SuperSystems
incorporated

Model DPC2530
Continuous Digital Dew Point Analyzer

OPERATIONS MANUAL

Super Systems Inc.
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Model DPC2530
Continuous Digital Dew Point Analyzer

For measurement of:

- Endothermic Atmosphere
- Exothermic Atmosphere
- Nitrogen / Hydrogen Atmosphere
- Plant Air Systems

SPECIFICATIONS –

Measurement Range:	-0 to +80°F (-47 to +27°C)
Temperature Range:	0 to 120°F (-18 to +49°C)
Power Supply:	115 VAC 60Hz
Display Type:	LED Digital
Display Resolution:	+/- 1°F (+/- 0.1°C)
Digital Communications:	RS485 Modbus
Control / Retransmission Output:	4 –20 mA
Alarms:	Two Alarm Relays
Size:	11"H x 10"W x 7"D
Weight:	Approximately 8 lb.

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INTRODUCTION –

Thank you for selecting Super Systems Inc. (SSi) and the DPC2530 as your source for accurate dew point measurements.

- Endothermic Atmosphere
- Endothermic Generators
- Nitrogen / Methanol Atmosphere
- Nitrogen / Hydrogen Atmosphere
- Plant Air Systems

We have taken every precaution to protect this unit during shipment. Carefully unpack the instrument, and if there are any signs of shipping damage notify SSi and the shipper immediately.

Keep this instruction book in a secure place and refer to it when there is a question about the analyzer.

SPECIFICATIONS –

Dew Point Range:	0 to 80°F (-18 to 27°C)
Temperature Range:	0 to120°F (-18 to 49°C)
Power Supply:	Factory set to 115 or 240 VAC
Retransmission Output:	4-20 mA (range is -50 to 80°F)
Size (Closed Case):	11" x 10" x 7"
Weight:	8.2lbs (3.7 kg)

WARNINGS –

Although it is intended for use in an industrial environment, the DPC2530 is a sensitive piece of analysis equipment. Care should be taken not to operate it in a manner inconsistent with its intended use.

- Moisture (water) cannot be allowed to enter the analyzer. If water is present in the sample gas, use an in-line dryer for sample conditioning. In the event that the sensor becomes wet, use an inert gas (such as nitrogen or argon) or dry compressed air to dry the inside of the instrument. Under no circumstances should methane (or natural gas) be used to dry the DPC2530.

- The analyzer must be stored at ambient temperature (65-80°F) for at least four hours prior to operation.

- An in-line dryer for sample conditioning should be used for exothermic and combustion applications.

- This unit is not designed to measure the dew points in corrosive gasses, such as ammonia (NH3), sulphur trioxide (SO_3), chlorine (Cl), and hydrochloric acid (HCl).

- Please read and understand this Operations Manual before operating the unit.

Failure to comply with these conditions may cause damage to the unit that will not be covered under the warranty. Super Systems, Inc. is not responsible for damage to this unit caused by disregard of these warnings, neglect, or misuse.

TERMINAL BLOCK WIRING –

Power and communications wiring for the DPC2530 should be performed according to the following diagram:

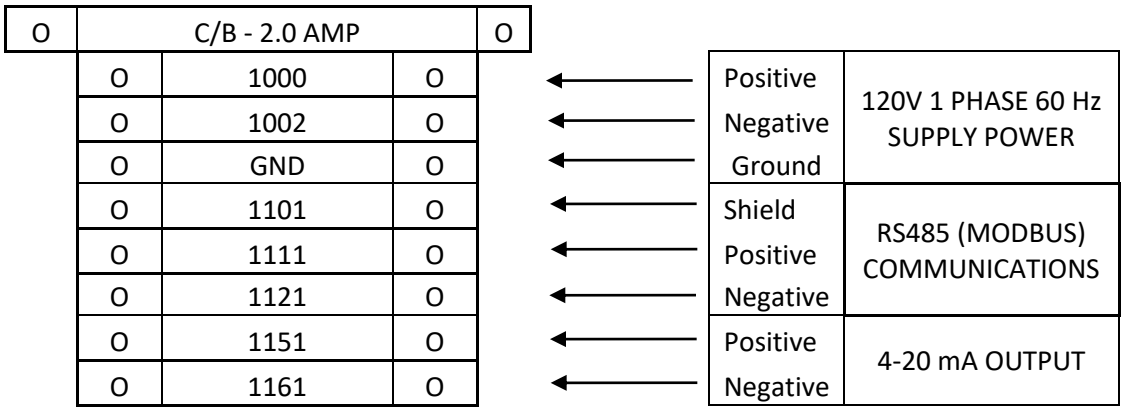


Figure 1

INSTRUMENT SETUP –

The instrument should be fully configured at the factory for immediate use. In the event that the settings are ever lost, the following charts show the appropriate configuration and operative (runtime) parameters for the Series 8 controller. How to navigate the Series 8 controller can be found in the 800 Range Quick Start Guide, which was included with the DPC2530. Additional information on the Series 8 controller can also be found on the SSi website.

If using a 7EK controller, please see Appendix E.

When the instrument is set up in Fahrenheit using these parameters, the input is scaled from –50 to +80°F and the 4-20mA output is scaled from –50 to +80°F. When the instrument is set up in Celsius using these parameters, the input is scaled from –45.6 to +26.7°C and the 4-20mA output is scaled from –45 to +25°C.

Series 8 Configuration Parameters		
Parameter	Fahrenheit	Celsius
P1	MV	MV
P2	NNNN	NNNN
P3	-50	-45.6
P4	80	26.7
P5	0	0
P6	80	80
P7	NONE	NONE
P11	NONE	NONE
P12	NONE	NONE
P13	PV.RT	PV.RT
P14	NONE	NONE
P15	4.20	4.20
P21	NONE	NONE
P24	NONE	NONE
P27	NONE	NONE
P31	NONE	NONE
P32	100	100
P33	NONE	NONE
P34	OFF	OFF
P35	ON	ON
P36	0	0
P37	NONE	NONE
P41	NONE	NONE
P51	T.RRS	T.RRS
P52	T.HLD	T.HLD
P61	1	1
P62	19.20	19.20
P63	NONE	NONE
P64	NONE	NONE
P71	A-M	A-M
P72	T.ST	T.ST
P73	AC.AL	AC.AL
P74	STD	STD
P75	OP	OP
P76	2	2
P77	4	4
P81	NONE	NONE
rEcS	NONE	NONE
rEcL	NONE	NONE

Series 8 Configuration Parameters		
PHAS	NONE	NONE

Series 8 Operative (runtime) Parameters		
Parameter	Fahrenheit	Celsius
OP	0	0
Unit	°F	°C
SPLo	0	0
SPHI	80	26.7
SP1	0	0
SP2	0	0
SP.SL	SP1	SP1
SPrr	OFF	OFF
oFS	0	0
FILt	1.6	1.6
oPLo	0	0
oPHI	0	0
LdAL	OFF	OFF
LEAL	OFF	OFF
Ld.AL	OFF	OFF
HcAL	OFF	OFF
UcAL	IDLE	IDLE

In addition to these parameters, a voltage divider must be installed to the dew point input (This divider is installed at the factory prior to shipment.)

STARTUP –

The DPC2530 Dew Point Analyzer has been calibrated before it was shipped from Super Systems Inc. You can begin typical operation as soon as the unit has been allowed to stabilize in a temperature similar to the temperature in the heat-treating department. This is particularly important for units that may have been sitting overnight in a delivery van in sub-zero weather, since the rapid temperature change can cause condensation on the sensor which will cause the unit to temporarily display inaccurate readings.

OPERATION -

The OPERATION section of the manual assumes that the user has wired the DPC2530 for power and communications according to the TERMINAL BLOCK WIRING and has verified the parameters in the Series 8 controller according to the INSTRUMENT SETUP section.

Flip the ENCLOSURE POWER switch to the on position. Depending on the noise level, you should hear the sound of a cooling fan and the LED display should also illuminate on the Series 8 controller (Figure 2). The actual dew point should be displayed in green at the top with the set point and percent output displayed below it in orange.

Figure 2

Connect a sampling line to the sampling line inlet on the side of the DP22530 (Figure 3). A brass compression fitting is provided to which a sampling line can be connected.

Figure 3

If the system from which gas is being sampled is under pressure, there should be visible flow in the flow meter. **Adjust the flow through the meter using the adjusting knob on the meter (Figure 4).**

Figure 4

If there is no visible flow after the sampling line is connected, the pump will need to be turned on to "pull" a sample through the DP2530. **Flip the PUMP POWER switch to turn on the sampling pump (Figure 5).** You should hear the pump running (depending on the noise level at your location) and the flow through the meter should increase significantly.

Figure 5

To obtain consistent accurate readings from the DPC2530, be sure that the element in the bowl filter on the side of the instrument is clean and functional. Not only will this ensure that the sample reading is not abnormally high (since soot tends to trap moisture), but it will also prevent soot and other contaminants from entering the unit and damaging the sensor. The optimum flow rate of the sample gas should be between 1.5 and 2.0 cubic feet per hour (CFH), although a flow rate as low as 1.0 CFH is acceptable (Figure 6). **If the unit is reading less than 1.0 CFH, verify that there are no**

obstructions to the flow such as a clogged sample line or a poorly adjusted knob on the DPC2530's flow meter.

Figure 6

Heat Treat Furnace Sampling: A gas sample may be extracted from a process using the built-in pump. The sample tube from which the sample is taken out of the furnace should extend into the furnace past the HOT face of the refractory. For accurate results, a designated sample port should be used to extract the sample. SSi offers a sample port assembly (part number 20263) which is ideal for this purpose. If a designated sample port is not available, then a clean "burn-off" port on a Gold Probe™, an industry leading oxygen sensor for atmosphere control, can be used.

Endothermic Generator Sampling: For applications under pressure, the pump should be switched off and the flow controlled by the small restriction valve on the flow meter. A flow rate between 1.5 and 2.0 CFH is ideal. The sample should be taken from the endothermic gas manifold after the gas has been cooled. **NOTE: Allow the sample port "to blow out any soot" before connecting the sample tube**. Failure to do so will unnecessarily coat the sample tubing assembly and possibly some internal components with soot, resulting in inaccurate readings and exposing the sensor to potential damage.

WHAT IS DEW POINT?

Dew point can be defined as the temperature at which the water vapor pressure of the gas equals the saturated water vapor pressure. In other words, it is the temperature at which condensation will just begin to occur as the gas is cooled. Dew point and relative humidity are not the same measurement. Relative humidity is the amount of water vapor in the air compared to the amount the air could hold if it was totally saturated, and it is expressed as a percentage, not a temperature. To determine dew point, two main variables are required: relative humidity and temperature. The DP2530 measures both variables to compute the displayed dew point.

HOW IT WORKS –

The dew point sensor is a "dielectric ceramic" that varies its electrical capacitance with changes in relative humidity. The sensor is mounted in a short probe, which is installed in a T-fitting that allows the sample gas to flow past the sensor. The tip of this probe contains the dielectric ceramic relative humidity (RH) sensor, as well as a built in temperature sensor to determine its dry bulb temperature. Information from both of these sensors is used to compute the resultant dew point, which is displayed on the digital LED display.

FACTORY CALIBRATION –

Factory calibration is recommended every six months if the unit is used regularly. SSi's calibration is NIST traceable and includes a numbered "Certificate of Calibration". This certificate also indicates the accuracy of the analyzer before and after calibration. Please contact Super Systems at (513) 772-0060 for more information regarding this service.

FIELD CALIBRATION –

It is also possible to calibrate the DPC2530 in the field, which will require the optional calibration kit (Part Number 31030). The instructions for a field calibration are shown here, however please feel free to contact Super Systems at 513-772-0060 if you would like to review the process with us before you begin.

The calibration kit consists of two bottles of saturated salt solution in which each bottle generates a precise relative humidity percentage (R.H.%) value. One bottle is 11.3% R.H., and the other is 75.3% R.H. These two specific calibration points are already pre-programmed into the microprocessor board.

1.0 Open the unit.

1.1 Undo the latches on the side of the enclosure.

2.0 Locate the key components within the unit.

2.1 The **microprocessor board** is located in the front right side of the unit. This board contains three very small buttons that are used for calibration. Two are next to one another, and they are marked "75.3%" and "11.3%", while the other has no label. The unmarked button is the "Calibrate" button. The approximate locations of each button are shown on this diagram:

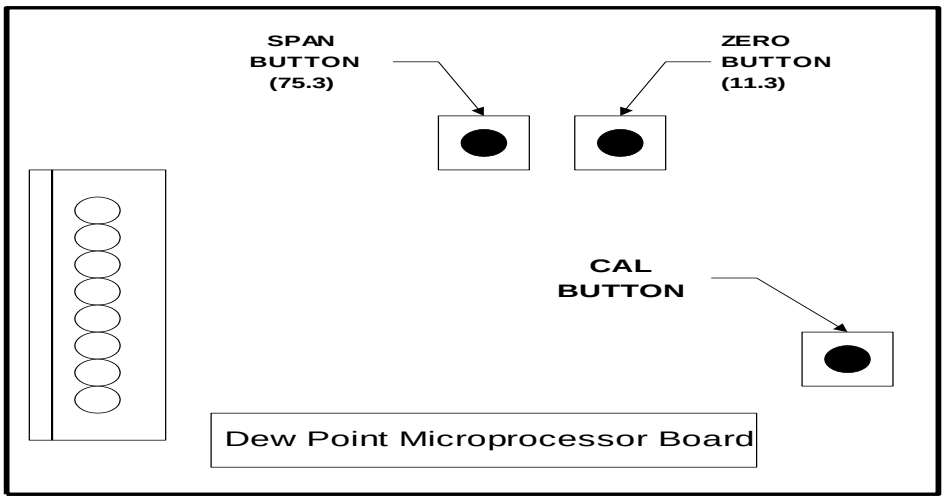


Figure 7

2.2 The **sensor-sampling chamber** is located in the bottom left of the unit. It is the gray rectangular box with brass barb fittings on either side and a black plastic gland protruding from the center.

2.3 The **sensor probe** is positioned in the sensor sampling chamber. It is held in place by the nut on the black plastic gland.

3.0 Remove the sensor probe from the sensor-sampling chamber.

3.1 Loosen the black plastic gland nut and slowly slide the sensor probe out through the airtight seal. Care must be taken when removing this sensor probe, since the tip is very delicate and can be easily damaged if it is mishandled. Note that the probe has white mark at the wire entry point, which must be aligned with corresponding white mark in plastic gland when it is re-inserted in the sampling chamber.

4.0 Install the sensor probe into the 75.3% salt solution.

4.1 Slip the black sensor gland (supplied in the calibration kit) over the sensor probe with the sensor tip protruding from the threaded end of the gland and the sensor wires being flush with the top of the rubber o-ring in the gland. Tighten the gland around the sensor. This does not need to be done with a wrench or other tools, but it does need to be tight enough to prevent ambient air from contaminating the humidity level of the sampling chamber.

4.2 Remove the cap of the 75.3% salt solution and install the sensor gland (with the sensor) into the salt solution. To increase the life of the calibration salts, an effort should be made to minimize the amount of time that the salt solution is exposed to the ambient air.

5.0 Allow the sensor to reach equilibrium with the calibration salt.

5.1 With the power to the unit still turned off, leave the sensor in the calibration salt for a minimum of eighteen (18) hours. It is acceptable to leave the sensor in the salt solution for a longer period of time, even a few days, if desired.

6.0 Begin the 75.3% (Span) calibration process.

6.1 After leaving the sensor in the salt for at least eighteen (18) hours, turn the unit on. The reading on the display is not important at this point.

6.2 Simultaneously press the "75.3%" and "Calibration" buttons on the microprocessor board.

7.0 Verify the 75.3% (Span) calibration.

7.1 Do not be concerned if the unit does not display 75.3, since it is not supposed to match the value of the calibration salt.

7.2 Use the "Sensor Temp" switch on the faceplate of the unit to determine and record the sensor temperature.

7.3 Look up this temperature on the "Theoretical Dew Point Values for Calibration Verification" chart located in the back of this manual. Appendix "A" will show the temperature values in Fahrenheit, and Appendix B will show the temperature values in Celsius.

7.4 Next to the appropriate temperature, note the number in the corresponding column titled "75.3%". This should match with the dew point that is shown on the display of the DPC2530.

8.0 Determine the acceptability of the reading.

8.1 The value printed on the chart in Appendix A is a theoretical value, and some variation can be expected. When a calibration is performed at SSi, we certify (in writing) that the unit displays within +/- 1 degree of the theoretical value after it has been calibrated. We would not consider a calibration to be successful unless it is within +/- 1 degree, however in the case of a field calibration, this degree of accuracy may or may not be required. The degree of accuracy that is acceptable is determined by the policy of the person performing the calibration.

NOTE: Keep in mind that the DPC2530 only displays whole numbers, and not tenths of a degree. Therefore, a reading of 65°F could be as low as 64.50 or as high as 65.49.

9.0 Allow the sensor to achieve equilibrium at ambient atmosphere.

9.1 After the 75.3% (Span) calibration has been completed, remove the sensor from the calibration salt and replace the cap on the salt.

9.2 Leave the sensor probe in the gland and while the unit is still on, allow it to achieve equilibrium at the ambient atmosphere in the room. This is accomplished by simply leaving the sensor exposed to ambient air for between two and three minutes. You will know when this has been accomplished when the numbers on the display begin to stabilize.

10.0 Install the sensor probe into the 11.3% salt solution.

10.1 Remove the cap of the 11.3% salt solution and install the sensor gland (with the sensor) into the salt solution. To increase the life of the calibration salts, an effort should be made to minimize the amount of time that the salt solution is exposed to the ambient air.

10.2 Turn the unit off.

11.0 Allow the sensor to reach equilibrium with the calibration salt.

11.1 With the power to the unit still turned off, leave the sensor in the calibration salt for a minimum of twenty-four (24) hours. It is acceptable to leave the sensor in the salt solution for a longer period of time, even a few days, if desired.

12.0 Begin the 11.3% (Zero) calibration process

12.1 After leaving the sensor in the salt for at least twenty-four (24) hours, turn the unit on. The reading on the display is not important at this point.

12.2 Simultaneously press the “11.3%” and “Calibration” buttons on the microprocessor board.

13.0 Verify the 11.3% (Zero) calibration

13.1 Do not be concerned if the unit does not display 11.3, since it is not supposed to match the value of the calibration salt.

13.2 Use the "Sensor Temp" switch on the face plate of the unit to determine and record the sensor temperature.

13.3 Look up this temperature on the "Theoretical Dew Point Values for Calibration Verification" chart located in the back of this manual. Appendix "A" will show the temperature values in Fahrenheit, and Appendix B will show the temperature values in Celsius.

13.4 Next to the appropriate temperature, note the number in the corresponding column titled "11.3%". This should match with the dew point that is shown on the display of the DPC2530.

14.0 Determine the acceptability of the reading.

14.1 The value printed on the chart in Appendix A is a theoretical value, and some variation can be expected. When a calibration is performed at SSi, we certify (in writing) that the unit displays within +/- 1 degree of the theoretical value after it has been calibrated. We would not consider a calibration to be successful unless it is within +/- 1 degree, however in the case of a field calibration, this degree of accuracy may or may not be required. The degree of accuracy that is acceptable is determined by the policy of the person performing the calibration.

NOTE: Keep in mind that the DPC2530 only displays whole numbers, and not tenths of a degree. Therefore, a reading of 18°F could be as low as 17.50 or as high as 18.49.

15.0 Allow the sensor to achieve equilibrium at ambient atmosphere.

15.1 After the 11.3% (Zero) calibration has been completed, remove the sensor from the calibration salt and replace the cap.

15.2 Leave the sensor probe in the gland and while the unit is still on, allow it to achieve equilibrium at the ambient atmosphere in the room. This should take between two and three minutes. You will know when this has been accomplished when the numbers on the display begin to stabilize.

16.0 Re-assemble the unit.

16.1 After the calibration process has been completed, remove the sensor probe from the gland and return it to the sensor-sampling chamber, taking care to position it properly. The white mark on the sensor probe should face towards the right of the sensor-sampling chamber (at 3:00 if it were the face of a clock.). If the white mark is not visible, then it should be placed so the sample flow directly strikes the face of the mirror on the sensor tip (the

sample flows from right-to-left). In other words, the mirror should face the incoming gas stream.

16.2 Hand-tighten the black sensor gland to prevent air from leaking out of the sampling chamber.

16.3 Verify that the system is leak proof by turning on the pump and placing a finger over the sample inlet port. The flow meter will drop to zero if there are no leaks. If a leak is detected, make sure that all tubing connections are tight, especially the black sensor gland.

16.4 After the unit has passed the leak test, the enclosure door can be closed.

17.0 Make sure that all caps are replaced on the calibration salts, and return the DPC2530 to service.

TROUBLESHOOTING –

Unit doesn't power up:

Verify that the unit has power. Open the case by releasing the latches on the top and bottom corners of the right side of the enclosure (Figure 8). Open the enclosure and locate the wiring terminal (Figure 9). With a voltmeter set to AC Voltage, $\tilde{\mathbf{V}}$, verify that there is 110/120 VAC on terminals 1000 and 1002 (Figure 10). Wire 1000 is considered to be the "hot" wire and wire 1002 should be the neutral in the circuit.

If there is no voltage on these wires, there is no outside power to the DPC2530. If there is power to these wires, verify that the 2 amp circuit breaker is not tripped. Reset the breaker, which should supply power to the analyzer.

Figure 8

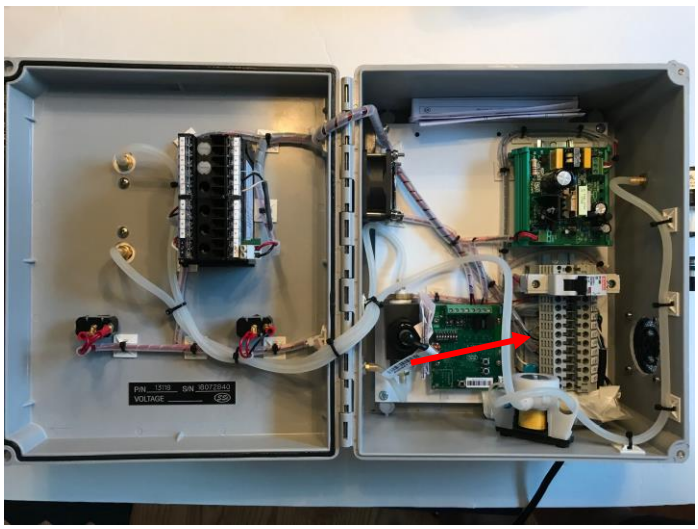


Figure 9

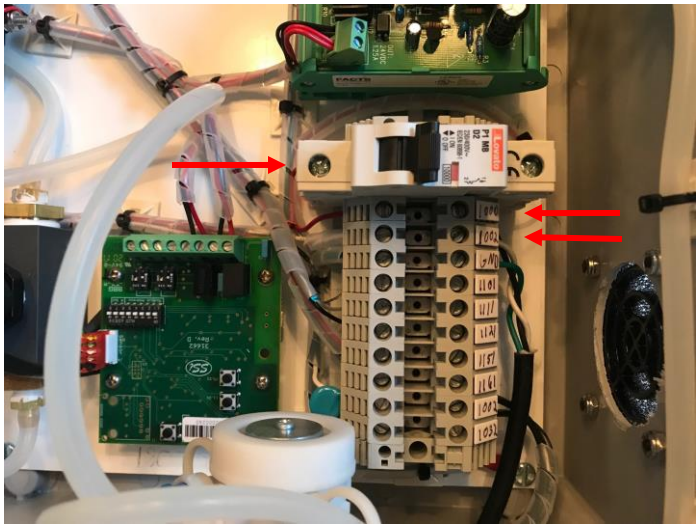


Figure 10

Verify that the 24VDC power supply is supplying power. With a voltmeter set to DC Voltage, $\overline{V}$, verify that there is 24VDC coming from the power supply (Figure 11). Place the two leads of the voltmeter on the output terminals (wires 1230 and 1240) of the 24VDC power supply. The position of the voltmeter leads will affect the reading showing either a positive or negative voltage reading. The meter should indicate approximately 24 VDC of power coming from the DC voltage power supply. If there is 24VDC power, but still no signal from the Simple Dew analyzer, contact SSi directly at (513) 772-0060 for additional troubleshooting tips.

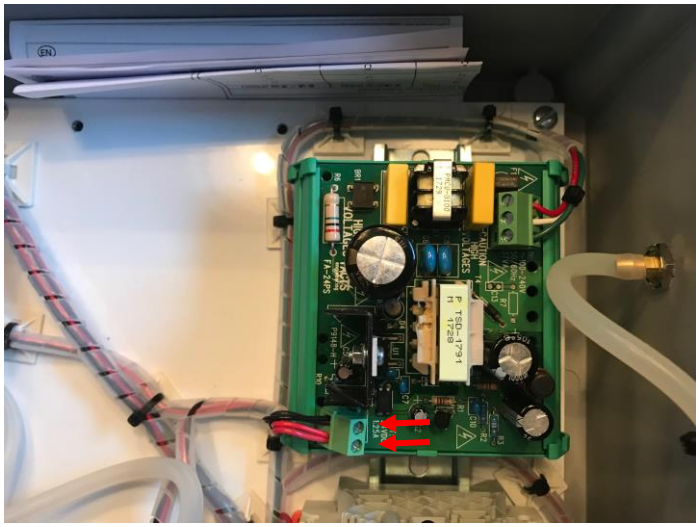


Figure 11

<u>Dew point reading shows 80°F and never drops:</u>

The upper range of the sensor is +80°F. If that value is displayed, it likely indicates the presence of moisture in the sample tubing or on the dew point sensor tip. If this

moisture is not removed, it will cause the sensor tip to corrode and will eventually require the sensor to be replaced.

First, check the dew point sensor tip for obvious signs of moisture, corrosion, and/or damage causing high readings. Remove power from the DP2530. Make sure that it is not plugged into a power source and that the POWER switch is off. Open the enclosure and locate the dew point sensor (Figure 12).

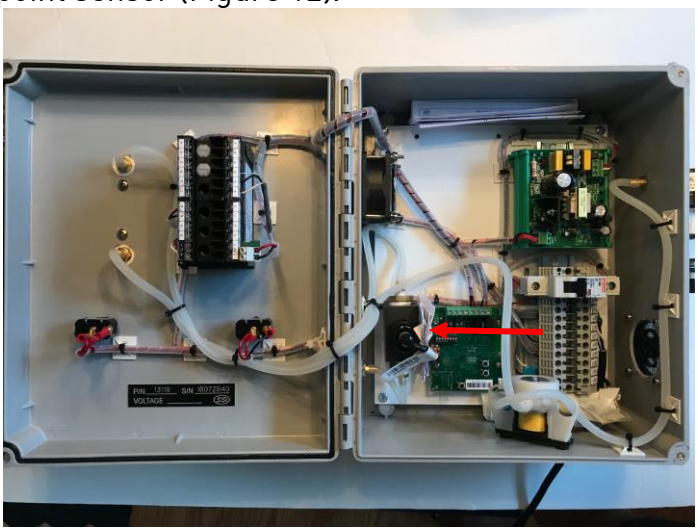


Figure 12

Loosen the black plastic compression fitting that holds the dew point sensor (Figure 13).

Figure 13

Pull out the sensor and visually inspect it for visible moisture. Older units use a sensor shown in Figures 14 and 15. New units use a sensor shown in Figure 16. The older sensor has a plastic protective end that can be unthreaded and removed for a more close examination. Removing the protective end exposes a mirror and wire leads

around it. The newer sensor has an aluminum protective cover that cannot be removed. **Look for signs of visible moisture on the sensor or any other signs of contamination due to prolonged exposure to moisture**.


Figure 14


Figure 15


Figure 16

Some examples of sensor damage due to prolonged exposure to excessive moisture on an older model sensor are shown below (Figures 17 – 19).

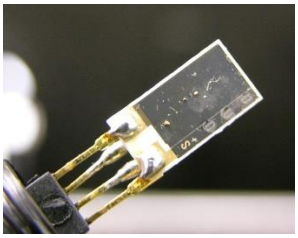


Figure 17

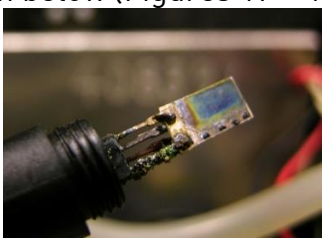


Figure 18

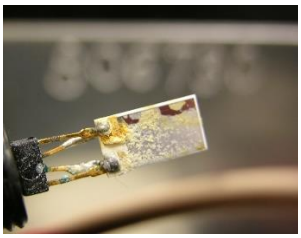


Figure 19

Water droplets present on the mirror indicate that the sensor has been exposed to excessive moisture at some point. That moisture needs to be removed. **DO NOT ATTEMPT TO REMOVE THE MOISTURE FROM THE SENSOR WITH A CLOTH OR COMPRESSED AIR AS THIS CAN PERMANENTLY DAMAGE THE SENSOR.** There are a few ways to remove the moisture from the sampling lines and DP2530. The method used will depend on how much time the user can afford to be without measurements from the DP2530 analyzer.

When reinstalling, the sensor can be inserted completely until contact is made with the back of the housing.

<u>Drying out the DPC2530:</u>

Option 1:
The easiest way to remove moisture is to flow dry compressed air*, nitrogen, or argon through the analyzer, until the dew point reading drops and stabilizes. This can take up to two days depending on the amount of moisture in the sampling lines and analyzer.

**Dry compressed air is compressed air produced by a facility air compressor that has flowed through a desiccant or refrigerated air dryer with a dew point of 40°F (4°C) or less.*

Disassemble the sampling line filter to determine if the element is saturated with moisture (Figure 20). Replace the element if it contains moisture as leaving it in the sampling line will increase the drying time significantly.

Figure 20

Connect a dry gas source to the sampling line of the DPC2530. Verify that the pressure is low (less than 2 psi) to prevent damage to the dew point sensor. Adjust flow through the DPC2530 to 1.5 to 2 cfh of flow indicated by the flow meter on the front of the unit. Allow gas to flow through the unit and monitor the dew point reading from the sensor. As the sample line and sensor dry out, the dew point reading should drop and stabilize.

Option 2:
Moisture can be removed from the sampling line much more quickly if the lines are disconnected and blown out with dry compressed air, nitrogen, or argon. Below are steps to remove moisture with that method.

Isolate the sampling line from the atmosphere gas source to the DPC2530 sample line inlet at the filter by disconnecting it on both ends. Higher pressures can be used for this process as long as the lines have been disconnected at both ends and no sensing equipment is exposed to the high pressure gas. Blow gas through the sampling line for as long as it takes to remove any visible moisture from the line. Reconnect the line at both ends.

Figure 21

Open the filter housing and wipe out the bowl removing any moisture. Assess the filter element and replace it if there is any sign of moisture present in that element. Reassemble the filter.

Open the front door of the DPC2530 and disconnect the tubing at the filter outlet. Disconnect the tubing to the Sampling Pump inlet. This should isolate the section of tubing between the filter and pump. Blow gas through the tubing for as long as it takes to remove any visible moisture from the line. Reconnect the tubing at both ends.

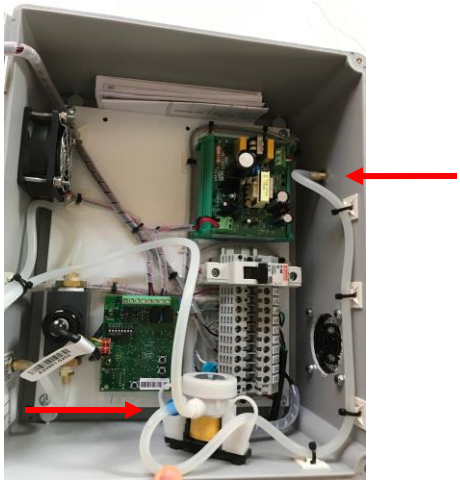


Figure 22

Disconnect the tubing from the Sampling Pump outlet. Disconnect the tubing from the bottom of the Sampling Gas Flow Meter. This should isolate the section of tubing between the pump and flow meter. Blow gas through the tubing for as long as it takes to remove any visible moisture from the line. Reconnect the tubing at both ends.

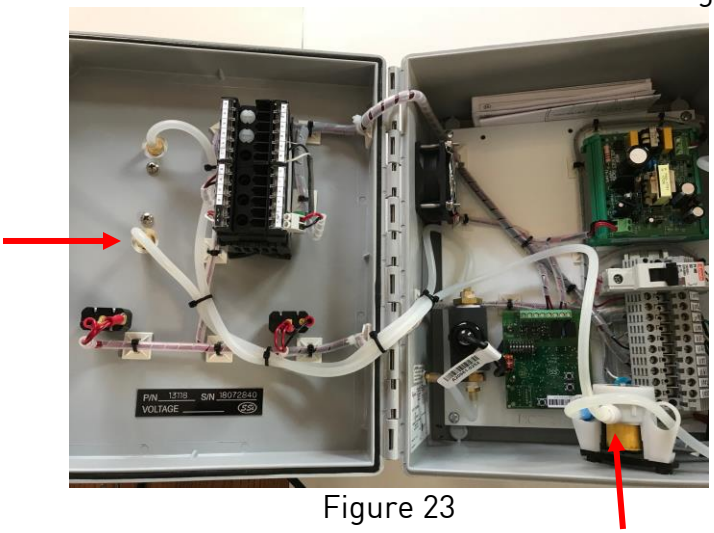


Figure 23

Visually inspect the flow meter for signs of moisture in the flow tube where the black float is located. If necessary, blow dry gas through the flow meter, until all of the moisture is removed. Reconnect the tubing.

Disconnect the tubing from the top of the Sampling Gas Flow Meter. Disconnect the tubing from the top of the dew point element housing. This should isolate the section of tubing between the flow meter and element housing. Blow gas through the tubing for as long as it takes to remove any visible moisture from the line. Reconnect the tubing at both ends.

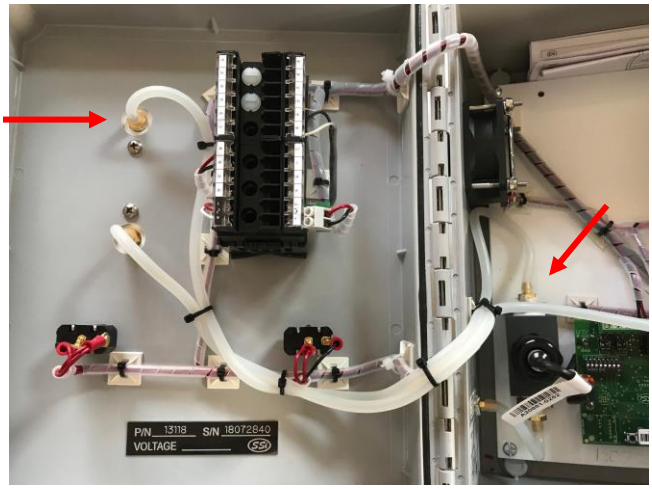


Figure 24

Remove the dew point element from its housing by loosening the compression nut. Visually inspect the element for any signs of moisture. If there is any moisture on the element, low pressure gas must be flowed past the element, until the element is dry. **DO NOT ATTEMPT TO REMOVE THE MOISTURE FROM THE ELEMENT WITH A CLOTH OR COMPRESSED AIR AS THIS CAN PERMANENTLY DAMAGE THE ELEMENT.** With the element out of its housing, disconnect the tubing on both ends and blow gas through the housing, until all of the moisture has been removed. A dry cloth or paper towel can also be used to remove moisture from inside the housing. Reconnect the tubing and reinstall the dew point element.

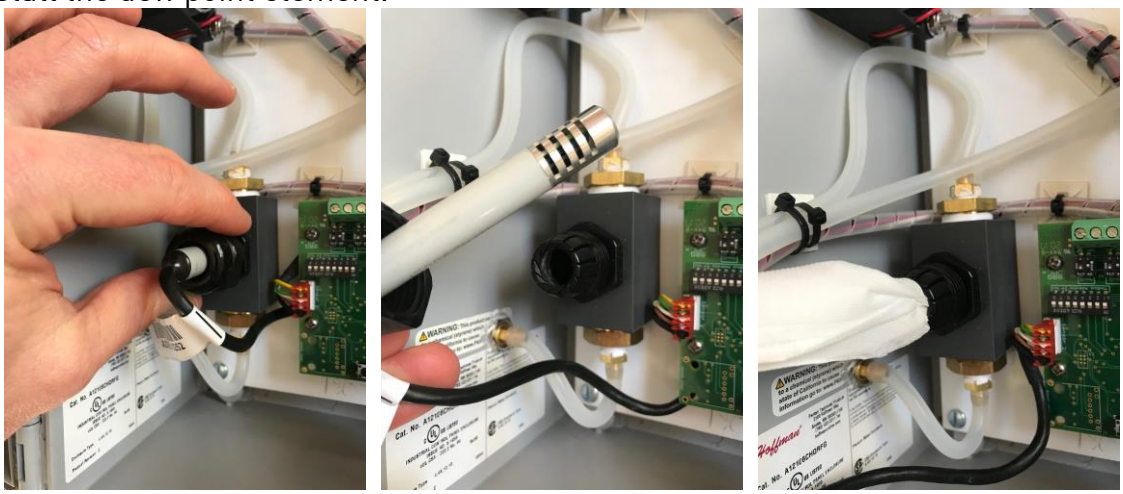


Figure 25

Disconnect the tubing from the bottom of the dew point element housing and the sample gas outlet. Blow out the tubing to remove the moisture. Reconnect the tubing.

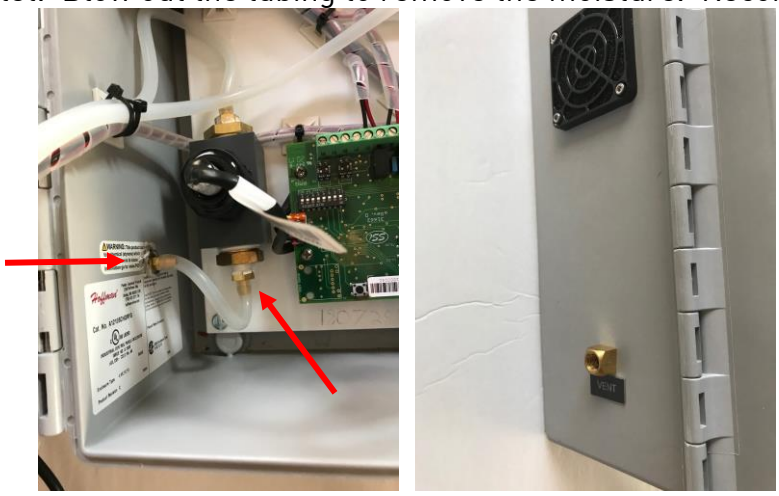


Figure 26

To test if it is operating properly, sample the outside air and verify the ambient dew point against a web-based weather station that will report the ambient dew point for your area. If the displayed reading is within three degrees (3°) of the reported dew point when the instrument is taken outside, then all of the moisture has probably been successfully removed. The wet filter and sample tubing can be re-attached after they have been completely dried out. The filter element will regain all of its original filtering properties after it has dried out.

To prevent the possibility of moisture damaging the instrument, be sure that the measured dew point is below ambient levels before it is stored. If necessary, dry compressed air, nitrogen, or argon can be used to purge the instrument after use.

No visible flow is shown in the flow meter:

Verify that that the generator is running and that all sampling line valves are physically open to the DPC2530. Disconnect the tubing to the filter and verify that there is flow coming out of the tubing (reference Figure 21). If there is no flow at this point, there may be a blockage in the tubing or the supply pressure may be too low to flow through the filter and flow meter. Isolate the sampling line by disconnecting it on both ends. Blow clean, dry air through the sampling line to verify that it is clear. Using a manometer, measure the supply pressure from the atmosphere generator. If the supply pressure is less than 10" WC positive pressure, the pump may be required to pull a sample of gas through the DPC2530.

From this point, follow the instructions given above in *Option 2* of the Drying out the DPC2530: section with respect to removing sections of the tubing to check for

obstructions in the tubing preventing sample gas flow. More detail is provided below in troubleshooting the Sampling Pump operation.

Sampling Pump Does Not Function When Energized:
Verify that the unit is powered up and the pump is turned on. Listen for the sound of the pump (normally, the pump is loud enough to hear when it is energized). If the pump does not sound like it is energizing, please contact SSi at 513-772-0060 for more technical support. Otherwise, if the pump is running, see below for additional troubleshooting tips.

Sampling Pump Does Function When Energized:
Follow the *Option 2* instructions in the Troubleshooting section labeled, Drying out the DPC2530:, to verify that the internal tubing is clean and free of any moisture, dirt, and debris.

Verify that the pump seals are still good. Open the flow control valve on the flow meter (reference Figure 4). To do this, turn the black knob on the bottom of the flow meter counter-clockwise (or to the left) as much as possible. With the sampling pump running, open the enclosure (reference Figures 8 & 9) and verify that the tubing connected to the inlet and outlet of the sampling pump is actually connected and hasn't come loose (reference Figure 23). Verify that the tubing is also still connected to the bottom of the flow meter (also reference Figure 23). Disconnect the tubing from the sampling pump inlet (reference Figure 22) and flow meter outlet (reference Figure 24).

Check the flow through the meter to see if it is at least 1.5 CFH. If not, disconnect the tubing to the bottom of the meter and physically feel if there is any air coming out of the pump. You can do this by putting the tubing up to your lips or tongue to feel air flow. If you can't feel any air flow, disconnect the other end of the tubing from the sampling pump outlet and blow compressed air through the tubing to verify that there is no blockage in the tubing. Reconnect the tubing. If this does not help, the seals have probably failed and the pump needs to be replaced. Please contact Super Systems, Inc. at 513-772-0060 for more technical support.

If disconnecting the tubing from the flow meter inlet allows air to flow out of the tube that you can feel, the issue may be with the flow meter. Turn off the pump and power to the DP2530. Disconnect the tubing to the flow meter inlet and outlet (reference Figures 23 & 24). Blow compressed air into the flow meter inlet (bottom fitting) and see if the indicator ball inside freely moves up indicating flow. If the indicator ball does not move, it may be frozen in the meter. See the section below about cleaning the flow meter or contact Super Systems, Inc. at 513-772-0060 for more technical support.

Cleaning the Flow Meter:
Remove the tubing from the inlet and outlets of the flow (reference Figures 23 & 24). Blow dry air, nitrogen, or argon through the flow meter to free the indicator ball. If necessary, flow isopropyl alcohol through the meter and then flow air through the

meter to free the ball. Re-connect the sample supply tubing at the bottom of the meter and see if there is any flow shown through the meter. If so, reconnect the sample tubing to the top of the meter. If flow stops, the sample tubing out of the meter may be clogged. Isolate that tubing and blow clean, dry air through the tubing. Reconnect the tubing and check for flow.

Display appears to be locked up and never changes (not at 80°F):

Disconnect power to the unit and wait for 30 seconds. Reapply power to the unit and verify the display. If the unit still appears to be "frozen," contact SSi for further troubleshooting tips.

Display reads -50 (indicating that the sensor failed):

Contact SSi for further troubleshooting tips.

Display reads higher than normal and does not match other dew point equipment:

If soot is allowed to collect on the dew point sensor in the instrument, it could result in higher readings. This soot will also retain moisture than can corrode the sensor over time. Change the filter element if it is possibly saturated with soot.
Also, the dew point sensor tip can be cleaned by carefully removing it from the sample block (see Section 2.0 of the Field Calibration instructions) and rinsing it in isopropyl alcohol. The power should be off while this is done, and the power should remain off for at least 30 minutes after this procedure to allow all of the alcohol to completely evaporate.

RETURNING THE UNIT TO SSi –

This analyzer contains some components that may require periodic replacement based on the amount of use that the unit experiences and the methods in which it is used. If service on the unit is necessary, it should be sent back to Super Systems, Inc. for repair. To minimize damage to the mounting feet on the enclosure, it is possible to unscrew them and rotate them 180 degrees (so they point into the enclosure instead of away from it). This will reduce the likelihood that they will be damaged during shipment. If the original packaging is not available, the analyzer should be surrounded by impact-absorbing materials and placed in a box. It is the responsibility of the shipper to ensure that the DPC2530 arrives at SSi undamaged.

Before shipping the analyzer, please call 513-772-0060 to receive a Return Materials Authorization (RMA) number. The shipping address that should be used for returns is:

Super Systems, Inc.
ATTN: RMA #XXXX
7205 Edington Drive
Cincinnati, OH 45249

SPARE PARTS –

To simplify the ordering of replacement parts, the following is a list of some of the components that may be requested:

Description	Part No.
Factory Calibration	13045
Sample Pump	31401
Filter	37048
Replacement filter element	31027
Flow meter	36027
808 Display/Controller	31343
Dew Point Sensor	A20881
Calibration Kit	31030
24VDC Power Supply	31125
Voltage Divider	31188

APPENDIX "A" (Determining the Dew Point in °F)–

Theoretical Dew Point Values For Calibration Verification (Fahrenheit)

Temp (°F)	Percent RH	
	11.3%	**75.3%**
69.00	12.94	60.86
69.10	13.01	60.96
69.20	13.09	61.06
69.30	13.17	61.16
69.40	13.25	61.25
69.50	13.33	61.35
69.60	13.40	61.45
69.70	13.48	61.54
69.80	13.56	61.64
69.90	13.63	61.74
70.00	13.71	61.83
70.10	13.79	61.93
70.20	13.87	62.03
70.30	13.95	62.12
70.40	14.02	62.22
70.50	14.10	62.32
70.60	14.18	62.41
70.70	14.26	62.51
70.80	14.33	62.60
70.90	14.41	62.70
71.00	14.49	62.80
71.10	14.57	62.89
71.20	14.65	62.99
71.30	14.72	63.09
71.40	14.80	63.18
71.50	14.88	63.28
71.60	14.96	63.38
71.70	15.03	63.47
71.80	15.11	63.57
71.90	15.19	63.67
72.00	15.27	63.76
72.10	15.34	63.86
72.20	15.42	63.96
72.30	15.50	64.05
72.40	15.58	64.15
72.50	15.65	64.25
72.60	15.73	64.34

Temp (°F)	Percent RH	
	11.3%	**75.3%**
72.70	15.81	64.44
72.80	15.89	64.54
72.90	15.97	64.63
73.00	16.04	64.73
73.10	16.12	64.82
73.20	16.20	64.92
73.30	16.28	65.02
73.40	16.35	65.11
73.50	16.43	65.21
73.60	16.51	65.31
73.70	16.59	65.40
73.80	16.66	65.50
73.90	16.74	65.60
74.00	16.82	65.69
74.10	16.90	65.79
74.20	16.97	65.89
74.30	17.05	65.98
74.40	17.13	66.08
74.50	17.21	66.18
74.60	17.28	66.27
74.70	17.36	66.37
74.80	17.44	66.47
74.90	17.52	66.56
75.00	17.59	66.66
75.10	17.67	66.76
75.20	17.75	66.85
75.30	17.83	66.95
75.40	17.90	67.04
75.50	17.98	67.14
75.60	18.06	67.24
75.70	18.14	67.33
75.80	18.21	67.43
75.90	18.29	67.53
76.00	18.37	67.62
76.10	18.44	67.72
76.20	18.52	67.82
76.30	18.60	67.91

Temp (°F)	Percent RH	
	11.3%	**75.3%**
76.40	18.68	68.01
76.50	18.75	68.11
76.60	18.83	68.20
76.70	18.91	68.30
76.80	18.99	68.40
76.90	19.06	68.49
77.00	19.14	68.59
77.10	19.22	68.69
77.20	19.30	68.78
77.30	19.37	68.88
77.40	19.45	68.97
77.50	19.53	69.07
77.60	19.61	69.17
77.70	19.68	69.26
77.80	19.76	69.36
77.90	19.84	69.46
78.00	19.91	69.55
78.10	19.99	69.65
78.20	20.07	69.75
78.30	20.14	69.84
78.40	20.22	69.94
78.50	20.30	70.04
78.60	20.38	70.13
78.70	20.46	70.23
78.80	20.53	70.33
78.90	20.61	70.42
79.00	20.69	70.52
79.10	20.76	70.61
79.20	20.84	70.71
79.30	20.92	70.81
79.40	21.00	70.90
79.50	21.07	71.00
79.60	21.15	71.10
79.70	21.23	71.19
79.80	21.31	71.29
79.90	21.38	71.39
80.00	21.46	71.48

APPENDIX "B" (Determining the Dew Point in °C) –

Theoretical Dew Point Values For Calibration Verification (Celsius)

Temp (°C)	Percent RH 11.3%	75.3%
20.56	-10.59	16.03
20.61	-10.55	16.09
20.67	-10.51	16.14
20.72	-10.46	16.20
20.78	-10.42	16.25
20.83	-10.37	16.31
20.89	-10.33	16.36
20.94	-10.29	16.41
21.00	-10.24	16.47
21.06	-10.21	16.52
21.11	-10.16	16.57
21.17	-10.12	16.63
21.22	-10.07	16.68
21.28	-10.03	16.73
21.33	-9.99	16.79
21.39	-9.94	16.84
21.44	-9.90	16.89
21.50	-9.86	16.95
21.56	-9.82	17.00
21.61	-9.77	17.06
21.67	-9.73	17.11
21.72	-9.68	17.16
21.78	-9.64	17.22
21.83	-9.60	17.27
21.89	-9.56	17.32
21.94	-9.51	17.38
22.00	-9.47	17.43
22.06	-9.43	17.48
22.11	-9.38	17.54
22.17	-9.34	17.59
22.22	-9.29	17.64
22.28	-9.26	17.70
22.33	-9.21	17.76
22.39	-9.17	17.81
22.44	-9.12	17.86
22.50	-9.08	17.92
22.56	-9.04	17.97

Temp (°C)	Percent RH 11.3%	75.3%
22.61	-8.99	18.02
22.67	-8.95	18.08
22.72	-8.91	18.13
22.78	-8.87	18.18
22.83	-8.82	18.23
22.89	-8.78	18.29
22.94	-8.73	18.34
23.00	-8.69	18.39
23.06	-8.65	18.45
23.11	-8.61	18.51
23.17	-8.56	18.56
23.22	-8.52	18.61
23.28	-8.48	18.67
23.33	-8.43	18.72
23.39	-8.39	18.77
23.44	-8.35	18.83
23.50	-8.31	18.88
23.56	-8.26	18.93
23.61	-8.22	18.99
23.67	-8.18	19.04
23.72	-8.13	19.09
23.78	-8.09	19.15
23.83	-8.04	19.20
23.89	-8.01	19.26
23.94	-7.96	19.31
24.00	-7.92	19.36
24.06	-7.87	19.42
24.11	-7.83	19.47
24.17	-7.79	19.52
24.22	-7.74	19.58
24.28	-7.70	19.63
24.33	-7.66	19.68
24.39	-7.62	19.74
24.44	-7.57	19.79
24.50	-7.53	19.84
24.56	-7.49	19.90
24.61	-7.44	19.95

Temp (°C)	Percent RH 11.3%	75.3%
24.67	-7.40	20.01
24.72	-7.36	20.06
24.78	-7.32	20.11
24.83	-7.27	20.17
24.89	-7.23	20.22
24.94	-7.19	20.27
25.00	-7.14	20.33
25.06	-7.10	20.38
25.11	-7.06	20.43
25.17	-7.02	20.49
25.22	-6.97	20.54
25.28	-6.93	20.59
25.33	-6.88	20.65
25.39	-6.84	20.70
25.44	-6.80	20.76
25.50	-6.76	20.81
25.56	-6.72	20.86
25.61	-6.67	20.92
25.67	-6.63	20.97
25.72	-6.59	21.02
25.78	-6.54	21.08
25.83	-6.50	21.13
25.89	-6.46	21.18
25.94	-6.41	21.24
26.00	-6.37	21.29
26.06	-6.33	21.34
26.11	-6.28	21.40
26.17	-6.24	21.45
26.22	-6.20	21.51
26.28	-6.16	21.56
26.33	-6.11	21.61
26.39	-6.07	21.67
26.44	-6.03	21.72
26.50	-5.98	21.77
26.56	-5.94	21.83
26.61	-5.90	21.88
26.67	-5.86	21.93

APPENDIX "C" – (Determining the sensor temperature in °F)

When the DC voltage between 5(+) and 8(-) is:	Then the sensor temperature (°F) is:
0.3472	**67.0**
0.3478	**67.2**
0.3483	**67.4**
0.3489	**67.6**
0.3494	**67.8**
0.3500	**68.0**
0.3506	**68.2**
0.3511	**68.4**
0.3517	**68.6**
0.3522	**68.8**
0.3528	**69.0**
0.3533	**69.2**
0.3539	**69.4**
0.3544	**69.6**
0.3550	**69.8**
0.3556	**70.0**
0.3561	**70.2**
0.3567	**70.4**
0.3572	**70.6**
0.3578	**70.8**
0.3583	**71.0**
0.3589	**71.2**
0.3594	**71.4**
0.3600	**71.6**
0.3606	**71.8**
0.3611	**72.0**
0.3617	**72.2**
0.3622	**72.4**
0.3628	**72.6**
0.3633	**72.8**
0.3639	**73.0**
0.3644	**73.2**
0.3650	**73.4**
0.3656	**73.6**
0.3661	**73.8**
0.3667	**74.0**
0.3672	**74.2**
0.3678	**74.4**
0.3683	**74.6**
0.3689	**74.8**
0.3694	**75.0**
0.3700	**75.2**
0.3706	**75.4**
0.3711	**75.6**
0.3717	**75.8**
0.3722	**76.0**
0.3728	**76.2**
0.3733	**76.4**
0.3739	**76.6**
0.3744	**76.8**
0.3750	**77.0**
0.3756	**77.2**
0.3761	**77.4**
0.3767	**77.6**
0.3772	**77.8**
0.3778	**78.0**
0.3783	**78.2**
0.3789	**78.4**
0.3794	**78.6**
0.3800	**78.8**

When the DC voltage between 5(+) and 8(-) is:	Then the sensor temperature (°F) is:
0.3806	**79.0**
0.3811	**79.2**
0.3817	**79.4**
0.3822	**79.6**
0.3828	**79.8**
0.3833	**80.0**
0.3839	**80.2**
0.3844	**80.4**
0.3850	**80.6**
0.3856	**80.8**
0.3861	**81.0**
0.3867	**81.2**
0.3872	**81.4**
0.3878	**81.6**
0.3883	**81.8**
0.3889	**82.0**
0.3894	**82.2**
0.3900	**82.4**
0.3906	**82.6**
0.3911	**82.8**
0.3917	**83.0**
0.3922	**83.2**
0.3928	**83.4**
0.3933	**83.6**
0.3939	**83.8**
0.3944	**84.0**
0.3950	**84.2**
0.3956	**84.4**
0.3961	**84.6**
0.3967	**84.8**
0.3972	**85.0**
0.3978	**85.2**
0.3983	**85.4**
0.3989	**85.6**
0.3994	**85.8**
0.4000	**86.0**
0.4006	**86.2**
0.4011	**86.4**
0.4017	**86.6**
0.4022	**86.8**
0.4028	**87.0**
0.4033	**87.2**
0.4039	**87.4**
0.4044	**87.6**
0.4050	**87.8**
0.4056	**88.0**
0.4061	**88.2**
0.4067	**88.4**
0.4072	**88.6**
0.4078	**88.8**
0.4083	**89.0**
0.4089	**89.2**
0.4094	**89.4**
0.4100	**89.6**
0.4106	**89.8**
0.4111	**90.0**
0.4117	**90.2**
0.4122	**90.4**
0.4128	**90.6**
0.4133	**90.8**

When the DC voltage between 5(+) and 8(-) is:	Then the sensor temperature (°F) is:
0.4139	**91.0**
0.4144	**91.2**
0.4150	**91.4**
0.4156	**91.6**
0.4161	**91.8**
0.4167	**92.0**
0.4172	**92.2**
0.4178	**92.4**
0.4183	**92.6**
0.4189	**92.8**
0.4194	**93.0**
0.4200	**93.2**
0.4206	**93.4**
0.4211	**93.6**
0.4217	**93.8**
0.4222	**94.0**
0.4228	**94.2**
0.4233	**94.4**
0.4239	**94.6**
0.4244	**94.8**
0.4250	**95.0**
0.4256	**95.2**
0.4261	**95.4**
0.4267	**95.6**
0.4272	**95.8**
0.4278	**96.0**
0.4283	**96.2**
0.4289	**96.4**
0.4294	**96.6**
0.4300	**96.8**
0.4306	**97.0**
0.4311	**97.2**
0.4317	**97.4**
0.4322	**97.6**
0.4328	**97.8**
0.4333	**98.0**
0.4339	**98.2**
0.4344	**98.4**
0.4350	**98.6**
0.4356	**98.8**
0.4361	**99.0**
0.4367	**99.2**
0.4372	**99.4**
0.4378	**99.6**
0.4383	**99.8**
0.4389	**100.0**
0.4394	**100.2**
0.4400	**100.4**
0.4406	**100.6**
0.4411	**100.8**
0.4417	**101.0**
0.4422	**101.2**
0.4428	**101.4**
0.4433	**101.6**
0.4439	**101.8**
0.4444	**102.0**
0.4450	**102.2**
0.4456	**102.4**
0.4461	**102.6**
0.4467	**102.8**

APPENDIX "D" – (Determining the sensor temperature in °C)

When the DC voltage between 5(+) and 8(-) is:	Then the sensor temperature (°C) is:
0.3472	19.4
0.3478	19.6
0.3483	19.7
0.3489	19.8
0.3494	19.9
0.3500	20.0
0.3506	20.1
0.3511	20.2
0.3517	20.3
0.3522	20.4
0.3528	20.6
0.3533	20.7
0.3539	20.8
0.3544	20.9
0.3550	21.0
0.3556	21.1
0.3561	21.2
0.3567	21.3
0.3572	21.4
0.3578	21.6
0.3583	21.7
0.3589	21.8
0.3594	21.9
0.3600	22.0
0.3606	22.1
0.3611	22.2
0.3617	22.3
0.3622	22.4
0.3628	22.6
0.3633	22.7
0.3639	22.8
0.3644	22.9
0.3650	23.0
0.3656	23.1
0.3661	23.2
0.3667	23.3
0.3672	23.4
0.3678	23.6
0.3683	23.7
0.3689	23.8
0.3694	23.9
0.3700	24.0
0.3706	24.1
0.3711	24.2
0.3717	24.3
0.3722	24.4
0.3728	24.6
0.3733	24.7
0.3739	24.8
0.3744	24.9
0.3750	25.0
0.3756	25.1
0.3761	25.2
0.3767	25.3
0.3772	25.4
0.3778	25.6
0.3783	25.7
0.3789	25.8
0.3794	25.9
0.3800	26.0

When the DC voltage between 5(+) and 8(-) is:	Then the sensor temperature (°C) is:
0.3806	26.1
0.3811	26.2
0.3817	26.3
0.3822	26.4
0.3828	26.6
0.3833	26.7
0.3839	26.8
0.3844	26.9
0.3850	27.0
0.3856	27.1
0.3861	27.2
0.3867	27.3
0.3872	27.4
0.3878	27.6
0.3883	27.7
0.3889	27.8
0.3894	27.9
0.3900	28.0
0.3906	28.1
0.3911	28.2
0.3917	28.3
0.3922	28.4
0.3928	28.6
0.3933	28.7
0.3939	28.8
0.3944	28.9
0.3950	29.0
0.3956	29.1
0.3961	29.2
0.3967	29.3
0.3972	29.4
0.3978	29.6
0.3983	29.7
0.3989	29.8
0.3994	29.9
0.4000	30.0
0.4006	30.1
0.4011	30.2
0.4017	30.3
0.4022	30.4
0.4028	30.6
0.4033	30.7
0.4039	30.8
0.4044	30.9
0.4050	31.0
0.4056	31.1
0.4061	31.2
0.4067	31.3
0.4072	31.4
0.4078	31.6
0.4083	31.7
0.4089	31.8
0.4094	31.9
0.4100	32.0
0.4106	32.1
0.4111	32.2
0.4117	32.3
0.4122	32.4
0.4128	32.6
0.4133	32.7

When the DC voltage between 5(+) and 8(-) is:	Then the sensor temperature (°C) is:
0.4139	32.8
0.4144	32.9
0.4150	33.0
0.4156	33.1
0.4161	33.2
0.4167	33.3
0.4172	33.4
0.4178	33.6
0.4183	33.7
0.4189	33.8
0.4194	33.9
0.4200	34.0
0.4206	34.1
0.4211	34.2
0.4217	34.3
0.4222	34.4
0.4228	34.6
0.4233	34.7
0.4239	34.8
0.4244	34.9
0.4250	35.0
0.4256	35.1
0.4261	35.2
0.4267	35.3
0.4272	35.4
0.4278	35.6
0.4283	35.7
0.4289	35.8
0.4294	35.9
0.4300	36.0
0.4306	36.1
0.4311	36.2
0.4317	36.3
0.4322	36.4
0.4328	36.6
0.4333	36.7
0.4339	36.8
0.4344	36.9
0.4350	37.0
0.4356	37.1
0.4361	37.2
0.4367	37.3
0.4372	37.4
0.4378	37.6
0.4383	37.7
0.4389	37.8
0.4394	37.9
0.4400	38.0
0.4406	38.1
0.4411	38.2
0.4417	38.3
0.4422	38.4
0.4428	38.6
0.4433	38.7
0.4439	38.8
0.4444	38.9
0.4450	39.0
0.4456	39.1
0.4461	39.2
0.4467	39.3

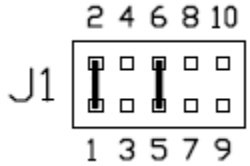
Appendix E: 7EK Information

PN: 31081

7EK Configuration Parameters for °F	
P1	16
P2	No Decimal Place
P3	-50
P4	600
P5	PU.rt
P6	4-20
P7	-50
P8	80
This will scale the input and the 4-20mA output to -50 to 80°F	
7EK Operative Parameters for °F	
SP	0
rL	0
rH	80

7EK Configuration Parameters for °C	
P1	16
P2	1 Decimal Place
P3	-45.6
P4	315.6
P5	PU.rt
P6	4-20
P7	-45.6
P8	26.7
This will scale the input and the 4-20mA output to -45.6 to 26.7°C	
7EK Operative Parameters for °C	
SP	0
rL	-17.8
rH	26.7

Note: The "Input Type Selection" at J1 must be set for the 0-5 volt range by connecting pins 1&2 and 5&6 as follows:



Warranty

Limited Warranty for Super Systems Products:

The Limited Warranty applies to new Super Systems Inc. (SSI) products purchased direct from SSI or from an authorized SSI dealer by the original purchaser for normal use. SSI warrants that a covered product is free from defects in materials and workmanship, with the exceptions stated below.

The limited warranty does not cover damage resulting from commercial use, misuse, accident, modification or alteration to hardware or software, tampering, unsuitable physical or operating environment beyond product specifications, improper maintenance, or failure caused by a product for which SSI is not responsible. There is no warranty of uninterrupted or error-free operation. There is no warranty for loss of data—you must regularly back up the data stored on your product to a separate storage product. There is no warranty for product with removed or altered identification labels. SSI DOES NOT PROVIDE ANY OTHER WARRANTIES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SOME JURISDICTIONS DO NOT ALLOW THE LIMITATION OF IMPLIED WARRANTIES, SO THIS LIMITATION MAY NOT APPLY TO YOU. SSI is not responsible for returning to you product which is not covered by this limited warranty.

If you are having trouble with a product, before seeking limited warranty service, first follow the troubleshooting procedures that SSI or your authorized SSI dealer provides.
SSI will replace the PRODUCT with a functionally equivalent replacement product, transportation prepaid after PRODUCT has been returned to SSI for testing and evaluation. SSI may replace your product with a product that was previously used, repaired and tested to meet SSI specifications. You receive title to the replaced product at delivery to carrier at SSI shipping point. You are responsible for importation of the replaced product, if applicable. SSI will not return the original product to you; therefore, you are responsible for moving data to another media before returning to SSI, if applicable. Data Recovery is not covered under this warranty and is not part of the warranty returns process. SSI warrants that the replaced products are covered for the remainder of the original product warranty or 90 days, whichever is greater.

REVISION HISTORY –

Rev.	Description	Date	MCO
A	Initial Release as DP2500	11-01-2000	
B	Updated for use with 7EK controller	07-11-2001	
C	General update	11-01-2001	
D	Assigned manual number, added wiring charts, general update	04-18-2003	
E	SSi address update, general update	04-14-2005	
F	Added charts for Determining sensor temperature in F and C, MCO 2087	10/14/2011	
G	Updated parameters table and terminal wiring block for Series 8 Controller, added operative parameters table, removed jumper text and replaced with voltage divider text, updated cover photo,	09/22/2016	2180
H	Updated spare parts list with new SSi Sensor	12/9/16	2202
I	Added troubleshooting section and additional photos	2/7/2019	2252
J	Added 7EK parameter charts as Appendix	1/14/2020	2281