

Glove Box Dual Purge System

Ensures a constant positive pressure inside glove boxes and other enclosures to block contamination and moisture inflow

Automatically activates high-flow purge in response to pressure drop to ensure fast, effective purge of particles and moisture when an air lock is opened

Operates in tandem with humidity controllers to maintain any desired sub-ambient moisture level (down to 0% RH with the NitroWatch®, or down to 1.0 ppm of water with the DewWatch™)

Guards against pressure damage to chamber doors and seals

In most applications, glove boxes must be continuously purged with nitrogen or another process gas in order to ensure a controlled environment free of contaminants and moisture.

Unfortunately, however, a steady gas inflow can't guarantee the clean, dry conditions you require. A flow adequate to maintain a safe internal positive pressure when doors are closed is insufficient to overcome the backflow of outside air that occurs when a door or air lock is opened. A higher-level purge that might guard against this backflow wastes nitrogen and leads to overpressures that warp doors and damage seals.

Variable-Purge Security

The Glove Box Dual Purge System solves these problems. It employs an air pressure sensor to activate high- and low-flow gas purges, and is especially designed for use with plastic and 304 stainless steel glove boxes.

The pressure sensor in these units indicates pressure drops below a programmable low-pressure threshold. When gas pressure falls below this point, as it does when an access door or air lock is opened, the high-flow purge is activated to quickly and effectively purge any moisture and contaminants that might enter the chamber—before they can affect sensitive materials inside.

When pressure returns above the set point, the high-flow purge continues to purge the chamber for 60 seconds (programmable), and then the low-flow purge is automatically reestablished. The Automatic RB® (Relief/Bleed) Valve, which is required for use with the Dual Purge System, safely relieves excess pressure before it can cause any damage.

The dual-purge capabilities of these units ensure that contaminants and moisture stay outside the processing chamber and at the same time guard against dangerous overpressures that can lead to warped doors, failed seals—even explosions! And because the Dual Purge System delivers only as much gas as is necessary, it economizes on nitrogen consumption; tests show that in many applications, these units can pay for themselves in a matter of months.

Safety Alarms Ensure Worry-Free Operation

The Dual Purge System incorporates a flowmeter, a line pressure gauge and glove box pressure gauge for easy monitoring of nitrogen flow and pressure. A "Low-Pressure" alarm is activated if the incoming line pressure is ever interrupted. This dual audible/visible alarm alerts you to a disconnected supply line, an empty gas storage pod, or other problem that could spell disaster for contents of a glove box!

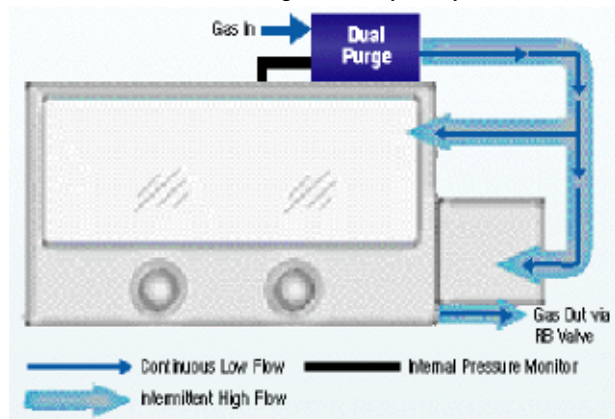
Humidity Controllers Expand Capabilities

The Dual Purge System operates in tandem with Terra humidity controllers to provide the most effective moisture control available.

The NitroWatch® includes a humidity sensor that continuously monitors the internal RH level and activates the Dual Purge to automatically



Economizes on nitrogen consumption up to 78%



Dual Purge™ System: Variable Level Purge

Specifications

Dimensions:	12"W x 11.25"D x 7"H
Weight:	16 lbs.
Flowmeter	0-20 SCFH
Line Pressure Gauge:	0-60 psi
Chamber Sensor:	0 - .4" WG (factory set at 0.02" WG)
Inlet/Outlet:	.25" (accepts .25" OD polyethylene tubing)
Case Material:	304 Stainless steel; brass or stainless steel internal fittings
Power Requirement:	110/220VAC, 50/60Hz (requires no manual power setting)
Timer Adjustment:	0-8 minutes (factory set at 1 minute)

Cat.

Dual Purge™ System	1603-57
0.2 Micron Filter	1314-00
Removes contaminants from gas line	

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maintain any sub-ambient humidity threshold you require (down to 0% RH). For more critical requirements, select the DewWatch, which works with the Dual Purge System to maintain ultra-low dew points (with moisture levels as low as 1.0 PPM by volume). In all of these applications, the Automatic RB[®] Valve is required to ensure safe relief of overpressures that can build inside a chamber

NitroWatch[®]

Automatically controls Dual Purge[™] System to maintain the desired low relative humidity level (0%RH to ambient) in a glove box or other enclosure

Reduces nitrogen costs by up to 78%

Continuously monitors and displays relative humidity level

Automatically compensates for shifting environmental variables, eliminating guesswork and reliance on supervisory personnel

New miniaturized sensor eliminates dead space inside glove boxes

Easy-program control functions

Purging a cabinet with nitrogen is an effective way to maintain a low-humidity storage environment. Using a flowmeter to control the nitrogen purge gas, however, causes unnecessary costs!

If you set the gas flow level too high, expensive nitrogen is wasted and cabinet seals are exposed to excessive pressure that could lead to leaks (or even ruptures!). If you set the flow level too low, you may wind up with ineffective contamination and moisture control and expensive component damage. Both problems have cost the semiconductor industry millions of dollars annually, simply because no adequate controller has been available.

NitroWatch[®] solves these problems by sensing and displaying the relative humidity of an enclosed environment, such as a desiccator, Faraccator, or glove box. More importantly, it operates with the Dual Purge[™] System to precisely control the flow of nitrogen into the enclosure and maintain a preset humidity level.

Operation is simple and reliable. Simply program the desired level, and then let the system do its job. The fast-response, capacitive-type sensor detects the relative humidity; the level is indicated on a 4-digit LED display. The NitroWatch[®] controls Dual Purge System operation to maintain the setpoint level—no matter how often doors are opened, or how large the system is, or what the ambient humidity is, or what time of the day or night. High-flow purges are initiated only when a door is opened or the humidity climbs above the set-point. The moment acceptable conditions are restored, the system returns to low-flow purging.

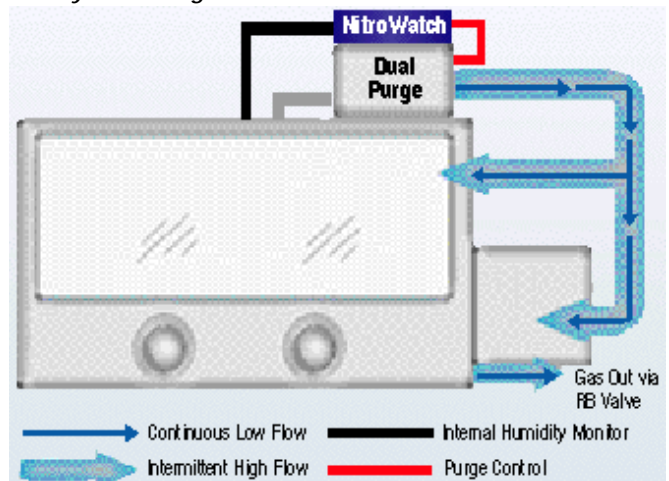
Additional Savings Through Reduced Nitrogen Waste

Higher quality control and reduced part rejects are two convincing reasons to consider the NitroWatch[®]. But they aren't the only ones.

Your biggest savings will probably come in reduced nitrogen expenses. Typically, the nitrogen flow in a desiccator cabinet is set at a level high enough to compensate for access to stored parts during working hours; this means that a constant high-level purge is



Extends shelf lives of stored materials by controlling moisture and moisture-related defects



NitroWatch: Humidity Monitor & Control
(Dual Purge System, RB valve required)

Specifications

Controller

Dimensions:	11"W x 6.25"D x 3"H
Weight:	8 lbs.
Power:	12 VDC (provided by Dual Purge [™] System)
Case Material:	304 Stainless steel
Output:	0-5 V
Measuring Range:	.0-100%RH
Display Resolution	± 1%RH
Temperature Dependence:	± 0.04%RH/°C

Sensor

Dimensions:	1.5" x .75" x 4"
Weight:	3 ozs.
Measuring Range:	0-100%RH
Accuracy (at 20°C):	± 3%RH
Housing Material:	304 Stainless Steel
Calibration:	None required.

Cat.

NitroWatch Controller	9500-00A
NitroWatch Sensor	9500-02A
(One required per enclosure)	

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required. Yet in most cases, doors remained closed for over 75% of the time! During off hours, weekends and holidays, unnecessarily high amounts of nitrogen are fed through the system and bled out as waste—even though no flow (or only a very minute flow) may be needed to maintain the appropriate internal humidity and positive pressure. Excess nitrogen bleeding can even endanger worker safety if ambient oxygen levels fall too low.

When you turn out the lights and lock the door, the NitroWatch[®] will cut out the nitrogen waste. This savings alone in most cases pays for the system within six months. Test data show typical savings of 78% of nitrogen consumption. And you'll be assured that stored components (and your workers) are safe.

Space-Saving Sensor

The NitroWatch sensor can be placed nearly anywhere inside a sealed enclosure without interfering with shelves, doors, process equipment, or stored materials. This sensor features miniaturized components that provide better than 3%RH accuracy over the 10%-90%RH range. Further, it never requires calibration.

The NitroWatch[®] controller comes complete with all necessary controls for monitoring the relative humidity level. For automatic humidity control, the unit must be connected to Dual Purge System. Order the NitroWatch[®] Sensor separately.

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