



# Portable Dew Point Monitor

## Model 8072A

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# Contents

Specifications.....	2
Product Overview .....	3
Operation .....	5
Sample Tubing Connection.....	5
Power Connection .....	6
Dryer Performance Testing .....	7
Material Dryness Testing.....	7
Remote Monitoring/Data Logging.....	9
Maintenance and Adjustments .....	10
Monitor Disassembly and Assembly .....	10
Sensor Replacement.....	11
Display Units & Alarm Set Point Adjust .....	12
Troubleshooting .....	14
Dry-Down Test.....	14
Troubleshooting Hints .....	15
Spare Parts & Accessories .....	17
Warranty.....	19

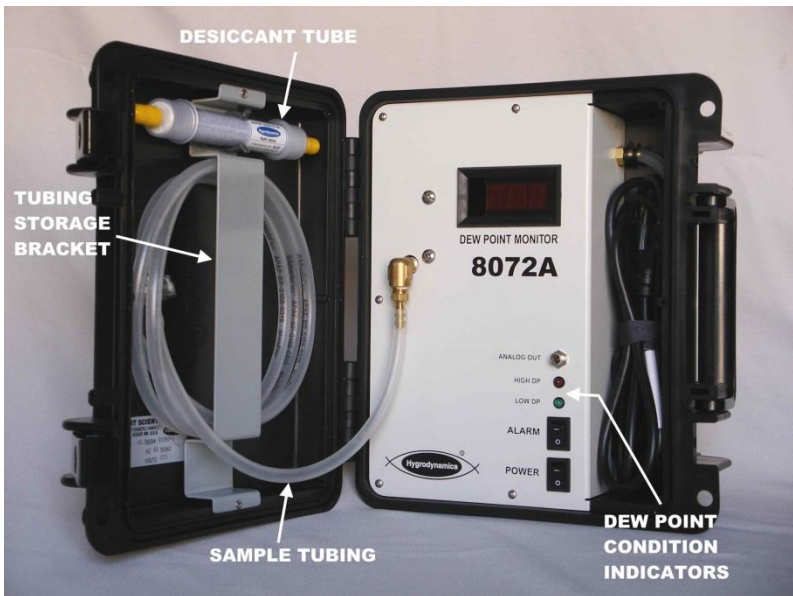
# Specifications

<b>DEW POINT RANGE</b>	-40°F to +15°F (-40°C to -9°C)
<b>TYPICAL ACCURACY</b>	±3°F (±1.7°C)
<b>ALARM SET POINT</b>	-10°F (-23°C)
<b>SENSOR PART NUMBER</b>	1205DM
<b>ANALOG OUTPUT SCALING</b>	-40°F to +70°F (-40°C to -9°C)
<b>ANALOG OUTPUT PORT</b>	3 pin M8 male jack
<b>POWER REQUIREMENTS</b>	115VAC 50/60HZ 0.15A max (230VAC optional)
<b>DIMENSIONS</b>	10.75" X 9.75" X 4.75"
<b>NET WEIGHT</b>	7.0lbs

## Product Overview

The 8072A dew point monitor is used to check the function of a desiccant dryer or to confirm the dryness of plastic resin in a hopper. The monitor has a built-in vacuum pump which draws sample air to be measured and provides real-time indication of dew point on an LED display. Visual and audible alarm indicators warn when high dew points are detected.

The dew point monitor and its accessories are housed in a portable carrying case. Before using the monitor, familiarize yourself with the features shown below:



<b>POWER SWITCH</b>	Turns monitor ON and OFF.
<b>ALARM SWITCH</b>	Enables local audible alarm when dew point exceeds the alarm set point.
<b>LINE CORD</b>	Provides connection to power.
<b>BEEPER (not shown)</b>	Gives audible signal when the measured dew point is above the alarm set point.
<b>DEW POINT CONDITION INDICATORS</b>	Green light is on when dry air is detected, red light is on when measured dew point is above the alarm set point.
<b>SAMPLE TUBING</b>	Six feet of heat resistant tubing draws in process air to be measured.
<b>AIR FILTER</b>	Installed in-line with sample tubing, removes fine particulates from sample air.
<b>DESICCANT TUBE</b>	Provides dry air for testing the monitor's response.
<b>TUBING STORAGE BRACKET</b>	Allows storage for sample tubing and desiccant tube when not in use.
<b>ANALOG OUT</b>	4-20mA and 0-5V output for remote monitoring or data logging. Mates with standard 3 pin M8 female cable.

**NOTE: The 8072A is shipped with a paper desiccant pack which can be discarded when the unit is unpacked.**

## Operation

The 8072A is designed to sample process air that is near atmospheric pressure, *NOT* compressed air. If you are attempting to monitor compressed air, consult the factory for other model options.

**NOTE: For best sensor life and response time, avoid sampling ambient air of high humidity. Leave unit off when not monitoring a dryer or hopper.**

**CAUTION: The carrying case is not heat resistant. It may melt or distort if left resting on the hot parts of a heated dryer. If a surface is too hot to touch, it is too hot for the 8072A!**

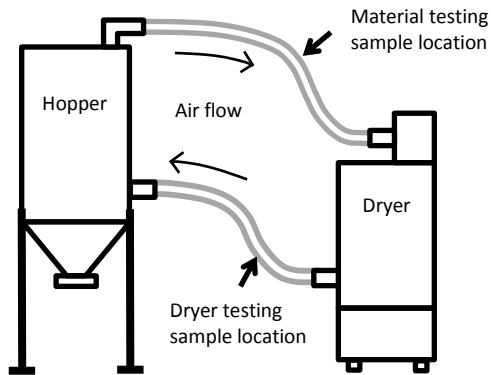
## Sample Tubing Connection

To enable testing of your process air, you must provide fittings in your drying system that will accept the 8072A's 3/16" ID sample tubing. This can be a barbed hose fitting or a piece of 1/4" copper tube that penetrates your dryer's air hoses. The point of attachment must be secure and leak-free.

The plastic sample tubing supplied with the monitor can tolerate temperatures up to 275°F (135°C). Higher process air temperatures can be cooled to a safe level by sampling through a few feet of 1/4" copper tubing.

Select the sample locations based on your testing needs (refer to diagram below). It is suggested that you have permanently accessible sample points at both the dryer output and return hoses. If your dryer has threaded test ports on the inlet and outlet connections (typically for thermocouples) use these to

make points of connection. Some dryer manufacturers provide a port for sampling.



**NOTE: When storing the 8072A, carefully coil the sample tubing and tuck it behind the tubing storage bracket. This will prevent kinks from forming in the tubing when the lid is closed.**

## Power Connection

The 8072A is supplied with a 6 foot line cord for connection to power. Always connect the monitor to the correct supply voltage. Do not attempt to replace the line cord with a different plug type to accommodate other supply voltages. The 8072A will be damaged if connected to incorrect supply voltage.

## Dryer Performance Testing

The performance of a dryer can be evaluated by measuring the dew point of its output air.

Connect the 8072A sample tubing to a point on the dryer's output line, before the hopper. Make sure not to exceed the sample tubing temperature rating.

Turn on the 8072A and allow the reading to stabilize. The initial reading will be +15°F (-9°C) until all the ambient air is purged from the monitor's tubing and internal fittings. After a few minutes, the reading should start to drop until a stable reading is obtained. It can take 30 minutes or more for the unit to stabilize when first turned on.

**NOTE: Not all dryers produce a -40°F dew point. Check with your dryer manufacturer for expected dew point levels.**

Leave the 8072A connected and turned on during material drying and processing. The built in red light and audible beeper will indicate dryer trouble within moments of a dew point rise.

A constantly high reading on the 8072A may indicate a malfunctioning dryer or one that is overloaded by damp material in the hopper. If you suspect that the 8072A is giving an incorrect high reading, perform the Dry-Down Test described in the Troubleshooting section of this manual.

## Material Dryness Testing

The dryness of material in a hopper can be inferred from the dew point of air exiting the hopper.

Connect the 8072A sample tubing to a point in the hopper's air



output. Make sure not to exceed the sample tubing temperature rating.

Turn on the 8072A. When a hopper is initially loaded with material, high dew points at the hopper's air return are normal while moisture is removed. The initial reading will be +15°F (-9°C) and will stay at that reading until the material begins to dry. It can take many hours to dry some materials. If drying time is expected to be all day, leave the 8072A sample tubing connected, but keep the monitor turned off. Every few hours, turn on the 8072A and allow at least 30 minutes for a reading. As the material dries, the 8072A dew point reading will start to drop. Material processing can begin when the dew point reading is at an acceptable level.

If the 8072A reading is stuck at +15°F (-9°C), change the sampling point to the output of the *dryer*. Follow the instructions for Dryer Performance Testing described above to make sure the dryer is providing low dew point air to the hopper.

## Remote Monitoring/Data Logging

The 8072A analog output jack can be used to monitor or log dew point over a period of time.

The output jack is a 3 pin male M8 type connector. This connector accepts standard threaded or snap fit female M8 cables.

PIN 1	0-5V signal
PIN 3	Ground
PIN 4	4-20mA self-powered signal (current sourcing)

Note that the output scaling is  $-40^{\circ}\text{F}$  to  $+70^{\circ}\text{F}$ .

## Maintenance and Adjustments

Newport Scientific offers a maintenance and calibration service for the 8072A. This service should be performed annually. Alternatively, most wearable parts can be replaced by the user.

To access the serviceable parts inside the monitor, the 8072A panel must be removed from the carrying case.

### Monitor Disassembly and Assembly

**WARNING: Unplug the 8072A from power before disassembly. Even with the power switch off, voltages are present inside the unit.**

Slide the sample tubing off of the front panel elbow.

Use a screwdriver to remove the 5 screws along the perimeter of the panel holding it in the case. Use the sample tubing elbow to help lift the panel straight up and out of the case.

When re-assembling the panel into the case, make sure sensor cable wires are tucked in and not pinched under the panel as you lower it into the case.

Install the 5 mounting screws, taking care not to cross thread the screws as you proceed. The screws only need to be snug to the panel, do not overtighten!

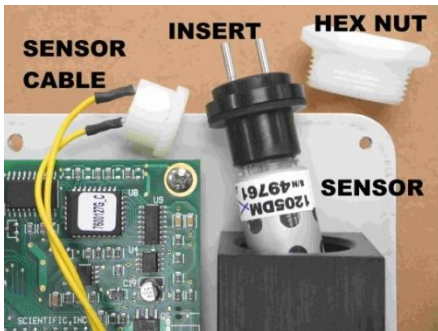
## Sensor Replacement

The internal sensor should be replaced on a yearly basis. It is difficult to verify the accuracy of the sensor in the field. For most users, an annual sensor replacement can assure good operation of the monitor. It is recommended to replace the sample tubing and air filter whenever the sensor is replaced.



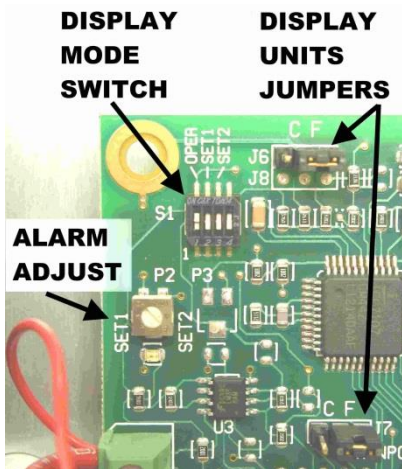
With the panel removed from the case, locate the sensor housing and pull the sensor cable connector from the housing. The cable will unplug straight out.

Unscrew the hex nut from the top of the sensor housing. With the hex nut unscrewed, remove the sensor and insert along



with gasket. The sensor will then unplug from the insert. Replace sensor and inspect gasket for damage. Reassemble all parts, hand tighten the hex nut, and plug in the cable connector.

## Display Units & Alarm Set Point Adjust

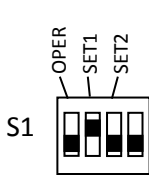


The 8072A is factory set to display dew point in °F. The display can be changed to °C by jumper configuration. With the 8072A panel removed from the carrying case, locate the configurable parts near the upper left corner of the PC board. Move J6 and J7 jumpers to the C position to display dew point in °C.

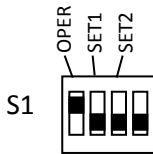
To change the dew point at which the monitor indicates an alarm (high dew point indication), use the DISPLAY MODE SWITCH labeled S1 and the ALARM ADJUST potentiometer labeled SET1.

**WARNING: The alarm set point adjustment is performed with the 8072A powered on. Avoid touching live electrical parts during this procedure as hazardous voltages are present!**

Apply power to the unit and turn it on with care, making sure not to touch any electrical terminals inside.



Configure the S1 switch as shown here, with SET1 position ON and all others OFF. In this configuration, the front panel display will indicate the current alarm set point. Adjust the SET1 potentiometer to the desired set point.



When the front panel display indicates your desired set point, return the S1 switches to the normal operating configuration. The front panel display will now show the actual measured dew point (note that most ambient air will cause the monitor to read +15°F).

Remove power and reinstall the 8072 panel into the carrying case.

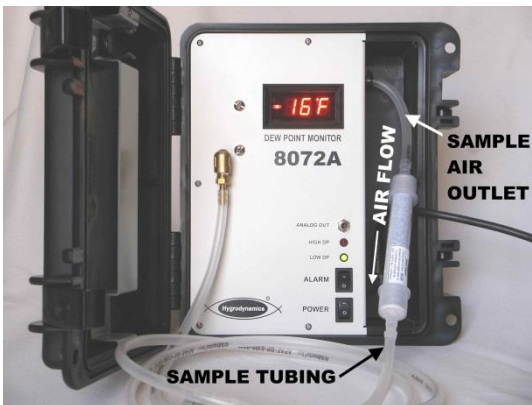
# Troubleshooting

## Dry-Down Test

The desiccant tube is used to provide a reliable source of dry air for field testing the monitor's response. Follow this procedure if the monitor indicates a constant high dew point but you suspect that your process air is dry.

**NOTE: Make sure the desiccant is blue in color. If the desiccant is fully pink, it will not produce dry air and you should purchase a new desiccant tube before testing.**

Remove the yellow caps from the ends of the desiccant tube—save them for re-use. Connect the sample tubing to one end of the desiccant tube, and the sample air outlet to the other end. This will create a closed loop of dry air flow through the monitor



and desiccant tube. Turn on the dew point monitor. In a few minutes, the reading should start to drop from +15°F (-9°C). Allow up to an hour for a -40°

reading. If the monitor doesn't respond, refer to the troubleshooting hints for more information. Replace the desiccant tube caps when done.

## Troubleshooting Hints

### Monitor display is stuck at +15°F (-9°C)

Possible Cause	Corrective Action
Room air getting into monitor	Make sure the fitting at your sample point is air tight. Also, check for a cracked air filter and replace if needed.
Inadequate sampling suction	With monitor on, use finger to block sample tubing. If you don't feel suction, the vacuum pump may be worn or damaged, or the 2 pin insert holding the sensor may be cracked and leaking. Monitor should be serviced.
Sensor worn or contaminated	Using a fresh desiccant tube, perform the Dry Down test. If response is slow, replace sensor.
Sampled air is not dry	Sampled air must have a dew point of +15°F or lower for monitor to respond. Check the Operation section for proper use of the monitor.



## Monitor reads -40° when turned on and doesn't change

Possible Cause	Corrective Action
Sensor cable disconnected	Disassemble the monitor and make sure sensor cable is plugged into the 2 pin insert.
Sensor broken or missing	Unplug the sensor cable and short the cable pins together with a jumper wire. Turn monitor on and check for +15°F on display. If so, the sensor needs replaced.
Circuit board defective.	Unplug the sensor cable and short the cable pins together with a jumper wire. Turn monitor on and check for +15°F on display. If display stays at -40°, the monitor needs factory service.

## Monitor is slow to respond

Possible Cause	Corrective Action
Inadequate sampling suction	With monitor on, use finger to block sample tubing. If you don't feel suction, the vacuum pump may be worn or damaged, or the 2 pin insert holding the sensor may be cracked and leaking. Monitor should be serviced.
Sensor worn or contaminated	Using a fresh desiccant tube, perform the Dry Down test. If response is slow, replace sensor.
Sample tubing or air filter is dirty	Inspect sample tubing and air filter and replace if loaded with resin dust.

## Spare Parts & Accessories

Item	Part No.
Sensor	1205DM
Air filter	3305005
High temp sample tubing (per ft)	4100133
2 pin insert	0900106
Gasket for insert	1000613G
Desiccant tube	6245
Field wireable analog out connector	0300201



# Warranty

NEWPORT SCIENTIFIC, INC. warrants that all equipment manufactured by NSI shall be free from defects in material and workmanship which might impair its usefulness. SELLER DOES NOT WARRANT THAT THE EQUIPMENT IS FIT FOR ANY PARTICULAR USE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE

DESCRIPTION ON THE FACE HEREOF; the obligation under this warranty is limited to repairing or replacing, at Seller's factory, any defective parts which, when returned by the buyer,

**TRANSPORTATION PREPAID**, examination discloses to have been factory defective. The time limit of this warranty is ONE YEAR from date of shipment of new equipment, SIX MONTHS from date of shipment of Hydrodynamics Wide-Range Sensors and THREE MONTHS from date of shipment of Hydrodynamics Narrow-Range Sensors and repaired equipment. THIS WARRANTY IS EXPRESSLY IN LIEU OF OTHER WARRANTIES. Seller shall not be held liable for any special, indirect, consequential damages arising out of this warranty or any breach thereof, of any defect in or failure or malfunction of the equipment and materials are further subject to tolerances and variations consistent with usages of trade. This warranty shall run in favor only of the purchaser from Seller and may not be passed on or represented on behalf of Seller to any subsequent purchaser.

## WARRANTIES: OTHER PRODUCTS

NEWPORT SCIENTIFIC, INC. makes no express or implied warranty as to items, which are the products of other manufacturers. Seller shall use its best efforts to obtain from the manufacturer, in accordance with its customary practice, the repair or replacement of such products may prove defective in workmanship or material. The foregoing states the entire liability in respect to such products, except as an authorized executive of the corporation may otherwise agree in writing.

In the case of special equipment or modifications to standard equipment manufactured at the request of the buyer, under buyer-approved specifications, buyer will indemnify Seller against the risk damages due to patent infringement.

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