance and compromise safety.

6. Emergency Procedures

- **Power Disconnection:** In case of a malfunction, electrical fault, or other emergency, immediately disconnect the power supply to the transducer and seek professional assistance for inspection and repair.
- **First Aid:** If an electric shock occurs, follow established first aid protocols and seek emergency medical assistance immediately.

7. Disposal

- **Environmental Considerations:** Dispose of the transducer according to local regulations for electronic waste. Do not incinerate, and avoid disposing of the device in general waste, as it may contain hazardous materials.

8. Manufacturer's Support

For additional information, technical support, or to report any issues with the transducer, please contact us on contact@adisens.fr. Ensure that you have the model number, serial number, and installation details on hand for a prompt response.