VSV301-G280T01-I Voltage Sensor

User Manual

V1.2

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YINHE ELECTRIC

Thank you for choosing the YINHE ELECTRIC Voltage Sensor

This manual is the user manual for the voltage sensor product of HUNAN YINHE ELECTRIC Co., Ltd. It provides users with relevant precautions for installation, commissioning, operation, use, and daily maintenance. Please read it carefully before installation and use. This manual is provided with the product and should be kept properly for reference and maintenance purposes.

Statement

We have carefully compiled this manual, but we do not guarantee the complete accuracy of its content. Since our products are continuously being improved and updated, we reserve the right to modify the content of this manual at any time without prior notice. We are not responsible for any direct, indirect, intentional, or unintentional damage or potential hazards caused by the improper use of the content contained in this manual.

Safety Operation Knowledge

- Before using the product, please read the user manual carefully.
- When moving the product, please disconnect the power supply and remove all connected cables first.
- If you find any damage to the casing, fasteners, power cords, connecting cables, or connected equipment, please immediately disconnect the device from the power source.
- If there is any doubt about the safe operation of the equipment, please immediately shut down the device and its accessories and contact our company's technical support department as soon as possible to resolve the issue.

1. Product Overview

The VSV301-G280T01-I is a voltage sensor that can measure direct current (DC), alternating current (AC), pulse, and various irregular waveform voltages under the condition of complete isolation between the primary and secondary sides. It is mainly used in fields that require high accuracy for metrology verification and calibration, as well as in fields that require high sensitivity, stability, and reliability, such as power quality analysis, power analyzers, medical, aerospace, naval vessels, etc.

2. Technical Features

- Extremely high accuracy
- Excellent linearity
- High stability
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- High resolution
- Low temperature drift
- Low offset current
- Low insertion loss
- Strong anti-interference capability
- Fast response speed
- Low noise
- Small phase difference
- Wide bandwidth
- Analog output

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4. Electrical Performance

The following performance indicators are specified at a default ambient temperature (T_A) of 25℃ (±5℃), supply voltage (U_C) of ±15V, and a load resistance (R_M) of 7.5kΩ. Special conditions are noted separately.

Item	Symbol	Test Conditions	Value			Unit
			Minimum	Nominal	Maximum	
Primary rated current(DC)	$U_{PN\ AC}$	--	--	300	--	V
Primary Rated Current (AC rms)	$U_{PN\ DC}$	--	-300	--	300	V
Primary Overload Current	$U_{P\ OL}$	1 minute/hour	-500	--	500	V
Supply Voltage(DC)	U_c	Full range	--	±15	--	V
Current Consumption	I_c	Within $U_{P\ OL}$ range	--	±50	--	mA
Turns Ratio	K_N	Input: Output	500:10			V/V
Secondary Output	U_S	$U_{P\ OL}$	--	±10	--	V
Measuring Resistance	R_M	Full range	7.5	--	--	kΩ
Accuracy	X_e	Rated Input	--	0.05	--	%
Phase Difference	Δφ	50Hz	--	2	--	′
Linearity	ε_L	--	--	--	100	μV/V
Zero Offset Voltage	U_o	25±10℃	--	--	±1	mV
Dynamic Response Time	t_r	Time from Step Signal Input to Essentially Stable Output Signal	--	--	3.5	μs
Ripple Voltage	U_n	--	--	--	2	mV
Bandwidth (-3 dB)	BW	--	0	--	100	kHz
Temperature Drift Coefficient	T_{COUT}	--	--	--	15	(μV/V) /K

Note: All "%" and "μV/V" refer to the full-scale secondary voltage.

5. Safety Characteristics

Item		Symbol	Test Conditions	Value			Unit
				Minimum	Nominal	Maximum	
AC Insulation Voltage	Between Primary and Secondary Between Primary and Enclosure	U_d	50Hz，1min	--	2	--	kV

6. 环境和机械特性

Item	Symbol	Test Conditions	Value			Unit
			Minimum	Nominal	Maximum	
Working Temperature Range	T_A	--	-10	--	+70	℃
Storage Temperature Range	T_S	--	-25	--	+85	℃
Temperature	**RH**	No condensation	20	--	80	%
Mass	**m**	--	350±5			g

7. Dimensions and Interface Definition

7.1. Dimensions (Unit: mm)

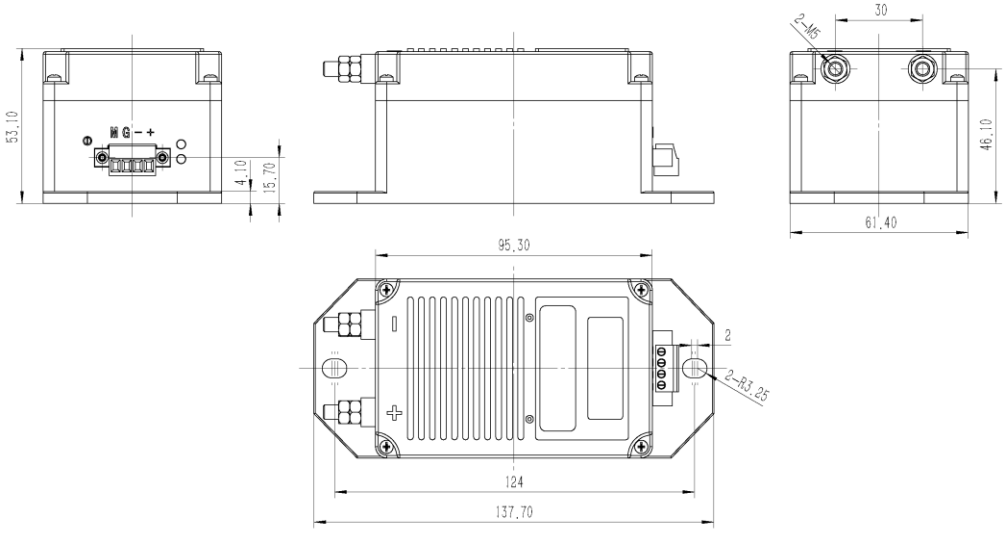


Figure 1: Dimensions Diagram

Note: The tolerance for dimensions and installation positioning is in accordance with the Grade C standard of GB/T1804-2000.

7.2. Interface Definition

- The input terminal for the measured voltage is a 2-pin terminal block, with the definitions as follows:

+ : Connect to the high end of the measured voltage

- : Connect to the low end of the measured voltage

- Signal output and power input interface definitions:

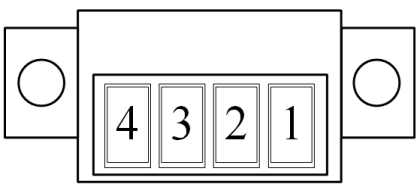


Figure 2: Schematic Diagram of Signal

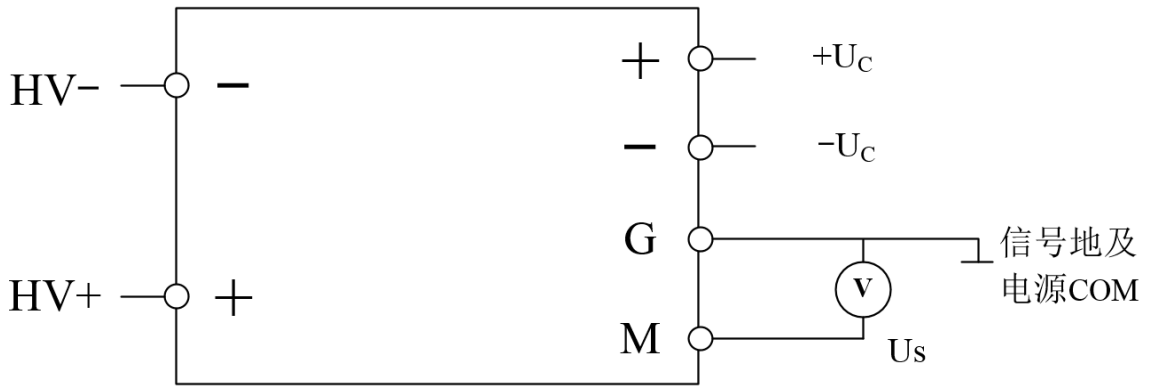
Pin Number	Pin Identifier	Definition
1	+	$+U_C$
2	−	$-U_C$
3	G	Signal ground and power COM
4	M	U_S output

Output and Power Input Interface

7.3. Power Supply Requirements

A high-quality linear power supply (Chao Yang Linear Power Supply) is required.

8. Application Connection and Explanation



Electrical connection

Testing Instructions：

The primary measured voltage U_P can be obtained by measuring the voltage drop U_S across the output terminals, using the following formula:

$$U_P = K_N * U_S$$

9. Packing List

Item No.	Name	Model and Specification	Quantity	Note
1	Voltage Sensor	VSV301-G280T01-I	1 piece	
2	Product User Manual	VSV301-G280T01-I	1 copy	

10. Precautions

- This module is a standard sensor. For special applications or requirements, please contact us.
- When the sensor is powered or connected to the measurement circuit, the secondary side must not be short-circuited.
- We reserve the right to modify this sensor manual without prior notice.

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