SEVEN SENSOR SOLUTIONS

3S-4IS

Multi Orientation Irradiance Sensor

USER MANUAL

USER MANUAL TABLE OF CONTENTS

Pinarcay OSB Mahallesi Organize Sanayi Tesisleri Teknokent Idare Binasi No: 7, D:1, 19100 Merkez / Corum / Türkiye
• **Phone:** +90 364 230 1233 • **Website:** www.sevensensor.com • **Email:** sales@sevensensor.com

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1. Introduction

Multi Orientation Irradiance Sensor is a product of the SEVEN meteorological sensors range of professional and intelligent measuring sensors with digital interface for environmental and industrial applications.

Figure 1 – Multi Orientation Irradiance Sensor

In solar energy system projects with 3 or 4 orientations, variations exist in panel orientations and the quantity of panels allocated to each orientation. Within datalogger monitoring systems, the precise calculation of the Performance Ratio (PR), defined as the actual energy production compared to the anticipated production, necessitates comprehensive information regarding the specific orientations of panels in the fields and the corresponding quantities allocated to each orientation. Consequently, it is imperative to deploy one irradiance sensor and one panel temperature sensor for each distinct orientation established within the field. So, the Multi Orientation Irradiance Sensor measures the irradiance, module temperature, Ambient Temperature, wind speed and wind direction. All measured meteorological data is transferred to dataloggers and receiver units via a 2-wire RS485 bus with Modbus RTU protocol.

SEVEN products use reliable, high-quality instruments to provide accurate meteorological information in environmental and industrial applications.

2. Multi Orientation Irradiance Sensor Installation

It is suggested that the system be operated at ground level to ensure all components work properly before installation. A general diagram of the progress of the installation steps is given below.

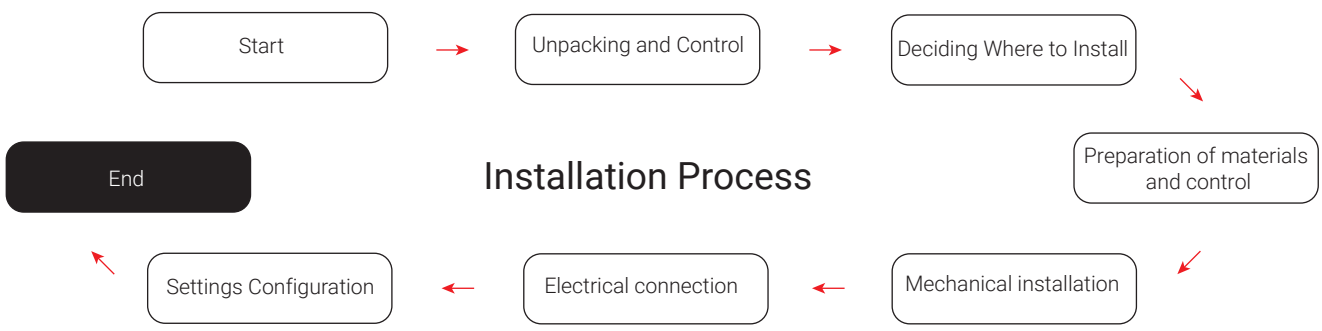

Figure 2 – Installation Proces

Pinarcay OSB Mahallesi Organize Sanayi Tesisleri Teknokent Idare Binasi No: 7, D:1, 19100 Merkez / Corum / Türkiye
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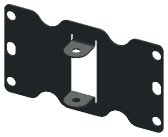
2.1. Unpacking and Control

Upon receipt of the product, it must be carefully checked whether the package content is complete. Seven Sensor Solutions must be contacted if any components are missing, damaged or defective.

 A Qty: 1	 B Qty: 1	 C Qty: 4	 D Qty: 4	 E Qty: 4	 F Qty: 1
Mounting Pole	20x40x1000 Profile	20x40x300 Profile	Irradiance Sensor Support Apparatus	Irradiance Sensor Connection Apparatus	Wind Speed Sensor Connection Sheet
 G Qty: 1	 H Qty: 1	 a Qty: 8	 b Qty: 6	 c Qty: 4	 d Qty: 6
Wind Direction Sensor Connection Sheet	Ambient Tmp. Sensor Connection Apparatus	M6x30 Hexagon Head Bolt	M6x50 Hexagon Head Bolt	M6x55 Hexagon Head Bolt	M6x70 Hexagon Head Bolt
 e Qty:26	 f Qty:10	 g Qty: 1	 h Qty: 3		
M6 Fibre Nut	20x40 Profile Plug	40x40 Profile Plug	Support Apparatus		

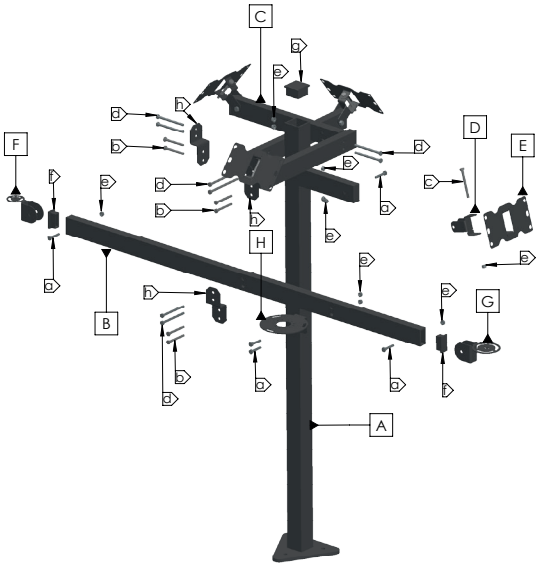


Figure 3 – Mounting Structure Packing List

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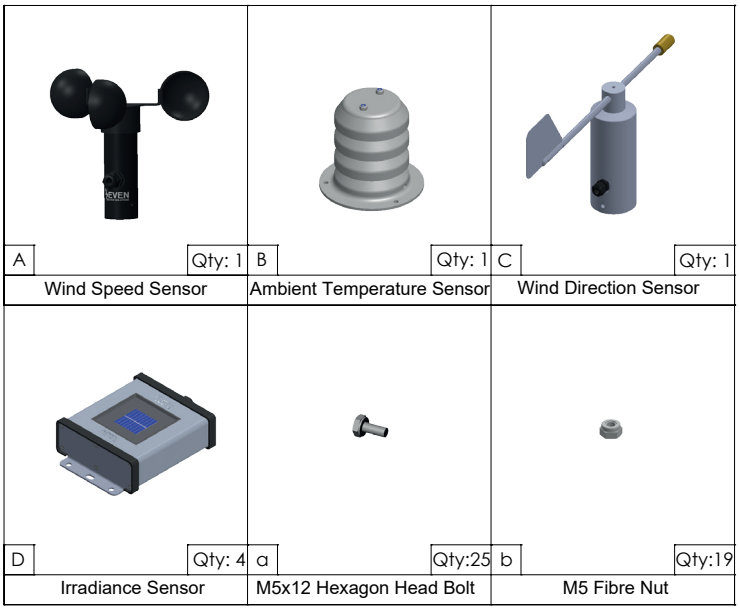

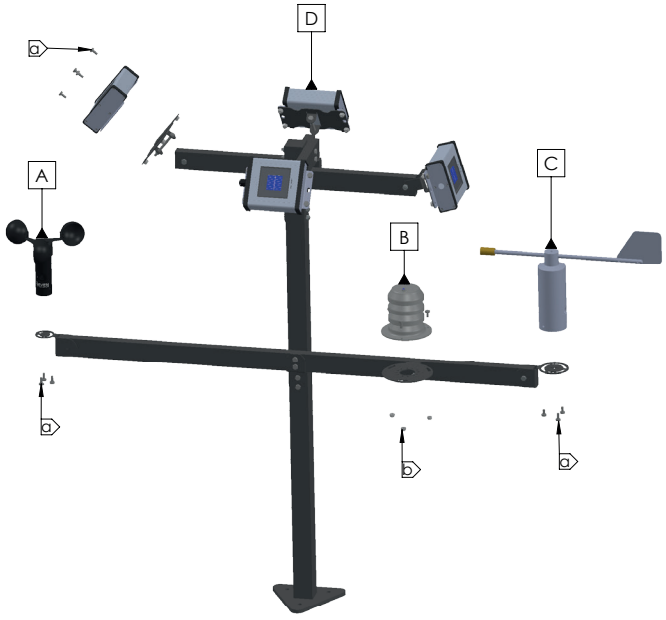

Figure 4 – External Sensors Packing List

Note: *The quantity and content of the received material may differ based on the customer's confirmed order.*

2.2. Site Requirements and Considerations

Each site is different and has its unique challenges. For this reason, the product installation may differ in each site. First of all, where the product will be installed should be decided. Ambient Temperature, Plane of Array Irradiance, Wind Speed and Direction can be affected by obstructions, shading sources and local topography.

The Multi Orientation Irradiance Sensor should be placed no closer than 10 times the height of any obstruction or shading source. It should also be placed away from dark, reflective, and heat-absorbing surfaces.

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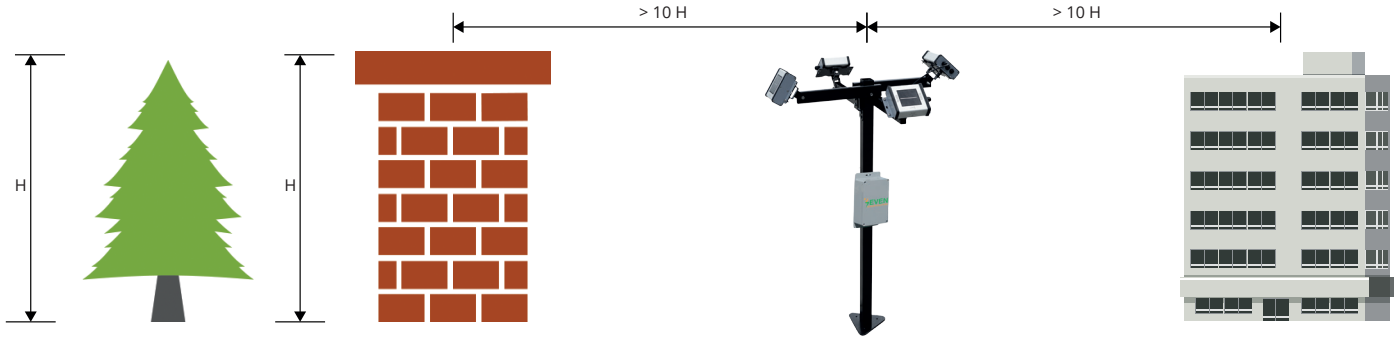

Figure 5 – Installation Site Selection

When the Multi Orientation Irradiance Sensor is to be mounted on a rooftop, it should preferably be mounted on the prevailing wind side of the building. Placement of the station near any heat source, such as chimneys or ventilation, should also be avoided.

The Irradiance Sensor needs to be in the same direction and inclination as the solar panels. They should be positioned in the same or higher plane than the solar panels.

Note: *To facilitate the maintenance and cleaning of the irradiance sensor, the Multi Orientation Irradiance Sensor must be installed in an easily accessible location, especially for rooftop projects.*

When placing the Wind Direction Sensor on the mounting structure, attention should be paid to the north direction mark and aligned to the north with the help of a compass.

The Module Temperature Sensor must be installed at the exact midpoint of the solar panel. A sensor location should be chosen in the center of the cell closest to the exact midpoint of the module, avoiding the boundaries between cells. The module Temperature Sensor Installation Manual can be relied upon for more details.

2.3. Preparation of Materials to be Used in Installation

The materials needed during installation are provided by SEVEN. The user should only prepare the following hand tools and personal protective equipment.

Figure 6 – Materials to be Used in Installation

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2.4. Installation

3S-4IS Multi Orientation Irradiance Sensor installation can be handled in 2 steps. Firstly, the Multi Orientation Irradiance Sensor mounting structure must be installed. Then, the sensors must be fixed to the mounting structure. The installation can be easily completed by a qualified electrician by following SEVEN instructions.

2.4.1. Mounting Structure

The installation of the mounting structure in which the sensors are to be mounted is very simple and fast.

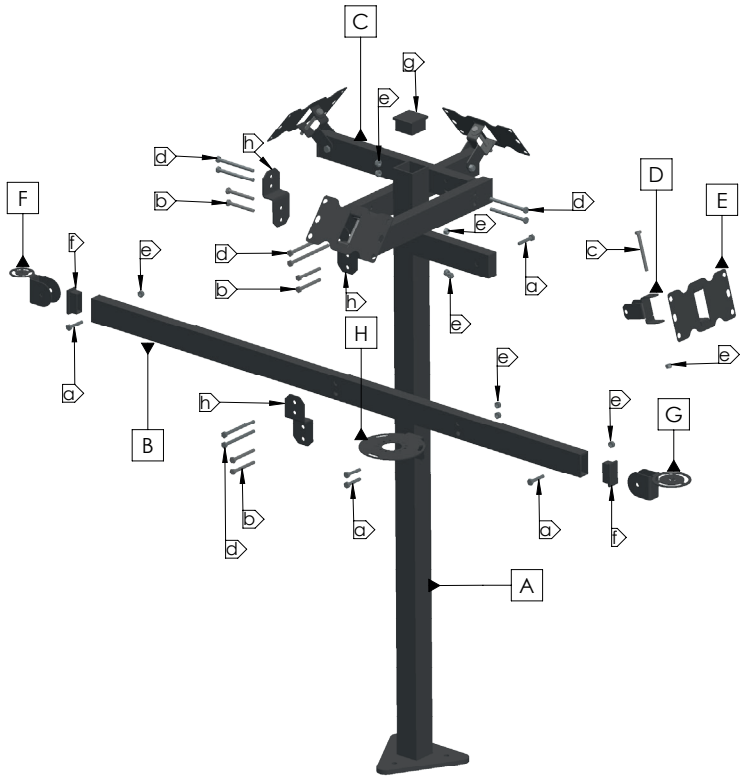

Figure 7 – Materials to be Used in Installation

No	Part Name	Definition	Qty
A	Mounting Pole	Metal-Electrostatic Paint	**1**
B	20x40x1000 Profile	Metal-Electrostatic Paint	**1**
C	20x40x300 Profile	Metal-Electrostatic Paint	**4**
D	Irradiance Sensor Support Apparatus	Metal-Electrostatic Paint	**4**
E	Irradiance Sensor Connection Apparatus	Metal-Electrostatic Paint	**4**
F	Wind Speed Sensor Connection Sheet	Metal-Electrostatic Paint	**1**
G	Wind Direction Sensor Connection Sheet	Metal-Electrostatic Paint	**1**
H	Ambient Tmp. Sensor Connection Apparatu	Metal-Electrostatic Paint	**1**
a	M6x30 Hexagon Head Bolt	Stainless	**8**
b	M6x50 Hexagon Head Bolt	Stainless	**6**
c	M6x55 Hexagon Head Bolt	Stainless	**4**
d	M6x70 Hexagon Head Bolt	Stainless	**6**
e	M6 Fibre Nut	Stainless	**26**
f	20x40 Profile Plug	Plastic	**10**
g	40x40 Profile Plug	Plastic	**1**
h	Support Apparatus	Metal-Electrostatic Paint	**3**

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2.4.2. External Sensors

The external sensors must be fixed to the mounting structure as shown below, after the mounting structure is installed.

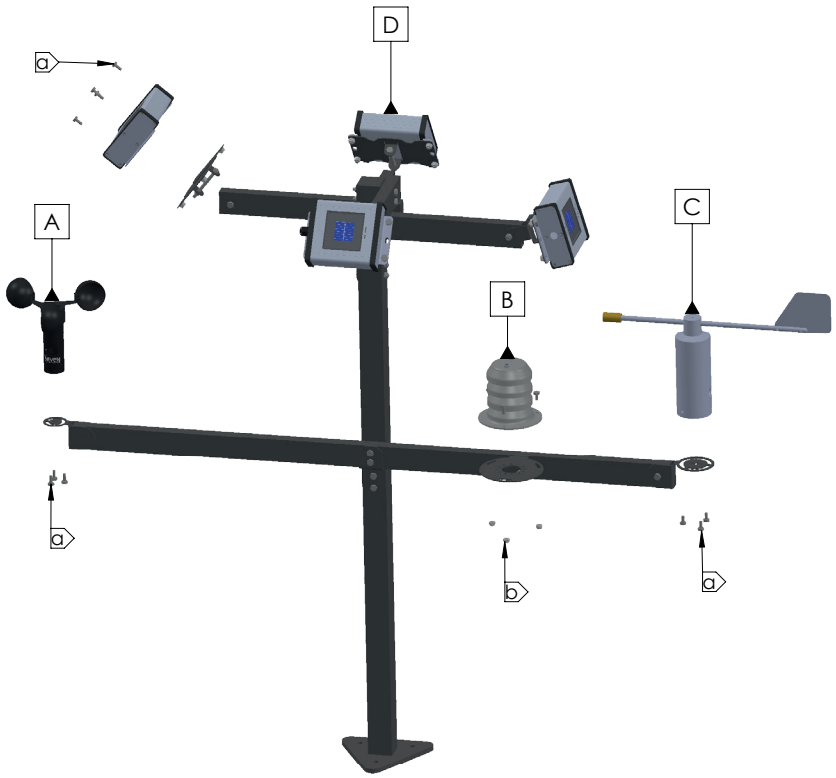

Figure 8 - External Sensors

No	Part Name	Definition	Qty
A	Wind Speed Sensor	Anodized Aluminum	**1**
B	Ambient Temperature Sensor	ABS-Plastic	**1**
C	Wind Direction Sensor	Anodized Aluminum	**1**
D	Irradiance Sensor	Aluminum	**4**
a	M5x12 Hexagon Head Bolt	Stainless	**25**
b	M5 Fibre Nut	Stainless	**19**
b	M5 Fiber Nut	Stainless	**7**

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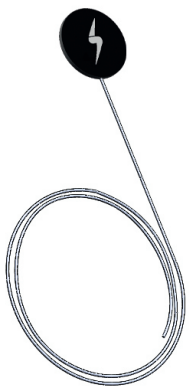
2.4.3. Module Temperature Sensors Installation



1st Step

2nd Step

3rd Step

The back side of the panel must be cleaned of oil and dust using a 70% isopropyl alcohol solution and a lint-free or particulate-free cloth. Once the surface has been cleaned, we must wait until it completely dries.

The location of the sensor should not coincide with the intercellular spaces. When positioning the sensor, the most central cell of the PV system should be selected, and the module temperature sensor should be placed in the middle of this cell.

To reduce the force on the Temperature Sensor, the sensor cable should be fixed to the back of the panel using an adhesive crochet at 2 to 4 points.

2.5. Inspection and Maintenance

The multi-orientation irradiance sensor does not require any maintenance or changing of spare parts. However, the solar cell surface cleaning should be done periodically according to the standard followed for site monitoring. The surface of the solar cell glass can be gently cleaned with a soft cloth and soapy water.

Fastener tightness and cable conditions, looking for damage, deterioration, or disconnection of sensors and electrical enclosures, soiling or displacement of optical sensors, evidence of moisture or vermin in enclosures, loose wiring connections, detachment of temperature sensors, embrittlement of attachments and other potential problems, should be checked periodically.

Note: *We recommend using thread-locking fluid for fasteners.*

According to IEC 61724-1:2021, the monitoring system should be inspected at least annually and preferably at more frequent intervals.

3. Test and Calibration

SEVEN delivers Multi irradiance sensor with calibration certificates.

Each irradiance sensor is calibrated under Class AAA Sun Simulator according to IEC 60904-2 and IEC 60904-4 standards using a reference cell calibrated by the Institute for Solar Energy Research (ISFH) in Germany.

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3.1. Recalibration

Recalibration of irradiance sensors according to the IEC 61724-1 standard shall be conducted to minimize downtime and sensor outages to prevent monitoring interruption.

Effective methods may include:

- Exchanging installed sensors with new or recalibrated sensors
- Performing on-site recalibration of sensors where possible
- Providing redundant sensors and alternating laboratory recalibration schedules.

According to the IEC 61724-1 standard, “for Class A systems, irradiance sensors shall be recalibrated once every 2 years, or more frequently per manufacturer recommendations. For Class B systems, recalibrate irradiance sensors according to manufacturer recommendations.”

The recommended recalibration period is at least once every 3 years from the installation of the irradiance sensors on the site.

4. Connections

External sensors are designed with the Plug & Run principle. The sensor connection box has waterproof and UV-resistant connectors. Each external sensor has a different pin configuration, so a wrong connection is not possible. The minimum bending radius at cables is 5 mm.

Connector Assignment for External Sensors	
Irradiance Sensor	6 pin Connector
Module Temperature Sensor	4 pin Connector
Wind Speed Sensor	2 pin Connector
Wind Direction Sensor	3 pin Connector
Ambient Temperature Sensor	5 pin Connector

The supply voltage for the Multi Orientation Irradiance Sensor is 12 - 30 V DC. Operation with a supply voltage of 24 V is recommended.

The Multi Orientation Irradiance Sensor has an electrically isolated, half-duplex, 2-wire RS485 interface for configuration, communication, and firmware update.

The communication and power cable of the Multi Orientation Irradiance Sensor should always be laid separately from AC/DC cables.

Note: *The installation and electrical connections of SEVEN sensors should be carried out by a qualified electrician.*

Wire Assignment for Power & Communication	
RS485 A / Data (+)	Green
RS485 B / Data (-)	Yellow
Positive Supply Voltage	Brown
Supply Voltage Ground	White

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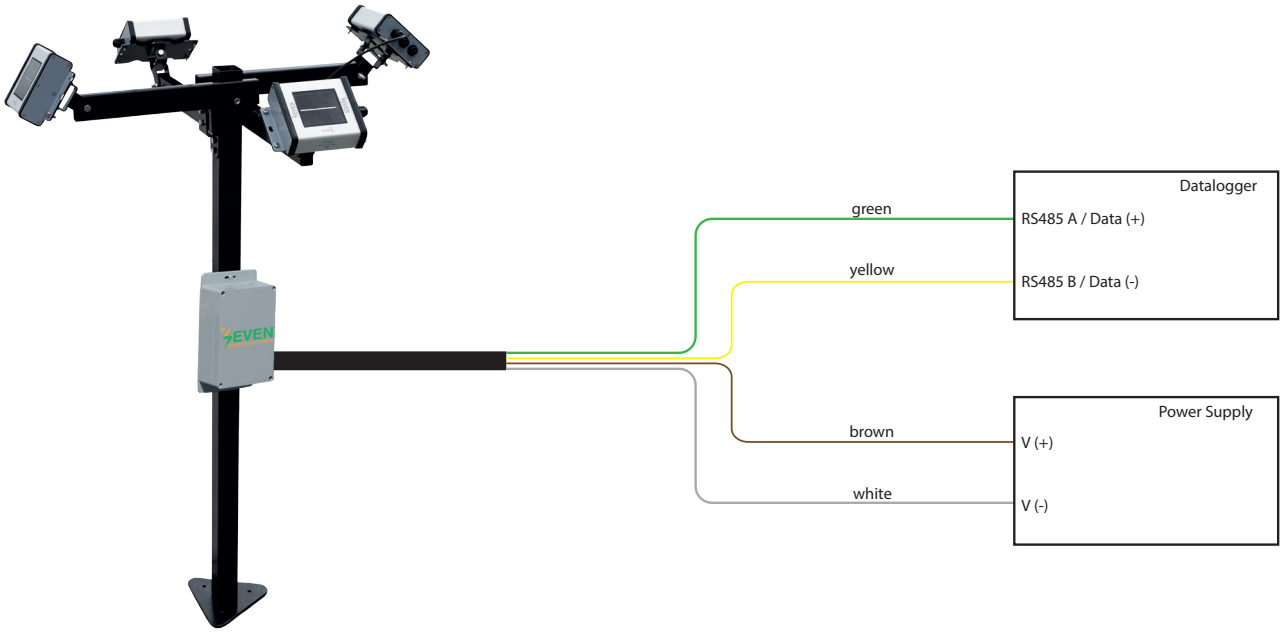

Figure 8 – Wire Assignment for Power & Communication

5. Configuration and Communication

Once the Multi-Orientation Irradiance Sensor has been installed and connected correctly, the sensor begins to take measurements autonomously.

Attention must be paid to the following points:

- A measurement request should be made to the Multi Orientation Irradiance Sensor with the 3S-4IS Configuration Tool and check whether it correctly operates on the site.
- The Wind Direction Sensor must be aligned to the North in order to ensure correct wind measurement data.
- If several Modbus Devices are operated on a network, a unique device ID must be assigned to each device.

Follow SEVEN instructions to configure the Multi Orientation Irradiance Sensor on dataloggers.

5.1. 3S-4IS Configuration Tool

3S-4IS Configuration Tool is a software tool for testing communication and adjusting Modbus parameters on the Multi orientation irradiance sensor.

A Windows® PC with a serial bus interface set as a serial COM port, 3S-4IS Configuration Tool software, and USB to RS485 Converter are required for configuration and testing.

Follow the instructions in 3S-4IS Configuration Tool User Manual:
https://www.sevensensor.com/files/d/en/3S-4IS_MB_Configuration_Tool_v2.0.pdf

Download the software 3S-4IS Configuration Tool and install it on your computer. The download link is below.
https://www.sevensensor.com/files/d/s/v2.0_3S-4IS_Configuration_Tool.zip

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5.2. Modbus RTU Specifications

5.2.1. Supported Bus Protocol

The Multi Orientation Irradiance Sensor has an RS-485 communication port that supports Modbus RTU commands. The Multi Orientation Irradiance Sensor can be configured to operate in different communication parameters. The table that follows describes each supported bus protocol.

Baud Rate	4800, 9600, 19200, 38400
Parity	None, Even, Odd
Stop Bit	1, 2 (only at None parity)
Factory Default	9600 Baud, 8N1, address: 1

5.2.2. Supported Function Codes

The Multi Orientation Irradiance Sensor supports a specific subset of Modbus RTU commands. The table that follows lists each supported function code.

0x03	Read Holding Registers
0x04	Read Input Registers
0x46	Read & Change Parameters
0x09	Reset Communication Command

Note:*All checksums of the Modbus protocol are omitted in this document. These checksums must always be calculated and sent during communication.*

5.2.2.1. Read Holding Registers (0x03)

Master Request:

Address	1 Byte	1 to 247
Function Code	1 Byte	0x03
Start Register	2 Byte (Big Endian)	see the register table below
Number of Registers	2 Byte (Big Endian)	see the register table below

Slave Response:

Address	1 Byte	1 to 247
Function Code	1 Byte	0x03
Number of Bytes	1 Byte	0 to 255 (2xN) N = Number of Registers
Data	2 Byte x N (Big Endian)	see the register table below

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Holding Register Map

The Multi Orientation Irradiance Sensor holding register map is based on the “SunSpec Alliance” communication standards.

Start	End	Value	Type	Units	Scale Factor	Constant
40000	40001	SunSpec ID	uint32	N/A	N/A	"SunS"
40002	40002	SunSpec Device ID	uint16	N/A	N/A	0x0001
40003	40003	SunSpec Length	uint16	Registers	N/A	65
40004	40019	Manufacturer	String (32)	N/A	N/A	"SevenSensor"
40020	40035	Model	String (32)	N/A	N/A	"3S-4IS"
40036	40043	Hardware Version	String (16)	N/A	N/A	"1.1"
40044	40051	Software Version	String (16)	N/A	N/A	"2.0"
40052	40067	Serial Number	String (32)	N/A	N/A	"24.23.009.90.1001"
40068	40068	Device ID	uint16	N/A	N/A	1
Sunspec Device Model Measurement Registers						
40069	40069	Block ID	uint16	N/A	N/A	307
40070	40070	Length	uint16	Registers	N/A	11
40071	40071	Air Temperature	int16	°C	0.1	Measured
40072	40072	Relative Humidity	uint16	%	1	N/A
40073	40073	Barometric Pressure	uint16	hPa	1	N/A
40074	40074	Wind Speed	uint16	m/s	1	Measured
40075	40075	Wind Direction	uint16	°	1	Measured
40076	40076	Rain Gauge (Hour)	uint16	mm/hour	0.1	N/A
40077	40077	Snow	uint16	inches	N/A	N/A
40078	40078	PPT Type	uint16	inches	N/A	N/A
40079	40079	Electric Field	uint16	V/m	N/A	N/A
40080	40080	Surface Wetness	uint16	KOhms	N/A	N/A
40081	40081	Soil Moisture	uint16	%	N/A	N/A
Irradiance Model Registers						
40082	40082	Block ID	uint16	N/A	N/A	302
40083	40083	Length	uint16	Registers	N/A	5
40084	40084	Plane of Array 1	uint16	W/m²	1	Measured
40085	40085	Plane of Array 2	uint16	W/m²	1	Measured
40086	40086	Diffuse Irradiance	uint16	W/m²	N/A	N/A
40087	40087	Direct Irradiance	uint16	W/m²	N/A	N/A

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Back of Module Temperature Registers						
40089	40089	Block ID	uint16	N/A	N/A	303
40090	40090	Length	uint16	Registers	N/A	9
40091	40091	Module Temp 1	int16	°C	0.1	Measured
40092	40092	Module Temp 2	int16	°C	0.1	Measured
Device Model Measurement Registers						
40100	40100	Block ID	uint16	N/A	N/A	308
40101	40101	Length	uint16	Registers	N/A	5
40102	40102	Total Effective Irradiance	uint16	W/m²	0.1	Measured
40103	40103	Module Temp 1	int16	°C	0.1	Measured
40104	40104	Module Temp 2	int16	°C	0.1	Measured
40105	40105	Wind Speed	int16	m/s	0.1	Measured
End of Block Registers						
40100	40100	End of SunSpec Block	uint16	N/A	N/A	0xFFFF
40101	40101	Length	uint16	Registers	0	0
Additional Registers Block						
40102	40102	Plane of Array 3	uint16	W/m²	1	Measured
40103	40103	Plane of Array 4	uint16	W/m²	1	Measured
40104	40104	Total Effective Module Temp	int16	°C	1	Measured
40105	40105	Module Temp 3	int16	°C	0.1	Measured
40106	40106	Module Temp 4	int16	°C	0.1	Measured
Device Address Read/Write Register						
40199	40199	Modbus ID – Write Register	uint16	N/A	N/A	1

5.2.2.2. Read Input Registers (0x04)

Master Request:

Address	1 Byte	1 to 247
Function Code	1 Byte	0x04
Start Register	2 Byte (Big Endian)	see the register table below
Number of Registers	2 Byte (Big Endian)	see the register table below

Slave Response:

Address	1 Byte	1 to 247
Function Code	1 Byte	0x04
Number of Bytes	1 Byte	0 to 255 (2xN) N = Number of Registers
Data	2 Byte x N (Big Endian)	see the register table below

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Input Register Map

A standard input register map has been created for all SEVEN Modbus devices. The following Modbus data can be read individually or in blocks.

Start	End	Value	Scale Factor	Constant
30000	0x00	Irradiance 1	0…1600 W/m²	0.1 W/m²
30001	0x01	Irradiance 2	0…1600 W/m²	0.1 W/m²
30002	0x02	Irradiance 3	0…1600 W/m²	0.1 W/m²
30003	0x03	Irradiance 4	0…1600 W/m²	0.1 W/m²
30006	0x06	Temperature Compensated Irradiance 1	0…1600 W/m²	0.1 W/m²
30007	0x07	Temperature Compensated Irradiance 2	0…1600 W/m²	0.1 W/m²
30008	0x08	Temperature Compensated Irradiance 3	0…1600 W/m²	0.1 W/m²
30009	0x09	Temperature Compensated Irradiance 4	0…1600 W/m²	0.1 W/m²
30012	0x0C	Total Effective Compensated Irradiance	0…1600 W/m²	0.1 W/m²
30015	0x0F	Internal Cell Temperature 1	-40…+85 °C	0.1°C
30016	0x10	Internal Cell Temperature 2	-40…+85 °C	0.1°C
30017	0x11	Internal Cell Temperature 3	-40…+85 °C	0.1°C
30018	0x12	Internal Cell Temperature 4	-40…+85 °C	0.1°C
30021	0x15	Total Effective Module Temperature	-40…+85 °C	1°C
30022	0x16	Module Temperature 1	-40…+85 °C	0.1°C
30023	0x17	Module Temperature 2	-40…+85 °C	0.1°C
30024	0x18	Module Temperature 3	-40…+85 °C	0.1°C
30025	0x19	Module Temperature 4	-40…+85 °C	0.1°C
30029	0x1D	Ambient Temperature	-40…+85 °C	0.1°C
30052	0x34	Wind Direction	0…359°	1°
30053	0x35	Wind Speed (m/s)	0…40 m/s	0.1 m/s

Additionally, the following internal data marked in bold can be read individually or in blocks.

Start	End	Value	
30301	0x12D	Hardware Version	Manufacturer Parameters Read Only
30302	0x12E	Software Version	
30304	0x130	Calibration Value 1	
30305	0x131	Calibration Value 2	
30306	0x132	Calibration Value 3	
30307	0x133	Calibration Value 4	
30310	0x136	Temperature Coefficient Value 1	
30311	0x137	Temperature Coefficient Value 2	
30312	0x136	Temperature Coefficient Value 3	
30313	0x137	Temperature Coefficient Value 4	
30323	0x143	ADC Offset Value 1	
30324	0x144	ADC Offset Value 2	
30325	0x145	ADC Offset Value 3	
30326	0x146	ADC Offset Value 4	
30329	0x149	T90 value	
30330	0x14A	Wind Speed Sensor Offset Value	
30331	0x14B	Wind Speed Sensor Slope High Value	
30332	0x14C	Wind Speed Sensor Slope Low Value	
30333	0x14D	Wind Speed Sensor Interval Value	

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Start	End	Value		
30342	0x156	Serial Number	Production Year	
30343	0x157		Production Code	
30344	0x158		Cell Serial Number	
30345	0x159		Board Serial Number	
30346	0x15A		Box Serial Number	
30347	0x15B		Sensor Serial Number	
30348	0x15C	Production Date	Production Day	
30349	0x15D		Production Month	
30350	0x15E		Production Year	
30351	0x15F	Calibration Date 1	Calibration Day 1	
30352	0x160		Calibration Month 1	
30353	0x161		Calibration Year 1	
30354	0x162	Calibration Date 2	Calibration Day 2	
30355	0x163		Calibration Month 2	
30356	0x164		Calibration Year 2	
30357	0x165	Calibration Date 3	Calibration Day 3	
30358	0x166		Calibration Month 3	
30359	0x167		Calibration Year 3	
30360	0x168	Calibration Date 4	Calibration Day 4	
30361	0x169		Calibration Month 4	
30362	0x16A		Calibration Year 4	
30116	0x13C	Module Rate 1		User Parameters Read / Write
30117	0x13D	Module Rate 2		
30118	0x13E	Module Rate 3		
30119	0x13F	Module Rate 4		
30122	0x142	Number of Directions		

5.2.2.3. Read & Change Parameters (0x46)
Sub Function (0x04): Write Device Address

Master Request:

Address	1 Byte	1 to 247
Function Code	1 Byte	0x46
Sub Function Code	1 Byte	0x04
New Address	1 Byte	1 to 247

Slave Response:

Address	1 Byte	1 to 247
Function Code	1 Byte	0x46
Sub Function Code	1 Byte	0x04
New Address	1 Byte	1 to 247

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Sub Function (0x06): Write Communication Parameters

Master Request:

Address	1 Byte	1 to 247
Function Code	1 Byte	0x46
Sub Function Code	1 Byte	0x06
New Baud Rate	1 Byte	0 to 3, see table below
New Parity / Stop Bit	1 Byte	0 to 3, see table below

Slave Response:

Address	1 Byte	1 to 247
Function Code	1 Byte	0x46
Sub Function Code	1 Byte	0x06
New Baud Rate	1 Byte	0 to 3, see table below
New Parity / Stop Bit	1 Byte	0 to 3, see table below

Note: *When the "Write Communication Parameters" command is used, the "Write Device Address" command must also be used before the restart communication command.*

Communication Parameter Settings

Parameter changes will take effect after the restarting of the sensor by a power-on reset or restart communication command.

Baud Rate	Value	Parity / Stop Bit	Value
4800	**0**	**None/1**	**0**
9600	**1**	**None/2**	**1**
19200	**2**	**Odd**	**2**
38400	**3**	**Even**	**3**

Sub Function (0x07): Read Hardware & Software Versions

Master Request:

Address	1 Byte	1 to 247
Function Code	1 Byte	0x46
Sub Function Code	1 Byte	0x07

Slave Response:

Address	1 Byte	1 to 247
Function Code	1 Byte	0x46
Sub Function Code	1 Byte	0x07
Hardware Version	2 Byte (Little Endian)	0 to 65535
Software Version	2 Byte (Little Endian)	0 to 65535

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Sub Function (0x08): Read Serial Number - Production Date - Calibration Date

Master Request:

Address	1 Byte	1 to 247
Function Code	1 Byte	0x46
Sub Function Code	1 Byte	0x08

Slave Response:

Address	1 Byte	1 to 247
Function Code	1 Byte	0x46
Sub Function Code	1 Byte	0x08
Production Year	1 Byte	0 to 99
Production Code	1 Byte	0 to 99
Cell Serial Number	2 Byte (Little Endian)	0 to 999
Board Serial Number	1 Byte	0 to 99
Box Serial Number	1 Byte	0 to 99
Sensor Serial Number	2 Byte (Big Endian)	0 to 9999
Production Day	1 Byte	1 to 31
Production Month	1 Byte	1 to 12
Production Year	1 Byte	0 to 99
Calibration Day 1	1 Byte	1 to 31
Calibration Month 1	1 Byte	1 to 12
Calibration Year 1	1 Byte	0 to 99
Calibration Day 2	1 Byte	1 to 31
Calibration Month 2	1 Byte	1 to 12
Calibration Year 2	1 Byte	0 to 99
Calibration Day 3	1 Byte	1 to 31
Calibration Month 3	1 Byte	1 to 12
Calibration Year 3	1 Byte	0 to 99
Calibration Day 4	1 Byte	1 to 31
Calibration Month 4	1 Byte	1 to 12
Calibration Year 4	1 Byte	0 to 99

5.2.2.4. Restart Communication Command (0x09)

Master Request:

Address	1 Byte	1 to 247
Function Code	1 Byte	0x09
Restart Code	4 Byte	0x00000000

Slave Response:

Address	1 Byte	1 to 247
Function Code	1 Byte	0x09
Restart Code	4 Byte	0x00000000

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6. Additional Documents and Software

The following documents and software can be downloaded from www.sevensensor.com or requested from SEVEN Sensor Solutions.

User Manual	This document
Datasheet	Multi Orientation Irradiance Sensor brochure
3S-4IS Configuration Tool	Windows® software for testing, firmware updates and configuration of the device
Firmware	Current device firmware

7. Contact Details

Please feel free to contact us if you need any help during installation or configuration.

Address	Pinarcay OSB Mahallesi Organize Sanayi Tesisleri Teknokent Idare Binasi o: 7, D:1, 19100 Merkez / Corum / Turkey
Phone	+90 530 889 8019
Email	sales@sevensensor.com
Website	www.sevensensor.com