



Portable Dew Point Monitor

for Compressed Air Desiccant Dryers

Model 8075A



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Specifications

DEW POINT RANGE	-40°F to +15°F (-40°C to -9°C)
TYPICAL ACCURACY	±3°F (±1.7°C)
USABLE PRESSURE RANGE	20psig to 150psig
COMPRESSED AIR CONSUMPTION	< 5SCFH
ALARM SET POINT	-10°F (-23°C)
SAMPLE AIR CONNECTION	Industrial interchange coupling set with 1/4" NPT male threads
SENSOR PART NUMBER	1205DM
ANALOG OUTPUT SCALING	-40°F to +70°F (-40°C to -9°C)
ANALOG OUTPUT PORT	3 pin M8 male jack
POWER REQUIREMENTS	115VAC 50/60HZ 0.15A max (230VAC optional)
DIMENSIONS	10.75" X 9.75" X 4.75"
NET WEIGHT	5.7lbs

Product Overview

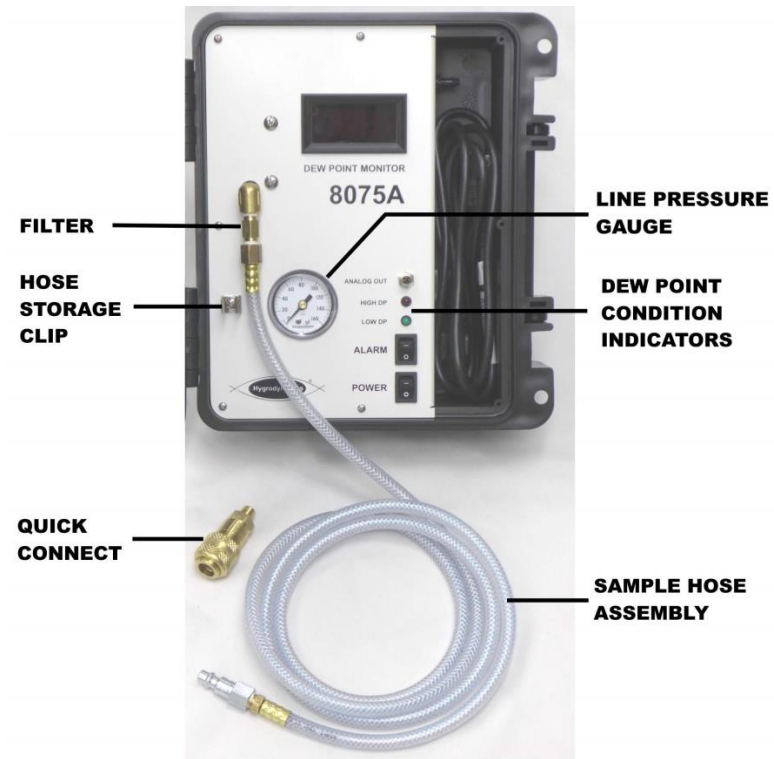
The 8075A dew point monitor is used to check the function of a desiccant dryer in a compressed air system. The monitor uses an internal bleed orifice to continuously sample a small amount of process air. The internal sensor is exposed to the line pressure of the compressed air system and therefore reads actual pressure dew point. Real-time dew point is displayed on a large numeric LED display.

The monitor samples process air through six feet of flexible hose which terminates in a standard 1/4" industrial quick connect plug. This allows quick and easy testing of air wherever a compatible quick connect is installed in the air distribution piping. Just plug in the sample hose and wait for a dew point reading.

In addition to the numeric LED display, the monitor includes dew point condition indicator lights, and audible alarm, and a linear signal output.

Features and Accessories

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:



POWER SWITCH	Turns monitor ON and OFF.
ALARM SWITCH	Enables local audible alarm when dew point exceeds the alarm set point.
LINE CORD	Provides connection to power.
BEEPER (not visible in picture)	Provides audible signal when the measured dew point is above the alarm set point.
DEW POINT CONDITION INDICATORS	Green light is on when dry air is detected, red light is on when measured dew point is above the alarm set point.
LINE PRESSURE GAUGE	Indicates actual air pressure at the sensor housing inside the monitor.
SAMPLE HOSE ASSEMBLY	Six feet of pressure resistant hose connects monitor input port to compressed air test location.
FILTER	Filter removes particulates from sample air.
HOSE STORAGE CLIP	Secures sample hose when not in use.
QUICK CONNECT	1/4" industrial quick connect to install in compressed air piping.
ANALOG OUT	4-20mA and 0-5V output for remote monitoring or data logging. Mates with standard 3 pin M8 female cable.

NOTE: The 8075A is shipped with a paper desiccant pack which can be discarded when the unit is unpacked.

Operation

The 8075A is designed to sample compressed air. If you are attempting to monitor air at atmospheric pressure, you need a vacuum assisted monitor, consult the factory for other model options.

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 monitor!

Sample Connection Requirements

The 8075A is supplied with a 1/4" industrial interchange style quick connect plug attached to 6 feet of sample hose. This plug is compatible with many shop air quick connect sockets, although a compatible socket is supplied with the monitor which can be used as a dedicated test port in your compressed air distribution line.

For best results, select a sample point that is close to the dryer output. Avoid sampling at remote locations in your air distribution system. Sections of air distribution piping which serve little-used tools or terminate with a dead-end are not good sampling points. The air in such lines can be stagnant and won't represent the actual condition of air that the dryer is producing.

NOTE: sampled air should be free of debris and oil mist. Particulates can clog the air bleed orifice and oil will damage the sensor. Also, the air should not be saturated with water!

If air lines are wet, don't connect the 8075A or sensor damage might occur.

Power Connection

The 8075A 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 8075A will be damaged if connected to incorrect supply voltage.

Dryer Testing

CAUTION: Inspect the sample hose assembly before connecting the monitor to a source of compressed air. If the hose fittings are loose or there are signs of hose damage (bulging, surface cuts, or frayed fibers) DO NOT use the monitor until the hose is replaced!

Connect the 8075A sample hose plug to a compatible quick connect socket in your air distribution line. The monitor will begin to bleed air from the line as soon as it's connected. Make sure the pressure gauge on the monitor agrees with the line pressure in your air system. If the monitor gauge reads significantly lower than your actual air pressure, this might indicate a plugged sample air filter. This pressure drop will affect the accuracy of the monitor!

Turn on the 8075A 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 8075A connected and turned on to continuously monitor dryer conditions. 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 8075A may indicate a malfunctioning dryer.

NOTE: When storing the 8075A, carefully coil the sample hose and snap the crimped metal ferrule into the storage clip. This will prevent kinks from forming in the hose when the lid is closed.

COIL SAMPLE HOSE AS SHOWN HERE AND SNAP HOSE FERRULE INTO THE STORAGE CLIP



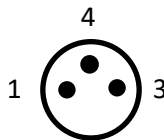
Remote Monitoring/Data Logging

The 8075A 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 No.	Wire Color*	Signal
1	Brown	4-20mA (current sourcing)
3	Blue	Ground
4	Black	0-5V

* standard wire color code of M8 cable assemblies



Connector pinout
(front view)

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

Maintenance and Adjustments

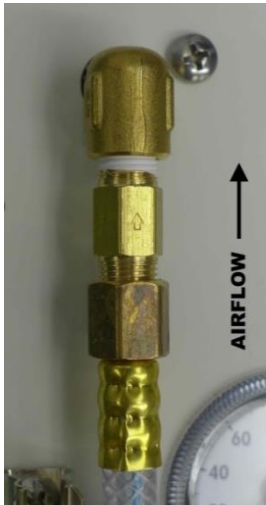
Newport Scientific offers a maintenance and calibration service for the 8075A. This service should be performed annually. Alternatively, most wearable parts can be replaced by the user.

Sample Hose Replacement

A contaminated sample hose will slow down the response time of the monitor. Also, worn or damaged hose is a safety hazard and should be replaced when needed.

Use a pair of wrenches to unthread the hose fitting from the air filter located at the monitor's sample air inlet port. Remove all remnants of thread sealing tape, any pieces left can get loose during re-assembly could clog the internal bleed orifice. Apply new tape to the filter threads and install hose.

Filter Replacement



If the pressure gauge on the 8075A indicates lower than the actual line pressure of the process air, a partially clogged air filter might be the cause. Remove the sample hose to access the filter. With the filter removed, clean or replace as needed. Remove all remnants of thread sealing tape, any pieces left can get loose during re-assembly could clog the internal bleed orifice. Observe the arrow direction marked on the filter body.

Monitor Disassembly

To access the serviceable parts inside the monitor, the 8075A panel must be removed from the carrying case.

WARNING: Unplug the 8075A from power before disassembly. Even with the power switch off, voltages are present inside the unit.

Use a screwdriver to remove the 5 screws along the perimeter of the panel holding it in the case. Grab the sample air inlet 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

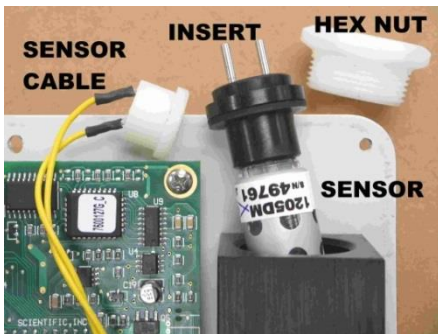
The internal sensor should be replaced on a yearly basis. It is difficult to verify the accuracy of the sensor in the field. For



most users, an annual sensor replacement can assure good operation of the monitor. It is recommended to clean the sample tubing 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

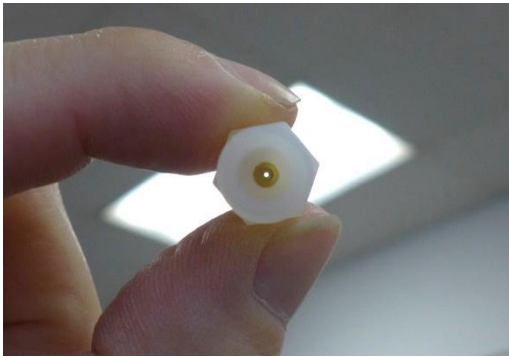


with gasket. The sensor will then unplug from the insert. Replace sensor and inspect gasket for damage. Reassemble all parts, hand tighten the hex nut, and plug in the sensor cable connector.

Backpressure Orifice Inspection

Refer to the Sensor Replacement section to locate the backpressure orifice. Remove the clear tubing from the orifice barbed end. Then use a pair of wrenches to unscrew the orifice (avoid torquing the pressure gauge mounting).

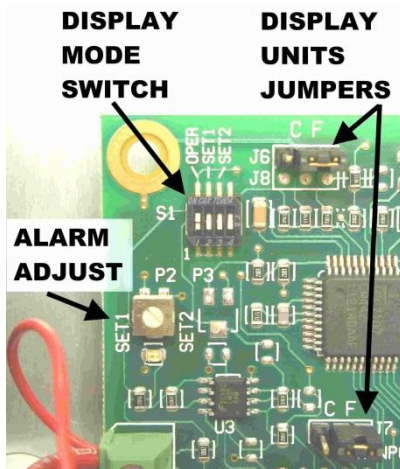
Hold the fitting up to a light, you should be able to see light coming through the tiny hole in the orifice.



If no light is visible, try blowing compressed air through the barbed side of the fitting to flush out any debris. If that doesn't clear it, a thin wire can be used to poke through the fitting. The hole size is 0.017", so avoid enlarging the hole with too large a wire size.

When clean, replace fitting and re-connect the clear tubing onto the barbed end.

Display Units & Alarm Set Point Adjust

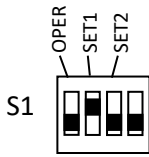


The 8075A is factory set to display dew point in °F. The display can be changed to °C by jumper configuration. With the 8075A panel removed from the carrying case, locate the configurable parts near the upper left corner of the PC board. Move J6 and J7 jumpers to the C position to display dew point in °C.

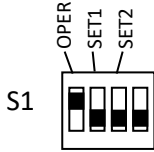
To change the dew point at which the monitor indicates an alarm (high dew point indication), use the DISPLAY MODE SWITCH labeled S1 and the ALARM ADJUST potentiometer labeled SET1.

WARNING: The alarm set point adjustment is performed with the 8075A 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 8075A panel into the carrying case.

Troubleshooting

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

Possible Cause	Corrective Action
Inadequate system pressure.	A minimum of 20psig is recommended to force airflow through the monitor.
Clogged sample air filter	A pressure reading on the monitor that is much less than your actual line pressure might indicate a clogged sample filter. Disconnect monitor from compressed air. Remove filter from inlet elbow and check for clear flow. Replace if needed.
Blocked backpressure orifice	Check for airflow coming out of the sample air outlet port. If no airflow is obvious, disassemble the monitor and clean or replace orifice fitting.
Sampled air is not dry	Sampled air must have a dew point below +15°F for monitor to respond.

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

Possible Cause	Corrective Action
Dry air remaining in sensor housing	If monitor was used previously on -40°F DP air, this air can remain in the unit for days. Connect monitor to un-dried compressed air momentarily to purge sensor until display responds.
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 the display stays at -40°F, the monitor needs factory service.

Monitor is slow to respond

Possible Cause	Corrective Action
Dirty sample air filter	Replace filter.
Sensor old or damaged	Replace sensor.
Contaminated sample hose	Inspect sample tubing and replace if loaded with dust or oil.

Spare Parts & Accessories

Item	Part No.
Sensor	1205DM
Filter	3305010
Sample hose assembly	4100210
2 pin insert	0900106
Gasket for insert	1000613G
Field wireable analog out connector	0300201

Notes

Warranty

WarrantyNEWPORT 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.

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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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