

FIMER



Solar Monitoring VSN800 Weather Station

Product Manual

⚠ ATTENTION – IMPORTANT SAFETY INSTRUCTIONS

This document contains important safety instructions that must be followed during the installation and maintenance of the equipment.

⚠ ATTENTION – SAVE THESE INSTRUCTIONS

Keep this document in a safe place near the inverter for easy access during installation, operation and maintenance.

⚠ ATTENTION – The installer must read this document in its entirety before installing or commissioning this equipment. In addition to what is explained below, the safety and installation information provided in the product manual must be read and followed. For more detailed information regarding proper installation and use of this product, refer to the product manual located at www.fimer.com.

⚠ ATTENTION – The product must be used in the manner described in the document. If this is not the case the safety devices guaranteed by the inverter might be ineffective.

⚠ ATTENTION – All pictures and illustrations shown in this document are indicative and must be intended as support for installation instruction only. Actual product may vary due to product enhancement. Specifications subject to change without notice. The latest version of this document is available on the FIMER website.

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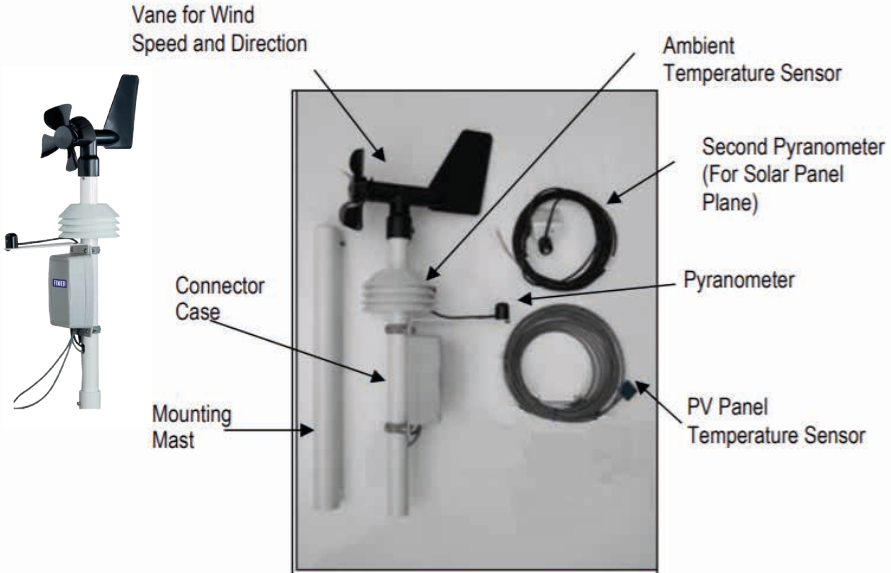
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1. VSN800 Weather Station

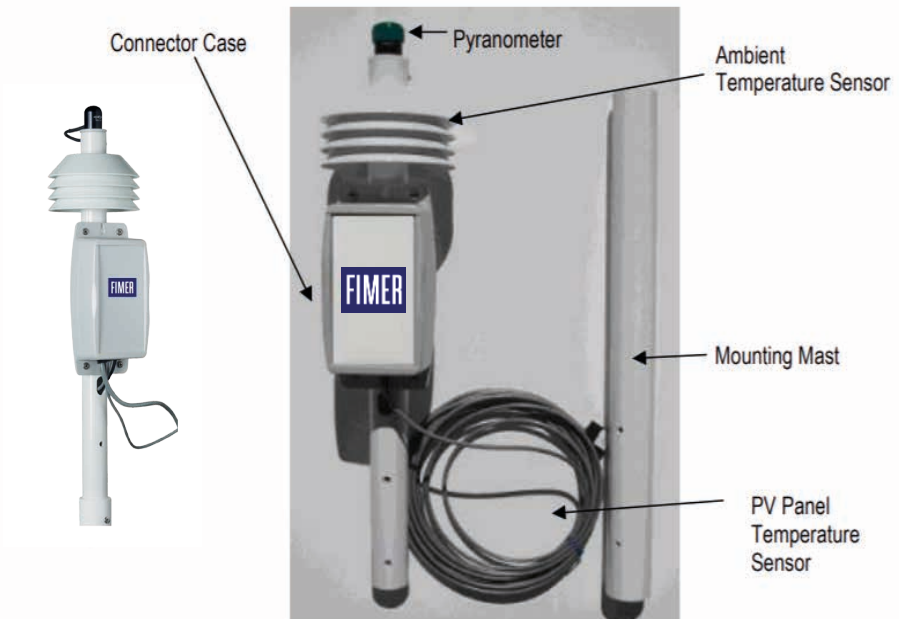
This manual covers the details for installing the VSN800 Weather Station hardware to sense environmental variables. Through the VSN800 Weather Station, the Aurora Vision Plant Management Platform can collect and analyze environmental data for comparison to predicted environmental data and actual inverter/solar panel output. The RS485 port of the VSN800 Weather Station is attached via low-voltage wires to the monitoring or management system and communicates information to the management system using the Modbus protocol. The weather station is powered via 24VDC power, which is typically available from the data collection hardware of the management system. Once the hardware is installed, you will need to login to the management system website to verify the Internet is connected properly and verify that the data is being received. The VSN800 Weather Station is SunSpec compliant and uses a 2-wire half duplex serial port for Modbus communication to a host. Contact FIMER if you need to modify or program the unit or change the Modbus address

2. VSN800 series installation overview

2.1 VSN800-14



2.2 VSN800-12



2.3 Installation steps

- 1 Select Location for the VSN800
- 2 Make Connections to 24VDC Power
- 3 Make Connections to Management System through RS485
- 4 Install PV Panel Temperature Sensor;
For the VSN800-14 Model, Install Secondary Pyranometer
- 5 Complete Mounting of the VSN800
- 6 Verify and validate the Installation via the Management System

2.4 Equipment and supplies

We supply:	You supply:
VSN800 Weather Station, which includes:	
Pyranometer	Mounting Hardware
Ambient Temperature Sensor	Tripod or pole mount base
External PV Panel Temperature Sensor	Guy wire kit, if necessary
External Second Pyranometer (VSN800-14 Model Only)	24VDC Power
Wind Speed and Wind Direction Sensor (VSN800-14 Model Only)	Twisted Pair Wires

3. Site selection and mounting

3.1 Weather station location

The ideal site is level and well away from obstructions such as buildings, trees, and steep slopes. The weather station is typically pole or tripod mounted.

Take into account the needs for all attached sensors to determine the optimal mounting location. Ambient air temperature and irradiance measurements can be affected by obstructions, local topography, and surface type. Each site is different and presents unique challenges. By far the most important consideration is obstruction.

- Objects that are 10 degrees or more above the horizontal plane must not block irradiance
- Ambient air temperature measurement should be placed away from any dark, heat-absorbing surface (asphalt, dark-colored surfaces) and should be no closer than 4 times the obstruction's height.

⚠ ATTENTION – A simple way to think of obstruction is the rule of 10. If the obstruction is at a distance of at least 10 times its height above the weather station, you're good.

Towers can be used to raise the weather station above low-lying obstructions.

3.2 Weather station mounting requirements

Mount the support mast securely to a support structure. Mounting equipment is sold as an accessory. The mast may also be attached to a support structure using U-Bolts. Do not tighten the support structure to the unit, as directional orientation will be required. Rotate the assembled unit until the electronics enclosure faces TRUE SOUTH or TRUE NORTH if you are in the northern or southern hemisphere, respectively. Secure the support mast to the assembly. Lining up the two holes in each mast prevents rotation. At this point the entire unit should be secured to the support structure. It is crucial that the device be oriented as precisely as possible. For the VSN800-14 version, the wind direction measurement is directly related to this positioning. Regardless of how you mount the system, the bottom of the electronic enclosure should not extend more than 12" or less than 7" above the support of the mounting tube.



3.2.1 Other Mounting Considerations

The exact method of mounting the weather station is left to the installer. However, there are some guidelines and recommendations to consider

- The environmental unit is designed to withstand very harsh weather conditions. Refer to the data for individual sensors for the ranges at which measurements remain accurate.
- The environmental unit weighs approximately 7 lbs. Pole mounts in the ground or attached to structures that support up to 50 lbs. are recommended. VSN800 Weather Station Product Manual - 5 -
- For ground tripod mounts, the ground should be as level as possible.
- For roof mounts, avoid locating the station near any heat sources such as chimneys or vents. Do not install on an existing mast unless you know the mast can take the additional weight of the weather station. When roof-mounting the sensor assembly, the unit should be mounted toward an edge of the roof preferably on the prevailing wind side of the building and should be at least 2-1/2 feet above the roofline.
- The weather station unit should be mounted at least 5 feet off the ground. Surrounding terrain and structures may dictate a much higher mount.
- If the weather station is mounted more than 10 feet off the ground, guy wires should be used to secure the mount. Guy wire attachments must not interfere with instruments.
- Wall-mounting, pole-mounting, or tripod kits are available. Contact your FIMER distributor.
- Test the system at ground level and make sure it operates properly prior to final mounting.

3.3 Sensor mounting requirements

3.3.1 Global Irradiance

The pyranometer is attached to the sensor assembly and is oriented to measure global irradiance. To accurately measure this quantity the sensor must be level, orientated either TRUE SOUTH or TRUE NORTH if you are in the northern or southern hemisphere, respectively, and objects above 10° above the horizontal plane must not block the sensor. Be sure to remove the protective green cap from all pyranometers so they can measure insolation.

3.3.2 Plane-of-Array Irradiance (VSN800-14 Model Only)

The plane-of array pyranometer is mounted on the side of the solar array. The sensor should be at the same zenith and azimuth angle as solar array to correctly measure the plane-of-array irradiance

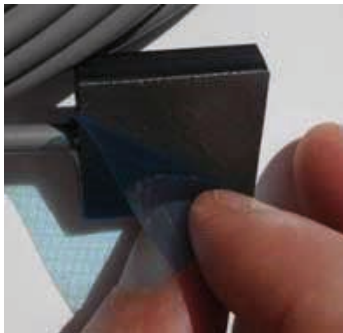
3.3.3 PV Temperature Sensors

This sensor is designed to attach directly to any solar panel. When placed on the center back side of the panel, it accurately measures the temperature of the panel.

Prior to installation of the PV temperature sensor onto the PV panel, the installation area of the panel back should be thoroughly cleaned. This cleaning will ensure a good bond between sensor and panel and allow for accurate panel temperature readings. After cleaning, peel off the protective adhesive tape on the temperature sensor and stick it onto the back of the panel.

Firmly press the sensor into place. Refer to the picture on the right. The cable should be secured within 8 inches of the temperature-sensing element

Run the cable back to the weather station unit and connect to the PV temperature sensor terminals. If the cable length is insufficient for the installation, additional cable can be added to the existing cable. If this is done, an accuracy derating factor must be added to the overall temperature accuracy of this sensor. For every 100ft of cable added, an accuracy derating factor of -0.125°C must be taken into account.



3.3.4 Anemometer

The anemometer is directly attached to the top of the sensor assembly. For correct wind direction operation the VSN800-14 must be oriented correctly.

By default the weather station is configured for operation in the Northern hemisphere. This requires that the irradiance sensor faces due south. If the weather station is going to be used in the Southern hemisphere it must be mounted with the irradiance sensor facing north. In addition, the hemisphere jumper inside the VSN800-14 must be changed from Northern to Southern.

3.4 Cabling requirements to management system

The maximum cable distance between weather station and the SunSpec-compliant management system is 1000 m (3000 ft).

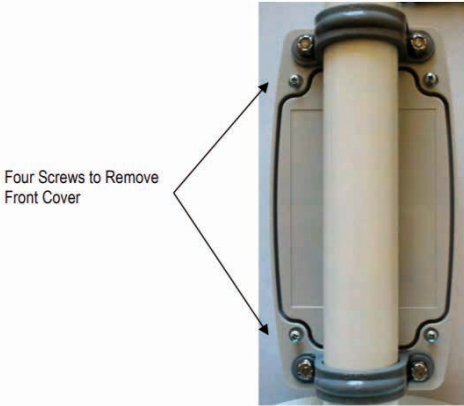
High-voltage areas of power plants are "electrically noisy" environments so shielded cable is advised for connection from the weather station to RS485. If outdoor exposure or proximity to a noise source is a concern, Beldon 1120A or equivalent cabling should be used.

Cables to external sensors are supplied with the sensor

4. Wiring instructions for the VSN800 series

4.1 Supply 24VDC Power

1. Run wire from the 24VDC power source to the weather station.
2. Find the back of the connection case on the weather station. Unscrew the four retaining screws at the corners with a Philips screwdriver. See the figure below.

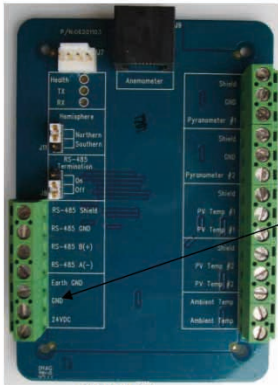


3. Flip the unit over and remove the cover. Find the 24VDC power connectors on the electronics board in the case. Connect power to the 3-pin screw terminal inside the connection case.

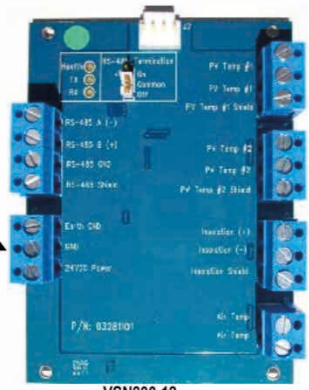
The power supply is nominally rated for 24VDC but can accept a voltage in the range of 10 to 30VDC. The inputs are reverse polarity, surge, over-voltage, and over-current protected. The power supply is not isolated.

Power Supply Terminals

Earth Gnd	Earth or Chassis Ground
Gnd	Negative Supply Voltage
24VDC	Positive Supply Voltage



VSN800-14



VSN800-12

Weather Station Electronics Board

4. Leave the case open to install the other wires as described in the next section

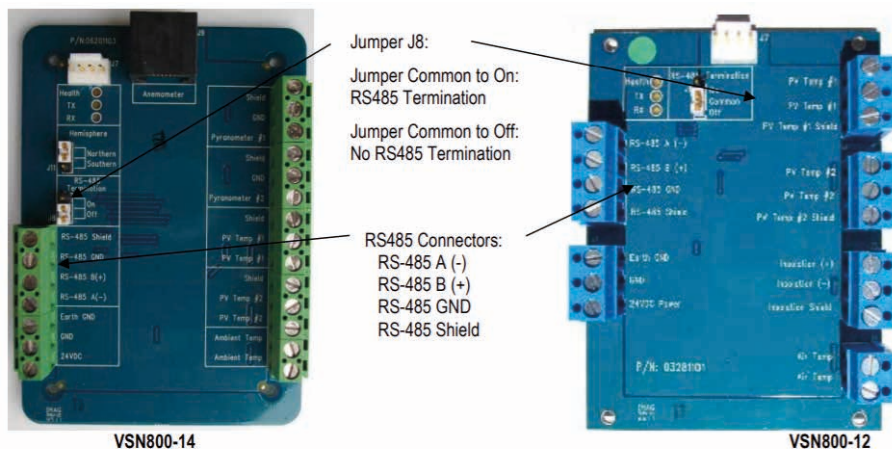
4.2 Southern hemisphere adjustment

For the VSN800-14 model, if you are in the southern hemisphere, the jumper at J11 must be set to Southern. If you are in the northern hemisphere, no adjustment is required. J11 is located in upper left section of the circuit board.

5. Connect to the monitoring or management system

The Modbus (RS485) connection is same as with any other RS485 device connected to a SunSpec-compliant management system. Refer to your management system documentation of any unique installation requirements.

1. String cable between the weather station and the management system to complete the physical connection. The connection to the management system can be as a single RS485 device or as part of a daisy chain of RS485 devices. Cable is not supplied with the unit. Use twisted pair wire for connections.
2. Wiring connections are made using the 3-pin screw terminal inside the connection case. See the figure below
3. The RS485 line must be terminated with a 120-ohm resistor. If the device is the only device in the chain or at the end of the chain, you must set the jumper (J8) to terminate the RS485 line. The factory setting for RS485 line termination is OFF.
4. Placement can be other than the end of the chain if the RS485 termination is disabled. To locate the device in the middle of a daisy chain, set the jumper at location J8 between the pins **Common** and **Off** to disable RS485 termination.



Weather Station Electronics Board, Jumper for RS485 Termination

5.1 Weather Station Electronics Board, Jumper for RS485 Termination

The default address of the weather station is 60. Contact Customer Support if it is required to change the address. You cannot have two weather stations in the same RS 485 chain unless the address of one of the weather stations is changed.

5.2 RS485 Terminals

Terminal Label	RS485 Signal
RS485 A (-)	Negative RS485
RS485 B (+)	Positive RS485
GND	Signal Ground
RS-485 Shield	Shield Ground

5.3 SunSpec and Modbus Communication Settings

Variable	Value
Default Modbus ID	60

5.4 SunSpec register map

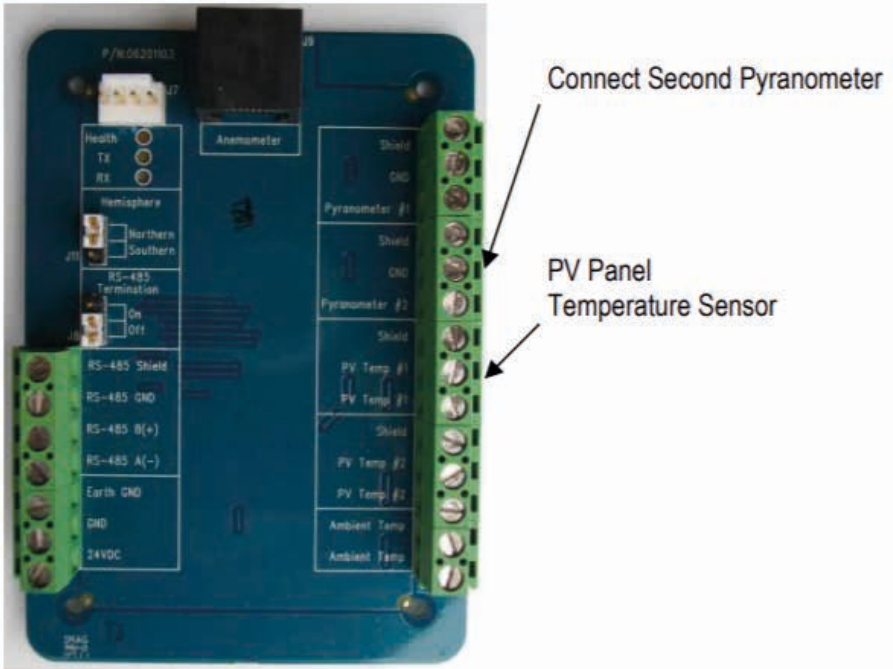
Start	End	#	Name	Type	Units	Scale Factor	Contents	Description
0001	0002	2	C_SunSpec_ID	uint32	N/A	N/A	"SunS"	Well-known value. Uniquely identifies this as a SunSpec Modbus Map
0003	0003	1	C_SunSpec_DID	uint16	N/A	N/A	0x0001	Well-known value. Uniquely identifies this as a SunSpec Common Model block
0004	0004	1	C_SunSpec_Length	uint16	registers	N/A	65	Length of common model block
0005	0020	16	C-Manufacturer	String(32)	N/A	N/A	"FIMER"	Well-known value
0021	0036	16	C-Model	String(32)	N/A	N/A	"VSN800-12" or "VSN800-14"	Manuf specific value
0037	0044	8	C-Options	String(16)	N/A	N/A	"0"	Manuf specific value
0045	0052	8	C-Version	String(16)	N/A	N/A	"1"	Manuf specific value
0053	0068	16	C_Serial Number	String(32)	N/A	N/A	"Serial"	Manuf specific value
0069	0069	1	C_DeviceAddress	uint16	N/A	N/A	60	Modbus Id
SunSpec Device Model Measurement Registers								
0070	0070	1	C_SunSpec_DID	int16	N/A	N/A	307	Start of next Device
0071	0071	1	C_SunSpec_Length	int16	N/A	N/A	11	Device Model Block Size
0072	0072	1	E_BaseMet_Air Temperature	int16	°C	-1	Measured	Ambient Air Temperature
0073	0073	1	E_BaseMet_Relative Humidity	int16	%	0	N/A	Relative Humidity
0074	0074	1	E_BaseMet_Barometric Pressure	int16	Hpa	0	N/A	Barometric Pressure
0075	0075	1	E_BaseMet_Wind Speed	int16	m/s	0	Measured	Wind Speed
0076	0076	1	E_BaseMet_Wind Direction	int16	Degrees	0	Measured	Wind Direction
0077	0077	1	E_BaseMet_Rain	int16	Inches	0	N/A	Rainfall
0078	0078	1	E_BaseMet_Snow	int16	Inches	0	N/A	Snowfall since last poll
0079	0079	1	E_BaseMet_PPT_Type	int16	Inches	N/A	N/A	Precipitation Type (WMO 4680 SYNOP code reference)
0080	0080	1	E_BaseMet_Electric Field	int16	V/m	0	N/A	Electric Field
0081	0081	1	E_BaseMet_Surface Wetness	int16	kOhms	0	N/A	Surface Wetness
0082	0082	1	E_BaseMet_Soil Moisture	int16	%	0	N/A	Soil Moisture
SunSpec Irradiance Model Registers								
0083	0083	1	C_SunSpec_DID	int16	N/A	0	302	Well-known value. Uniquely identifies this as a SunSpec Irradiance Model
0084	0084	1	C_SunSpec_Length	int16	N/A	0	5	Variable length model block = (5*n), where n=number of sensors blocks
0085	0085	1	E_Irradiance_Global Horizontal_1	uint16	W/m ²	0	Measured	Global Horizontal Irradiance
0086	0086	1	E_Irradiance_Plane-of-Array_1	uint16	W/m ²	0	Measured	Plane-of-Array Irradiance
0087	0087	1	E_Irradiance_Diffuse_1	uint16	W/m ²	0	N/A	Diffuse Irradiance
0088	0088	1	E_Irradiance_Direct_1	uint16	W/m ²	0	N/A	Direct Irradiance
0089	0089	1	E_Irradiance_Other_1	uint16	W/m ²	0	N/A	Some other type Irradiance

Start	End	#	Name	Type	Units	Scale Factor	Contents	Description
SunSpec Back of Module Temperature Registers								
0090	0090	1	C_SunSpec_DID	int16	N/A	0	303	Well-known value. Uniquely identifies this as a SunSpec Back of Module Temperature Mode
0091	0091	1	C_Sunspec_Length	int16	N/A	0	2	Variable length model block = (5*n), where n=number of sensors blocks
0092	0092	1	E_BOM_Temp_1	int16	°C	-1	Measured	Back of module temperature
0093	0093	1	E_BOM_Temp_2	int16	°C	-1	Measured	Back of module temperature
End of Block Registers								
0094	0094	1	EndOfSunSpec Block	uint16	N/A	N/A	0xFFFF	End of SunSpec Block
0095	0095	1	C_Sunspec_Length	uint16	N/A	0	0	Terminate length, zero
End of Block Registers								
0200	0200	1	Modbus Id - Write Register	int16	N/A	N/A	60	Modbus device address, write register

6. Connect secondary sensors (VSN800-14 model only)

If you are not planning to connect the PV panel temperature sensor and the secondary Pyranometer, skip this section.

1. Attach the second Pyranometer to your array. The sensor should be attached so top of the sensor is in the same plane as the PV panels. The sensor comes pre-attached to a bracket for easy installation.
2. Attach the PV panel temperature sensor so it registers the temperature on the backside of a PV panel. See Sensor Mounting Requirements for location and mounting considerations.
3. Connect the sensor(s) to the proper location on the circuit board. Connect the Pyranometer cable to terminals Pyranometer #2 and GND. Connect the PV Panel temperature sensor cable to the two terminals labeled PV Temp #1.



6.1 Weather Station Electronics Board, Connect Secondary Sensors (VSN800-14 Model)

The Pyranometer sensors are not interchangeable. The Pyranometer sensor supplied with the weather stations must be wired to Pyranometer #2.

The PV temperature sensor is not polarity sensitive. Therefore, each signal wire is interchangeable. The sensor comes with a 25ft length of cable. If the temperature sensor is not used, it should be terminated with a 0-ohm shunt between the positive and negative signal.

6.2 Plane-of-Array Sensor Terminals

Plane-of-Array Sensor Terminals	
Pyranometer #2:	Positive Signal (Red)
Ground:	Negative Signal (Black)
Shield:	Cable Shield and Drain (clear)

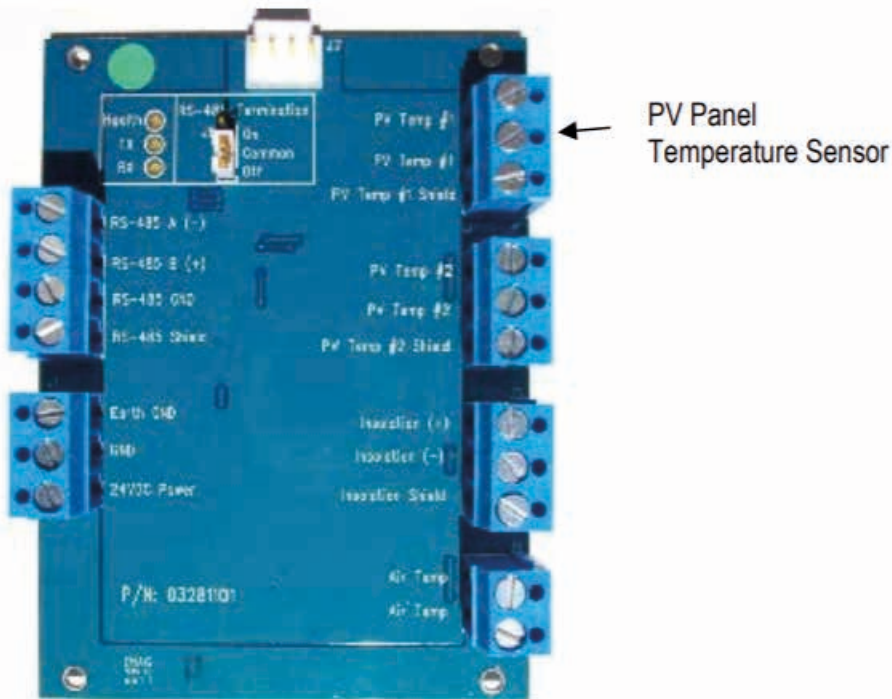
6.3 PV Temperature Terminal, 1st Sensor

PV Temperature Terminal, 1st Sensor	
PV Temp #1:	Signal (Black or White)
PV Temp #1:	Signal (Black or White)
Shield:	Cable Shield and Drain (bare)

7. Connect PV panel sensor (VSN800-12 only)

If you are not planning to connect the PV panel temperature sensor, skip this section.

1. Attach the PV panel temperature sensor so it registers the temperature on the backside of a PV panel. See **Sensor Mounting Requirements** for location and mounting considerations.
2. Connect the sensor to the proper location on the circuit board. Note that the PV Temp #2 connectors are not used for the VSN800-12 Model.



7.1 Connect PV Panel Sensor (VSN800-12 Model)

The PV panel temperature sensor is not polarity sensitive. Therefore, each signal wire is interchangeable. The sensor comes with a 25ft length of cable. If a temperature sensor is not used, it should be terminated with a 0-ohm shunt between the positive and negative signal.

7.2 PV Temperature Terminal, 1st Sensor

PV Temperature Terminal, 1st Sensor

PV Temp #1:	Signal (Black or White)
PV Temp #1:	Signal (Black or White)
Shield:	Cable Shield and Drain (bare)

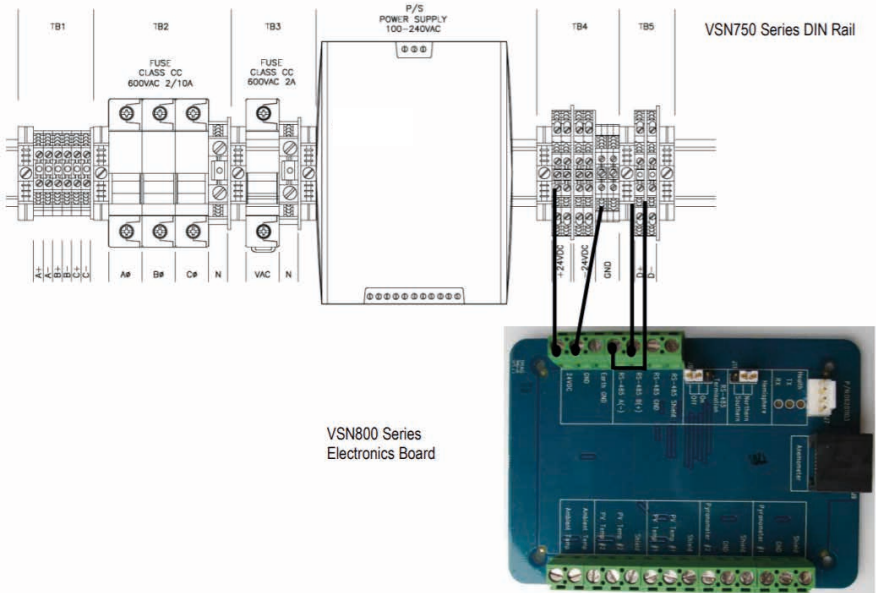
8. Complete the Installation

1. Properly ground the weather station by connecting the Earth GND terminal at the Weather Station to an earth ground. Connecting the Earth GND helps ensure the accuracy of weather instruments.
2. Re-attach the cover to the connection case using the four screws. Make sure not to pinch the newly connected 24VDC or RS485 wires coming out of the case bottom. Note that the cover only goes on one way with the opening for wires at the bottom.
3. If necessary, complete the pole mounting of the weather station

8.1 Connections to VSN750 series products

This section shows how to tap the 24VDC power and make RS485 connections from a VSN750 series management system. Most other monitoring systems will have a means of supplying 24VDC power. Consult your monitoring system documentation for information.

1. After making the correct 24VDC and RS485 attachments to the weather station, run cable from the weather station to the VSN750. Note that connections for power can be made to the VSN750 or directly to another 24 VDC power supply
2. Connect the wires for the 24VDC power and RS485 to the VSN750. See the figure below. Note that some VSN750 models may have RS485 connection points in other locations



Weather Station Connection to VSN750 Series

9. System activation and validation

If you acquired the VSN800 series as part of a product bundle, please refer to the information that came with your VSN750 series package. This information will describe the next steps for product installation and system validation.

The management system must be properly installed and communicating before you can verify that data is flowing from the VSN800 series weather station.

If you are using VSN800 series in conjunction with Plant Portfolio Manager software, go to www.auroravision.net and log in to Plant Portfolio Manager with your account name and password. Using your product license key, set up the connection to the VSN800 series weather station.

10. Specifications

Material Specifications	
Sensor Assembly	RoHS Compliant
Mast	Polyvinyl Chloride
Heat Shields	Acrylonitrile Butadiene Styrene
Insolation Sensor Bracket	Delrin
Hardware	Stainless Steel and Nylon Locknut
Foam Gasket	Vinyl and Acrylic
Enclosure	RoHS Compliant; IP65 Rated Outdoor Enclosures; UL 94 V-2; Polycarbonate Body
Pyranometer Sensor	RoHS Compliant
Body	Anodized Aluminum with Cast Acrylic Lens
Cable	Santoprene Jacket
Ambient Air Temperature Sensor	RoHS Compliant
PV Panel Temperature Sensors	RoHS Compliant
Body	Anodized Aluminum
Adhesive Tape	Acrylic, Titanium Diboride, and Aluminum
Cable	Polyvinyl Chloride Jacket
Power and Communications Cable	
Cable	Polyvinyl Chloride
Physical	
Packaged Weight	7 lbs
Packaged Dimensions	6cm x 20.3cm x 20.3cm (10.25" x 8" x 8")
Electronics	RoHS Compliant

11. Hardware Specifications

Power Specifications:	
Power Requirements:	10 to 30VDC at 50mA
Operating Environment:	
Temperature:	40°C to 60°C (-40 to 140°F)
Humidity:	0-100% Condensing
Pyranometer Sensors:	
Range:	0 to 1750 W/m2
Accuracy:	+/-5%
Cosine Response 45°	+/-1%
Cosine Response 75°	+/-5%
Operational Temperature:	25 to 55°C (-13 to 131°F)
Ambient Air Temperature Sensor:	
Range:	-40° to 80°C (-40 to 176°F)
Accuracy:	+/- 0.3°C (0.54°F)
Thermal Time Constant	30 sec
PV Panel Temperature Sensor:	
Range:	-40° to 80°C (-40 to 176°F)
Accuracy	+/- 0.3°C (0.54°F)
Thermal Time Constant:	270 sec.
Cable Length	7.62m (25 ft.)
Anemometer:	
Operational Temperature:	-40 to 60°C (-40 to 140°F)
Speed	
Range: 0	- 67 meters per second (150 mph)
Accuracy:	Greater of 0.45m/sec. (1 mph) or 5%
Threshold:	0.89m/sec. (2 mph)
Direction	
Range:	360°
Resolution:	22.5°
Accuracy:	+/- 22.5°
Threshold:	0.9 m/sec. (2 mph) at a 10° deflection
RS-485/422 Serial Specifications:	
Mode:	2-wire half duplex
Connector:	4-position screw terminal
Max Speed:	19200 bps
Max. Modbus Poll Rate:	100 ms
Termination:	120 ohms (internal jumper enable)

ENGLISH



The symbol of the crossed-out wheeled bin identifies electrical and electronic equipment (EEE) placed on the market after 13 August 2005 which should be separately collected in accordance with the Directive 2012/19/EU of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE).

Users of EEE from private households (consumers) within each European Union country:

Electrical and electronic equipment should be disposed of in appropriate collection facilities as set up by the competent authorities within each Member State or in accordance with that Member State's national regulations regarding WEEE collection and disposal.

Professional users (Companies - Enterprises) within each European Union country: Electrical and electronic equipment should be disposed of in accordance with the Member State's national regulations regarding WEEE collection and disposal. Further information should be obtained from the reseller or local vendor.

Both Private and Professional Users from EEEs outside the European Union: Electrical and electronic equipment should be disposed of in accordance with the Member State's national regulations regarding WEEE collection and disposal. Inappropriate EEE disposal could have a negative environmental impact and harm human health. Cooperating in the appropriate disposal of this product contributes to product reuse and recycling, while protecting our environment.

ITALIANO



Il simbolo del contenitore di spazzatura su ruote barrato, accompagnato da una barra piena orizzontale, identifica le apparecchiature elettriche ed elettroniche, immesse sul mercato dopo il 13 agosto 2005, oggetto di raccolta separata in conformità alla Direttiva Europea 2012/19/UE (WEEE Directive).

Utenti domestici (privati cittadini) della Comunità Europea:

Lo smaltimento di questa apparecchiatura elettrica ed elettronica deve avvenire presso le isole ecologiche messe a disposizione dagli enti locali o comunque seguendo le indicazioni delle autorità locali per la raccolta differenziata dei rifiuti elettronici.

Utenti professionali (Aziende-Imprese) della Comunità Europea: Lo smaltimento di questa apparecchiatura elettrica ed elettronica deve avvenire in conformità alle legislazioni locali. Contattare il rivenditore o il fornitore locale per ulteriori informazioni.

Utenti domestici e professionali in altri paesi fuori dalla Comunità Europea:

Lo smaltimento di questa apparecchiatura elettrica ed elettronica deve avvenire in conformità alla legislazione locale. Contattare il rivenditore o il fornitore locale per ulteriori informazioni. Collaborando allo smaltimento corretto di questo prodotto, si contribuisce al riutilizzo, al riciclaggio e al recupero del prodotto, e alla protezione del nostro ambiente.

DEUTSCH



Mit dem Symbol der ausgekreuzten Mülltonne werden Elektro- und Elektronikgeräte gekennzeichnet, die nach dem 13. August 2005 auf den Markt gebracht wurden und in Einklang mit der Richtlinie 2012/19/EU des Europäischen Parlaments über Elektro- und Elektronik-Abfälle (WEEE) getrennt zu sammeln sind.

Benutzer von Elektro- und Elektronikgeräten aus privaten Haushalten (Konsumenten) in den Mitgliedstaaten der Europäischen Union: Elektro- und Elektronikgeräte sind bei einer hierfür von den zuständigen Behörden eingerichteten geeigneten Annahmestelle im jeweiligen Mitgliedstaat abzugeben oder in Einklang mit den nationalen Bestimmungen des Mitgliedstaats hinsichtlich der Sammlung und Entsorgung von Elektro- und Elektronikgeräten gemäß der WEEE-Richtlinie zu entsorgen.

Professionelle Benutzer (Unternehmen) in den Mitgliedstaaten der Europäischen Union: Elektro- und Elektronikgeräte sind in Einklang mit den nationalen Bestimmungen des Mitgliedstaats hinsichtlich der Sammlung und Entsorgung von Elektro- und Elektronikgeräten gemäß der WEEE-Richtlinie zu entsorgen. Für nähere Informationen wenden Sie sich bitte an den Wiederverkäufer oder Ihren Händler vor Ort.

Sowohl private als auch professionelle Benutzer in den Mitgliedstaaten der Europäischen Union: Elektro- und Elektronikgeräte sind in Einklang mit den nationalen Bestimmungen des Mitgliedstaats hinsichtlich der Sammlung und Entsorgung von Elektro- und Elektronikgeräten gemäß der WEEE-Richtlinie zu entsorgen. Bei unsachgemäßer Entsorgung besteht das Risiko nachteiliger Auswirkungen auf Umwelt und Gesundheit. Durch Ihre Kooperation zur ordnungsgemäßen Entsorgung fördern Sie das Wiederverwenden und das Recycling des Produkts und tragen zum Umweltschutz bei.

ESPAÑOL



El símbolo del contenedor de basura tachado con un aspa identifica aquellos aparatos eléctricos y electrónicos (AEE). EEE por sus siglas en inglés) lanzados al mercado después del 13 de agosto de 2005 que deben recolectarse de forma separada de acuerdo con la Directiva 2012/19/UE del Parlamento Europeo y el Consejo Europeo sobre residuos de aparatos eléctricos y electrónicos (RAEE).

Usuarios particulares de AEE (consumidores) en cada uno de los países de la Unión Europea: Los aparatos eléctricos y electrónicos deben eliminarse en los puntos de recolección adecuados establecidos por las autoridades competentes de cada Estado miembro de acuerdo con las normativas nacionales de dicho Estado miembro sobre la recolección y eliminación de RAEE.

Usuarios profesionales (Empresas e instituciones) en cada uno de los países de la Unión Europea: Los aparatos eléctricos y electrónicos deben eliminarse de acuerdo con las normativas nacionales sobre la recolección y eliminación de RAEE. Puede obtener más información en su distribuidor o proveedor local.

Usuarios particulares y profesionales de países no pertenecientes a la Unión Europea: Los aparatos eléctricos y electrónicos deben eliminarse de acuerdo con las normativas nacionales sobre la recolección y eliminación de RAEE. La eliminación inadecuada de un AEE puede tener un impacto negativo en el medio ambiente y perjudicar la salud humana. Su cooperación en la eliminación adecuada de este producto contribuye a su reutilización y reciclado a la vez que protege el medio ambiente.

FRANÇAIS



Le symbole de poubelle interdite identifie les équipements électriques et électroniques (EEE) mis sur le marché après le 13 août 2005 qui doivent être collectés séparément conformément à la Directive 2012/19/UE du Parlement européen et du Conseil relative aux déchets d'équipements électriques et électroniques (DEEE).

Ménages utilisateurs d'EEE (consommateurs) dans chaque pays de l'Union européenne: Les équipements électriques et électroniques doivent être mis au rebut conformément aux réglementations nationales de cet État membre relatives à la collecte et à la mise au rebut des EEE.

Utilisateurs professionnels (sociétés - entreprises) au sein de chaque pays de l'Union européenne: Les équipements électriques et électroniques doivent être mis au rebut conformément aux réglementations nationales de l'État membre relatives à la mise au rebut des EEE. Pour plus d'informations, contactez le revendeur ou le fournisseur local.

Utilisateurs privés et professionnels des pays hors Union européenne: Les équipements électriques et électroniques doivent être mis au rebut conformément aux réglementations nationales de l'État membre relatives à la mise au rebut des EEE. La mise au rebut inappropriée des EEE peut avoir un effet néfaste sur l'environnement et sur la santé humaine. En participant à la mise au rebut appropriée de ce produit, vous contribuez à sa réutilisation et à son recyclage tout en protégeant notre environnement.

PORTUGUÊS



O símbolo do contêntor com uma cruz sobreposta identifica equipamentos elétricos e eletrônicos (EEE) colocados no mercado após 13 de agosto de 2005, que devem ser recolhidos separadamente de acordo com a Diretiva 2012/19/UE do Parlamento Europeu e do Conselho sobre resíduos de equipamentos elétricos e eletrônicos (WEEE).

Utilizadores de EEE de ambientes domésticos privados (consumidores) dentro de cada país da União Europeia:

Os equipamentos elétricos e eletrônicos deverão ser eliminados em instalações de recolha adequadas, conforme estabelecido pelas autoridades competentes dentro de cada Estado Membro, ou de acordo com os regulamentos nacionais desse Estado Membro sobre a recolha e eliminação de WEEE.

Utilizadores profissionais (Companhias - Empresas) dentro de cada país da União Europeia: Os equipamentos elétricos e eletrônicos deverão ser eliminados de acordo com os regulamentos nacionais dos Estados Membros sobre a recolha e eliminação de WEEE. Informações adicionais deverão ser obtidas junto do revendedor ou do fornecedor local.

Utilizadores privados e profissionais dos países fora da União Europeia: Os equipamentos elétricos e eletrônicos deverão ser eliminados de acordo com os regulamentos nacionais dos Estados Membros sobre a recolha e eliminação de WEEE.

A eliminação inadequada de EEE poderá ter um impacto ambiental negativo e afetar a saúde humana, cooperando com a eliminação adequada destes produtos contribui para a reutilização e reciclagem dos mesmos, protegendo simultaneamente o nosso ambiente.

NEDERLANDS



Het symbool van de doorkruiste afvalbak identificeert elektrische en elektronische apparatuur (EEA) op de markt gebracht na 13 augustus 2005, die apart moet worden verzameld in overeenstemming met de Richtlijn 2012/19/UE van het Europees Parlement en de Raad betreffende afgedankte elektrische en elektronische apparatuur (AEEA).

Gebruikers van EEA uit particuliere huishoudens (consumenten) in elk land van de Europese Unie:

Elektrische en elektronische apparatuur moet worden weggegooid via of daarvoor bestemde voorzieningen zoals opgezet door de bevoegde autoriteiten in elke lidstaat met in overeenstemming met de nationale regelgeving van die lidstaat met betrekking tot de inzameling en verwijdering van AEEA.

Professionele gebruikers (Bedrijven - Ondernemingen) in elk land van de Europese Unie:

Elektrische en elektronische apparatuur dient te worden vernietigd in overeenstemming met de nationale voorschriften van de lidstaat met betrekking tot de inzameling en verwijdering van AEEA. Nadere informatie moet worden verkregen van de verkoper of lokale leverancier.

Zowel particuliere als professionele gebruikers uit landen buiten de Europese Unie:

Elektrische en elektronische apparatuur dient te worden vernietigd in overeenstemming met de nationale voorschriften van de lidstaat met betrekking tot de inzameling en verwijdering van AEEA. Onjuiste verwijdering van EEA kan een negatieve invloed op het milieu hebben en de menselijke gezondheid schaden. Samenwerking bij de correcte verwijdering van dit product draagt bij aan hergebruik en recycling en beschermt ons milieu.

SVENSKA



Symbolen med den överstregade affaldspand på hjul identifierer elektrisk og elektronisk ustruening (EEE), der er markedsført efter d. 13. august 2005, som skal samles in separat i enghelt med Europaparlamentets og rådets direktiv 2012/19/EU om affald som udgør av eller indeholder elektrisk eller elektronisk produkt (WEEE).

Användare av EEE i privathushållen (konsumenter) i varje land inom Europeiska unionen:

Elektrisk och elektronisk utrustning ska bortskaffas på lämpliga uppsamlingsanläggningar som inrättats av behöriga myndigheter i varje medlemsstat eller i enlighet med den medlemsstatens nationella bestämmelser gällande uppsamling och bortskaffande av WEEE.

Yrkesmässiga användare (bolag – företag) i varje land inom Europeiska unionen: Elektrisk och elektronisk utrustning ska bortskaffas i enlighet med medlemsstatens nationella bestämmelser gällande uppsamling och bortskaffande av WEEE. Ytterligare information ska erhållas från återförsäljaren eller den lokala säljaren.

Både privata och yrkesmässiga användare från länder utanför Europeiska unionen: Elektrisk och elektronisk utrustning ska bortskaffas i enlighet med medlemsstatens nationella bestämmelser gällande uppsamling och bortskaffande av WEEE. Otillrägglig bortskaffande av EEE kan ha en negativ miljöpåverkan och skada människors hälsa i och med att du samarbetar. Vi frågar om: bortskaffa den här produkten på ett lämpligt sätt, bidra till att produkten kan återanvändas och återvinnas, samtidigt som du hjälper till att skydda miljön.

DANSK



Symbolet med den overstregede affaldspand med hjul angiver, at elektrisk og elektronisk udstyr (EEE), der er markedsført efter d. 13. august 2005, skal indsamles særskilt i henhold til Europa-Parlamentets og Rådets direktiv 2012/19/EU om affald af elektrisk og elektronisk udstyr (WEEE).

Brugere af EEE fra private husholdninger (forbrugere) inden for hvert EU-medlemsland: Elektrisk og elektronisk udstyr skal bortskaffes via passende indsamlingsfaciliteter, der er etableret af de ansvarlige myndigheder i hver medlemsstat, eller i henhold til den pågældende medlemsstats nationale lovgivning vedrørende indsamling og bortskaffelse af WEEE.

Professionelle brugere (virksomheder – firmaer) inden for hvert EU-medlemsland: Elektrisk og elektronisk udstyr skal bortskaffes i henhold til den pågældende medlemsstats nationale lovgivning vedrørende indsamling og bortskaffelse af WEEE. Yderligere oplysninger kan rekrutteres fra forhandleren eller den lokale leverandør.

Både private og professionelle brugere fra lande uden for den Europæiske Union: Elektrisk og elektronisk udstyr skal bortskaffes i henhold til den pågældende medlemsstats nationale lovgivning vedrørende indsamling og bortskaffelse af WEEE. Uheldig genaffaldning af EEE kan have en negativ virkning på miljøet og på folks helbreds. Samarbejd i forbindelse med korrekt bortskaffelse af disse produkter bidrager til genanvendelse og genvinning, samtidig med at miljøet beskyttes.

SUOMI



Merkki, jossa on yli ristattu pyörällinen jättesäiliö, viittaa 13.8.2005 jälkeen markkinoille tuotuihin sähkö- ja elektroniikkalaitteisiin, jotka Euroopan parlamentin ja neuvoston sähkö- ja elektroniikkalaiteromusta annetun direktiivin 2012/19/UE (WEEE) mukaisesti on kerättävä erikseen.

Yksityisten kotitalouksien sähkö- ja elektroniikkalaitteiden (kuluttajat) kussakin Euroopan unionin maassa: Sähkö- ja elektroniikkalaitteet on hävitettävä kunkin jäsenvaltion toimivaltuista viranomaisista järjestämien keräyspisteiden kautta tai kyseisen jäsenvaltion kansallisten sähkö- ja elektroniikkalaiteromun keräystä ja hävittämistä koskevien määräysten mukaisesti.

Ammattikäyttäjät (yritykset) kussakin Euroopan unionin maassa: Sähkö- ja elektroniikkalaitteet on hävitettävä jäsenvaltion kansallisten sähkö- ja elektroniikkalaiteromun keräystä ja hävittämistä koskevien määräysten mukaisesti. Lisätietoja on voitava saada jälleenykäytöstä tai paikalliselta toimittajalta.

Euroopan unionin ulkopuolisten maiden yksityiset ja ammattikäyttäjät: Sähkö- ja elektroniikkalaitteet on hävitettävä jäsenvaltion kansallisten sähkö- ja elektroniikkalaiteromun keräystä ja hävittämistä koskevien määräysten mukaisesti. Lisätietoja on voitava saada jälleenykäytöstä tai paikalliselta toimittajalta.



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