IMS Company

Dew Point Meter/Monitor

Model 1072A

Item# 171760 and 172019

Instruction Manual

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Manual Revisions

Rev	Date	Changes
A	12/2019	Initial release

Product Revisions

When device is powered on, a product revision code will be displayed on the LED display for 2 seconds.

Revision	Date	Description
R2.01	12/2019	Initial release for 1072A only.

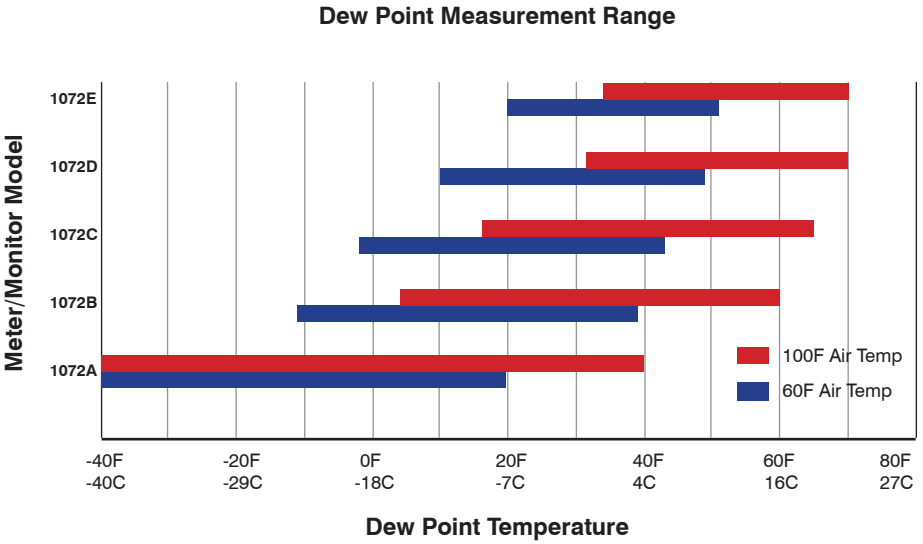
Contents

Product Overview

The 1072 dew point meter/monitor is used to measure moisture content of process air which is at atmospheric pressure. The meter/monitor has a built-in vacuum pump which continuously draws in a small volume of process air and provides real-time indication of dew point on an LED display. Visual and audible alarm indicators warn when high moisture levels are detected.

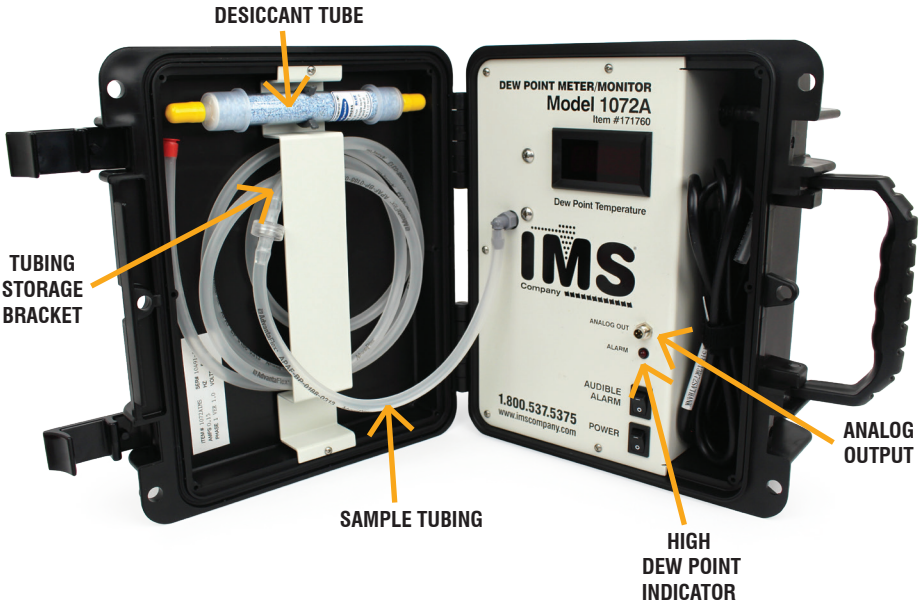
The 1072 is offered in several measurement ranges, suitable for different applications. The measurement range is determined by the sensor installed in the unit, and is reflected in the letter suffix of the meter/monitor model number. The supplied Narrow Range Hygrosensor provides fast response to changes in dew point.

The dew point measurement is temperature compensated, so the useful range of each model is dependent on air temperature at the sensor. Note that the air temperature at the sensor is typically close to ambient temperature regardless of the process air temperature. Refer to the chart below for a summary of the different model ranges available.



Application	Suggested Model	Dew Point Range (at nominal 80˚F sampling temperature)
Desiccant dryers for plastics molding, hygroscopic resins	1072A	-40˚F to +30˚F (-40˚C to -1.1˚C)
Limited dew point desiccant dryers	1072B	-5˚F to +50˚F (-20.5˚C to 10˚C)
Hot air dryers for plastics molding	1072C 1072D	+10˚F to +55˚F (-12.2˚C to 12.8˚C) +20˚F to +60˚F (-6.7˚C to 15.6˚C)
Ambient air testing	1072D 1072E	+20˚F to +60˚F (-6.7˚C to 15.6˚C) +25˚F to +65˚F (-3.9˚C to 18.3˚C)

The meter/monitor and its accessories are housed in a portable carrying case. Before using the meter/monitor, familiarize yourself with the items shown below:



POWER SWITCH	Turns meter/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	Provides audible signal when the measured dew point is above the alarm set point.
HIGH DEW POINT INDICATOR	Red light is on when measured dew point is above the alarm set point.
SAMPLE TUBING	Six feet of heat resistant flexible tubing draws in process air to be measured. Tube is 3⁄16" ID X 5⁄16" OD.
AIR FILTER	Installed in-line with sample tubing, removes fine particulates from sample air.
DESICCANT TUBE	Provides dry air for self testing the meter/monitor response.
TUBING STORAGE BRACKET	Allows storage for sample tubing and desiccant tube when not in use.
ANALOG OUTPUT	0-5V output for remote monitoring or data logging. Mates with standard 3 pin M8 female cable.

NOTE: The 1072 is shipped with a paper desiccant pack which can be discarded when the unit is unpacked.

Using the 1072

The 1072A is designed to sample process air that is near atmospheric pressure, NOT compressed air. If you are attempting to monitor compressed air, consult IMS for other model options.

CAUTION: The carrying case is not heat resistant. It may melt or distort if left on hot equipment. If a surface is too hot to touch, it is too hot for the 1072!

NOTE: When storing the 1072, 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 Requirements

The 1072 is supplied with a 6 foot line cord for connection to power. Always connect the meter/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 1072 will be damaged if connected to incorrect supply voltage!**

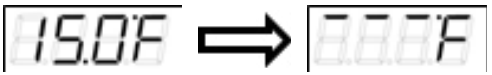
Taking Measurements

Turn the power switch ON to begin testing. The 1072 will continuously draw air though its sample tubing. Dew point results shown on the LED display will indicate the moisture content of air that is sampled through the tubing. Samples can be taken of ambient air, or from environmental test chambers, or through sample ports of any non-pressurized process air system.

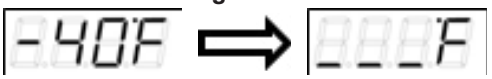
Because the sampled air travels through several feet of tubing before it reaches the internal sensor, the actual temperature at the sensor is close to ambient. This allows hot and cold process air to be tested.

During use, the 1072 will indicate if the Hygrosensor is detecting a dew point outside of its measurement range. Intermittent dashes in place of the dew point reading on the LED display will flash when this occurs.
Sensor Over Range

Sensor Over Range



Sensor Under Range

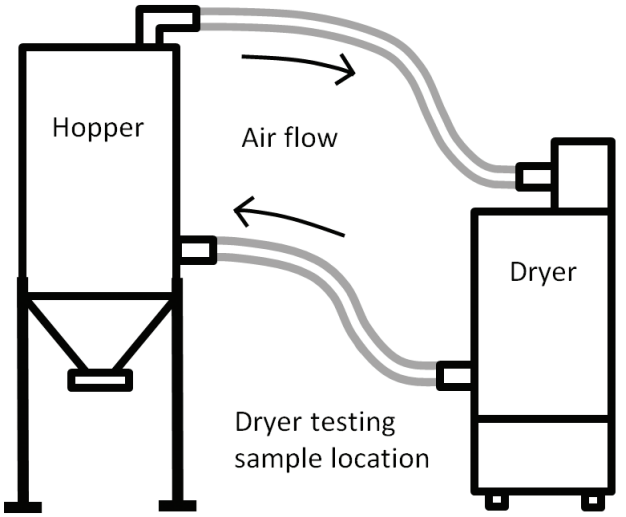


Plastics Molding Applications

Model 1072A is commonly used in the plastics molding industry to check for proper Desiccant dryer function. To enable testing of your process air, you should provide fittings in your drying system that will accept the 1072A's $^{3}/_{16}$" ID sample tubing. This can be a barbed hose fitting or a piece of ¼" copper tube that penetrates your dryer's air hoses. A valved connection is preferred for controlling sampling. The point of attachment must be secure and leak-free.

The flexible sample tubing supplied with the meter/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 ¼" 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 the dryer output. If your dryer has threaded test ports on the inlet and outlet connections use these to make points of connection. Some dryer manufacturers provide a port for sampling.



Dryer Performance Testing

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

Connect the 1072A sample tubing to a point on the dryer's output line, before the material hopper. Make sure not to exceed the sample tubing temperature rating.

Turn on the 1072A and allow the reading to stabilize. The initial reading will be high until all the ambient air is purged from the meter/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 1072A 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 1072A may indicate a malfunctioning dryer. If you suspect that the 1072A is giving an incorrect high reading, perform the Dry-Down Test described in the Troubleshooting section of this manual.

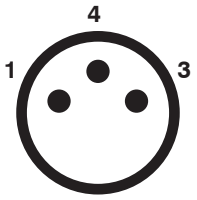
Remote Monitoring/Data Logging

The 1072 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	Ground
3	Blue	Ground
4	Black	0-5V

* wire color code of standard M8 cable assemblies



Connector pinout
(front view)

Note that the output scaling is -40˚F to +70˚F.

Maintenance and Adjustments

IMS offers a maintenance and calibration service for the 1072. This service should be performed annually. Alternatively, most wearable parts can be replaced by the user.

To access the serviceable parts inside the meter/monitor, the 1072 panel must be removed from the carrying case.

Meter/Monitor Disassembly and Assembly

WARNING: Unplug the 1072 from power before disassembly. Even with the power switch off, voltages are present inside the unit.

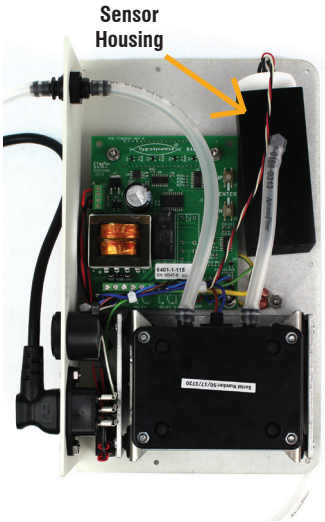
Slide the sample tubing off of the front panel elbow.

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!

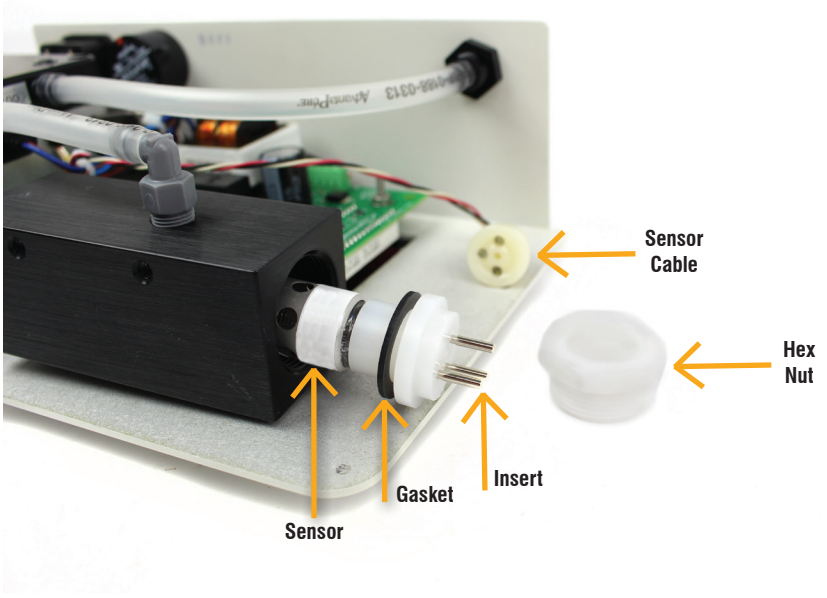
Sensor Replacement



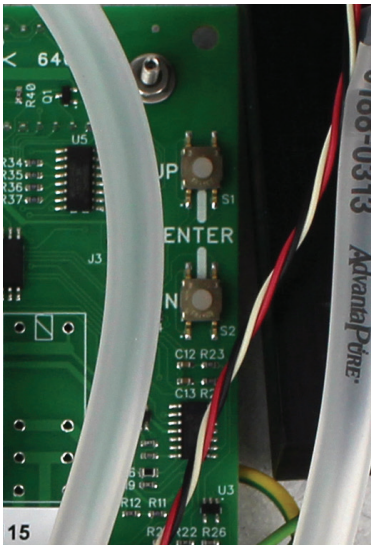
The internal sensor should be replaced on a yearly basis. It is difficult to verify the accuracy of the sensor in the field. For most users, an annual sensor replacement can assure reliable operation of the meter/monitor. It is recommended to replace the sample tubing and air filter whenever the sensor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



WARNING: Menu navigation is performed while power is applied to the hygrometer. Avoid touching other parts of the PC board or electrical terminals while pressing buttons.

Configuration options are available through a push button interface on the PC board. Locate the buttons labelled **UP** and **DOWN** near the sensor housing. These two buttons are used to navigate through the menu. Scroll through options using the **UP** and **DOWN** buttons, and press both buttons together to select (this is the **ENTER** command).

Enable configuration mode by pressing **ENTER**. If no buttons are pressed for some time, the unit will automatically revert to operational mode.

↑ **UP** button: increase value or scroll through menu

→ **ENTER** (press **UP** and **DOWN** together)

↓ **DOWN** button: decrease value or scroll through menu

Menu Navigation

Menu enters at **SEt1** option. Use **UP** or **DOWN** to navigate from there. When finished making selections, scroll back to oPEr and press ENTER, or wait for unit to automatically revert to **oPEr** mode after several seconds.

Configuration

Mode	**Menu Options**			
Operational	oPEr	→		Resume normal operation
Set point 1	SEt1	→	-10F ↓	or ↑ to change, → to store
Set point 2 *	SEt2	→	5.0F ↓	or ↑ to change, → to store
Process unit	unit	→	dpF →	dew point ˚F
			dpC →	dew point ˚C

* Set point 2 is only available on special order meter/monitor.

When configuration is complete, remove power and reinstall the 1072 panel into the carrying case.

CAUTION: Avoid altering additional menu settings from those shown above. Incorrect settings may cause measurement errors.

Troubleshooting

Dry-Down Test

The desiccant tube is used to provide a reliable source of dry air for field testing the meter/monitor's response. Follow this procedure if the meter/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 will need to be regenerated or replaced with a new desiccant tube before proceeding.

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 meter/monitor and desiccant tube. Turn on the meter/monitor. In a few minutes, the reading should start to drop. Allow up to an hour for a -40˚ reading when testing model 1072A. If the meter/monitor doesn't respond, refer to the troubleshooting hints for more information. Replace the desiccant tube caps when done.

Troubleshooting Hints

Meter/monitor always indicates over range.

Possible Cause	Corrective Action
Desiccant dryer faulty	Fix Desiccant Dryer and any air leaks
Humid air getting into meter/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 meter/monitor on, use finger to block sample tubing. If you don't feel suction, the vacuum pump may be worn or damaged, or the 3 pin sensor insert holding the sensor may be cracked and leaking. Meter/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 within the measurement range of your meter/ monitor to respond. Check the Product Overview section for proper model selection.

Meter/Monitor always indicates under range

Possible Cause	Corrective Action
Sensor cable disconnected	Disassemble the meter/monitor and make sure sensor cable is plugged into the 3 pin sensor insert.
Sensor missing or damaged	Unplug the sensor cable and short the 2 outer cable terminals together with a jumper wire. Turn meter/monitor on. If display indicates high dew point, the sensor needs replaced.  Jumper
Circuit board defective	Unplug the sensor cable and short the 2 outer cable terminals together with a jumper wire. Turn meter/monitor on. If the display still indicates under-range, the meter/monitor needs factory service.  Jumper

Meter/Monitor is slow to respond

Possible Cause	Corrective Action
Inadequate sampling suction	With meter/monitor on, use finger to block sample tubing. If you don't feel suction, the vacuum pump may be worn or damaged, or the 3 pin sensor insert holding the sensor may be cracked and leaking. Meter/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.

Specifications

IMS #	MODEL CODE	REPLACEMENT SENSOR	DEW POINT RANGE (at nominal 80˚F air temp.)
172054	1072A	1405DM	-40˚F to +30˚F (-40˚C to -1.1˚C)
172055	1072B	1407	-5˚F to +50˚F (-20.5˚C to 10˚C)

TYPICAL ACCURACY ±3˚F (±1.7˚C)

DEFAULT ALARM SET POINT -10˚F (-23˚C)

ANALOG OUTPUT SCALING 0 - 5VDC scaled as -40˚F to +70˚F dew point (-40˚C to 23˚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 7.0lbs

Spare Parts & Accessories

Item	IMS #
Air filter	103808
Sample Tubing	108732
6' sample tubing & filter assembly	4100200
3 pin sensor insert	172068
Gasket for insert	169141
Desiccant tube	103796
Field wireable analog out connector	0300201
Replacement Sensor A (-40 to 30˚F)	172054
Replacement Sensor B (-5 to 50˚F)	172055

Warranty

IMS Company warrants that this equipment 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 **IMS Company** Wide-Range Sensors and **THREE MONTHS** from date of shipment of **IMS Company** 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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