AMBIENT TEMPERATURE SENSORS INSTALLATION AND USER MANUAL

VISIONSEN

Sensor Technology

JUNE 2024

VSİAS INC. CO.
İVEDİK OSB. MAH. 2224. CAD. NO:116/1 Yenimahalle/ANKARA

WARRANTY CONDITIONS

Products manufactured by VSİAS under the brand VISIONSEN are warranted by VSİAS against defects in material and workmanship under normal use and service conditions for two years from the date of shipment, unless otherwise stated in the relevant product manual.

Product manuals can be viewed online at www.visionsen.com.

Products not manufactured by VSIAS but resold by VSIAS are warranted only to the limits extended by the original manufacturer.

VSIAS's liability under this warranty is limited to the repair or replacement (at VSIAS's discretion) of defective products, which will be the sole and exclusive remedy under this warranty.

The customer assumes all costs associated with removing, reinstalling, and shipping to VSIAS any products deemed to be defective. VSIAS undertakes the return costs of these products.

This warranty will not apply to products that have been subject to alteration, misuse, neglect, improper servicing, acts of god or accidents of god, or have been damaged in transit.

Warranty for installation services performed by VSIAS, such as programming according to customer specifications, electrical connections to products manufactured by VSIAS, and product-specific training, are part of VSIAS's product warranty.

“VSIAS disclaims all warranties and conditions, express, implied or statutory, regarding the products, except as expressly stated herein, to the fullest extent permitted by applicable law.”

HELP

“Products cannot be returned without prior permission. The contact information below goes directly to VSIAS Engineering Industry Inc. Co. is aimed at its customers. Please use the contact addresses for the product you are returning.”

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SAFETY

“THIS SCOPE RELATES TO THE INSTALLATION, USE, MAINTENANCE AND WORKING ON OR AROUND SENSORS, TRIPOTS, MOUNTING STANDS AND ANY EQUIPMENT AND PARTS.

FAILURE TO INSTALL AND OPERATE SENSORS, TRIPOTS, MOUNTING STANDS AND ALL KINDS OF EQUIPMENT AND PARTS PROPERLY, FAILURE TO MAINTAIN THEM AND FAILURE TO OBSERVE THE WARNINGS INCREASES THE RISK OF DEATH, ACCIDENT, SERIOUS INJURY, MATERIAL DAMAGE AND PRODUCT FAILURE. TAKE ALL REASONABLE PRECAUTIONS TO AVOID THESE HAZARDS. BEFORE PERFORMING ANY WORK, CONSULT YOUR ORGANIZATION'S SAFETY COORDINATORS AND OCCUPATIONAL HEALTH EXPERTS FOR PROCEDURES AND REQUIRED PROTECTIVE EQUIPMENT..”

Use sensors, tripods, mounting stands and any equipment and parts only for the purposes for which they were designed. Do not exceed design limits. Be familiar with and follow all instructions provided in the product manuals. The guides can be accessed at www.visionsen.com or other contact addresses. You are responsible for compliance with applicable laws and regulations, including safety regulations, and for the integrity and location of any structure or system to which sensors, tripods, mounting stands and any equipment and parts are installed. Installation sites should be evaluated by a qualified engineer and handled by experienced technical personnel. If you have questions or concerns regarding the installation, use or maintenance of electrical connections of the systems, consult a licensed and qualified engineer or experienced technical personnel.

GENERAL

- Obtain necessary approvals and permits before performing field or installation work.
- Comply with occupational health guidelines.
- Use only qualified personnel for the installation, use and maintenance of all connections of mechanical parts. It is highly recommended to use licensed and qualified contractors.
- Read all applicable instructions carefully and understand the procedures thoroughly before starting work..

- If any drilling or cutting operations are to be performed during the assembly phase, wear eye protection and take other appropriate safety precautions.
- Do not allow installed products to be intervened by other than authorized personnel.
- Use only manufacturer-recommended parts, materials and tools.

ELECTRIC

- You could be killed or suffer serious bodily injury if a tripod, attachment, or tool you are installing, building, using, or maintaining comes into contact with overhead or underground power lines.
- Maintain a distance between overhead power lines and the structure to be installed that is at least one and a half times the height of the structure or the distance required by applicable code, whichever is greater.
- Before carrying out field or installation work, inform people or institutions that may be affected by the installation.
- Follow all electrical rules. Electrical equipment and related devices must be installed by licensed and experienced personnel.

WORKING AT HEIGHT AND WEATHER

- Be extremely careful when working at height.
- Use proper equipment and safety practices.
- Keep mechanical and electrical parts away from untrained or unnecessary personnel during installation and maintenance. Take precautions to prevent elevated tools and objects from falling.
- Wind, rain, snow, lightning, etc. Do not carry out any work or maintenance in harsh weather conditions such as.
- Periodically (at least once a year) check for corrosion, stress cracks, frayed cables, loose cable clamps, cable tightness, etc. Check for wear and damage and take necessary corrective action.
- Check electrical ground connections periodically (at least once a year).

“VSIAS employees reserve the right to refuse service for products exposed to contaminants that may cause health or safety problems.”

INFO

Ambient temperature sensors are sensors that measure the ambient temperature under environmental conditions. These sensors generally consist of components capable of precise measurement. Ambient temperature sensors are used in many different industrial, commercial
and used in scientific practice.

These sensors are usually placed in a structure that protects the sensor sensor from external environmental conditions that do not affect the temperature parameter and measurement accuracy. It has a structure that can convert temperature values into analog or digital signals or read by control systems.

Ambient temperature sensors are used in climate control systems, industrial process control, food and pharmaceutical industry, scientific research, security systems, energy management, agriculture and greenhouse cultivation, biomedical applications, automotive industry, industrial automation and wherever environmental measurement is needed.

Ambient temperature sensors are used in many important applications such as increasing energy efficiency and ensuring product quality. It is widely used in systems to ensure precise measurement and accuracy.

PRODUCT INTRODUCTION

Ambient temperature sensors produced under the Visionsen brand are used primarily in solar power plants, climate control systems, industrial process control, food and pharmaceutical industry, scientific research, security systems, energy management, agriculture and greenhouse cultivation, biomedical applications, automotive industry, industrial automation and It is used wherever environmental measurement is needed.

Depending on the end user's system preference, both analog outputs and digital communication via Modbus® (RS485) are available. Visionsen ambient temperature sensors contain a microprocessor structure that stores calibration data, eliminating the need to reprogram data loggers or SCADA systems when installing a new power plant.

Ambient temperature sensors have a UV-resistant protection structure as a protective structure. Thanks to this structure, it is not affected by external environmental conditions and provides the most accurate temperature parameter to the end user. Thanks to the product diversity, production is carried out at different precision levels.

Visionsen ambient temperature sensors provide durability and reliability for outdoor environments with IP68 standard communication and power cables. It also provides easy installation during the installation phase with its M12 circular connector.

INSTALLATION

It is an ambient temperature naturally aspirated, 4-plate UV ABS radiation shield. Its louvered structure serves to keep the probe at ambient temperature by allowing air to pass freely through the protection. The white color of the shield reflects solar radiation. The UV ABS radiation shield protects the ambient temperature sensor from solar radiation and other radiated and reflected heat sources. It has a multi-plate structure for maximum air flow.

- The ambient temperature sensor can be mounted anywhere near the PV array.
- For ambient temperature sensor solar power plants, it is recommended to place the array on the north side (in the northern hemisphere), otherwise you will need to provide array shading adjustment.
- It gives the best results in a place where there is constantly blowing wind. Install away from fences, buildings, trees or other obstacles.
- If connecting to a building, the preferred location is the north side in the northern hemisphere and the south side in the southern hemisphere.

MECHANICAL INSTALLATION

ATS-P and ATS-MB series ambient temperature sensors can be placed on the desired surface through the M4 screw holes on the connection apparatus, or with the help of a clamp for pipe type placements.

ELECTRICAL INSTALLATION

Ambient temperature sensors are produced with 4-wire RTD PT1000 Class (1/3 DINB) 3 m high quality PUR FLEX cable with waterproof IP68 connector.

POWER CONNECTION

The minimum supply voltage for MB Series ambient temperature sensor models is 9 V DC. 12V DC voltage is recommended to ensure reliable performance. It is recommended to protect the output of the power supply with a fast-blow fuse with a maximum rating of 250 mA.

POWER CONSUMPTION

Ambient Temperature Sensor-MB Voltage (V DC)	Current (mA)	Power (mW)
9	8	72
12	6	72
24	3	72

Maximum power consumption 72 mW at highest input voltage.

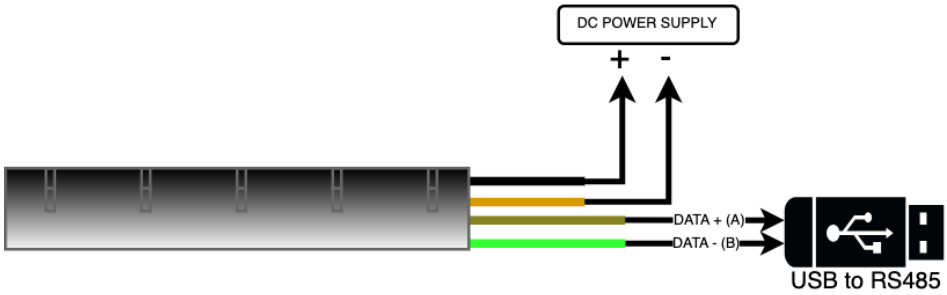
– Maximum input current 3 mA at lowest input voltage.

– Maximum inrush current 100 mA.

AN series (current output versions) where a 4 mA output can handle -40°C and a 20 mA full scale output can handle +85°C and a 0 V output can handle -40°C and 1.5 V set so that the full-scale output represents +85°C.

COMPUTER CONNECTION

Power supply units for portable computers such as laptops can produce large voltage peaks. This may damage the digital interface of the device. Make sure there is galvanic separation between the inputs and outputs of the transducer.



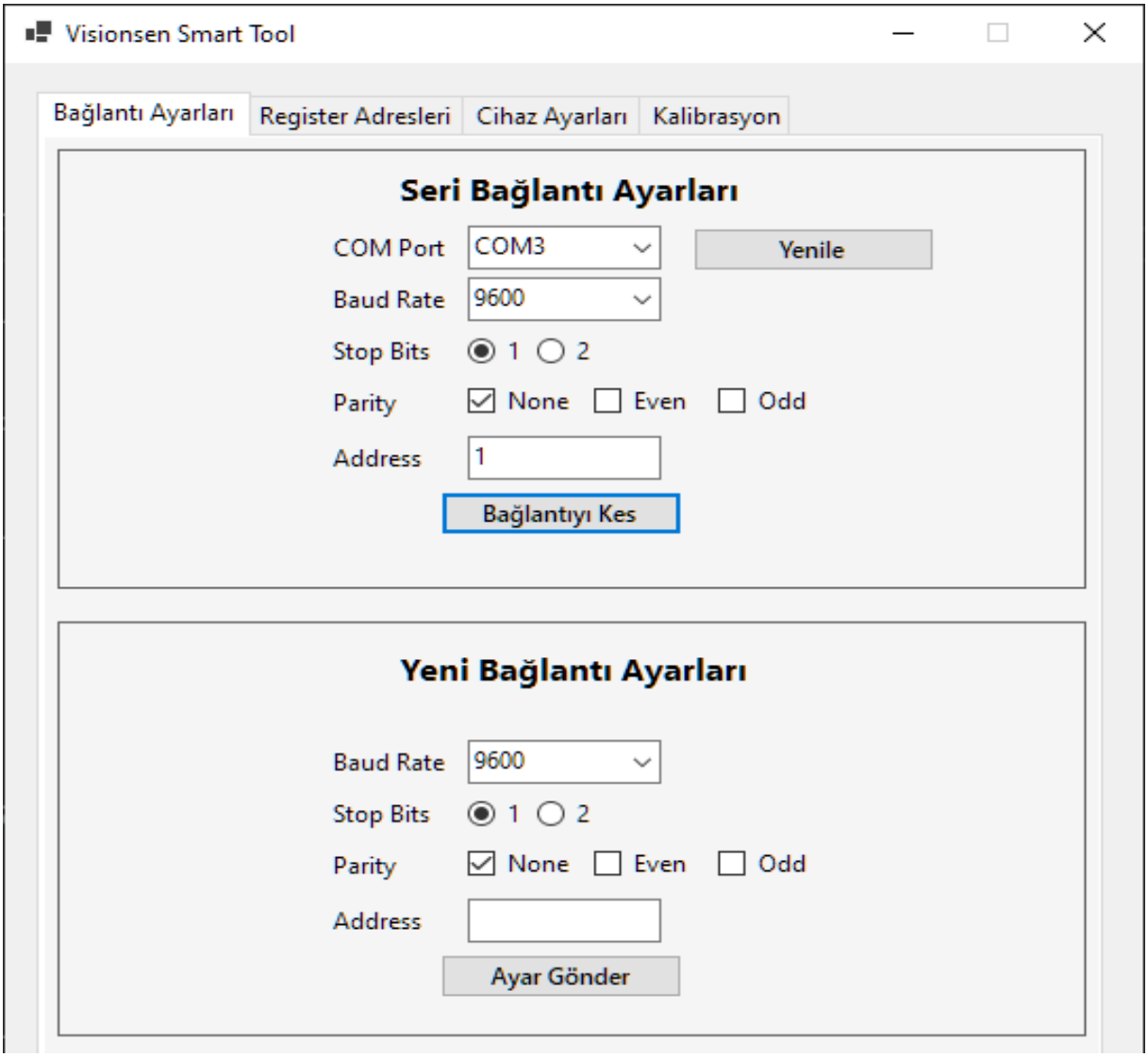
Cable Color	Definition
White	9-28 V DC (+)
Brown	9-28 V DC (-)
Yellow	Data (+)
Green	Data (-)

COMMUNICATION

Visionsen Smart Tool software allows configuring Modbus®-based ambient temperature sensors and monitoring real-time data.

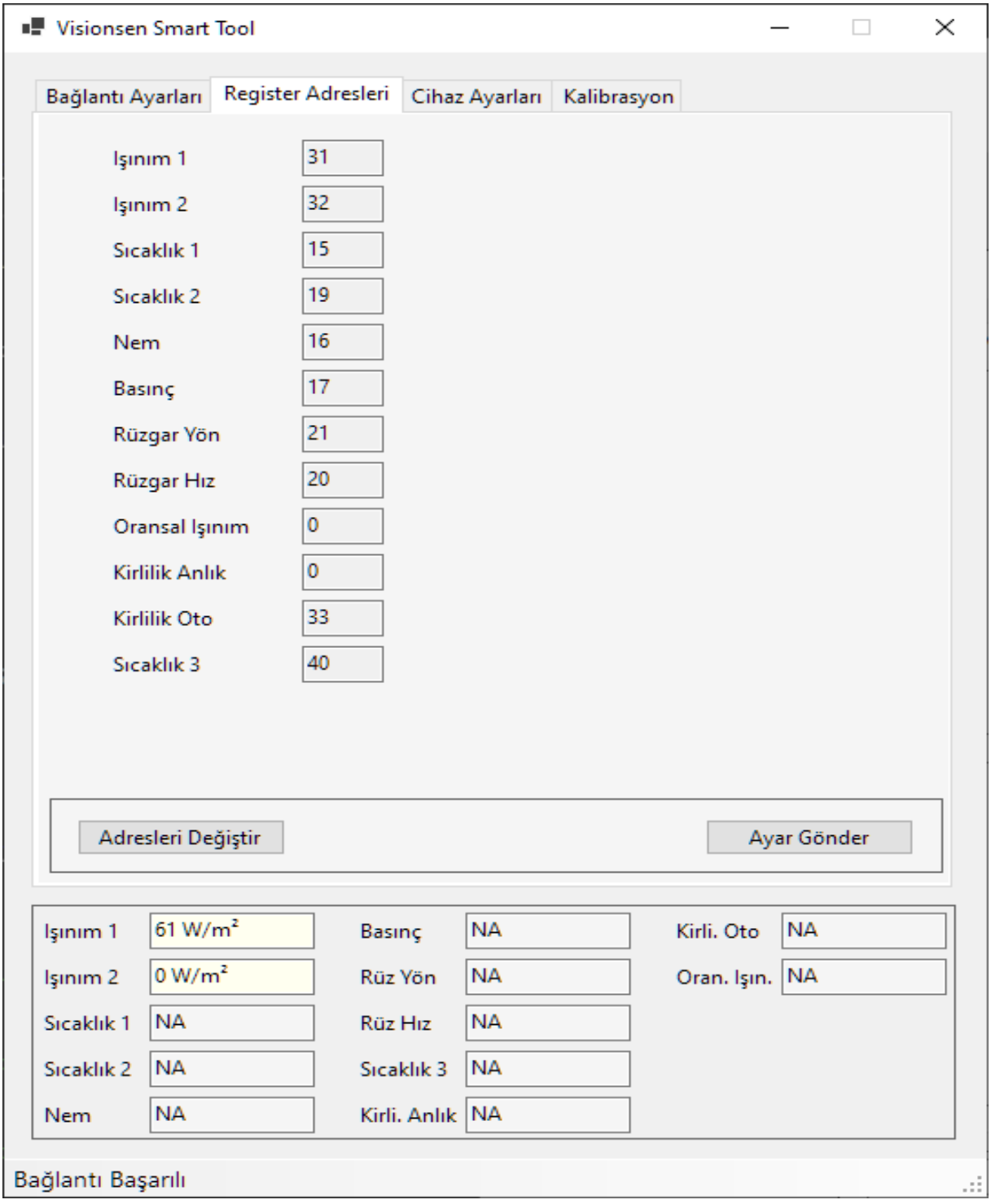
CONNECTION SETTINGS

After connecting it to your computer with the USB-RS485 converter, you can observe the COM Port, Baud Rate, Stop Bits, Parity and Address settings of the sensor with Modbus® RTU communication protocol with the help of the Visionsen Smart Tool software you downloaded from www.visionsen.com after the connection is made. After configuring your new connection settings, you can click the "Send Settings" button.



REGISTER ADDRESSES

If you want to change the register addresses defined in the Modbus® map, the desired address can be written in the section of the relevant sensor and a new register address can be defined after pressing the "Send Settings" button.



MODBUS® TABLE AND CONFIGURATION SETTINGS

Default communication parameters for ATS-MB series ambient temperature sensors are as follows:

Modbus® Baud Rate:9600

Parity: None

Data Bits:1

Stop Bits:1

Address:1

If you are using the software on-premise, make sure the software is pre-installed on the laptop.

For more details about installation, monitoring and data recording, you can contact the contact addresses.

Adress		Type	Gain	Unit	Description
Hexadecimal	**Decimal**				
0x0F	151	int16	10	°C	Ambient Temperature

TECHNICAL DRAWINGS

AMBIENT TEMPERATURE SENSORS MODELS

- **ATS-P**
- **ATS-AN**
- **ATS-MB**