

Model 1192

Data Collection Platform

A.0 Disclaimer / Standard Warranty

CE certification

The equipment listed as CE certified means that the product complies with the essential requirements concerning safety and hygiene. The European directives that have been taken into consideration in the design are available on written request to ADB SAFEGATE.

ETL certification

The equipment listed as ETL certified means that the product complies with the essential requirements concerning safety and C22.2 No.180:13 (R2018) regulations. The CSA directives that have been taken into consideration in the design are available on written request to ADB SAFEGATE.

All Products Guarantee

ADB SAFEGATE will correct by repair or replacement per the applicable guarantee below, at its option, equipment or parts which fail because of mechanical, electrical or physical defects, provided that the goods have been properly handled and stored prior to installation, properly installed and properly operated after installation, and provided further that Buyer gives ADB SAFEGATE written notice of such defects after delivery of the goods to Buyer. Refer to the Safety section for more information on Material Handling Precautions and Storage precautions that must be followed.

ADB SAFEGATE reserves the right to examine goods upon which a claim is made. Said goods must be presented in the same condition as when the defect therein was discovered. ADB SAFEGATE further reserves the right to require the return of such goods to establish any claim.

ADB SAFEGATE's obligation under this guarantee is limited to making repair or replacement within a reasonable time after receipt of such written notice and does not include any other costs such as the cost of removal of defective part, installation of repaired product, labor or consequential damages of any kind, the exclusive remedy being to require such new parts to be furnished.

ADB SAFEGATE's liability under no circumstances will exceed the contract price of goods claimed to be defective. Any returns under this guarantee are to be on a transportation charges prepaid basis. For products not manufactured by, but sold by ADB SAFEGATE, warranty is limited to that extended by the original manufacturer. This is ADB SAFEGATE's sole guarantee and warranty with respect to the goods; there are no express warranties or warranties of fitness for any particular purpose or any implied warranties of fitness for any particular purpose or any implied warranties other than those made expressly herein. All such warranties being expressly disclaimed.

Standard Products Guarantee

Products manufactured by ADB SAFEGATE are guaranteed against mechanical, electrical, and physical defects (excluding lamps) which may occur during proper and normal use for a period of two years from the date of ex-works delivery, and are guaranteed to be merchantable and fit for the ordinary purposes for which such products are made.

NOTE



See your applicable sales agreement for a complete warranty description.

Replaced or repaired equipment under warranty falls into the warranty of the original delivery. No new warranty period is started for these replaced or repaired products.

FAA Certified products manufactured by ADB SAFEGATE

ADB SAFEGATE L858 Airfield Guidance Signs are warranted against mechanical and physical defects in design or manufacture for a period of 2 years from date of installation, per FAA AC 150/5345-44 (applicable edition).

ADB SAFEGATE LED products (with the exception of obstruction lighting) are warranted against electrical defects in design or manufacture of the LED or LED specific circuitry for a period of 4 years from date of installation, per FAA EB67 (applicable edition). These FAA certified constant current (series) powered LED products must be installed, interfaced and powered with and through products certified under the FAA Airfield Lighting Equipment Program (ALECP) to be included in this 4 (four) year warranty. This includes, but is not limited to, interface with products such as Base Cans, Isolation Transformers, Connectors, Wiring, and Constant Current Regulators.

Revision History

Revision	Date	Summary of Changes
A	2021 Mar 15	Initial release
B	2021 Apr 23	Added PTB330 BP sensor
C	2021 Jun 21	Added directly connected 6498-DC and 6500-DC sensors, which is a connection adjustment to FAA certified sensors, and updated the associated supporting firmware to v2.0
D	2022 Jan 3	Added enhancements to MARS calibration menu and selected Vaisala sensors use with non-Federal AWOS systems as reflected in updating the associated supporting firmware to v3.0
E	2023 Jan 20	Adapted for use with the F1 STA AWOS
F	2023 Jun 21	Added heading feature to allow use on water vessel
G	2025 Apr 1	ADB SAFEGATE (ECP#ADBSG-0001)

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1. Overview

The Model 1192 Data Collection Platform (DCP) is used with Automated Weather Observing Systems (AWOS) to collect, process, and log sensor information. The DCP is located at the sensor station, and collects data from the sensors, performs error detection on the received information, converts the sensors' data into engineering units, and transmits a message packet containing sensor data and status information to the Central Data Platform (CDP). The DCP can communicate with the CDP using RS-232, RS-485, Ethernet, or wireless data radios.

The DCP mounts to the sensor tower or a mounting pole with Unistrut brackets. There is room inside the enclosure for the barometric pressure sensor (Model 7150 and PTB330) and wireless data radio kits. A keypad and LCD display screen inside the enclosure are used to view sensor information and perform maintenance checks. The DCP has electrostatic (ESD) protection and a battery charging circuit that allows it to be powered by an optional rechargeable 12 V backup battery during power outages.

The data logger assembly consists of two parts, the Main Board and the Sensor Interface Board (SIB), as shown in Figure 2. The SIB is a removable and field replaceable piece of equipment that houses all the digital, analog and smart sensor interfaces. In the event of an electrical transient event, such as a lightning strike, the SIB will protect the rest of the DCP from damage and can be replaced if it is damaged.

The SIB is a modular assembly within the DCP and can be changed to accommodate varying customer requirements. The default SIB shipped with the DCP accommodates industry-standard sensors for measurement of common AWOS parameters, including Wind Speed, Wind Direction, Temperature, Relative Humidity, Pressure, Visibility, Runway Visual Range (RVR), Present Weather, Freezing Rain, Lightning, Rain Accumulation, and Solar Radiation.

An onboard GPS receiver provides the time reference. A battery-powered Real Time Clock (RTC) keeps track of time in the event of a power failure or temporary GPS signal outage. An LCD display provides diagnostic data for the DCP and all connected sensors. Status LEDs provide an indication of the state of the system.

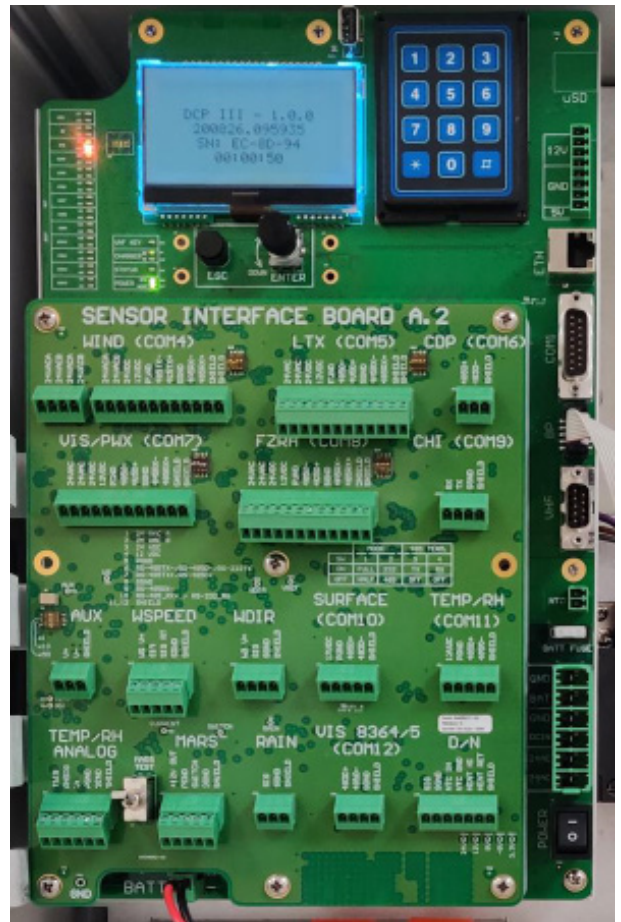


Figure 1. Sensor Interface Board Mounted on Main Board

1.1 Models

The Model 1192 Data Collection Platform has 120 VAC and 240 VAC models, and there are three enclosure options available.

Model	Description
1192	U.S. non-Federal AWOS, 120 VAC Polyester/Polycarbonate Hybrid Enclosure
1192-120 1192-240	Polyester/Polycarbonate Hybrid Enclosure Nominal: 16" W x 20" H x 8" D
1192-120-AL 1192-240-AL	Painted White Aluminum Enclosure Nominal: 24" x 24" x 8" D
1192-120-SS 1192-240-SS	304 SS Painted White Stainless-Steel Enclosure Nominal: 24" x 24" x 8" D

Table 1. Model 1192 Options

The Model 1192 Data Collection Platform is the DCP built in to the F1 STA AWOS. Three F1 STA options are available. All the F1 STA options are in an aluminum enclosure.

Model	Description
STA	U.S. non-Federal AWOS, 120 VAC
STA-120	120 VAC
STA-240	240 VAC

Table 2. F1 STA Options with Model 1192 DCP

This manual covers the use of the DCP as a standalone DCP and as part of the F1 STA. There are separate manuals for the installation and use of the F1 STA.

1.2 Accessories

The following accessories and replacement parts are available for the Model 1192 Data Collection Platform.

Part Number	Description
M404941-00	Sensor Interface Board x.2 (all others)
M404942-00	Sensor Interface Board x.3 (U.S. non-Federal AWOS)
M406233-00	microSD card
M438130-00	Backup Battery (1192, 1192-120, 1192-240)
M438304-00	Backup Battery (STA, STA-120, STA-240, 1192-120/240-AL, 1192-120/240-SS)
M438159-00	Real Time Clock CR2032 Battery
M442117-00	Fuse Auto 7.5 A 32 VDC Blade Mini
M442131-00	15 A Single Pole Breaker
M488119-01	Mounting Kit (includes hardware mounting to tower legs and to pole)
M488679-01	UHF Data Radio Kit for 1192 DCP
M489167-00	GPS Antenna, Pole Mounted

1.2.1 Digital Barometer Kits

The two digital barometers offered by ADBS Safegate. are also available as part of a complete kit for installation in the Model 1192 Data Collection Platform. These kits include the digital barometer, the M105037 Quad Plate Pressure Port, and their associated tubing and power/data cables. Two sets of kits are offered corresponding to the digital barometer models.

Part Number	Digital Barometer Model	Number of BP Sensor Transducers
11926	7150	2
11926-A	7150-A	3
11926-B	7150-B	1
11926-PTB	PTB330	2

2. DCP Installation

Sections 2.1 and 2.2 describe the installation of the DCP electronics enclosure. Refer to the *F1 STA H-Frame Installation Manual (F1STA-H-017)* or the *F1 STA Tower & Pad Installation Manual (F1STA-T-017)* for information on mounting the F1 STA Acquisition Control Unit containing the 1192 DCP and the electrical connections.

2.1 DCP Electronics Enclosure

Mount the DCP electronics enclosure on the tower using the M488119-01 Unistrut Mounting Kit. Do not tighten all the nuts completely until all the Unistrut mountings have been completed. The enclosure may also be mounted on a pole or a mounting pipe on Section 2.1.1

If possible, mount the enclosure on the side of the tower opposite to where the sun is shining.

If the DCP electronics enclosure is being mounted on a fold-over tower, find a tower side with enough room and spacing to hold the enclosure. This could turn out to be the hinged side if the hinge is above ground, or it might have to be a side other than the hinged side if the hinge is at the base of the tower. If the tower tilts in the middle, then the DCP electronics enclosure should be on the fixed part of the tower; if it tilts at the base, then the electronics enclosure should be above the tilt. Note that all wires should be routed along leg on the hinged side with a bit of additional slack at the hinge to allow for the tower to fold over without stressing the wires.

1. Prepare the bolts by applying anti-seize.



Figure 2. Apply Ant-Seize to Bolts

2. Position the upper Unistrut strip approximately 2 m (6 ft) above the ground next to a face of the tower centered on the tower legs and secure it to the tower legs using the mounting hardware provided (Figure 3). Keep the Unistrut parallel to the ground.

In areas with snow, the lower Unistrut should be at least 30 cm (1 ft) above the average maximum snow depth.

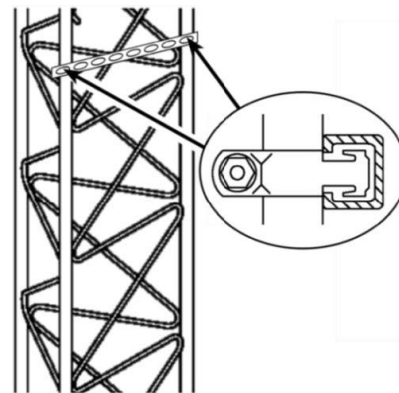


Figure 3. Secure Top Unistrut to Tower Leg

3. Line up and center the top of the DCP electronics enclosure on the upper Unistrut and secure the enclosure to the Unistrut using the mounting hardware provided (Figure 4).

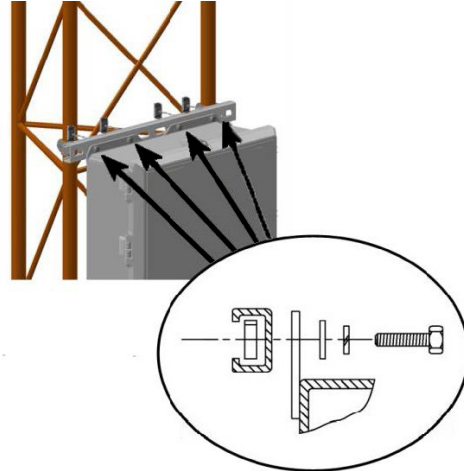


Figure 4. Secure Electronics Enclosure to Top Unistrut

4. Line up and center a Unistrut with the bottom of the DCP electronics enclosure and secure the enclosure to the Unistrut using the mounting hardware provided (Figure 5).

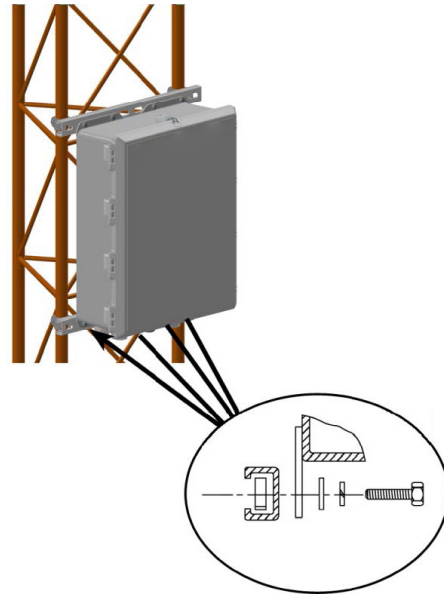


Figure 5. Secure Bottom Unistrut to Enclosure

5. Secure the lower Unistrut to the tower legs using the mounting hardware provided (Figure 6).

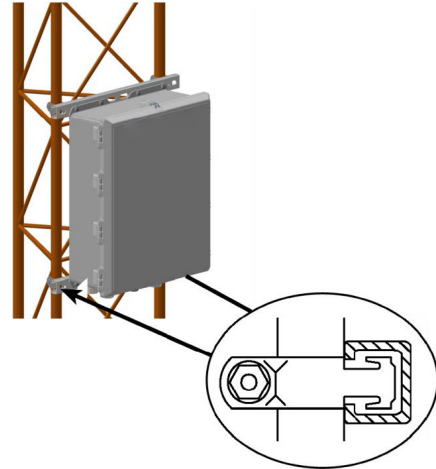


Figure 6. Secure Bottom Unistrut to Tower Leg

6. Apply a light spray of anti-corrosion to all the threaded fasteners. *Avoid spraying other areas such as the gasket surrounding the enclosure door.*

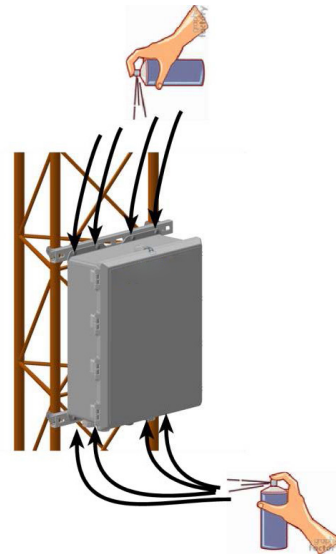


Figure 7. Apply Anti-Corrosion Spray to Threaded Fasteners

7. Tighten all the nuts.
-

Figure 8 shows the completed installation on a stacked tower as an example.

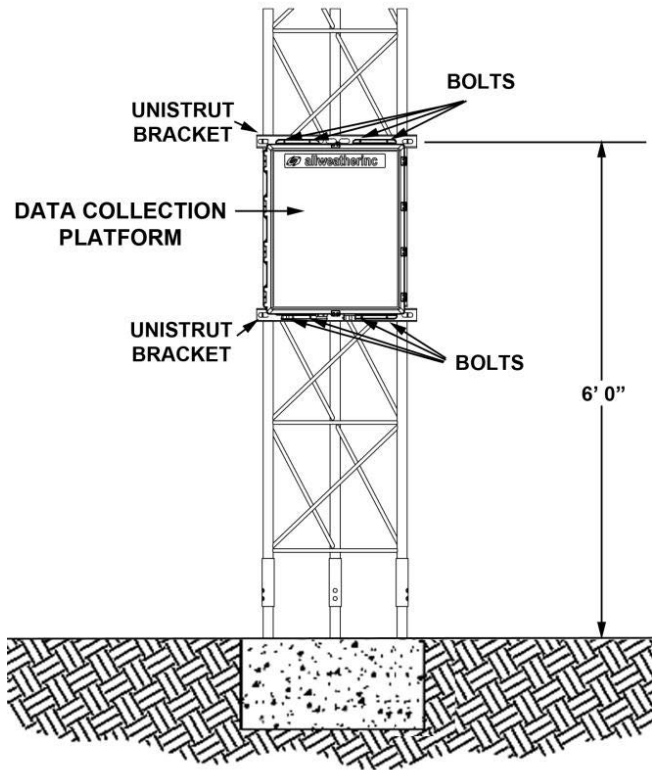


Figure 8. Completed Installation

2.1.1 Pole Mounting

The enclosure may also be mounted on a pole or mounting pipe with an outside diameter of 2"–3". Use a multi-strut pipe clamp to attach the Unistrut strips to the pole instead of a tower.



Figure 9. Multi-Strut Pipe Clamp

2.2 Electrical Connections

Figure 10 shows the external connections at the bottom of the enclosure.

- AC power conduit.
- Signal cables from sensors.
- Serial connection to CDP.
- Ground lug.

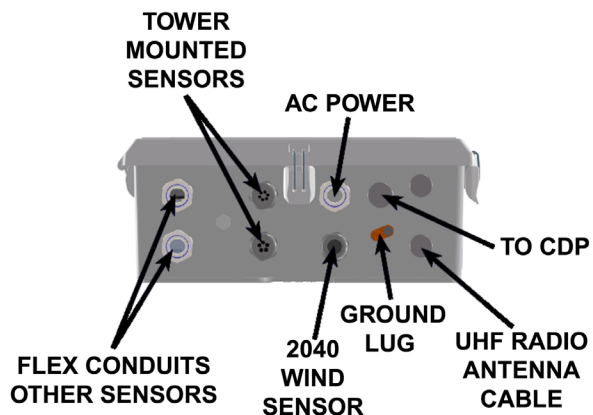


Figure 10. External Connections at Enclosure Bottom

The 1192 DCP must be properly grounded by taking a ground wire with a minimum conductor diameter of 2.9 mm (9 AWG) and maximum length of 5 m from the brass ground lug at the bottom of the electronics enclosure (Figure 11) to the ground clamp near the bottom of the tower or mounting pipe. Cut the end of the ground cable to length and connect this end that ground clamp.

Check that the contractor provided a ground connection from the ground rod to the tower or pipe. If not, that will have to be done using de-ox grease on the below-ground connections.

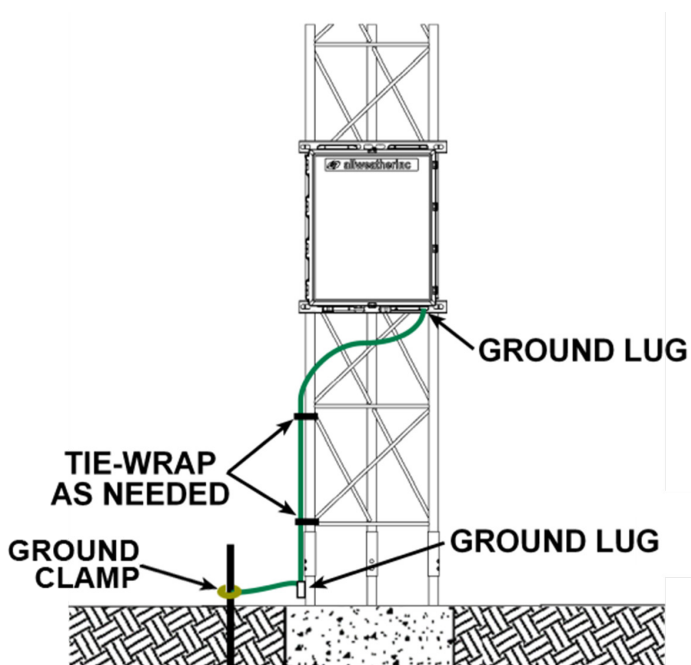


Figure 11. DCP Grounding

Sensor cables are from sensors not on the tower typically run to a junction box near the base of the tower or mounting pole and then underground in conduit according to local code requirements. Route the cables from the junction boxes to the bottom of the electronics enclosure and secure the cables and the ground wire to a tower leg with UV-resistant zip ties. Cables should be secured at least every 60 cm (2 ft). Do not cinch the zip ties so tightly that they deform the cable. Cut excess length off the zip ties with a flush cutter so that no sharp stubs are exposed.

1. Route the cables from the sensors into the electronics enclosure using the cable glands and grommets shown in Figure 10.
2. Connect the wires to the connectors shown in Figure 12 according to the wiring information provided in this chapter.

Figure 12 shows the layout of the various electronics subassemblies inside the electronics enclosure and the routing of cables from the cable glands.

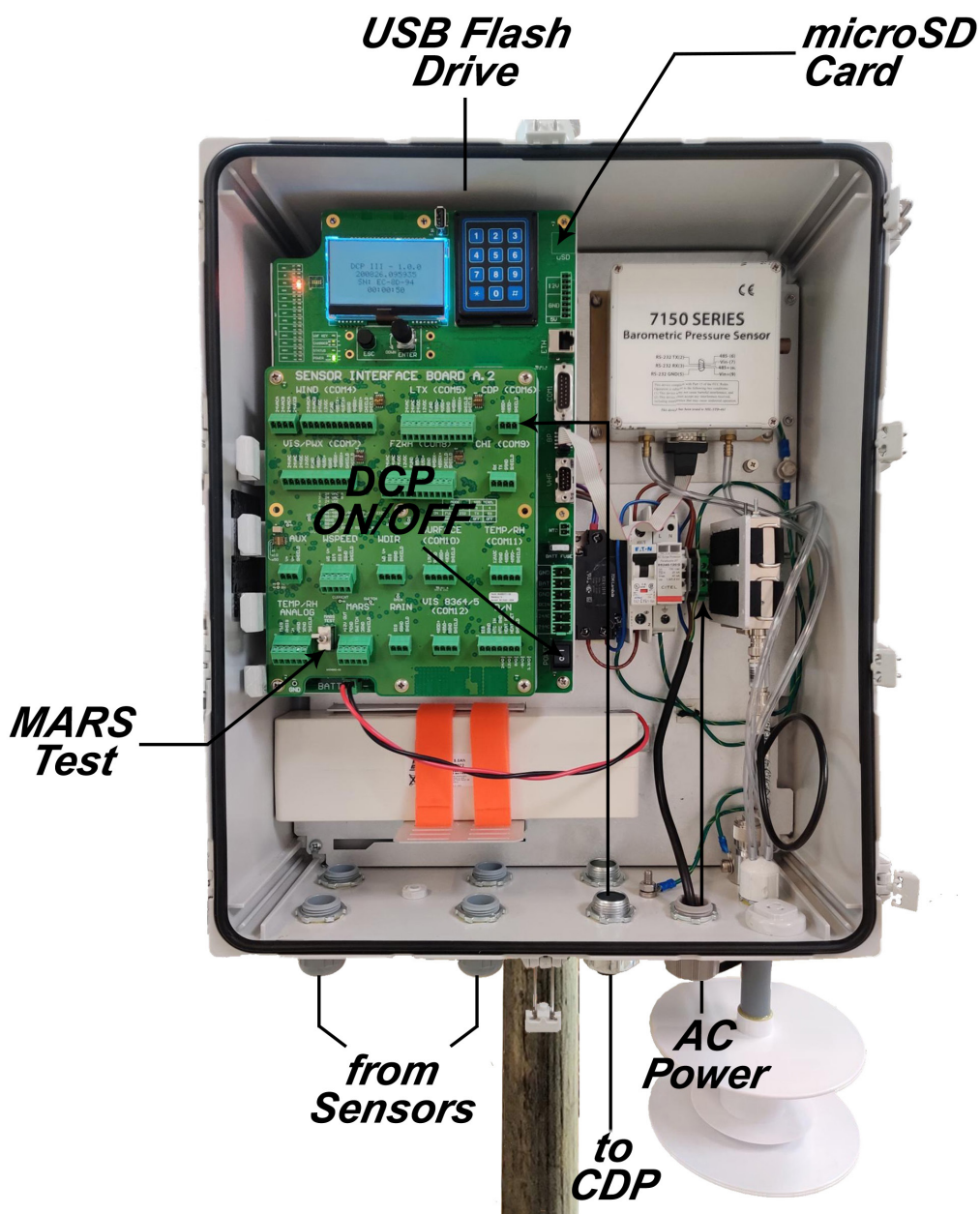


Figure 12. DCP Layout and Connections Inside Enclosure

2.3 Connections

2.3.1 Main Board

Note that the AC power switch should be in the OFF position while connections are being made.

The terminal blocks use friction-lock plugs that can be unplugged from the terminal block headers to make connecting wires more convenient.

GPS

The onboard GPS receiver has a built-in antenna and an SMA connector that can be used for an external antenna. This connector also provides power for active external GPS antennas. The system is configured to use the internal antenna by default. To use an external antenna, attach it to the SMA connector and route the cable through one of the gland seals provided for tower-mounted sensors (Figure 10) Section 3.8.5 explains how to change the system configuration when an external antenna is used. The antenna will likely be mounted near the enclosure on the tower.

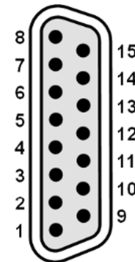


GPS

Figure 13. GPS Antenna Connector

COM 1 — UHF Radio

COM1 is a male DB15 COM port used to connect the UHF data radio to the DCP with a serial cable.

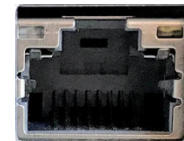


COM 1

Figure 14. COM1 UHF Radio DB15 Connector

Ethernet

The ETHERNET jack is used to connect a network switch or fiber optic modem to the CDP as described in Section 2.5.



ETHERNET

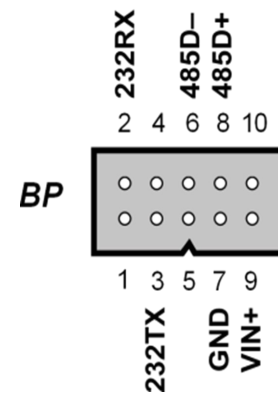
Figure 15. Ethernet Jack

BP

The **BP** header accommodates the barometric pressure sensor using a keyed prewired plug, and supports both RS 232 and RS 485.

Header Connections Summary

- » RS-485 D- to Pin 6
- » Ground to Pin 7
- » RS-485 D+ to Pin 8
- » +12 V DC to Pin 9
- » RS-232 Tx to Pin 2
- » RS-232 Rx to Pin 3



BP SENSOR

Figure 16. BP Sensor Connector Pinout

VHF — VHF Radio

VHF is a male DB9 port used to connect a VHF radio to the DCP. Power, keying, and audio are provided.

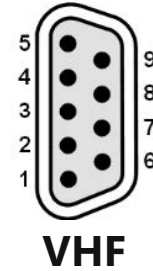


Figure 17. VHF Radio DB9 Connector



NOTE

This VHF output for the AWOS broadcast is not supported at this time

NTC — Battery Temperature Sensor

The **NTC** terminal block is reserved for a battery temperature sensor.

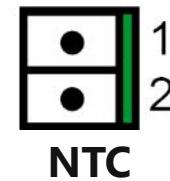


Figure 18. NTC Pinout



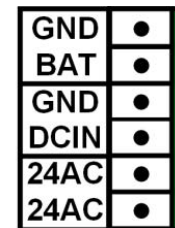
NOTE

The NTC connection for the battery temperature sensor is not supported at this time

External Power Inputs

The External Power Inputs terminal blocks allow external power to be provided to the DCP. Power from the **DCIN** and the **24 V AC** inputs is used to charge the backup battery.

- » **BAT** external 12 V DC battery for current > 10 A
- » **DCIN** 12–48 V DC
- » **24 V AC** alternative to blade connectors on rear side



EXTERNAL POWER INPUTS

Figure 20. External Power Inputs

Backup Battery

The **BATT** terminal blocks allow the backup battery inside the enclosure to be connected to the DCP. *Use this backup battery connection only when the current supplied by the battery is less than 10 A.*

- » RED wire to + pin
- » BLACK wire to – pin

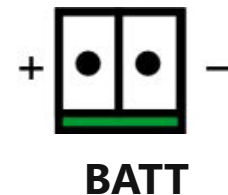


Figure 21. Backup Battery Connection

2.3.2 Sensor Interface Boards

The Sensor Interface Board is a modular assembly that plugs into the main board and can be changed to accommodate varying customer requirements. Two Sensor Interface Boards are available at this time. The x in the board type indicates the revision level for the board, for example, a B.3 Sensor Interface Board is a Sensor Interface Board at Revision B for use with non-Federal AWOS systems in the U.S.

- Sensor Interface Board x.2 (sensors for use outside the U.S.)
- Sensor Interface Board x.3 (sensors for use with non-Federal AWOS systems in the U.S.)

The general appearance of these boards is similar, but they are not interchangeable.

Section 3.3 provides specific configuration settings for the configurable COM ports and explains the DIP switch settings. Section 3.5.2 provides detailed information on how the Sensor Interface Boards are configured for the various sensors.

COM4 — Wind

The **J5** terminal block accommodates wind sensors with a serial interface. Terminal Block J14 and Pins 1 and 2 on Terminal Block **J5** provide the 24 V AC power for the AC heaters in wind sensors with AC heaters. The DIP switches at position S1D (Table 5) configure the **J5** terminal block according to the serial protocol used by the specific ultrasonic wind sensor.

2040 Series*	Full Duplex RS-485	*Certified for use in U.S. nonfederal systems
2041		
9620	Half Duplex RS-485	
WAC155*	Half Duplex RS-485	
WMT702*	Half Duplex RS-485	

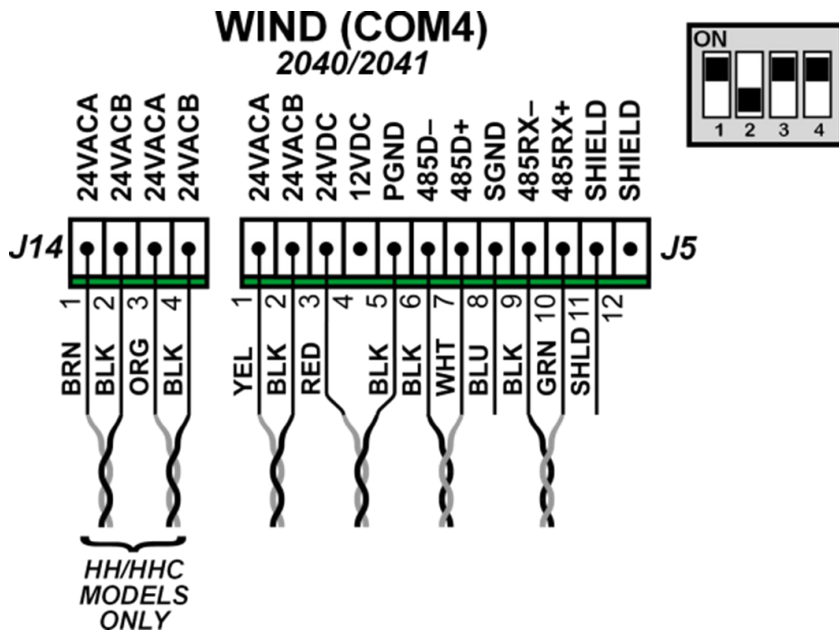


Figure 22. COM4 2040/2041 Ultrasonic Wind Sensor Connections

Each twisted pair in a 2040 cable uses a black wire as power ground or RX-/TX-. The colored wire in the pair can be used to identify the pair's function. Make sure to dress the end of the cable so that it is clear which black conductor belongs with each pair.

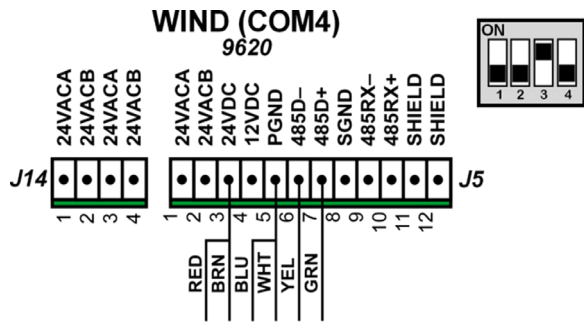


Figure 23. COM4 9620 Ultrasonic Wind Sensor Connections

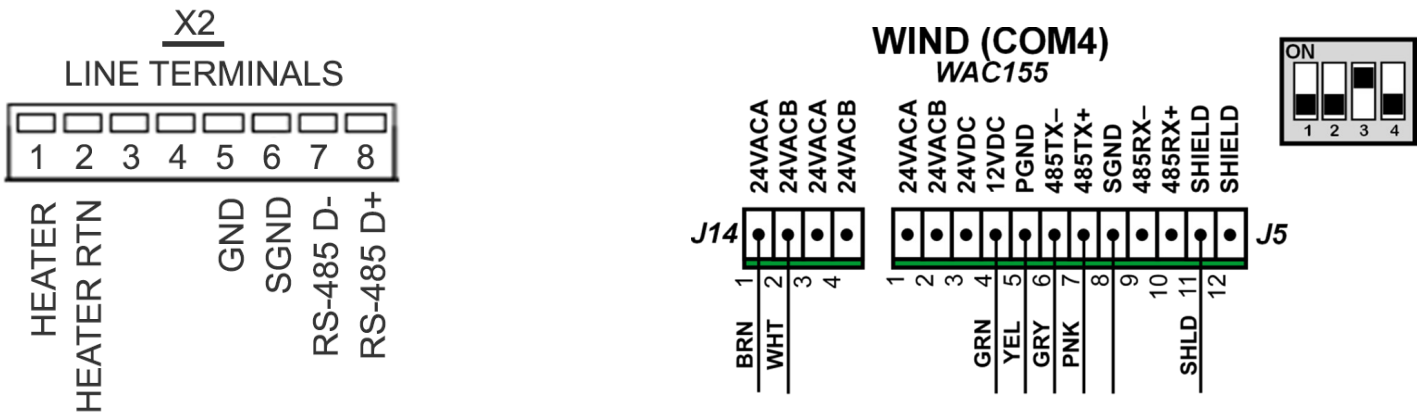


Figure 24. WAC 155 Serial Wind Transmitter Connections

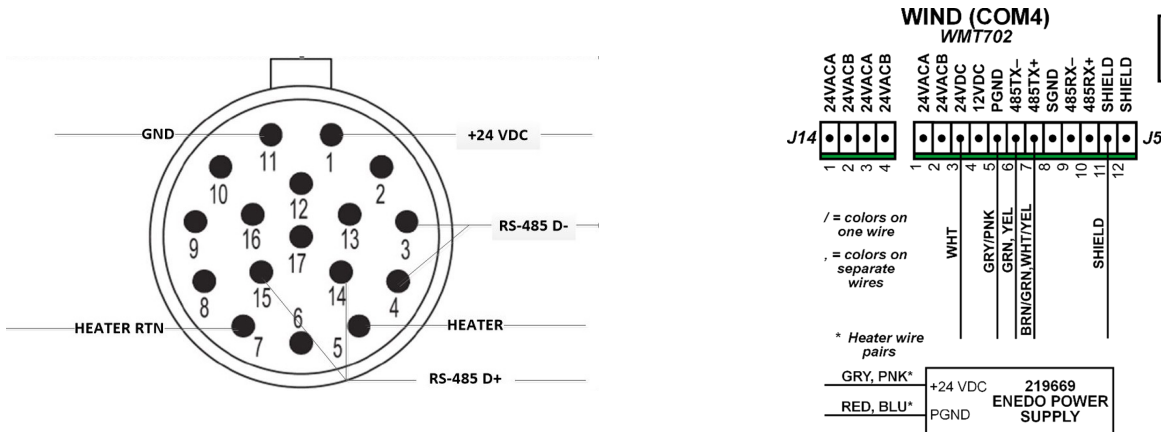


Figure 25. WMT702 Ultrasonic Wind Sensor Connections

COM5 — Lightning

The **J7** terminal block accommodates lightning sensors. The DIP switches at position S1B (Table 5) configure the **J7** terminal block according to the serial protocol used by the specific lightning sensor.

6500*	Half Duplex RS-485	*Certified for use in U.S. nonfederal systems
6500-DC*	Half Duplex RS-485	
SA20*/6500-SA20*	RS-232	

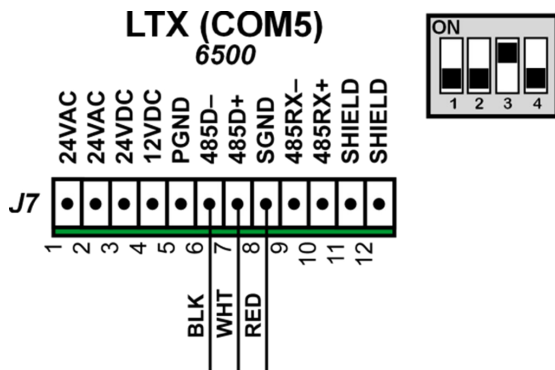


Figure 26. COM5 6500 Lightning Sensor Connections

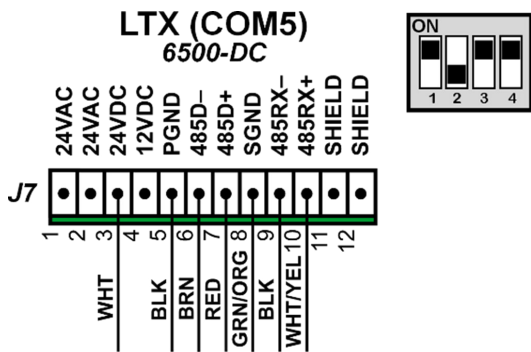


Figure 27. COM5 6500-DC Lightning Sensor Connections

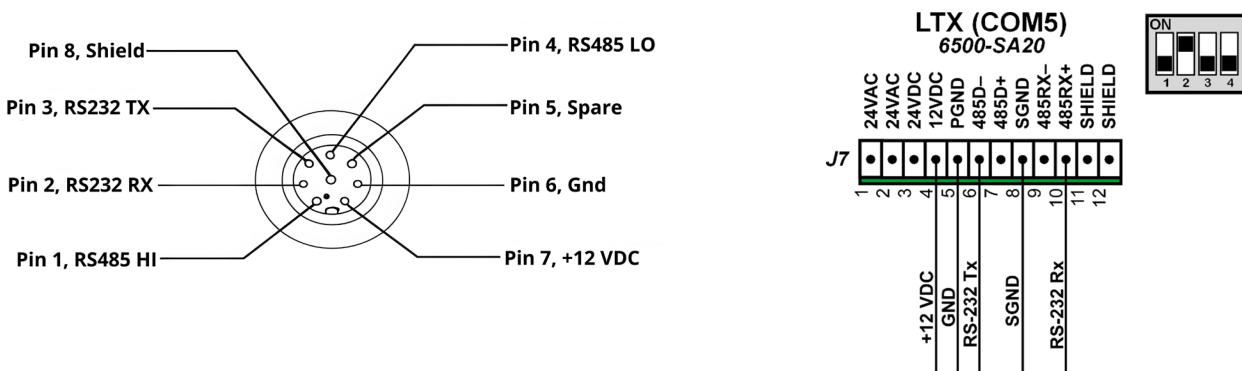


Figure 28. 6500-SA20 Lightning Sensor Connections

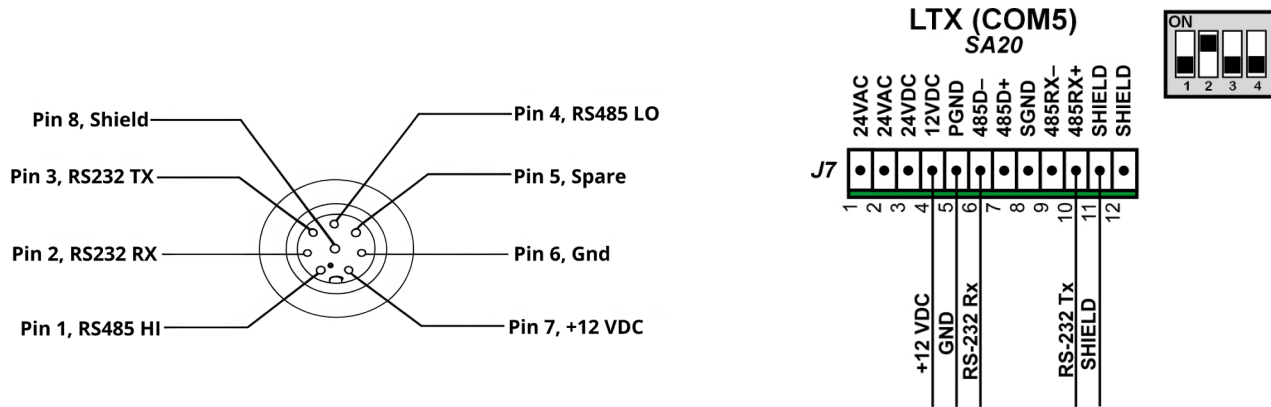


Figure 29. SA20 Lightning Sensor Connections

COM6 — CDP

The **J13** terminal block is used to connect the DCP to the CDP over a half-duplex RS-485 serial connection. Earlier versions of the Serial Interface Board did not have the SGND terminal — the SHIELD terminal was used for the signal ground.

CDP (COM6)

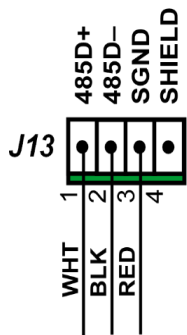


Figure 30. COM6 CDP Connections

COM 7 — Visibility/Present Weather

Use the J6 terminal block to connect either standalone Present Weather sensors or combined Present Weather/Visibility sensors. The DIP switches at position S1C (Table 5) configure the J6 terminal block according to the serial protocol used by the specific ultrasonic wind sensor.

6490 Present Weather sensor*	Half Duplex RS-485	*Certified for use in U.S. nonfederal systems
6490-I Present Weather sensor		
6498-P Present Weather sensor*		
6498-PV Present Weather/Visibility sensor*		
6498-DC-P Present Weather sensor*		
6498-DC-V Visibility sensor*		
6498-DC-PV Present Weather/Visibility sensor*		
Background Luminance Sensor	RS-232	
PWD22 Present Weather/Visibility sensor*		

Note that a Model 6490 Present Weather sensor cannot be used when one of the Direct Connect (6498-DC-...) Present Weather/Visibility sensors is connected to the J6 terminal block. If a Model 6490 Present Weather sensor is used, then the Model 6498-V or the Model 8364-E Visibility sensor connected to the J10 terminal block (COM12) must be used.

Use the **J10** terminal block described in **COM12** to connect standalone Visibility sensors.

- Model 6498-V Visibility sensor
- Model 8364/8365 Visibility sensor

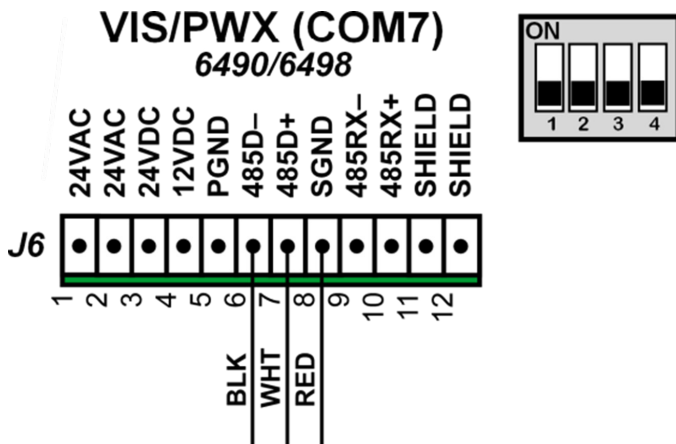


Figure 31. COM7 6490/6498 Present Weather/ Visibility Sensor Connections

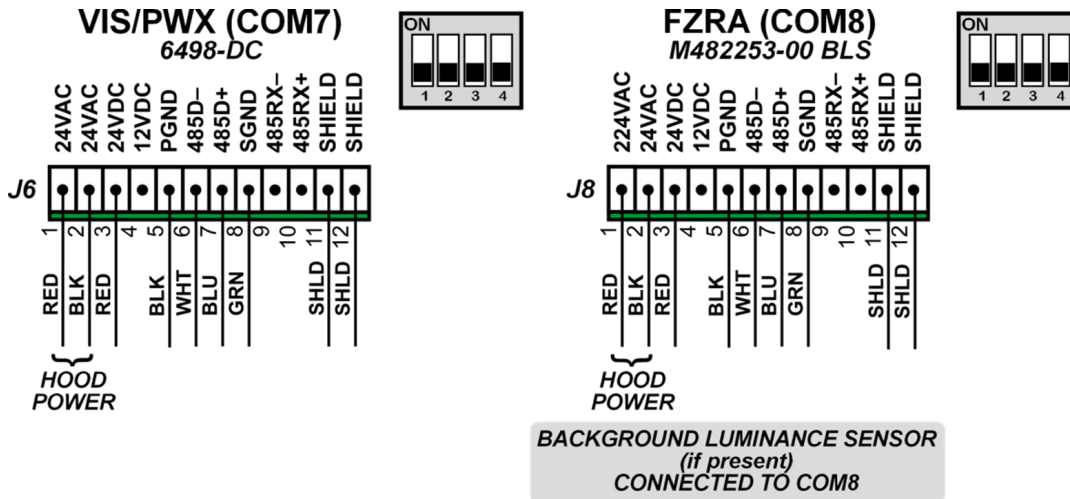


Figure 32. COM7 6498-DC Present Weather/ Visibility Sensor Connections

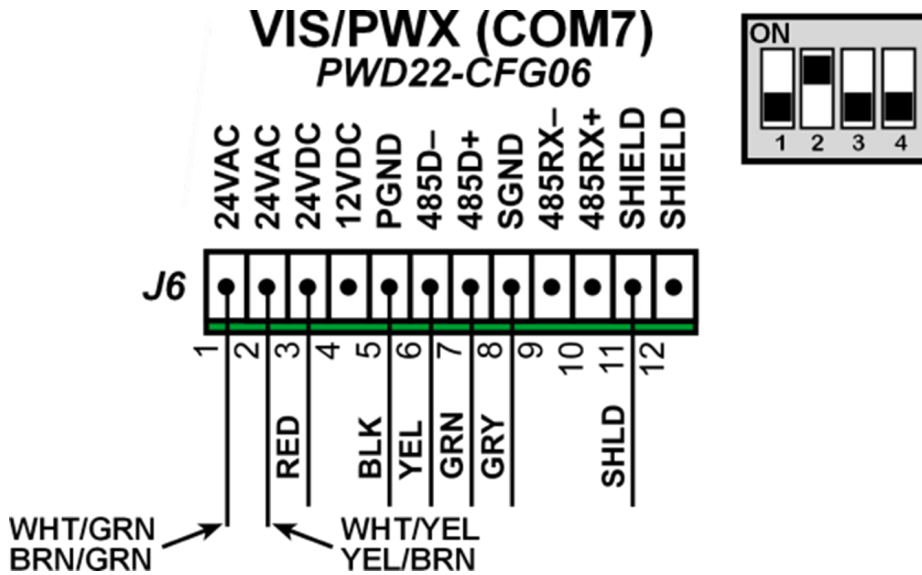


Figure 33. COM7 PWD22 Present Weather/ Visibility Sensor Connections

COM8 — Freezing Rain

The J8 terminal block accommodates freezing rain sensors. The DIP switches at position S1A (Table 5) configure the J5 terminal block according to the serial protocol used by the specific freezing rain sensors.

6495*	RS-232	*Certified for use in U.S. nonfederal systems
872C3*		

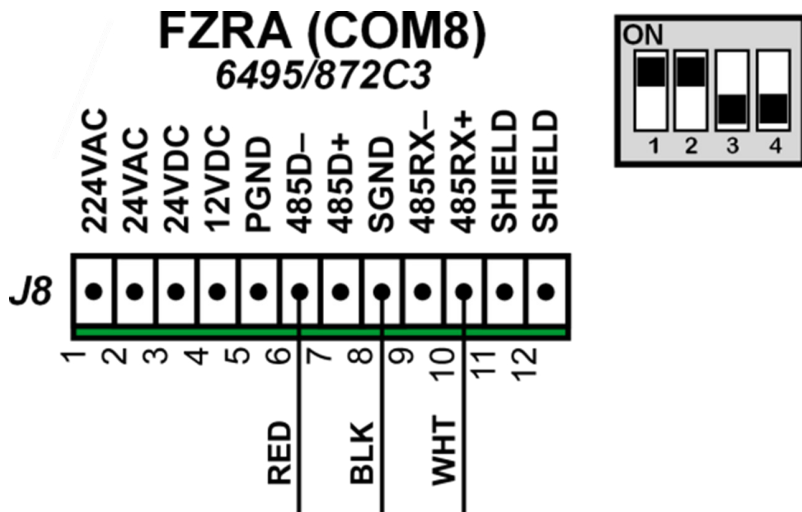


Figure 34. COM8 Freezing Rain Sensor Connections

COM9 — CHI

The J22 terminal block is used to connect Ceilometers to the DCP over an RS-232 serial connection.

8339-FAA*	RS-232	*Certified for use in U.S. nonfederal systems
8339/8340		
CL31-CFG01*		

**CHI (COM9)
8339-FAA/8339/8340**

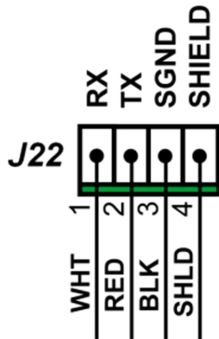


Figure 35. COM9 8339/8340 Ceilometer Connections

**CHI (COM9)
CL31-CFG01**

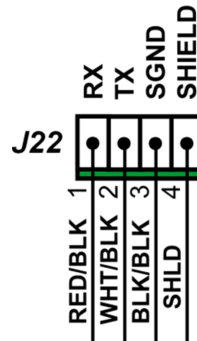
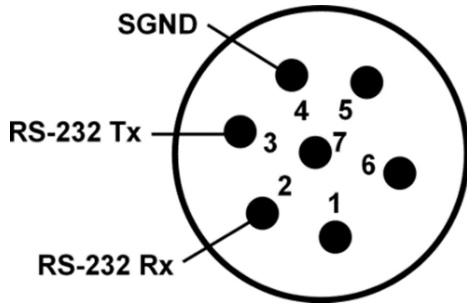


Figure 36. COM9 CL31-CFG01 Ceilometer Connections

COM10 — SURFACE

The J4 terminal block accepts a heading input from a NEMA 0183 compliant heading sensor with 2-wire RS 485. Connect the SGND to SHIELD.

There is also 12 VDC on this terminal block to support the Model 6900 surface condition sensors over an RS 485 serial connection.

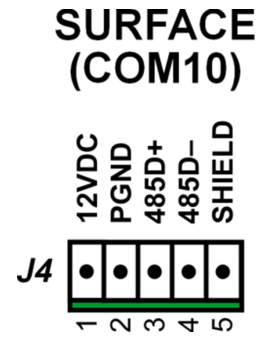


Figure 37. COM10 Surface Sensor Connections

COM11 — TEMP/RH PROBE

The J9 terminal block accommodates serial Temperature/Relative Humidity probes.

HMP155-CFG06*		
5190-G	Half Duplex RS-485	*Certified for use in U.S. nonfederal systems
5191		

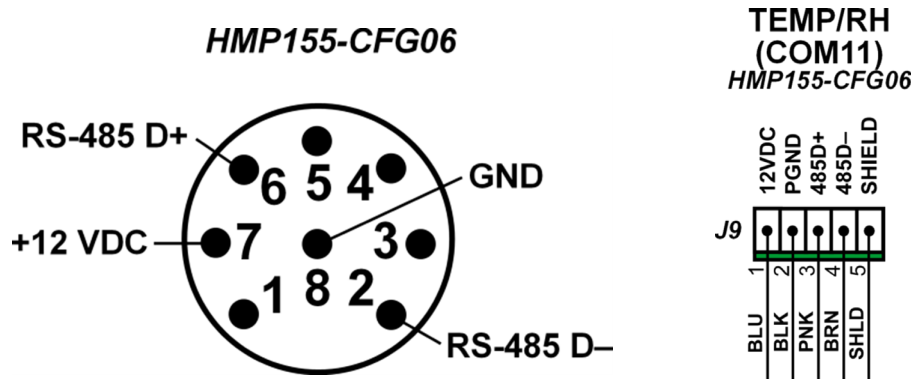


Figure 38. COM11 HMP155 CFG-06 Temperature/Relative Humidity Probe Connections

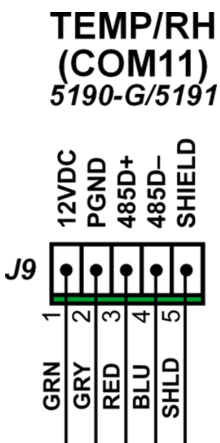


Figure 39. COM11 5190-G/5191 Temperature/ Relative Humidity Probe Connections

COM12 — VIS 8364/5

Use the **J10** terminal block to connect standalone Visibility sensors.

Use the **J6** terminal block described in **COM 7** to connect either standalone Present Weather sensors or combined Present Weather/Visibility sensors.

- Model 6490 Present Weather sensor
- Model 6490-I Present Weather sensor
- Model 6498-P/6498-DC-P Present Weather sensor
- Model 6498-PV/6498-DC-PV Present Weather/Visibility sensor

6498-V Visibility sensor*	Half Duplex RS-485	*Certified for use in U.S. nonfederal systems
8364/8365 Visibility sensor*		

**VIS 8364/5
(COM12)
8364/8365**

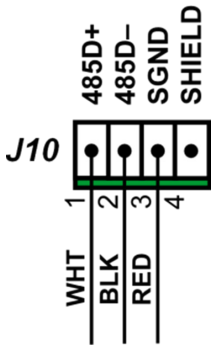


Figure 40. COM12 8364/8365 Visibility Sensors Connections

COM13 — NADIN

The **J20** terminal block is available for NADIN connections at 9600 8N1.

**VIS 8364/5
(COM12)
8364/8365**

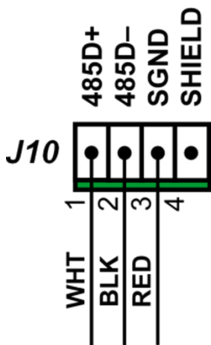


Figure 41. COM13 NADIN Connections

AUX — Pyranometer

The **J16** terminal block accommodates a solar radiation sensor. The circuitry measures the voltage output of the pyranometer. The voltage depends on the solar radiation intensity.

3016 Pyranometer
3120 Silicon Cell Pyranometer

Table 6 explains the DIP switch settings, which are used to set the auxiliary voltage gain. The gain is normally set to 50.

Terminal Block Wiring Summary

- V+ wire to Pin 1
- V- wire to Pin 2
- SHIELD (if present) to Pin 3

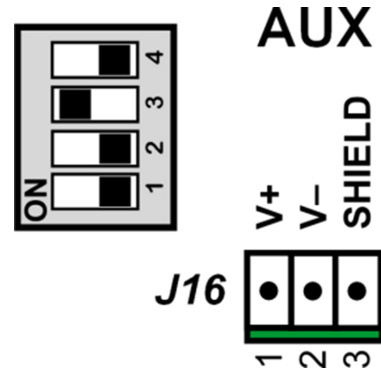


Figure 42. Pyranometer Pinout

WSPEED — Wind Speed Sensor

The **J17** terminal block accommodates mechanical wind speed sensors. The circuitry measures the frequency information from the wind speed sensor. The frequency depends on the wind speed.

Model 2030 Anemometer*	* Certified for use in U.S. nonfederal systems
------------------------	--

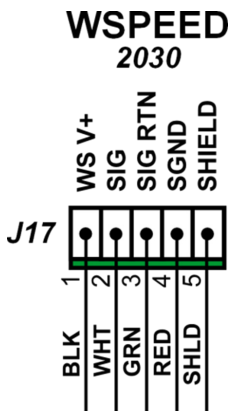


Figure 43. WSPEED 2030 Anemometer Connections

WDIR — Wind Direction Sensor

The **J18** terminal block accommodates the mechanical wind direction sensors. The circuitry measures the voltage across a variable resistor on the wind direction sensor. The resistance depends on the wind direction.

Model 2020 Wind Vane*	*Certified for use in U.S. nonfederal systems
-----------------------	---

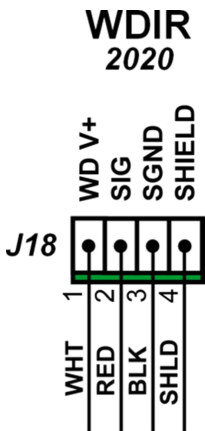


Figure 44. WDIR 2020 Wind Vane Connections

TEMP/RH ANALOG — Analog Temperature/Relative Humidity Probe

The **J11** terminal block accommodates analog Temperature/Relative Humidity probes. The probe needs to have a 0–1 VDC output for both temperature and relative humidity. The range needs to correspond to -40°C to 60°C.

5190-F Temperature/Relative Humidity Probe*	*Certified for use in U.S. nonfederal systems
---	---

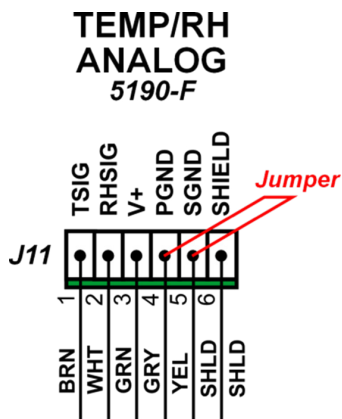


Figure 45. Analog 5190-F Temp/RH Probe Connections

When connecting the Model 5190-F Temperature/ Relative Humidity Probe, a jumper wire is required between the PGND and SGND connections. This is because these lines had to be kept separate to allow the analog HMP155 Temperature/Relative Humidity Probe to be connected if this probe was being used.

MARS — MARS Radiation Shield

The **J12** terminal block accommodates the Motor Aspirated Radiation Shield (MARS). It provides power to the MARS.



NOTE

The SWITCH and SGND terminals are not supported at this time.

8190 Series*	*Certified for use in U.S. nonfederal systems
RM Young 43408F-4A*	

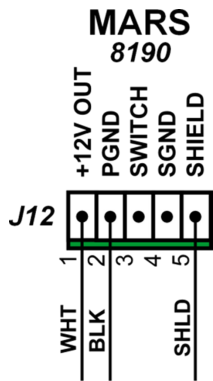


Figure 46. 8190 MARS Connections

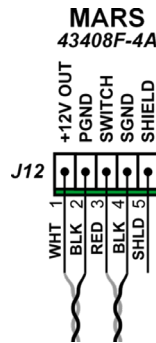
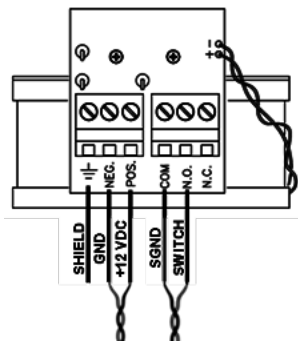


Figure 47. RM Young 43408F-4A MARS Connections

RAIN — Rain Gauge

The **J19** terminal block accommodates the rain gauges. The circuitry counts bucket tips from the rain gauge.

6011/6012*	*Certified for use in U.S. nonfederal systems
6012*	
6021*	
6022*	
RGTE series	
TR-525I*	

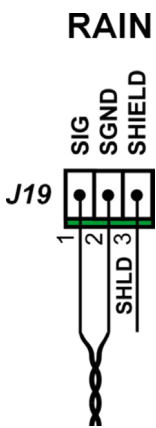


Figure 48. Rain Gauge Connections

D/N — Day/Night

The **J15** terminal block accommodates the M403582-00 Day/Night sensor used with the PWD22 Present Weather/Visibility Sensor.

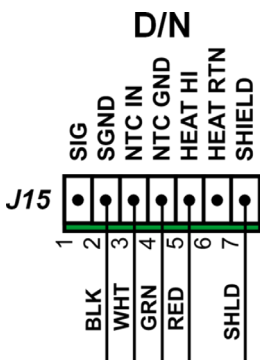


Figure 49. Day/Night Sensor Connections

2.3.3 AC Power Line

AC power connections are made inside the electronics enclosure. A 3-wire, single-phase AC source is required consisting of hot, neutral, and earth ground connections.



CAUTION

There are 120 VAC and 240 VAC models of the Model 1192 Data Collection. Check the local power supply voltage being connected to ensure the correct model is being wired based on the local voltage.



WARNING

There are 120 VAC and 240 VAC models of the Model 1192 Data Collection. Check the local power supply voltage being connected to ensure the correct model is being wired based on the local voltage.

1. Install a conduit fitting at the location shown in Figure 10. Feed the power cable through the conduit fitting. A 3-wire 16 to 18 AWG cable is recommended.
2. Connect the three power cable wires to the DIN rail terminal blocks to the side of the circuit breaker and surge suppressor (Figure 50).
 - » LINE to BLACK or BROWN
 - » NEUTRAL to WHITE or BLUE
 - » GROUND/EARTH to GREEN or GREEN/YELLOW

If there is no green terminal block, connect the green power cable wire to the ground bar at the bottom right of the enclosure.



Figure 50. AC Wiring to Terminal Blocks

2.4 Barometric Pressure Sensors

A Barometric Pressure sensor is installed inside the DCP enclosure using one of the 11926 series of Barometric Sensor Kits from Section 1.2.

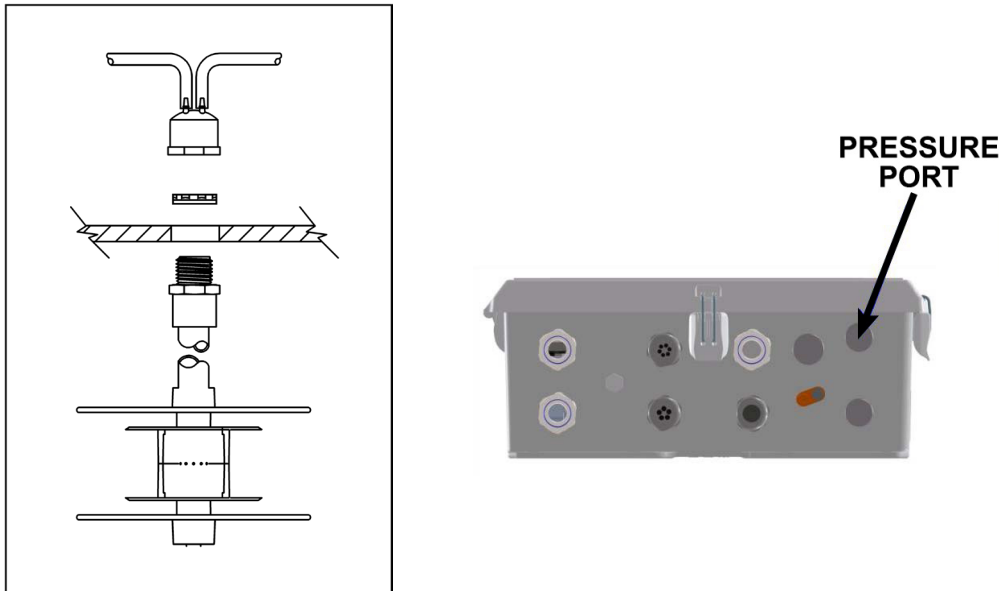


Figure 51. Install Pressure Port at Bottom of DCP Enclosure

1. Install the Pressure Port at the bottom of the enclosure as shown in Figure 51.
2. Attach the Barometric Pressure sensor to the enclosure backplane using the hardware supplied.
3. Connect the Pressure Port tubes from the pressure port to the pressure ports on the Barometric Pressure sensor.
4. Run the M493090-00 cable from the DB9 connector on the Barometric Pressure sensor to the BP header on the main board as explained in Section 2.3.

Figure 52 shows the installed Barometric Pressure sensor.

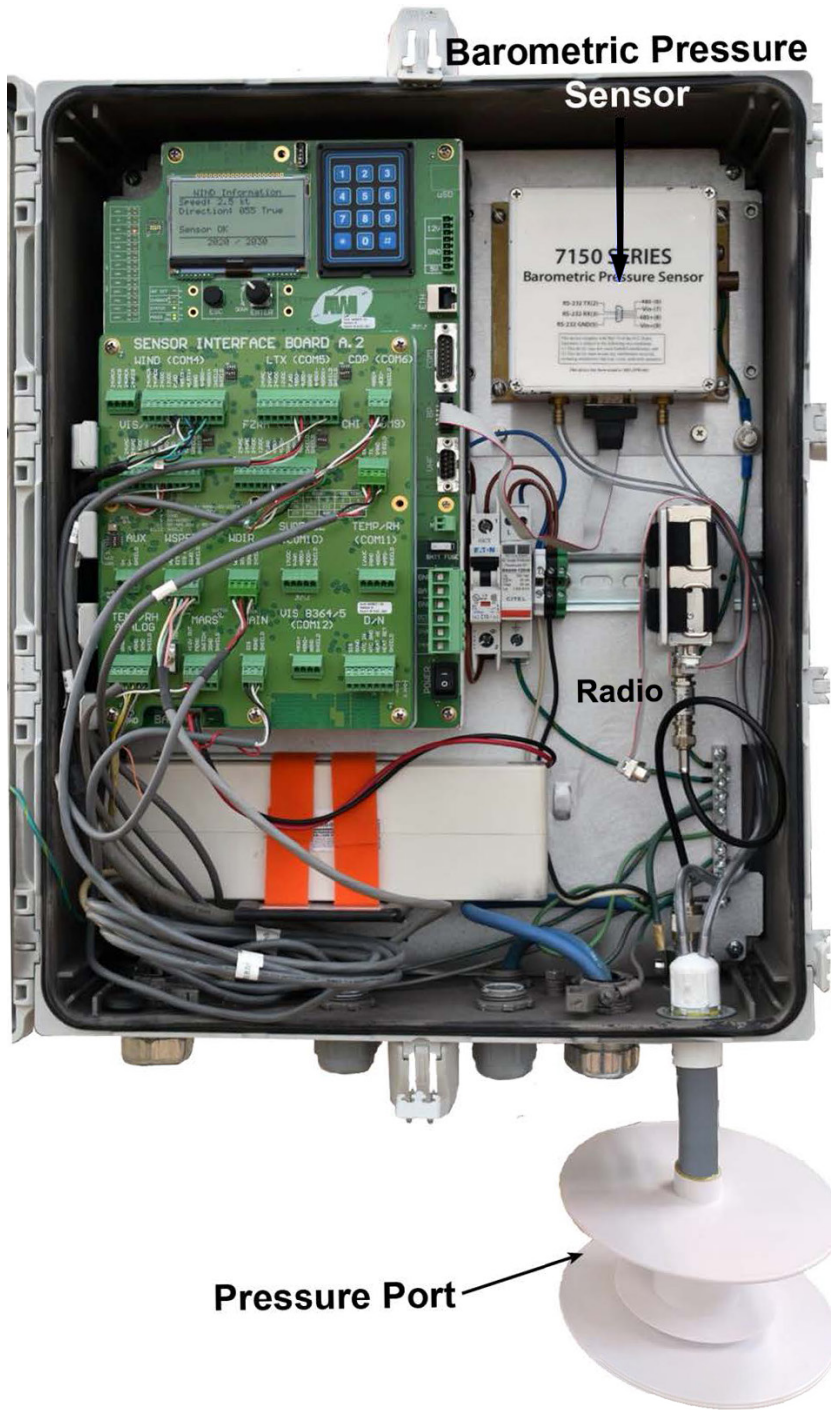


Figure 52. Locations of Barometric Pressure Sensor and Radio Inside DCP Enclosure

2.5 CDP Communication Options

The maximum distance for the RS-485 serial line accessed via COM6 on the Sensor Interface Board is 4000 ft (1200 m).

Other options may be used for longer distances. These are the possible communication options.

- UHF radio
- Ethernet
- Spread-Spectrum radio (Spread-Spectrum radios are not authorized for use with non-Federal AWOS systems in the U.S.)
- Point-to-Point Wi-Fi radio
- Short Haul modem
- Fiber optic modem

Figure 52 shows a UHF radio installed inside the DCP enclosure to allow the DCP to communicate with the Central Data Processor (CDP) running AWOS display software.

The radio options require an antenna to be mounted nearby, usually on the tower above the DCP as shown in Figure 53. Figure 10 shows the location on the bottom of the enclosure that would be used for the antenna cable. The radio options usually require the antenna on the tower to be in a line of sight with the other antenna connected to the corresponding radio for the CDP.

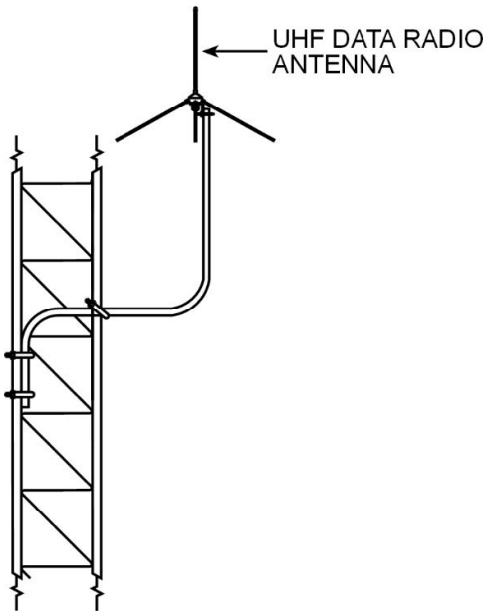


Figure 53. UHF Antenna Mounted to Tower

3. Operation

3.1 General

The Model 1192 Data Collection Platform (DCP) is designed for use with DBT and ADB Safegate, Inc. AWOS aviation weather systems. The DCP collects data from the AWOS sensors, performs error detection on the received information, converts the sensors' data into engineering units, and transmits a message packet containing sensor data and status information to the AWOS system upon request.

3.2 LED Indicators

LED indicators are located to the left of the LCD/keypad on the Main Board. The functions are described in detail below.









COM Port Activity

The COM LEDs illuminate to indicate Tx or Rx activity on the respective serial COM ports.

COM 1	UHF radio or RS-232 CDP connection
BP	Barometric Pressure sensors
GPS	GPS receiver
COM4	Serial based wind sensors
COM5	Thunderstorm/Lightning Detector
COM6	CDP RS-485 connection
COM7	Combined Present Weather/Visibility sensor or standalone Present Weather sensor
COM8	Freezing Rain sensor
COM9	Ceilometer
COM10	Surface Condition sensors
COM11	Serial Temperature/Relative Humidity probe
COM12	Standalone Visibility sensor
COM13	NADIN via RS-232 connection

Performance LEDs

CHARGER- The two LEDs indicate the charging status for the backup battery; see Section 3.3 for more information

S0	S1	
		not charging, battery fault or shutdown
		float charge, charge on the batteries is maintained at an optimum level, also known as trickle charge
		absorption charge, charging tapered within 80–90% of full voltage
		bulk charge, charge at maximum rate until 80–90% of full voltage is reached

STATUS- Normal operation, flashes twice a sec

POWER- Separate LEDs indicates the DCP is powered and/or AC power is present

SYS indicates that the DCP is powered

HEAT means that AC power is present

3.3 Battery-Charging Circuit

The battery charger for the backup battery supports a three-stage lead-acid charging profile, and is enabled/disabled using the Factory System Configuration described in Section 3.8.11. The default is for the battery charger to be turned on.

The bulk charging stage of the charge profile, the first stage of three-stage battery charging, is a constant-current charging stage, with the maximum programmed charge current forced into the battery. This continues until the battery voltage approaches the absorption voltage set in the charger configuration.

As the bulk charging stage completes and the battery voltage rises to approach the configured value, the charger transitions into the absorption stage, the second stage of three-stage battery charging. During the absorption stage, the required charge current is steadily reduced. This is a constant-voltage charging stage, as the battery voltage is maintained close to the required value.

When the absorption stage charge current is reduced to one-tenth of the maximum charger current ($5\text{ A}/10 = 500\text{ mA}$), the charger will initiate the third stage in the charge profile, the float charging stage. Once the float charging stage is initiated, the battery reference voltage is reduced to 92.5% of the configured voltage. The maximum charge current is reduced to one-fifteenth of the programmed maximum ($5\text{ A}/15 = 333\text{ mA}$). Once float charging is achieved, the charger remains active and will attempt to maintain the float voltage on the battery indefinitely.

The typical absorption voltage for a six cell lead-acid battery is 14.4 VDC. This corresponds to a 13.3 VDC float voltage. The charge current can be set up to a maximum of 5 A.

A peak power voltage can be set in the charger configuration. This is useful in solar-powered systems or with poorly regulated external supplies. When the input voltage begins to collapse below this preset value, the charger will reduce the charge current to maintain the voltage. When this functionality is not needed, set the maximum power voltage to 14.4 VDC.

3.4 Serial Settings

Some serial ports have fixed serial configurations; others may be configured using DIP switches. The configurable serial ports are set at the factory for the sensors described in this manual. Table 3 identifies the serial protocols used by sensors currently supported by the Model 1192 Data Collection Platform.

Protocol	Sensor	DCP COM Port
RS-422 (RS-485 Full Duplex)	Model 2040/2041 Ultrasonic Wind Sensor	COM4*
	Model 5190-G/5191 Temperature/Relative Humidity Probe	COM11
RS-485 (Half Duplex)	HMP155-CFG06 Temperature and Relative Humidity Probe	COM11
	WAC155 Serial Wind Transmitter	COM4*
	WMT702 Ultrasonic Wind Sensor	COM4*
	Model 9620 Ultrasonic Wind Sensor	COM4*
	Model 6490/6490-I/6498-P Present Weather Sensor	COM7*
	Model 6498-PV Present Weather/Visibility Sensor	COM7*
	Model 6498-V Visibility Sensor	COM12
	Model 6500 Thunderstorm/Lightning Detector	COM5*
	Model 7150/7190 Barometric Pressure Sensor	BP
	Model 8339/8340 Ceilometer	COM9†
	Model 8364/8365 Visibility Sensor	COM12
	Model 9620 Compact Weather Sensors	COM4
	RS-232	SA20 Thunderstorm/Lightning Sensor
PWD22 Present Weather and Visibility Sensor		COM7*
Model 6495 Freezing Rain Sensor		COM8*
Model 7150/7190/PTB330 Barometric Pressure Sensor		BP
Model 8339/8340/ CT25K/ CL31K Ceilometer		COM9

Table 3. Serial Protocols Used by Sensors

* These COM ports are configurable for various serial protocols (see Table 4)

† Although the Model 8339/8340 Ceilometers output both RS-232 and RS-485 (half duplex), the default Ceilometer COM port (COM9) is RS-232 only

3.4.1 DIP Switches



NOTE

The DIP switch assemblies are set at the factory for the connections described in Section 2.3.2.

Two sets of DIP switch assemblies on the Sensor Interface Board (SIB) are used to set configuration parameters for the DCP. The configuration and setting of these switches are outlined below.

The four S1A to S1D switches specify RS-232 or RS-485 communication between the DCP and a particular serial COM port. Table 4 identifies the serial protocols for the pins on the terminal blocks that can be set with these DIP switches.

Pin	RS-485 (Full Duplex)	RS-485 (Half Duplex)	RS-232
6	RS-485 Tx-	RS-485 D-	RS-232 Tx
7	RS-485 Tx+	RS-485 D+	—
8	SGND	SGND	SGND
9	RS-485 Rx-	—	—
10	RS-485 Rx+	—	RS-232 Rx

Table 4. Serial Protocol Options for COM4, COM5, COM7, COM8

Table 5 shows the switch settings for each serial protocol option. The specific settings set at the factory are shown in Section 2.3.2 and should not need to be changed.

DIP Switch Setting	Mode		RS-485 Termination	
	1	2	3	4
ON	Full Duplex	RS-232	Tx	Rx
OFF	Half Duplex	RS-485	OFF	OFF

Table 5. S1A–S1D DIP Switch Settings

The S2 switches are used to set the auxiliary voltage gain for the solar radiation sensor connected to the AUX terminal block. The gain is normally set to 50.

Table 6 shows the switch settings. DIP Switch 4 is not used.

Selection	DIP Switch Setting			
	1	2	3	4
Aux Gain 1	ON	OFF	OFF	
Aux Gain 10	OFF	ON	OFF	
Aux Gain 50	OFF	OFF	ON	

Table 6. S2 DIP Switch Settings for Solar Radiation Sensor

3.5 Display Screens

An LCD display screen and a keypad inside the enclosure are used to view sensor data, perform maintenance checks, and configure the specific Sensor Interface Board (SIB) installed in the DCP. The DCP screens are explained in the following sections.

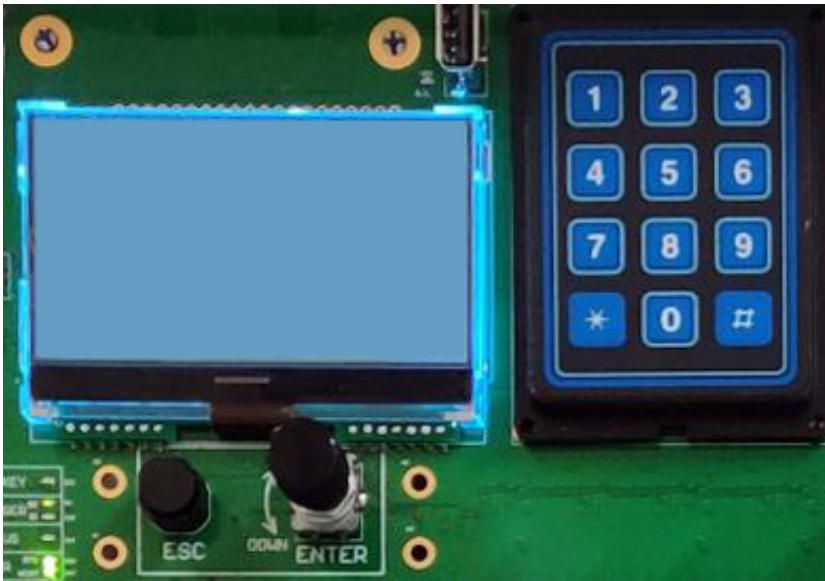


Figure 54. LCD Screen and Keypad

Navigation

It is possible to move through the screens using either by rotating the **ENTER** button below the LCD screen or by using the * and # keys on the keypad.

- When using the ENTER button, rotate the ENTER button either clockwise or counterclockwise as shown by the arrow. Each subsequent click will display the next screen.
- When using the * and # keys on the keypad, press the # key to move to the next screen or press the * key to move to the previous screen.
- Follow the prompt on the LCD screen to confirm the selection by either clicking the ENTER button or touching the number indicated on the keypad.

The screens that are displayed subsequently have been customized to the Sensor Interface Board being used on that DCP. These Sensor Interface Boards are currently available, where x represents the revision level of the board.

- Sensor Interface Board x.2 (ADB Safegate sensors for use outside the U.S. — Section 3.5.1)
- Sensor Interface Board x.3 (ADB Safegate sensors for use with non-Federal AWOS systems in the U.S. — Section 3.5.2.)

Section 3.5.2 explains how the sensors displayed in these screens are selected and configured.

3.5.1 Sensor Interface Board x.2 (outside U.S.)

Launch Screen

A RAM test is performed when the DCP is turned on, and the results are displayed. If the RAM test fails, no further screens can be displayed; this indicates a fault in the Main Board.

The ADB Safegate will appear after a successful RAM test. As the ADB Safegate logo fades, the next screen displays the firmware version, the firmware build date, the serial number, and the UTC time.

<p>ADB SAFEGATE DCP III - Loader v. 1.0.1 RAM TEST OK</p>

<p>ADB SAFEGATE DCP III - 4.4.0 240213.003357 SN: 4B-CF-08 2024-06-18 22:06:23</p>

Wind Sensor Screens

The Wind sensor screens display the processed (wind information) and the raw (wind string) sensor data. The status of the wind sensor is shown on the wind information screen. The specific sensor is identified at the bottom of the screen; the screens are slightly different for the 2020/2030.

WIND Information
Speed: 23.50 kt Direction: 310.00 True Status: 00 No Error
2040

WIND Raw
A, 310, 023.50, 00, 05
2040

SIB x.2

The exact details of the Status line depend on the model of wind sensor.

If there is a broken wire in the connection between the wind sensor and the DCP, the message Sensor Disconnected will appear on the WIND Information screen instead of No Error.

For the mechanical wind sensors, these messages may appear instead of No Error.

- WIND_OK
- WIND_SPEED_STUCK
- WIND_VANE_STUCK
- WIND_VANE_WIPER_INOP
- WIND_NOT_ENOUGH_SAMPLES

Visibility and Present Weather Sensor Screens

The Visibility and Present Weather sensor screens display the processed sensor data (visibility and present weather information), the sensor status, and the raw sensor data (visibility and present weather strings). The specific sensor is identified at the bottom of the screen.

The specific information shown depends on the sensor connected to the VIS/PWX COM7 terminal block at J6. This information will be shown for a sensor capable of reporting both Present Weather and Visibility.

A separate screen provides the information provided by the Background Luminance Sensor (ALS) or the Day/Night Sensor (DN), depending on which sensor is installed.

VIS Information
MOR (m) 62978.0 MOR (SM) 39.13 Ext. Coeff. 0.0767
6498

ALS/DN Information
D/N: DAY
6498

PWX Information
Weather: R+ Precipitation: 0.75 Sensor Temp: 24.50C
6498

VIS/PWX Status
OK
6498

ALS STATUS
OK
6498

VIS String
= 2.00 0048 0000 00 04 10 2 1 0 0 0 75 06
6498

PWX String
=W_P.00050000 X4 19L-H129T078 0 41 A842
6498

ALS STRING
6498

Information
Input: 0.000 [V] Day/Night: D
Day / Night

SIB x.2

The information on the next screens will be shown for a sensor capable of reporting only Present Weather.

PWX Information
Weather: R+ Precip: 0.75
6490-I

PWX Status
OK
6490-I

PWX String
=W_ _P.00050000 X4 19L-H129T078 0 41 A842
6490-I

The PWX weather information shown is truncated to the first two characters of the Precipitation Intensity being reported if the Precipitation Intensity is more than two characters. For example, +RA would just be shown as R+ on the PWX weather information screen. The complete Precipitation Intensity is processed by the DCP and is forwarded to the CDP.

Table 7 provides the present weather codes that can be reported.

SIB x.2

Code	Meaning	Code	Meaning	Code	Meaning
L-	Light Drizzle	P-	Light Precipitation	ZL	Freezing Drizzle
L	Moderate Drizzle	P	Moderate Precipitation		Freezing Rain
L+	Heavy Drizzle	P+	Heavy Precipitation		No Precipitation
R-	Light Rain	I-	Light Ice Pellet (optional)	—	Start-Up Indicator
R	Moderate Rain	I	Moderate Ice Pellet (optional)	ER	Error Condition
R+	Heavy Rain	I+	Heavy Ice Pellet (optional)	CL	Lenses require cleaning
S-	Light Snow	A-	Light Hail (optional)		
S	Moderate Snow	A	Moderate Hail (optional)		
S+	Heavy Snow	A+	Heavy Hail (optional)		

Table 7. Presented Weather Codes Reported by Present Weather Sensors

Ceilometer Screens

The Ceilometer screens display the processed cloud heights for up to four cloud layers, the sensor status (cloud status), and the raw data (cloud string). The specific sensor is identified at the bottom of the screen.

Cloud Information
CLD 1: 6500 ft
CLD 2: 8000 ft
CLD 3: 10200 ft
CLD 4: 12500 ft
8339 / 8340

Cloud Status
Status: 000000
System OK
8339 / 8340

Cloud String
TR100 000000 06500 0125
08000 0250 10200 0100
12500 0075 0000 00000
c097
8339 / 8340

Temperature/Relative Humidity Screens

The Temperature/Relative Humidity screens display information supporting the collection of temperature and relative humidity data. The specific sensor is identified at the bottom of the screen.

- Processed data (T / RH information), including the MARS status
- Raw data (T / RH voltages), including the current through the MARS

T / RH Information
T: -20.2C / -4.3F
DP: -28.4C / -19.2F
RH: 47.4
MARS OK
5190-F

T / RH Voltages
Temp: 0.198 [V]
RH: 0.474 [V]
MARS: 0.15 [A]
5190-F

The MARS fan may fail, there might be a break or short circuit in its wires, or the air flow may become obstructed. When it happens the current draw will differ from the factory-calibrated value (Section 3.8.11 **MARS Configuration**) and a Mars FAN FAIL message will be displayed.

SIB x.2

Barometric Pressure Screens

The Barometric Pressure sensor screens display the processed (BP information) and the raw (BP string) sensor data. The specific sensor (7150 or PTB330) is identified at the bottom of the screen.

BP Information	
S1:	29.920
S2:	29.920
7150 Dual	

BP Offsets	
RAW + OFFSET = BP	
29.920+0.000=29.920	
29.920+0.000=29.920	
7150 Dual	

BP String		
29.920	29.920	**.***
00	00.000	00
7150 Dual		

Rain Gauge Screen

The Rain Gauge screen displays the raw (TBRG information) sensor data consisting of the number of tips and the total tips. The current tip number counts from 0 to 99 and will roll over from 99 to 0.

TBRG Information	
Current Tips	
07	
Total Tips	
207	
Tipping Bucket	

SIB x.2

Freezing Rain Screens

The Freezing Rain screens display the processed sensor data (FZRA information, the vibration frequency of the freezing rain sensor probe), the sensor status, and the raw sensor data (FZRA string). The specific sensor is identified at the bottom of the screen.

The options are also provided to deice or calibrate the sensor. Sensor calibration only done at the factory and should not be performed in the field.

FZRA Information
Freq: 40000 Hz
6495

FZRA Status
Pass
6495

FZRA DEICE/CAL
1 to DEICE sensor 2 to CAL sensor
6495

FZRA String
ZP 40000BE
6495

SIB x.2

The FZRA calibration screen display used to calibrate the Freezing Rain Sensor is intended for factory use only. **Do not attempt to calibrate the Freezing Rain sensor in the field.**

Lightning Screens

The Lightning screens display the processed sensor data (LTX information), the sensor status, and the raw sensor data (LTX string). The specific sensor is identified at the bottom of the screen.

LTX Information
LTX at Airport or VC No Strikes < 10 mi LTX Distant No Strikes > 10 mi
6500

LTX Strike Rate
Strike Rate 15/min
6500

LTX Status
Normal Weather Data SPE00MA01XXN00000R00 00 - No Faults Data Errors: 0
6500

LTX String
A>0>_>_>APE00MA01 XXNN00000R0000VB1.234 >0>0>DF0D
6500

Visibility Sensor Screens

The Visibility sensor screens display the processed sensor data (visibility information), the sensor status, and the raw sensor data (visibility strings). The specific sensor is identified at the bottom of the screen.

VIS Information
Ext. Coeff. 2.0000 Status: OK
8364 / 8365

VIS Configuration
Configuration Normal
8364 / 8365

If an error is detected, the VIS Configuration screen will display one of the following messages.

8364/8365	Other Sensors
Setup Error Clean Lenses Configuration Error Data Missing 3 Headed Operation Other Error	Clean Lenses Data Missing Vis Conf Err. Use STD 10s, 3min, ext, mi, 1200 CHECK Visibility POWER and COMM LINES

VIS Status
Status Normal
8364 / 8365

If the screen shows Visibility Failure, one of the following error codes will also be displayed.

Code	Meaning	Code	Meaning
MODE0D	Mode 0 direct error	E0	Emitter 0 failure
MODE0I	Mode 0 indirect error	E1	Emitter 1 failure
MODE1D	Mode 1 direct error	EOHT	Emitter 0 heater failure
MODE1I	Mode 1 indirect error	E1HT	Emitter 1 heater failure
D0	Detector 0 failure	ALHT	ALS head or Day/Night Sensor heater failure
D1	Detector 1 failure	XCHK	Crosscheck error
D0HT	Detector 0 heater failure	PS	Power supply failure
D1HT	Detector 1 heater failure		

SIB x.2

VIS Power
On AC Power
8364 / 8365

VIS String
= 2.00 0048 0000 00 04 10 2 1 0 0 0 75 06
8364 / 8365

The VIS Power display may also show On Battery Power or Sensor Not Installed.

VIS Calibration/Test
1 to Calibrate Sensor 2 to Test, # to Exit
8364 / 8365

Enter the desired character on the keypad to continue when this screen is reached.

Section 3.9 provides additional information on using these screens to calibrate.

SIB x.2

Solar Radiation Screen

The Solar Radiation screen displays the current value in volts of the auxiliary input channel.

AUX Information
Input: 0.041 [V]
AUX / SOLAR RAD

Section 3.14 describes how to increase the precision of the solar radiation measurements if this is needed.

Heading Screens

The Heading screen displays heading information, whether the Heading mode is on or off, whether the heading data expire, and the true heading (HDT) string.

HEADING INFO
Heading: 21.00 Mode: ON, Expire
VESSEL HEADING

The heading is in degrees relative to true North and ranges from 0°–360°.

HDT String
\$HEHDT,21.00,T*2e
VESSEL HEADING

GPS Screen

The GPS screen displays GPS information, GPS satellite information, the GPS position, the GSV string for GPS satellites in view (GSV), and the recommended minimum specific GPS/transit data (RMC) string.

GPS Information
GPS Signal Acquired Time: 2024/06/26 18:12:53Z
ON-BOARD GPS

This screen displays

- GPS systems (selected during GPS configuration)
- total number of satellites seen
- number of satellites with SNR > 0
- highest SNR seen

(SNR is the signal-to-noise ratio)

Network	TOT	NUM	SNR
GPS	12	9	27
GALILEO	2	2	24
ON-BOARD GPS			

SIB x.2

GPS Position
Latitude: 38.6487 Longitude: -121.4886
ON-BOARD GPS

GSV String
\$GPVSV,3,1,11,04,71 ,014,20,03,58,178,17 ,1648,099,22,09,45, 306,18*77
ON-BOARD GPS

RMC String
\$GNRMC,182333.000,A ,3906.1353,N,12133.9 666,W,0.10,179.20,23 0121,,A*69
ON-BOARD GPS

System Status Screens

The System Status screens display the DCP status.

System Status
Status: OK Battery Chg: Idle Network: DOWN SD Card: Searching . . USB: OK

The main System Status screen shows the DCP status, whether the battery charger is active or idle, whether the network is up or down, and the status for the SD card and the USB drive (Searching..., Mounting..., or OK).

System Detail
VIN: 36.3 V FET Temp: 28.0 degC CHG Cur: -0.09 A CPU Temp: 37.3 degC RTC: 3.24 V

The System Detail screen shows the detailed system diagnostic information.

- Main input voltage – the highest voltage among the AC input (rectified), DC input, and battery voltages
- FET temperature – Main DC/DC power supply operating temperature
- Battery charger current
- CPU temperature
- RTC battery voltage

The RTC backup battery should be replaced when the RTC battery voltage drops below 2.0 V. See Section 4.2.

SIB x.2

Battery Charger
FLOAT CHARGE Current: -0.09 A Voltage: 12.79 V

The Battery Charger screen shows the detailed battery charging information.

- FLOAT CHARGE is displayed when the rechargeable battery (if used) is in the final charging stages or when no battery is connected; see Section 3.3 for additional information
- The current and the voltage indicate the current and voltage being supplied by the battery charger

Network
Link Up IP: 192.168.5.5 NM: 255.255.255.0 GW: 192.168.5.1
STATIC

The Network screen shows the Network status.

- Network link Up or Down
- IP address
- Net Mask
- Gateway
- Whether IP address is static or DHCP

RTOS Status
uP Usage: 18.0 Mem Usage: 94.5

The RTOS screen shows the percentage of microprocessor and memory use.

Logging Status
Level: Normal Status: Normal Pending Loss: 0 Memory free: 100% SD Card free: 19%

The Logging screen summarizes logging activity and memory availability.

Network
Link Up IP: 192.168.5.5 NM: 255.255.255.0 GW: 192.168.5.1
STATIC

The Network screen shows the Network status.

- Network link Up or Down
- IP address
- Net Mask
- Gateway

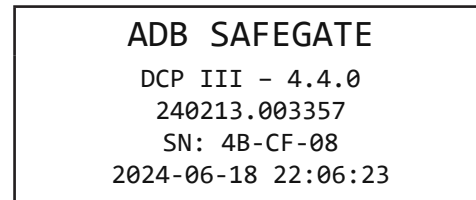
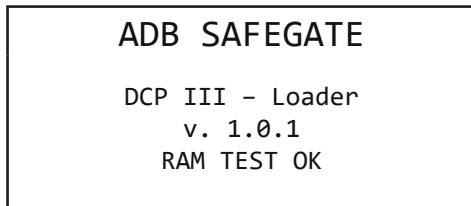
Whether IP address is static or DHCP

3.5.2 Sensor Interface Board x.3 (U.S. non-Federal AWOS)

Launch Screen

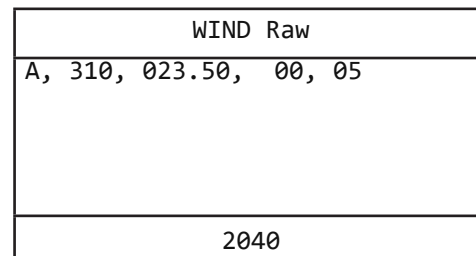
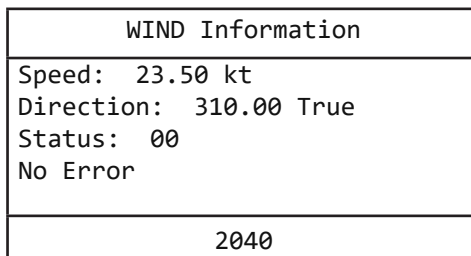
A RAM test is performed when the DCP is turned on, and the results are displayed. If the RAM test fails, no further screens can be displayed; this indicates a fault in the Main Board.

The ADB Safegate will appear after a successful RAM test. As the ADB Safegate logo fades, the next screen displays the firmware version, the firmware build date, the serial number, and the UTC time.



Wind Sensor Screens

The Wind sensor screens display the processed (wind information) and the raw (wind string) sensor data. The status of the wind sensor is shown on the wind information screen. The specific sensor is identified at the bottom of the screen; the screens are slightly different for the 2020/2030.



SIB x.3

The exact details of the Status line depend on the model of wind sensor.

If there is a broken wire in the connection between the wind sensor and the DCP, the message Sensor Disconnected will appear on the WIND Information screen instead of No Error.

For the mechanical wind sensors, these messages may appear instead of No Error.

- WIND_OK
- WIND_SPEED_STUCK
- WIND_VANE_STUCK
- WIND_VANE_WIPER_INOP
- WIND_NOT_ENOUGH_SAMPLES

Visibility and Present Weather Sensor Screens

The Visibility and Present Weather sensor screens display the processed sensor data (visibility and present weather information), the sensor status, and the raw sensor data (visibility and present weather strings). The specific sensor is identified at the bottom of the screen.

The specific information shown depends on the sensor connected to the VIS/PWX COM7 terminal block at J6.

- Model 6490 Present Weather sensor
- Model 6498-P Present Weather sensor
- Model 6498-PV Present Weather/Visibility sensor
- PWD22-CFG06 Present Weather/Visibility sensor

This information will be shown for a sensor capable of reporting both Present Weather and Visibility.

A separate screen provides the information provided by the Day/Night Sensor (DN).

VIS Information
MOR (m) 62978.0 MOR (SM) 39.13 Ext. Coeff. 0.0767
6498

ALS/DN Information
D/N: DAY
6498

PWX Information
Weather: R+ Precipitation: 0.75 Sensor Temp: 24.50C
6498

VIS/PWX Status
OK
6498

VIS String
= 2.00 0048 0000 00 04 10 2 1 0 0 0 75 06
6498

PWX String
=W_ _P.00050000 X4 19L-H129T078 0 41 A842
6498

Information
Input: 0.000 [V] Day/Night: D
Day / Night

SIB x.3

The information on the next screens will be shown for a sensor capable of reporting only Present Weather.

PWX Information
Weather: R+ Precip: 0.75
6490

PWX Status
OK
6490

PWX String
=W_ _P.00050000 X4 19L-H129T078 0 41 A842
6490

SIB x.3

The PWX weather information shown is truncated to the first two characters of the Precipitation Intensity being reported if the Precipitation Intensity is more than two characters. For example, +RA would just be shown as R+ on the PWX weather information screen. The complete Precipitation Intensity is processed by the DCP and is forwarded to the CDP.

Table 8 provides the present weather codes that can be reported.

Code	Meaning	Code	Meaning	Code	Meaning
L-	Light Drizzle	P-	Light Precipitation	ZL	Freezing Drizzle
L	Moderate Drizzle	P	Moderate Precipitation		Freezing Rain
L+	Heavy Drizzle	P+	Heavy Precipitation		No Precipitation
R-	Light Rain	I-	Light Ice Pellet (optional)	—	Start-Up Indicator
R	Moderate Rain	I	Moderate Ice Pellet (optional)	ER	Error Condition
R+	Heavy Rain	I+	Heavy Ice Pellet (optional)	CL	Lenses require cleaning
S-	Light Snow	A-	Light Hail (optional)		
S	Moderate Snow	A	Moderate Hail (optional)		
S+	Heavy Snow	A+	Heavy Hail (optional)		

Table 8. Presented Weather Codes Reported by Present Weather Sensors

Ceilometer Screens

The Ceilometer screens display the processed cloud heights for up to four cloud layers, the sensor status (cloud status), and the raw data (cloud string). The specific sensor is identified at the bottom of the screen.

- 8339-FAA Ceilometer
- CL25K Ceilometer
- CL31-CFG01Ceilometer

Cloud Information
CLD 1: 6500 ft
CLD 2: 8000 ft
CLD 3: 10200 ft
CLD 4: 12500 ft
8339 / 8340

Cloud Status
Status: 000000
System OK
8339 / 8340

Cloud String
TR100 000000 06500 0125
08000 0250 10200 0100
12500 0075 0000 00000
c097
8339 / 8340

SIB x.3

Temperature/Relative Humidity Screens

The Temperature/Relative Humidity screens display information supporting the collection of temperature and relative humidity data. The specific sensor is identified at the bottom of the screen.

- Processed data (T / RH information), including the MARS status
- Raw data (T / RH voltages), including the current through the MARS

T / RH Information	
T:	-20.2C / -4.3F
DP:	-28.4C / -19.2F
RH:	47.4
MARS	OK
5190-F	

T / RH Voltages	
Temp:	0.198 [V]
RH:	0.474 [V]
MARS:	0.15 [A]
5190-F	

The MARS fan may fail, there might be a break or short circuit in its wires, or the air flow may become obstructed. The MARS fan may fail, there might be a break or short circuit in its wires, or the air flow may become obstructed.

- When it happens in the 8190 MARS the current draw will differ from the factory-calibrated value (Section 3.8.11 MARS Configuration) and a Mars FAN FAIL message will be displayed.
- When it happens in the RM Young 43408F-4A MARS the flow switch will trigger the Mars FAN FAIL message to be displayed.

SIB x.3

Barometric Pressure Screens

The Barometric Pressure sensor screens display the processed (BP information) and the raw (BP string) sensor data. The specific sensor (7150 or PTB330) is identified at the bottom of the screen.

BP Information	
S1:	29.924
S2:	29.926
7150	

BP String	
29.924	29.926 **.***
19	0.044 00
7150	

Rain Gauge Screen

The Rain Gauge screen displays the raw (TBRG information) sensor data consisting of the number of tips and the total tips. The current tip number counts from 0 to 99 and will roll over from 99 to 0.

TBRG Information	
Current Tips	07
Total Tips	207
Tipping Bucket	

Freezing Rain Screens

The Freezing Rain screens display the processed sensor data (FZRA information, the vibration frequency of the freezing rain sensor probe), the sensor status, and the raw sensor data (FZRA string). The specific sensor is identified at the bottom of the screen.

The options are also provided to deice or calibrate the sensor. Sensor calibration only done at the factory and should not be performed in the field.

FZRA Information
Freq: 40000 Hz
6495

FZRA Status
Pass
6495

FZRA DEICE/CAL
1 to DEICE sensor 2 to CAL sensor
6495

FZRA String
ZP 40000BE
6495

SIB x.3

The FZRA calibration screen display used to calibrate the Freezing Rain Sensor is intended for factory use only. **Do not attempt to calibrate the Freezing Rain sensor in the field.**

Lightning Screens

The Lightning screens display the processed sensor data (LTX information), the sensor status, and the raw sensor data (LTX string). The specific sensor is identified at the bottom of the screen.

LTX Information
LTX at Airport or VC No Strikes < 10 mi LTX Distant No Strikes > 10 mi
6500

LTX Strike Rate
Strike Rate 15/min
6500

LTX Status
Normal Weather Data SPE00MA01XXN0000R00 00 - No Faults Data Errors: 0
6500

LTX String
A>0>_>_>APE00MA01 XXNN0000R0000VB1.234 >0>0>DF0D
6500

Visibility Sensor Screens

The Visibility sensor screens display the processed sensor data (visibility information), the sensor status, and the raw sensor data (visibility strings). The specific sensor is identified at the bottom of the screen.

VIS Information
Ext. Coeff. 2.0000 Status: OK
8364 / 8365

VIS Configuration
Configuration Normal
8364 / 8365

If an error is detected, the **VIS Configuration** screen will display one of the following messages.

8364/8365	Other Sensors
Setup Error Clean Lenses Configuration Error Data Missing 3 Headed Operation Other Error	Clean Lenses Data Missing Vis Conf Err. Use STD 10s, 3min, ext, mi, 1200 CHECK Visibility POWER and COMM LINES

VIS Status
Status Normal
8364 / 8365

If the screen shows **Visibility Failure**, one of the following error codes will also be displayed.

Code	Meaning	Code	Meaning
MODE0D	Mode 0 direct error	E0	Emitter 0 failure
MODE0I	Mode 0 indirect error	E1	Emitter 1 failure
MODE1D	Mode 1 direct error	E0HT	Emitter 0 heater failure
MODE1I	Mode 1 indirect error	E1HT	Emitter 1 heater failure
D0	Detector 0 failure	ALHT	ALS head or Day/Night Sensor heater failure
D1	Detector 1 failure	XCHK	Crosscheck error
D0HT	Detector 0 heater failure	PS	Power supply failure
D1HT	Detector 1 heater failure		

VIS Power
On AC Power
8364 / 8365

VIS String
= 2.00 0048 0000 00 04 10 2 1 0 0 0 75 06
8364 / 8365

The VIS Power display may also show On Battery Power or Sensor Not Installed.

VIS Calibration/Test
1 to Calibrate Sensor 2 to Test, # to Exit
8364 / 8365

Enter the desired character on the keypad to continue when this screen is reached.

Section 3.9 provides additional information on using these screens to calibrate.

Heading Screens

The Heading screen displays heading information, whether the Heading mode is on or off, whether the heading data expire, and the true heading (HDT) string.

HEADING INFO
Heading: 21.00 Mode: ON, Expire
VESSEL HEADING

The heading is in degrees relative to true North and ranges from 0°–360°.

HDT String
\$HEHDT,21.00,T*2e
VESSEL HEADING

GPS Screen

The GPS screen displays GPS information, GPS satellite information, the GPS position, the GSV string for GPS satellites in view (GSV), and the recommended minimum specific GPS/transit data (RMC) string.

GPS Information
GPS Signal Acquired Time: 2024/06/26 18:12:53Z
ON-BOARD GPS

Network	TOT	NUM	SNR
GPS	12	9	27
GALILEO	2	2	24
ON-BOARD GPS			

GPS Position
Latitude: 38.6487 Longitude: -121.4886
ON-BOARD GPS

GSV String
\$GPVSV,3,1,11,04,71 ,014,20,03,58,178,17 ,1648,099,22,09,45, 306,18*77
ON-BOARD GPS

RMC String
\$GNRMC,182333.000,A ,3906.1353,N,12133.9 666,W,0.10,179.20,23 0121,,A*69
ON-BOARD GPS

This screen displays

- GPS systems (selected during GPS configuration)
- Total number of satellites seen
- Number of satellites with snr > 0
- Highest snr seen

(SNR is the signal-to-noise ratio)

SIB x.3

System Status Screens

The System Status screens display the DCP status.

System Status
Status: OK Battery Chg: Idle Network: UP STATIC SD Card: Searching . . USB: OK

The main System Status screen shows the DCP status, whether the battery charger is active or idle, whether the network is up or down, and the status for the SD card and the USB drive (Searching..., Mounting..., or OK).

System Detail
VIN: 36.3 V FET Temp: 28.0 degC CHG Cur: -0.09 A CPU Temp: 37.3 degC RTC: 3.24 V

The System Detail screen shows the detailed system diagnostic information.

- Main input voltage – the highest voltage among the AC input (rectified), DC input, and battery voltages
- FET temperature – Main DC/DC power supply operating temperature
- Battery charger current
- CPU temperature
- RTC battery voltage

The RTC backup battery should be replaced when the RTC battery voltage drops below 2.0 V. See Section 4.2.

Battery Charger
FLOAT CHARGE Current: -0.09 A Voltage: 12.79 V

The Battery Charger screen shows the detailed battery charging information.

- FLOAT CHARGE LED is displayed when the rechargeable battery (if used) is in the final charging stages or when no battery is connected; see Section 3.3 for additional information
- The current and the voltage indicate the current and voltage being supplied by the battery charger

RTOS Status
uP Usage: 18.0 Mem Usage: 94.5

The RTOS screen shows the percentage of microprocessor and memory use.

Logging Status
Level: Normal Status: Normal Pending Loss: 0 Memory free: 100% SD Card free: 19%

The Logging screen summarizes logging activity and memory availability.

Network
Link Up IP: 192.168.5.5 NM: 255.255.255.0 GW: 192.168.5.1
STATIC

The Network screen shows the Network status.

- Network link Up or Down
- IP address
- Net Mask
- Gateway

Whether IP address is static or DHCP

SIB x.2

3.6 Configuration Information

The configuration information is stored in EEPROMs on the main board and on the Sensor Interface Board.

- The EEPROM on the Sensor Interface Board stores configuration information, including the SIB number (shown on the Sensor Interface Board as A.x, where x is the SIB number),
- The Main Board has 2 EEPROMs. One stores the system configuration and the other is used to store the MAC address assigned to the Sensor Interface Board (the last three octets of this MAC address are shown on the LCD Display as the serial number). The EEPROM storing the MAC address is read only and cannot be configured.

The Main Board supports both microSD cards and USB flash drives for the purpose of updating the configuration. These devices can be used to import or export the configuration information stored in the EEPROMs using the configuration menus on the LCD Display. Figure 12 shows the locations of the microSD card slot and the USB port. Sections 3.8.3 and 3.8.4 explain how to save or import the calibration information using a microSD card or a USB drive respectively.

Note that the microSD card slot is on the back side of the Main Board. There are two configuration files.

- **configuration_x.properties** resides in the EEPROM on the Main Board, where x is the SIB number, x.2 or x.3).
- **configuration_sib.properties** resides in the EEPROM on the Sensor Interface Board and stores the System/Factory settings, including the SIB number. This file can only be set by the Factory and cannot be saved, changed, or imported by the user.

The microSD card and USB flash drive have to be formatted as FAT, FAT32, or exFAT to be recognized by the system.

Section 3.7.1.14 explains how the system configurations are set.

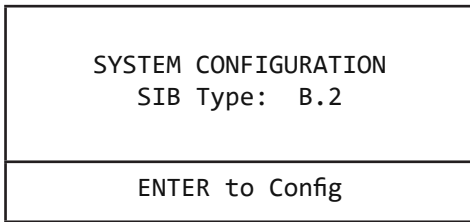
3.7 Sensor Configuration Screens

The System Configuration screens are Display screens used to configure the Sensor Interface Board (SIB) for the sensors connected to it. These screens follow the Display screens described in Section 3.5 and may be accessed by scrolling through the screens (Figure 54). The configuration data are stored in the configuration EEPROM on the Sensor Interface Board.

Power cycle the DCP to reboot it once the configuration changes are made for the changes to take effect.

3.7.1 Sensor Interface Board x.2 (outside U.S.)

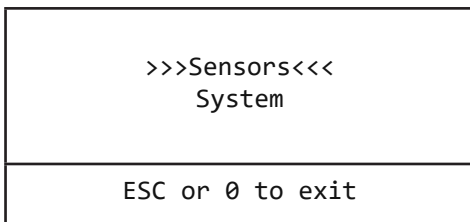
The launch screen for the System Configuration screens identifies the SIB type (see Section 2.3.2), which is also stored in the EEPROM. Press the ENTER button below the LCD screen (Figure 54) to begin the configuration.



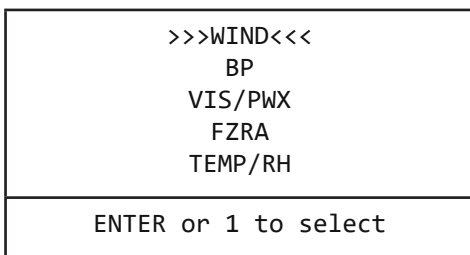
Once the configuration process is under way, the **ESC or 0 to exit** and **ENTER or 1 to select** options will alternate at the bottom of the screen. Either click the **ESC** or **ENTER** button below the LCD display or click the number on the keypad to make the selection.

SIB x.2

Rotate the **ENTER** button below the LCD display or use the * and # keys on the keypad to scroll through the options. The option selected is between the >>> <<< symbols.



Select Sensors to configure the sensors.



Select the sensor that will be configured.

- | | |
|---------|-----------|
| Wind | VIS |
| BP | SOLAR |
| VIS/PWX | LTX |
| FZRA | TBRG |
| TEMP/RH | DAY/NIGHT |
| RAD | SURFACE |
| CEILO | HEADING |

3.7.1.1 Wind Sensor

WIND SENSOR
None 2020/2030 >>>2040/2041<<< 962x
ENTER or 1 to select

Select the Wind sensor connected to the DCP from the available options.

3.7.1.2 Barometric Pressure Sensor

BP SENSOR
None >>>7150 Dual<<< 7150-A Triple 7150-B Single
ENTER or 1 to select

Select the BP sensor connected to the DCP from the available options.

- 7150 Dual
- 7150-A Triple
- 7150-B Single
- PTB330 Dual
- PTB330-A Triple
- PTB330-B Single

3.7.1.3 Present Weather Sensors

PWX SENSOR
None 6490 6490-I >>>6498 Legacy<<<
ENTER or 1 to select

Select the Present Weather sensor connected to the DCP from the available options.

- 6490
- 6490-I
- 6498 Legacy
- 6498 Direct
- The 6498 Legacy option refers to a sensor in the Model 6498 series connected to the DCP via the Model 2715 Universal Power and Communication Module
- The 6498 Direct option refers to a sensor in the Model 6498 series connected using the Model 1192 DCP for power and communication

3.7.1.4 Freezing Rain Sensor

FZRA SENSOR
None >>>6495/872C3<<<
ENTER or 1 to select

Select the Freezing Rain sensor connected to the DCP from the available options.

SIB x.2

3.7.1.5 Temperature/Relative Humidity Probes

TRH SENSOR
None >>>5190-F<<< 5190-G 5191
ENTER or 1 to select

Select the Temperature/Relative Humidity probe connected to the DCP from the available options.

- 5190-F
- 5190-G
- 5191
- 962x

3.7.1.6 MARS Radiation Shield

RAD SHIELD
None >>>MARS 8190<<< SARS
ENTER or 1 to select

Select the Radiation Shield for the Temperature/ Relative Humidity probe connected to the DCP from the available options.

3.7.1.7 Ceilometers

CEILOMETER
None >>>8339/8340<<<
ENTER or 1 to select

Select the Ceilometer connected to the DCP from the available options.

- 8339 all variants
- 8340 all variants

3.7.1.8 Visibility Sensors

VIS SENSOR
None 8364 / 8365 >>>6498 Legacy<<< 6498 Direct
ENTER or 1 to select

Select the Visibility sensor connected to the DCP from the available options.

- The 6498 Legacy option refers to a sensor in the Model 6498 series connected to the DCP via the Model 2715 Universal Power and Communication Module
- The 6498 Direct option refers to a sensor in the Model 6498 series connected using the Model 1192 DCP for power and communication

SIB x.2

3.7.1.9 Solar Radiation

SOLAR RADIATION
None >>>3022<<< 3016 962x
ENTER or 1 to select

Select the Solar Radiation sensor connected to the DCP from the available options.

3.7.1.10 Thunderstorm/Lightning Detector

LTX SENSOR
None >>>6500<<<
ENTER or 1 to select

Select the Lightning sensor connected to the DCP from the available options.

3.7.1.11 Tipping Bucket Rain Gauges

TBRG SENSOR
None >>>0.01 in<<< 0.1mm 0.2 mm
ENTER or 1 to select

Select the Tipping Bucket Rain Gauge connected to the DCP from the available options.

- 0.01 in
- 0.1 mm
- 0.2 mm
- 962x

3.7.1.12 Day/Night Sensor

DAY NIGHT
None >>>OFF-BOARD<<< ON-BOARD
ENTER or 1 to select

Select the Day/Night sensor connected to the DCP from the available options.

3.7.1.13 Surface Sensor

SURFACE
ENTER or 1 to select

Surface sensors are not supported at this time.

SIB x.2

3.7.1.14 Heading

HEADING
None >>>HDT Heading<<<
ENTER or 1 to select

Select whether True Heading data will be used by the DCP.

3.7.2 Sensor Interface Board x.3 (U.S. non-Federal AWOS)

The launch screen for the System Configuration screens identifies the SIB type (see Section 2.3.2), which is also stored in the EEPROM. Press the **ENTER** button below the LCD screen (Figure 54) to begin the configuration.

SYSTEM CONFIGURATION SIB Type: B.3
ENTER to Config

Once the configuration process is under way, the ESC or 0 to exit and ENTER or 1 to select options will alternate at the bottom of the screen. Either click the ESC or ENTER button below the LCD display or click the number on the keypad to make the selection.

Rotate the **ENTER** button below the LCD display or use the * and # keys on the keypad to scroll through the options. The option selected is between the >>> <<< symbols.

>>>Sensors<<< System
ESC or 0 to exit

Select Sensors to configure the sensors.

>>>WIND<<< BP VIS/PWX FZRA TEMP/RH
ENTER or 1 to select

Select the sensor that will be configured.

- | | |
|---------|-----------|
| Wind | CEILO |
| BP | VIS |
| VIS/PWX | LTX |
| FZRA | TBRG |
| TEMP/RH | DAY/NIGHT |
| RAD | HEADING |

SIB x.3

3.7.2.1 Wind Sensor

WIND SENSOR
None 2020/2030 >>>2040<<< WMT702
ENTER or 1 to select

Select the Wind sensor connected to the DCP from the available options.

- 2020/2030
- 2040
- WMT702
- WAC155

3.7.2.2 Barometric Pressure Sensor

BP SENSOR
None >>>7150<<< 7190 PTB330
ENTER or 1 to select

Select the BP sensor connected to the DCP from the available options.

3.7.2.3 Present Weather Sensors

PWX SENSOR
None 6490 >>>6498 Legacy<<< 6498 Direct
ENTER or 1 to select

Select the Present Weather sensor connected to the DCP from the available options.

- 6490
- 6498 Legacy
- 6498 Direct
- PWD22-CFG06

The 6498 Legacy option refers to a sensor in the Model 6498 series connected to the DCP via the Model 2715 Universal Power and Communication Module.

3.7.2.4 Freezing Rain Sensor

FZRA SENSOR
FZRA SENSOR None >>>6495/872C3<<<
ENTER or 1 to select

Select the Freezing Rain sensor connected to the DCP from the available options.

SIB x.3

3.7.2.5 Temperature/Relative Humidity Probes

TRH SENSOR
None >>>5190-F<<<< HMP155-CFG06 HMP45
ENTER or 1 to select

Select the Temperature/Relative Humidity probe connected to the DCP from the available options.

- 5190-F
- HMP155-CFG06
- HMP45

3.7.2.6 MARS Radiation Shield

RAD SHIELD
None >>>MARS 8190<<<< MARS 43408F-4A
ENTER or 1 to select

Select the Radiation Shield for the Temperature/ Relative Humidity probe connected to the DCP from the available options.

3.7.2.7 Ceilometers

CEILOMETER
None >>>8339-FAA<<<< CL31-CFG01
ENTER or 1 to select

Select the Ceilometer connected to the DCP from the available options.

3.7.2.8 Visibility Sensors

VIS SENSOR
None 8364-E >>>6498 Legacy<<<< 6498 Direct
ENTER or 1 to select

Select the Visibility sensor connected to the DCP from the available options.

- 8364-E
- 6498 Legacy
- 6498 Direct
- PWD22-CFG06

The 6498 Legacy option refers to a sensor in the Model 6498 series connected to the DCP via the Model 2715 Universal Power and Communication Module

SIB x.3

3.7.2.9 Thunderstorm/Lightning Detector

LTX SENSOR
None 6500 >>>6500-DC<<< SA20
ENTER or 1 to select

Select the Lightning sensor connected to the DCP from the available options.

3.7.2.10 Tipping Bucket Rain Gauges

TBRG SENSOR
None >>>6021-A/6011-A<<<
ENTER or 1 to select

Select the Tipping Bucket Rain Gauge connected to the DCP from the available options.

Select the same option for a Model 6022-A/ 6012-A rain gauge.

3.7.2.11 Day/Night Sensor

DAY NIGHT
None >>>OFF-BOARD<<< LCS-624D
ENTER or 1 to select

Select the Day/Night sensor connected to the DCP from the available options.

3.7.2.12 Heading

HEADING
None >>>HDT Heading<<<
ENTER or 1 to select

Select whether True Heading data will be used by the DCP.

SIB x.3

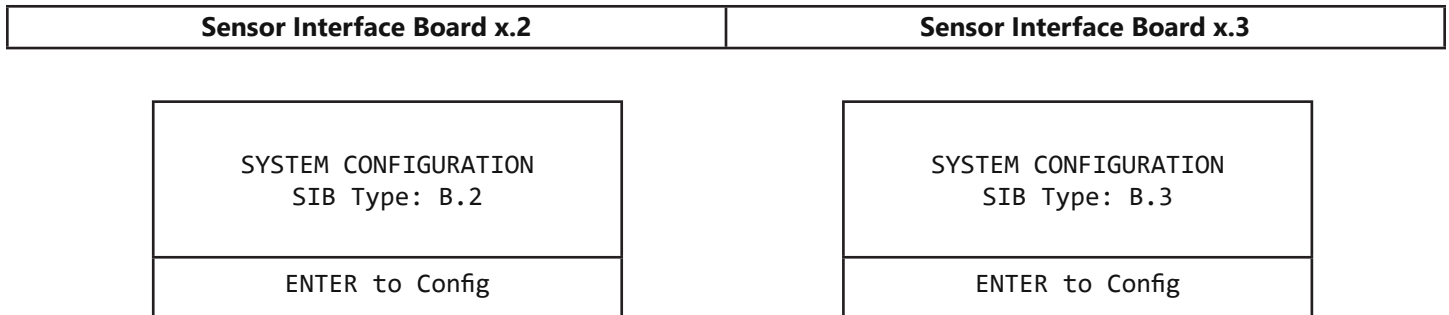
3.8 System Configuration Screens

The System Configuration screens are Display screens used to configure system-specific settings. These screens follow the Display screens described in Section 3.5 and may be accessed by scrolling through the screens (Figure 54). The configuration data are stored in the configuration EEPROM on the Sensor Interface Board.

Power cycle the DCP to reboot it once the configuration changes are made for the changes to take effect.

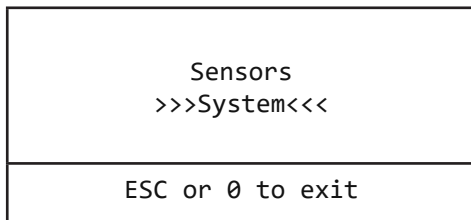
The launch screen for the System Configuration screens identifies the SIB type (see Section 2.3.2), which is stored in one of the EEPROMs on the Sensor Interface Board. The launch screen for each SIB type is shown.

Press the ENTER button below the LCD screen (Figure 54) to begin the configuration.

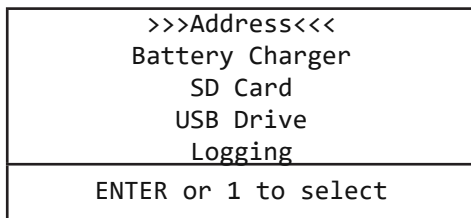


Once the configuration process is under way, the **ESC or 0 to exit** and **ENTER or 1** to select options will alternate at the bottom of the screen. Either click the **ESC** or **ENTER** button below the LCD display or click the number on the keypad to make the selection.

Rotate the ENTER button below the LCD display or use the * and # keys on the keypad to scroll through the options. The option selected is between the >>> <<< symbols.



Select System to configure the system.



Select which feature will be configured.

- | | |
|-----------------|-----------|
| Address | GPS |
| Battery Charger | UHF Radio |
| SD Card | VHF Radio |
| USB Drive | Heading |
| Communication | Factory |
| Logging | |

3.8.1 System Address

LTX SENSOR >>>Address<<< Battery Charger SD Card USB Drive Communication
ENTER or 1 to select

Select Address to set the system address.

0
ENTER or 1 to select

Rotate the ENTER button below the LCD screen (Figure 54) until the desired address is reached for the DCP.

The address is always 0 for non-Federal AWOS systems in the U.S.

3.8.2 Battery Charger

Address >>>Battery Charger<<< SD Card USB Drive Communication
ENTER or 1 to select

Select Battery Charger to configure the Battery Charger.

3.8.2.1 Battery Charge Current

>>>Charge Current<<< Voltage Max Voltage
ENTER or 1 to select

Select the Charge Current for the Battery Charger.

Charge Current 2.7
ENTER or 1 to select

Rotate the **ENTER** button below the LCD screen (Figure 54) until the desired current is for the backup battery.

Refer to Section 3.3 for more detailed information about the battery charging circuit.

3.8.2.2 Battery Voltage

Charge Current >>>Voltage<<< Max Voltage
ENTER or 1 to select

Select the Voltage for the Battery Charger.

Voltage 13.80
ENTER or 1 to select

Rotate the **ENTER** button below the LCD screen (Figure 54) until the desired voltage is reached for the backup battery.

Refer to Section 3.3 for more detailed information about the battery charging circuit.

3.8.2.3 Maximum Voltage

Charge Current Voltage >>>Max Voltage<<<
ENTER or 1 to select

Select the maximum voltage for the Battery Charger.

Voltage 14.4
ENTER or 1 to select

Rotate the **ENTER** button below the LCD screen (Figure 54) until the desired voltage is reached for the backup battery.

Refer to Section 3.3 for more detailed information about the battery charging circuit.

3.8.3 SD Card

Address Battery Charger >>>SD Card<<< USB Drive Communication
ENTER or 1 to select

Select **SD Card** to save or load configuration files on a microSD card.

>>>Save Config<<< Load Config Eject
ENTER or 1 to select

Select **Save Config** to save the existing configuration from the DCP EEPROM to the microSD card.

>>>Save Config<<< Load Config Eject
ENTER or 1 to select

Select **Load Config** to load the configuration from the microSD card to the DCP EEPROM.

It is good practice to Eject the microSD card once the configuration files have been saved or loaded.

Load Configuration
User Action: 1)Press ENTER 2)Power cycle device
ENTER or 1 to select

Follow these instructions to complete loading the configuration from the microSD card to the DCP EEPROM. A reboot of the system is required for the changes to take effect.

3.8.4 USB Drive

Address Battery Charger SD Card >>>USB Drive<<< Communication
ENTER or 1 to select

Select **USB Drive** to save or load configuration files on a USB drive.

>>>Save Config<<< Load Config Eject
ENTER or 1 to select

Select **Save Config** to save the existing configuration from the DCP EEPROM to the USB Drive.

>>>Save Config<<< Load Config Eject
ENTER or 1 to select

Select **Load Config** to load the configuration from the USB Drive to the DCP EEPROM.

Load Configuration
User Action: 1)Press ENTER 2)Power cycle device
ENTER or 1 to select

Follow these instructions to complete loading the configuration from the USB Drive to the DCP EEPROM. A reboot of the system is required for the changes to take effect.

Save Config Load Config >>>Eject<<<
ENTER or 1 to select

It is good practice to Eject the USB Drive once the configuration files have been saved or loaded.

3.8.5 Communication

Address Battery Charger SD Card USB Drive >>>Communication<<<
ENTER or 1 to select

Select to configure the Communication interface.

Note that not all the options have been implemented yet — **NOT IMPLEMENTED** will be displayed when such an option is selected.

>>>IP Address<<< COM 1 SIB COM 6 TCP/IP
ESC or 0 to exit

The **IP Address** option is not yet implemented.

3.8.5.1 Main Board COM 1

IP Address >>>COM 1<<< SIB COM 6 TCP/IP
ESC or 0 to exit

Use **COM 1** to configure polling of the DCP by the CDP over the UHF radio link via COM 1 on the Main Board.

>>>Type<<< Interval
ENTER or 1 to select

Use **Type** to select the poll type and interval, then click Enter or press 1 on the keypad.

CDP MAIN COM INTERVAL
None >>>POLLED RDCP<<< INTERVAL RDCP
ENTER or 1 to select

Use **Type** to select the poll type.

- Select POLLED RDCP to use the DCP polling used by the AWOS 3000 CDP.
- Select INTERVAL RDCP to select an interval at which the DCP will be polled.

Click Enter or press 1 on the keypad to finish.

Type >>>Interval<<<
ENTER or 1 to select

Use Interval to set the polling interval from 1 to 60 seconds by turning the rotary knob. The default is 5 seconds. Click Enter or press 1 on the keypad to select that interval.

3.8.5.2 SIB COM 6

IP Address COM 1 >>>SIB COM 6<<< TCP/IP
ESC or 0 to exit

Use **SIB COM 6** to configure polling of the DCP by the CDP over the COM 6 port on the Serial Interface Board.

>>>Type<<< Interval
ENTER or 1 to select

Use **Type** to select the poll type and interval, then click Enter or press 1 on the keypad.

CDP SIB COM TYPE
None >>>POLLED RDCP<<< INTERVAL RDCP
ENTER or 1 to select

Use Type to select the poll type.

- Select POLLED RDCP to use the DCP polling used by the AWOS 3000 CDP.
- Select INTERVAL RDCP to select an interval at which the DCP will be polled.

Click Enter or press 1 on the keypad to finish.

Type >>>Interval<<<
ENTER or 1 to select

After selecting the poll type ,use Interval to set the polling interval from 1 to 60 seconds by turning the rotary knob. The default is 5 seconds. Click Enter or press 1 on the keypad to select that interval.

3.8.5.3 TCP/IP

IP Address COM 1 SIB COM 6 >>>TCP/IP<<<
ESC or 0 to exit

Use TCP/IP to configure polling of the DCP by the CDP over the Ethernet port on Main Board.

>>>Type<<< Interval TCP Port
ENTER or 1 to select

Use **Type** to select the poll type and interval, then click Enter or press **1** on the keypad.

CDP TCP COM TYPE
None >>>POLLED RDCP<<< INTERVAL RDCP
ENTER or 1 to select

Use Type to select the poll type.

- Select POLLED RDCP to use the DCP polling used by the AWOS 3000 CDP.
- Select INTERVAL RDCP to select an interval at which the DCP will be polled.

Click Enter or press 1 on the keypad to finish.

Type >>>Interval<<< TCP Port
ENTER or 1 to select

Use **Interval** to set the polling interval from 1 to 60 seconds by turning the rotary knob. The default is 5 seconds. Click **Enter** or press **1** on the keypad to select that interval.

Type Interval >>>TCP Port<<<
ENTER or 1 to select

Use **TCP Port** to set the TCP port for the DCP from over the range from 2101 to 2120 by turning the rotary knob. The default is 2101. Click **Enter** or press **1** on the keypad to select that interval.

3.8.6 Logging

Logging enables sensor data being exchanged with the DCP to be logged. Two types of log files are generated for each sensor.

- Raw sensor logs collect the data sent to and received back from the sensor.
- Parsed logs are logs that are written periodically in CSV format. The configuration screen allows the logging period to be set between 1 second and 60 minutes.

LOGGING LEVEL
None >>>Normal<<< Debug Factory Debug
ESC or 0 to exit

Select the Logging Level.

- **None** — no logging will be done.
- **Normal** — normal logging selection.
- **Debug** and **Factory Debug** — Reserved for factory use.

>>>Raw Sensor Log<<< Parsed Log
ESC or 0 to exit

Select Raw Sensor Log or Parsed Log.

The remaining screens are similar for each sensor.

WIND RAW LOG
None >>>On<<< Off
ENTER or 1 to select

If raw sensor logs were selected, this screen is used to select whether sensor logs will be collected for the sensor shown. The default value is On.

WIND
Log Parsed Data Turn Dial To Change Every 10 Seconds
ESC or 0 to cancel

If parsed logs were selected, this screen is used to select the logging period, which can be from 1 second to 60 minutes. Rotate the selection knob until the desired logging period is shown, then click or press 1 on the keypad to finalize the selection.

Log files can only be stored on a microSD card; the microSD card must be inserted. Follow the instructions in Section 3.8.3 to eject the microSD card when you need to review the logs.

The following Logging Status screens can be accessed along with the other x.2 System Status Screens or x.3 System Status Screens.

Logging Status
Level: Normal Status: Syncing Pending Logs: 160 Memory free: 96% SD Card free: 6%

This status screen is displayed when a microSD card is inserted while the DCP is already on and set up for logging. This means logs are being synchronized from the internal storage to the microSD card.

Logging Status
Level: Normal Status: Normal Pending Logs: 0 Memory free: 100% SD Card free: 6%

This status screen is displayed once all the cached log files have been written to the microSD card and logging is taking place normally.

Logging Status
Level: Normal Status: Caching Pending Logs: 57 Memory free: 98% SD Card free: N/A

This status screen is displayed once the microSD card is ejected.

3.8.7 GPS

SD Card USB Drive Communication Logging >>>GPS<<<
ENTER or 1 to select

Select to set up GPS.

3.8.7.1 GPS Antenna

>>>GPS Antenna<<< Network
ENTER or 1 to select

Select to select the GPS antenna.

GPS
None >>>Internal<<< External
ESC or 0 to exit

Select **Internal** or **External** GPS antenna. The default selection is **Internal**.

3.8.7.2 GPS Network

GPS Antenna >>>Network<<<
ENTER or 1 to select

Select to set up the GPS network.

>>>GPS NETWORK<<< GALILEO NETWORK GLONASS NETWORK BEIDOU NETWORK
ESC or 0 to exit

Select to set up the **GPS NETWORK**.

GPS NETWORK
None Disable >>>Enable<<<
ESC or 0 to exit

Disable or Enable the GPS network.

GPS NETWORK >>>GALILEO NETWORK<<< GLONASS NETWORK BEIDOU NETWORK
ESC or 0 to exit

Select to set up the **GALILEO NETWORK**.

GALILEO NETWORK
None Disable >>>Enable<<<
ESC or 0 to exit

Disable or Enable the Galileo network.

GPS NETWORK GALILEO NETWORK >>>GLONASS NETWORK<<< BEIDOU NETWORK
ESC or 0 to exit

Select to set up the **GLONASS NETWORK**.

GLONASS NETWORK
None Disable >>>Enable<<<
ESC or 0 to exit

Disable or Enable the Glonass network.

GPS NETWORK GALILEO NETWORK GLONASS NETWORK >>>BEIDOU NETWORK<<<
ESC or 0 to exit

Select to set up the **BEIDOU NETWORK**.

BEIDOU NETWORK
None Disable >>>Enable<<<
ESC or 0 to exit

Disable or Enable the Beidou network.

3.8.8 UHF Radio

USB Drive Communication Logging GPS >>>UHF Radio<<<
ENTER or 1 to select

Select to send data to test the UHF radio. Section 3.13 explains the steps in the test.

3.8.9 VHF Radio

Communication Logging GPS UHF Radio >>>VHF Radio<<<
ENTER or 1 to select

This option provides features that are useful to test the VHF radio.

3.8.10 Heading

Logging GPS UHF Radio VHF Radio >>>Heading<<<
ENTER or 1 to select

Select Heading to set up the use of heading data.

3.8.10.1 Heading Mode

>>>Heading Mode<<< Expire Mode Auto Output
ENTER or 1 to select

Select **Heading Mode** to set up how heading data are used.

HEADING MODE
None OFF >>>EXPIRE<<< COAST
ESC or 0 to exit

Select the **HEADING MODE**, default setting EXPIRE.

- **None** — heading data are not used.
- **OFF** — no heading adjustment takes place.
- **EXPIRE** — products associated with heading data expire when the heading data expire.
- **COAST** — heading data will coast when the heading input expires.

3.8.10.2 Heading Expire Mode

Heading Mode >>>Expire Mode<<< Auto Output
ENTER or 1 to select

Select **Expire Mode** to set up how wind speed and wind direction data expire.

HEADING EXPIRE MODE
None >>>ALL<<< PARTIAL
ESC or 0 to exit

Select the HEADING EXPIRE MODE, default setting ALL.

- **None** — heading expire is not used.
- **ALL** — ADB Safegate products with direction and speed data expire when the heading data expire.
- **PARTIAL** — ADB Safegate products with direction data expire when the heading data expire, ADB Safegate products with speed data remain.

This means both wind speed and wind direction data will expire when the ALL setting is selected, only wind speed data will remain when the PARTIAL setting is selected.

Either setting has the same effect for the lightning sensor data since there is only a direction component in the lightning sensor data.

3.8.10.3 Heading Auto Output

Heading Mode Expire Mode >>>Auto Output<<<
ENTER or 1 to select

Select Auto Output to set up whether the HDT message appears in the data strings.

HEADING AUTO OUTPUT
None >>>OFF<<< ON
ESC or 0 to exit

Select the **HEADING AUTO OUTPUT**, default setting **OFF**. This is used to pass data to another system beyond the AWOS 3000 or F1 STA.

- **None** — HDT message is not used.
- **OFF** — HDT message. string is not output.
- **ON** — HDT message. string is output on the line following the DCP string.

3.8.11 Factory

GPS UHF Radio VHF Radio Heading >>>Factory<<<
ENTER or 1 to select

Select Factory to set the configurations normally set at the Factory.

Select which Factory configuration to set up. *Note that **BP Offsets** are not available on SIB Type x.3 since they are not used with domestic non-Federal AWOS systems.*

Sensor Interface Board x.2	Sensor Interface Board x.3
----------------------------	----------------------------

>>>Load SIB Config<<< MARS Config BP Offsets Charger Enable
ENTER or 1 to select

>>>Load SIB Config<<< MARS Config Charger Enable
ENTER or 1 to select

SIB Configuration

>>>Load SIB Config<<< MARS Config
ENTER or 1 to select

Select Load SIB Config to load the SIB configuration files.

Load SIB Configuration
User Action: Reboot device
ENTER or 1 to save

Follow these instructions to complete loading the configuration files.

MARS Configuration

Load SIB Config >>>MARS Config<<<
ENTER or 1 to select

Select MARS Config to configure the MARS.

>>>Set Tolerance<<< Current cal. Zero cal. Autozero enable Autozero int.
ENTER or 1 to select

First, Set Tolerance.

50
ENTER or 1 to select

Rotate the **ENTER** button below the LCD screen (Figure 54) until the desired tolerance (50 is recommended) is reached.

Set Tolerance >>>Current cal.<<< Zero cal. Autozero enable Autozero int.
ENTER or 1 to select

Now select Current cal..

MARS Calibration
User Action: 1) Connect MARS 2) ENTER to Cal
ENTER or 1 to select

Follow these instructions to complete calibrating the MARS. The calibration is complete when the screen returns to the previous menu.

Set Tolerance Current cal. >>>Zero cal.<<< Autozero enable Autozero int.
ENTER or 1 to select

Select Current cal. to tell the DCP what the current reading is when there is no current. You will be prompted to disconnect the MARS (holding the MARS test switch has the same effect) and press **ENTER**.

Set Tolerance Current cal. Zero cal. >>>Autozero enable<<< Autozero int.
ENTER or 1 to select

Use Autozero enable to enable or disable the DCP to shut down the 12 V rail (which disables the MARS) periodically and read the "zero current" value.

Set Tolerance Current cal. Zero cal. Autozero enable >>>Autozero int.<<<
ENTER or 1 to select

Now select Autozero int. to specify the interval between autozero attempts; it can be set between 1 and 24 hours. When Autozero enable is disabled, this setting has no effect.

BP Offsets

Note that **BP Offsets** are not available on SIB Type x.3 since they are not used with domestic non-Federal AWOS systems.

>>>BP Offset 1<<< BP Offset 2 BP Offset 3
ENTER or 1 to select

Select BP Offset to set. Note that the number of offsets depends on which BP sensor was configured (Section 3.7.2.2).

Units in Hg 0.005
ENTER or 1 to accept

Rotate the ENTER button below the LCD screen (Figure 54) until the desired offset is showing.

The instructions for all the offsets are the same.

BATTERY CHARGE ENABLE
None OFF >>>ON<<<
ENTER or 1 to select

Select whether to enable the Battery Charger.

The Battery Charger should be enabled if a backup battery is present.

3.8.12 Network Parameters

The network parameters shown on the System Status screens in Sections 3.5.1 and 3.5.2 cannot be set through the System Configuration screens in Section 3.8.

The network parameters are stored in the **configuration_x.properties** file described in Section 3.6, where x is the SIB number, and can only be set or changed in this configuration file by editing the file. Follow the instructions in Section 3.8.3 or 3.8.4, depending on whether a microSD card or a USB drive is used to copy or load the configuration files.



NOTE

The default settings for the device are to look for a DHCP address and if one cannot be found, the device will be assigned its default IP Address.

These are the network parameters found in the **configuration_x.properties** configuration file.

```
CDP_TCP_PORT=2101
IP_ADDR_0=192
IP_ADDR_1=168
IP_ADDR_2=5
IP_ADDR_3=10
SUBNET_MASK_0=255
SUBNET_MASK_1=255
SUBNET_MASK_2=255
SUBNET_MASK_3=0
GW_ADDR_0=192
GW_ADDR_1=168
GW_ADDR_2=5
GW_ADDR_3=1
IP_MODE=0
```

For **DHCP IP_MODE=1**, no **IP_ADDR**, **SUBNET_MASK**, or **GW_ADDR** is needed.

The CDP TCP PORT defaults to 2101 and network parameters shown above provide the override to change it.

3.9 Ethernet Communication

3.9.1 Direct Sensor Communication Access

The system has 13 serial communications ports built in. Each port can be accessed in two ways with a TCP socket.

1. Exclusive Mode — The serial port is disconnected from all the sensor processing within the Model 1192 DCP. The data from the screen will expire and will not be logged. This mode can be used to communicate directly with a sensor, update sensor firmware, or connect to the 1192 DCP as a terminal server.
2. Non-Exclusive Mode — The serial port is connected to all the sensor processing within the Model 1192 DCP. The connected TCP port will only receive a copy of the information being transmitted to the 1192 DCP. This mode is good for listening to communication or to assist in creating a third-party logging system.

COM Port	TCP Port	Function
1	3101	Read/Write in exclusive mode
	3201	Read in non-exclusive mode
2	3102	Read/Write in exclusive mode
	3202	Read in non-exclusive mode
3	3103	Read/Write in exclusive mode
	3203	Read in non-exclusive mode
4	3103	Read/Write in exclusive mode
	3203	Read in non-exclusive mode
5	3105	Read/Write in exclusive mode
	3205	Read in non-exclusive mode
6	3106	Read/Write in exclusive mode
	3206	Read in non-exclusive mode
7	3107	Read/Write in exclusive mode
	3207	Read in non-exclusive mode
8	3108	Read/Write in exclusive mode
	3208	Read in non-exclusive mode
9	3109	Read/Write in exclusive mode
	3209	Read in non-exclusive mode
10	3110	Read/Write in exclusive mode
	3210	Read in non-exclusive mode
11	3111	Read/Write in exclusive mode
	3211	Read in non-exclusive mode
12	3112	Read/Write in exclusive mode
	3212	Read in non-exclusive mode
13	3113	Read/Write in exclusive mode
	3213	Read in non-exclusive mode.

3.9.2 Main System Communications

The system has a main TCP communication port that has a default value of 2101. The following commands are accepted and responded to from this port. This port will accept two active connections where the first connection will have read/write access and the second connection will have read access only.

Command	Response
RDCPXX<CR><LF> where XX is the address of the DCP	Standard DCP poll response.
DIXX<CR><LF> where XX is the address of the DCP	Freezing Rain deice command which when equipped with a 6495 freezing rain sensor, will command the heaters on and deice the sensor. There is no response.
LTXOX<CR><LF> where X is the address of the DCP	Detailed lighting response message. Take the data from the Model 2715 Universal Power and Communication Module User's Manual .
RESTARTXX<CR><LF> where XX is the address of the DCP	Reboot command that will reboot the DCP. There is no response.

3.10 Model 8364-E/8365 Visibility Sensor Calibration And Testing

This section explains how to use the built-in features of the Model 1192 Data Collection Platform to calibrate and test Model 8364-E/8365 Visibility Sensors.

Start by accessing the Visibility Sensor display screens as described in Section 3.5.1 (**Visibility Sensor Screens**) or Section 3.5.2 (**Visibility Sensor Screens**). Continue until The Test or Calibrate options are presented.

VIS Calibration/Test
1 to Calibrate Sensor 2 to Test, # to Exit
8364 / 8365

Press the desired character on the keypad to continue when this screen is reached.

- 1 to calibrate
- 2 to test
- # to exit

3.10.1 Calibrate

Follow the instructions on the LCD screen, which match the calibration instructions in the User’s Manual for the corresponding Visibility Sensor. This feature allows the DCP to be used to calibrate the Visibility Sensor in lieu of the handheld terminal.

VIS Calibration/Test
Enter Cal Id * for . # when done xx.xxx
8364 / 8365

Enter the Cal ID # shown on the calibration paddle’s label using the keypad, then press # when done. Use the * key to enter a decimal point.

VIS Calibration/Test
Clean windows. # when done
8364 / 8365

Clean windows, then press # when done.

VIS Calibration/Test
Insert paddle. # when done
8364 / 8365

The calibration averaging cycle is started. The progress is indicated on the display. When complete, a prompt to insert the calibration paddle is displayed. Press # to when the paddle is inserted.

VIS Calibration/Test
Remove paddle. # when done
8364 / 8365

The calibration averaging cycle is started. The progress is indicated on the display. When complete, a prompt to remove the calibration paddle is displayed. Press # to when the paddle is removed.

VIS Calibration/Test
Cover emitters. # when done
8364 / 8365

Cover the emitters and press # when done.

VIS Calibration/Test
Remove covers. # when done
8364 / 8365

The calibration averaging cycle is started. The progress is indicated on the display. When complete, a prompt to remove the covers is displayed. Press # to when the covers are removed.

VIS Calibration/Test
Cal Fctr: Old = 54.908 New = 54.738 # when done
8364 / 8365

Old and new calibration factors are displayed. Press # to continue.

VIS Calibration/Test
% Change = 0.3 # = Accept * = Reject
8364 / 8365

A percentage change in calibration factor is displayed. Press # accept the change or press * to reject the change.

VIS Calibration/Test
1 to Calibrate Sensor 2 to Test, # to Exit
8364 / 8365

The calibration/test prompt is displayed again. Calibration is complete. Press the desired character on the keypad to continue when this screen is reached.

- 1 to calibrate
- 2 to test
- # to exit

3.10.2 Test Mode

The various tests made in isolating a problem are initiated through the Test Mode. Follow the instructions on the LCD screen, which match the Test Mode instructions in the User's Manual for the corresponding Visibility Sensor. This feature allows the DCP to be used to test the Visibility Sensor in lieu of the handheld terminal.

Test Menu

First, the Test menu is displayed. Press the desired character on the keypad to select the desired test.

- 1 Sensor status
- 2 Diagnostic menu
- 3 Test Mode 0
- 4 Test Mode 1
- 0 to exit

A test result will be displayed. Press # when finished viewing the test result to return to this Test menu.

Instead of a test result, selecting the Diagnostic menu will provide additional test options as explained below.

Diagnostic Menu

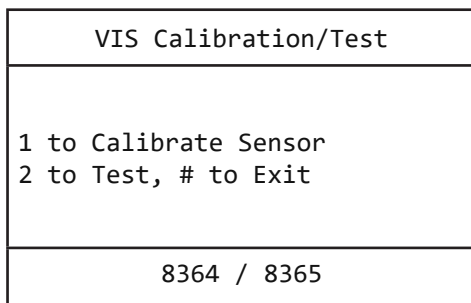
The Diagnostic menu is displayed. Press the desired character on the keypad to select the desired test.

- 1 RAM test
- 2 ROM test
- 3 Power data
- 4 Nonvolatile memory
- 0 to exit

The test result will be displayed. Press # when finished viewing the test result to return to the Diagnostic menu.

Press 0 when finished to return to the Test menu.

Press 0 when finished to exit the Test menu.



The calibration/test prompt is displayed when you exit the Test menu. Press the desired character on the keypad to continue when this screen is reached.

- 1 to calibrate
- 2 to test
- # to exit

3.11 PWD22-CFG06 Visibility Sensor Calibration Check

This section explains how to use the built-in features of the Model 1192 Data Collection Platform to perform visibility calibration checks for the PWD22-CFG06 Present Weather/Visibility sensor.

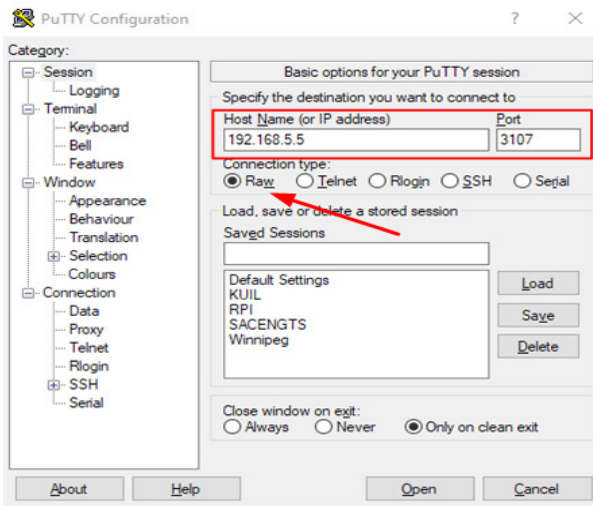
The PWA12 Calibration Kit is required to perform the calibration. Record the following information about the PWA12 Calibration Kit.

- Manufacturer/Model
- Serial Number
- Calibration Date

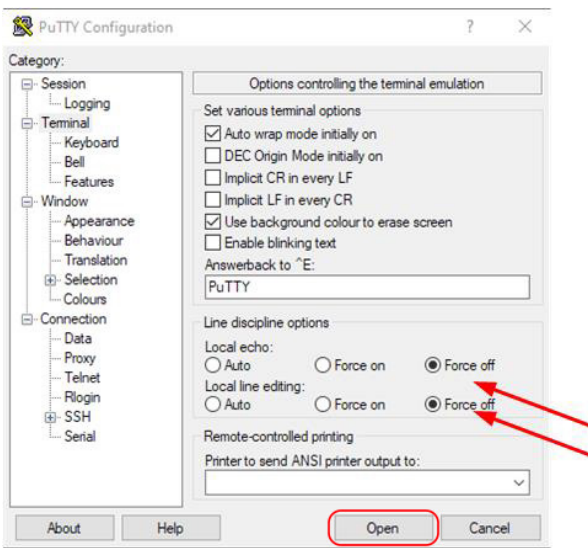
The following steps provide the calibration setup and instructions. Skip Steps 1 to 8 when performing the calibration check with the F1 STA since an RMM session is used instead via the CDP computer.

1. Inspect and clean transmitter and receiver windows, inner hood surfaces, and Day/Night Sensor using a soft, clean cloth and isopropyl alcohol. Clean the rain detector with mild detergent. Cleaning should be done every four months or more often depending on local conditions (e.g., road, dust, fields, etc.).
2. Check that the window covers and lens optics are free of condensation of water or ice.
3. Connect a laptop to the DCP using a standard CAT5/6 cable. (Administrator access is required to perform the steps in this procedure.)
4. Navigate to the *Control Panel > Network and Sharing Center* and then click on **Change Adapter** settings.
5. Right-click on the network adapter connected to the DCP and click Properties.
6. Select Internet **Protocol Version 4 (TCP/IPv4)** and click **Properties**.
7. Enter the information shown here.
IP Address: 192.168.5.20
Subnet mask: 255.255.255.0
Default gateway: 192.168.5.1
DNS information can be left blank.
Click OK.
8. Click Close.
9. Open a terminal emulation utility such as PuTTY on the test computer.
10. Enter 192.168.5.5 for the host name and 3107 for the port. Select the Raw connection type.

The screenshots were obtained using Putty v 0.71 on a Windows 10 computer. Other terminal emulation utilities and operating systems may be used. Please contact ADB Safegate Customer Service for additional assistance if needed.



11. Click on Terminal in the list on the left and set Local echo to Force off and Local line editing to Force off.



12. Click Open. The window for the terminal emulation program will enter.



13. Data from the PWD22-CFG06 Visibility Sensor appear in the window of the terminal emulation program.
14. Type OPEN <Enter>.



NOTE

When comparing standard readings to sensor readings, always wait for both the standard and sensor readings to stabilize.

15. Display shows that the clean references were UPDATED.
16. Type DRY ON <Enter> to set the reference level of the dry signal for the RAINCAP® signal normalization calculation. When giving this command, the sensor surface and weather conditions must be dry.
17. Type HEAT <Enter> to turn the visibility sensor optic cover heaters on. While the test is selected, HEAT ON continues to be displayed. During this time touch the sensor covers to confirm that the heaters are on. This test should be run as briefly as needed to check the heater performance. Press <ESC> to exit the test and turn the cover heaters off.
18. Install the blocking plate from the PWA12 Calibration Kit in the receiver hood. (The receiver hood has a box and rain sensor, which the transmitter head does not.) Wait 30 seconds before performing the next step.

PWA12 Calibration Kit



Figure 55. PWA12 Calibration Kit

19. Remove the blocking plate. Wait 1 minute.
20. Install the Calibrator Plates (opaque glass) to the lens hoods. Move away from the optical path and wait 1 minute.
21. Type CHEC <Enter> to check the one minute average signal frequency in hertz. After a few minutes the test displays the signal frequency, which should be within 5 % of the calibration value printed on the calibrator glass plate — around 568 (range 539–600). Another reading should display after about a minute. Record the signal value in the log.
22. If the values in Step 21 is within 5%, press the <ESC> key to terminate the CHEC command. Type EXIT <Enter>. The Calibrator Plates may be removed; wait 10 minutes.

Perform the calibration procedure for the PWD22 described in the *F1STA Maintenance Log Book* if the calibration check fails.

3.11.1 LCS Day/Night Sensor Check

Check the LCS Day/Night sensor in daylight. Look at the Day/Night sensor screen on the DCP LCD display (Section 3.5.1). The exact details of the Status line depend on the model of wind sensor.

If there is a broken wire in the connection between the wind sensor and the DCP, the message Sensor Disconnected will appear on the WIND Information screen instead of No Error.

For the mechanical wind sensors, these messages may appear instead of No Error:

- WIND_OK
- WIND_SPEED_STUCK
- WIND_VANE_STUCK
- WIND_VANE_WIPER_INOP
- WIND_NOT_ENOUGH_SAMPLES

Visibility and Present Weather Sensor Screens or Section 3.5.2 **Visibility and Present Weather Sensor Screens**. The Day/Night line should show D.

- a. Cover the sensor to simulate night.* The Day/Night line should show N.
- b. Uncover the sensor. The Day/Night line should show D.



Figure 56. Day/Night Sensor

3.12 Model 6498-DC-V/6498-DC-PV Visibility Sensor Calibration Check

This section explains how to use the built-in features of the Model 1192 Data Collection Platform to perform visibility calibrations for the 6498-DC series of Present Weather/Visibility sensors. For the 6498 series of Present Weather/Visibility sensors, note that these instructions apply only to the Direct Connect sensors, which have DC in their model number.

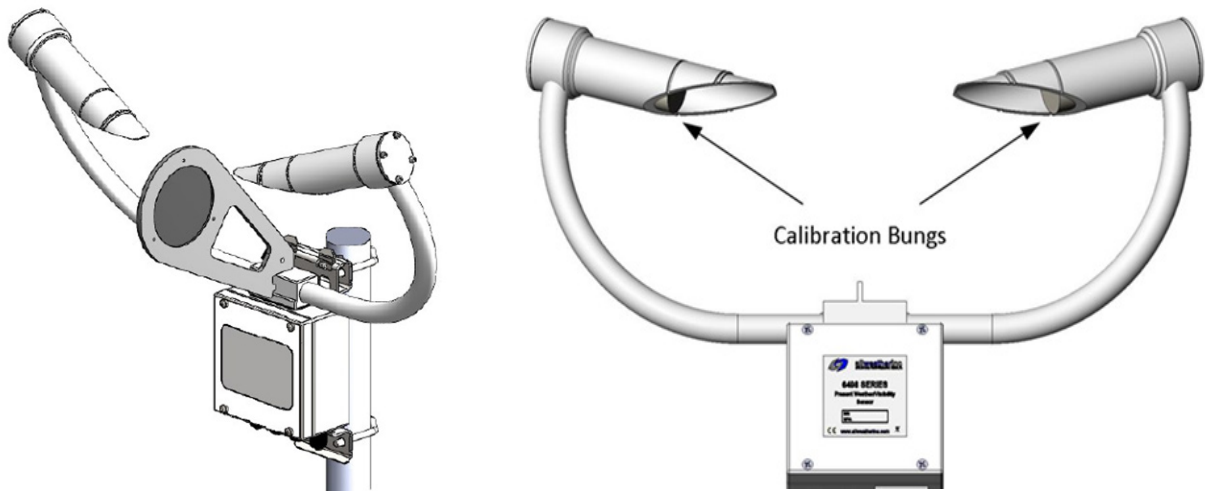
The M482254-00 Calibration Kit is required to perform the calibration.

Record the following information about the M482254-00 Calibration Kit:

- Serial Number
- Calibration Date

Avoid standing in front of the sensor. Stand at least 3m away while waiting the 5 minutes for the reading to stabilize.

1. Insert the calibrator into the central mounting point so that it is secure.



2. Place the foam bungs into the sensor hoods so that they cover the optical lenses completely. The foam bungs block light from reaching the inside of each optical assembly. Check the data strings on the 1192 DCP display or the AWOS diagnostics screen to ensure dirty windows are not flagged.
3. Wait for 5 minutes.
4. Check and record the MOR (visibility) value. For a new sensor, this should be the maximum visibility of 75 km. The value will decrease slightly over time.
5. Remove the foam bungs from both optical hoods and wait for 5 minutes.
6. Check and record the MOR (visibility) value. This should be within 3% of the MOR value on the calibrator label.
7. Perform the calibration procedure and analysis described in the Model 6498 Present Weather/ Visibility Sensor User's Manual if the calibration check fails.

Perform the calibration procedure and analysis described in the *Model 6498 Present Weather/ Visibility Sensor User's Manual* if the calibration check fails.

3.13 UHF Radio Data Test

Select the UHF Radio option as explained in Section 3.8.8 to send data to test the UHF radio.

USB Drive Communication Logging GPS >>>UHF Radio<<<
ENTER or 1 to select

Select to send data to test the UHF radio.

>>>Data Test<<<
ENTER or 1 to select

Press **ENTER** or press **1** on the keypad to start the data test; press **ESC** or press **0** on the keypad to exit.

UHF Data Test
Send 60 sec of data
ESC to Cancel

Press **ESC** to cancel the request to send data if this is not needed.

UHF Data Test
Sending data. . .
ENTER to Stop

Click the **ENTER** button below the LCD screen (Figure 54) to stop sending data or wait for 60 seconds.

3.14 Increase Precision Of Aux Input Gain Settings

The precision for the default gain settings is limited by the cumulative precision of the components in the circuit. If a specific application requires a better precision, the R1 trimmer resistor can be used to do that.

Trimmer resistor R1 located above the DIP switches for the **AUX** terminal block **J16** (Figure 57) can be used to fine-tune the x10 and x50 gain values.

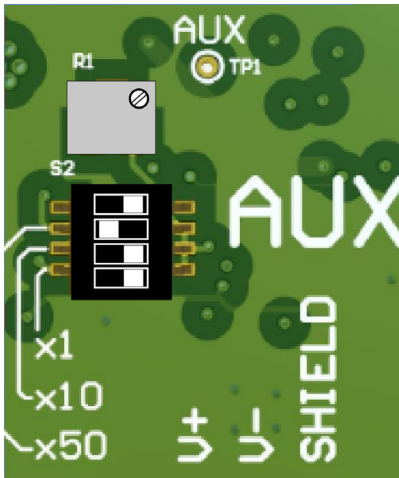


Figure 57. Location of Trimmer Resistor R1

Follow these instructions to adjust the gain.

1. Connect a known reference voltage to the AUX input.
2. Adjust the trimmer resistor until the desired value is displayed on the AUX Information screen (see **Solar Radiation Screen**).

4. Maintenance

No regular maintenance is required with the Model 1192 Data Collection Platform, other than verifying periodically that all cables are connected and in good condition and checking the real-time clock battery voltage.

The test points shown in Figure 58 allow the Sensor Interface Board and its associated circuits to be checked for troubleshooting.

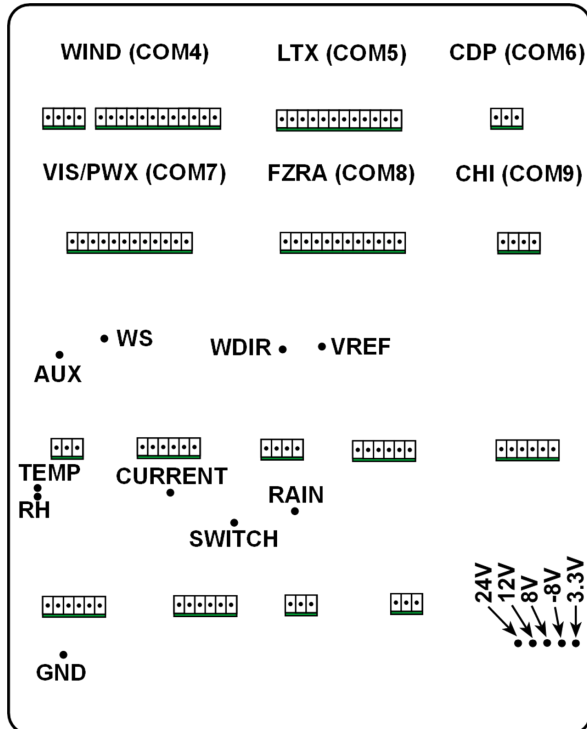


Figure 58. Sensor Interface Board x.2 and x.3 Test Points

The measurements are made between the test point and GND.

- **AUX** is the analog voltage level (V+) for the solar radiation sensor after conditioning circuits as supplied to the A/D converter (not used on Sensor Interface Board x.3) to verify that the analog input works as expected.
- **WS** is the wind speed frequency signal (SIG).
- **WDIR, TEMP, and RH** are analog voltages after conditioning circuits as supplied to the A/D converter. These are useful to verify that the analog inputs work as expected.
- **VREF** is a reference voltage that should be 3.000 ± 0.005 V.
- **CURRENT** is a voltage signal, V_{out} , proportional to the MARS fan current.

$$V_{out} = (0.4 \text{ V/A}) \times I + 0.25 \text{ V} \quad \text{where } I \text{ is the current in A}$$

- **SWITCH** signal is not available from the ADB Safegate MARS.

- **RAIN** is the rain gauge signal. When the tipping bucket is tipping, a pulse should be observed on the test point.
- **24V** or **12 V** are for powering external sensors. So, if a sensor is not working, these are good to check.
- **+8V** and **-8V** power the analog conditioning circuits.
- **3.3V** is the voltage source for most of the digital circuitry.

4.1 Diagnostic Support

Diagnostic support is provided by the DCP for other equipment.

- Hold the spring-loaded **MARS TEST** switch next to the MARS terminal block down to turn the MARS fan off to simulate a fan failure. The switch is normally up, the ON position.

The simulated fan failure is part of the MARS triannual maintenance checks with an AWOS to make sure the diagnostic system is reporting failures correctly.

- Access the UHF radio data test using the Display screens as explained in Section 3.11 to send test data. This feature is used in the annual revalidation check for the UHF radio and is useful for troubleshooting UHF radio problems and issues with the associated cables and antennas.

4.2 Real-Time Clock Battery

Check the battery voltage for the real-time clock by looking at the **System Detail** screen as explained in Sections 3.5.1 (**System Status Screens**) and 3.5.2 (**System Status Screens**). This maintenance step should be performed triannually, and the RTC backup battery should be replaced when the RTC battery voltage drops below 2.0 V.

The real-time clock CR2032 battery (M438159-00) is in a battery holder on the Main Board. The Serial Interface Board has to be removed to access the battery holder.

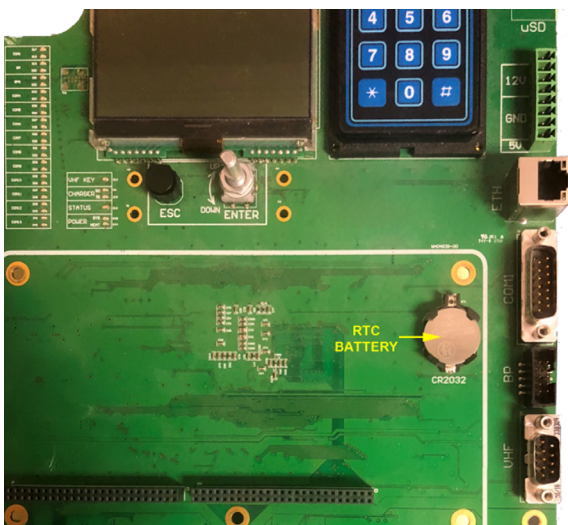


Figure 59. Location of RTC Battery on Main Board

1. Turn the power off to the DCP with both the circuit breaker and the ON/OFF switch.
2. The Serial Interface Board is secured to the Main Board using spacers and screws. Remove the screws and unplug the Serial Interface Board, being careful not to bend the pins that are plugged into the Main Board sockets. The terminal block plugs for the sensors may be left plugged in. Set the screws and washers aside.
3. Use a small screw driver to pop out the old CR2032 battery and replace it with a fresh battery.
4. Align the pins of the Serial Interface Board with their sockets on the Main Board and carefully plug the Serial Interface Board into the sockets on Main Board.
5. Secure the Serial Interface Board using the screws and washers set aside previously.
6. Turn the circuit breaker and the ON/OFF switch on to restore power to the DCP.
7. Check the RTC voltage to verify the battery was replaced correctly and is working.

4.3 Firmware Updates

Install firmware updates using the built-in boot loader on the Model 1192 Data Collection Platform. The firmware update must be on a microSD card, which is inserted into the microSD card slot near the top right of the Main Board (Figure 12). The firmware update file must be named dcp3.bin and must be in the root of the microSD card's file system. The microSD card must be formatted as FAT, FAT32 or exFAT. A successful boot loader session will end with a confirmation message and the background of the LCD will be green. If a failure occurs during the boot loader session, an error message will be displayed, and the background of the LCD will be red.

Upon each boot, the bootloader runs a series of memory tests on the processors' internal memory. The result of the test is displayed before jumping to the main application. Should a memory error be detected, the processor will not boot and will stay on the boot loader's test screen.

Follow these instructions once the microSD card with the firmware update has been inserted,

1. Press and hold down the ESC button while turning on the DCP.

ADB SAFEGATE

DCP III - Loader
Starting . . .

2. This screen will display if there is a problem with the microSD card, for example, it has not been inserted.

If this happens, turn the DCP off and insert or reinsert the microSD card before turning it back on.

ADB SAFEGATE

DCP III - Loader
Cannot init SD

3. Once the microSD card is being read correctly, a series of screens will be displayed as the firmware update progresses.

ADB SAFEGATE

DCP III - Loader
Mounting SD Card

Opening Flash File

Checking Size

Initialize process

Erasing Flash

Writing Program

Cleaning up

ADB SAFEGATE

DCP III - Loader
Completed

Once the final screen has displayed, the regular launch screen (Section 3.5) will appear, indicating that the firmware update is complete. The backlight will be green for a successful update or red upon failure.

5. DCP Message Format

This chapter explains the format of the DCP data packet output.

The message is output by the Model 1192 DCP in response to a poll from the CDP.

```
RDCP00\r\n)
```

Communication options

Serial: 9600 bps, no parity, 8 data bits, 1 stop bit

TCP/IP: default IP 192.168.5.5 and TCP port 2101

The system accepts either poll requests or can output this message at a defined interval between 1 and 60 seconds.

Preface:

12 ff's

3 syn's (0x16)

Packet:

1-5 7A000

6 Ascii address (from address dip switch + 0x30)

7-18 000000000000

19- Data (see **Table 9**)

crc 4 hex-Ascii crc characters of DATA from 7A000 to the end of the DATA field

cr

cr

lf

Position	Contents	Length	Description	Range
19–20	Seconds	2 chars		00 to 59
21	blank			
22–24	Wind Speed	3 chars	5 sec avg wind speed	000 to 250 or MMM
25	blank			
26–28	Wind Direction	3 chars	5 sec avg wind direction	000 to 360 or MMM
29	blank			
30–33	Temperature	4 chars	5 sec avg temp °F*10	-400 to 1350 or MMMM
34	blank			
35–38	Dew Point	4 chars	5 sec avg dew pt temp °F*10	-760 to 1350 or MMMM
39	blank			
40–44	Barometric Pressure #1	5 chars	in Hg*1000	17000 to 34000 or MMMMM
45	blank			
46–50	Barometric Pressure #2	5 chars	in Hg*1000	17000 to 34000 or MMMMM
51	blank			
52–53	Precip Counter	2 chars	tips (reset at startup)	00 to 99
54	blank			
55–57	Cloud Ht	3 chars	cloud ht/100 ft	000 to 125 or MMM
58	Ceilometer Data Flag	1 char	Bit 0 = 1 if clear Bit 1 toggles every new output Bit 2 = 1 for 8339 / CL31 Bit 2 = 0 for 8329	0, 5,, or 7 (0, 1, or 3 for 8329)
59	blank			
60–64	Visibility	5 chars	Vis Sensor extinction coeff *1000	00000 to 99999 or MMMMM
65–66	Visibility Status	2 chars	Bit 0 = 1, clean windows Bit 1 = 1, due for calibration	
67	Day / Night	1 char	Day/Night	D, N, or M (missing)
68		1 char	0	

Table 9. DCP Data Field Format

Position	Contents	Length	Description	Range
69–72	DCP Status	4 chars	DCP Status	4 hex Ascii characters
			Bit 0 = (0001) 1 if wind sensor failure Bit 1 = (0002) 1 if -5 V DC reference error Bit 2 = (0004) 1 if +5 V DC reference error Bit 3 = (0008) 1 if BP sensor temp lo (35°C) Bit 4 = (0010) 1 if BP sensor temp hi (>+55°C) Bit 5 = (0020) 1 if MARS Fan Failure Bit 6 = (0040) 1 if Startup in last minute Bit 7 = (0080) 1 if On battery power Bit 8 = (0100) 1 if No comm., lightning sensor Bit 9 = (0200) 1 if No comm, visibility sensor Bit A = (0400) 1 if No comm, Ceilometer Bit B = (0800) 1 if Maint Sw prsd in last 5 min Bit C = (1000) 1 if No comm, present weather Bit D = (2000) 1 if No comm, BP sensor Bit E = (4000) 1 if No comm, freezing rain sensor	
73–76	8329 Status	4 chars	8329 Ceilometer Status	4 hex Ascii characters from 8329
77–84	VIS Status	8 chars	Visibility Status	8 hex Ascii characters from 8364/5
85	blank			
86–88	RH	3 chars	5 sec avg RH *10	000 to 100 or MMM
89	blank			
90–94	Aux Voltage	5 chars	5 sec avg pyranometer voltage	0.000 to 9.999 or MMMMM
95	blank			
96–108	PresentWx	13 chars	Present Weather data	Msg WwwPppppSssss or WMMPMMMMMSMMMM or WwwPppppSssPW or WMMPMMMMSMMPW
109–110	blank			
111–115	ALS	5 chars	Ambient Light Sensor data in Cd	00000 to 99999 or MMMMM
116–117	BP Temp	2 chars	BP Temp °C	00 to 99 (BP temp + 40°C)
118	blank			
119–123	LTX	5 chars	Lightning sensor data First character: 0 = no lightning 1 = lightning at the airport 2 = lightning in vicinity Second and third characters: sensor status Fourth and fifth characters: distant lightning.	Decimal range 00–54 Hex range 00–FF.

Table 9. DCP Data Field Format

Position	Contents	Length	Description	Range
124	blank			
125–129	Freezing Rain Freq	5 chars	Freezing rain frequency	Up to 40 kHz
130	blank			
131–132	Freezing Rain Stat	2 chars	Freezing rain status	2 char status report, one character for status, one character for status descriptor
133	blank			
134–139 / 134–145	8339 Status / CL31 Status	6 chars / 12 chars	8339 Ceilometer Status / CL31 Ceilometer Status	6 hex Ascii characters from 8339 12 hex Ascii characters from the CL31
141–145 / 147–151	Software Version	5 chars	Software Version	5-character free form
146 / 152	blank			

Table 9. DCP Data Field Format

Optimizing Airside Operations From approach to take-off

SMARTER. BETTER. **NOW.**


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