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Intelligent Differential Pressure Controller

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Introduction

The Intelligent Differential Pressure Controller improves minienvironment and cleanroom operation by dynamically optimizing fan or exhaust performance. This reduces contamination, protects personnel, improves process parameters, and lowers energy costs.

The Intelligent Differential Pressure Controller is uniquely designed to dynamically adjust the fan speed or exhaust to maintain a constant differential pressure. This result is achieved via on-board microcontrollers and closed-loop control. Applications where the Intelligent Differential Pressure Controller improves performance include minienvironments, exhaust hoods, tool airflow regulation, or any area where pressure regulation is desired.

The pressure setpoint, alarms, and all operating parameters can be configured locally using the control panel or remotely from a computer or terminal. The sensitivity of the Intelligent Differential Pressure Controller allows precise pressure measurement and control. This gives a responsive system even at ultra-low pressures.

The Intelligent Differential Pressure Controller offers a variety of interfaces for connection to virtually any external device or system.

Alarms can be either local or external. Local alarms are signaled via an on-board flashing lamp. External alarms use an opto-isolated alarm output to drive external alarm circuitry. This can be used to stop machinery, flash lights, sound buzzers, or otherwise alert personnel. The alarm thresholds are configurable and delays can be set for both alarm begin and end conditions, allowing the removal of spurious alarms.

RS-232 and RS-485, along with analog (0-5V and 4-20ma) and digital outputs (0-10KHz digital pulse) allow the Intelligent Differential Pressure Controller to interface with external systems.

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Features

- Microcontroller-Based
- Choice of sensors from ±0.1" H20 to +25" H20 with top or side ports
- Sensitivity to 0.001" H20
- Adjustable Sensor Sampling Rate
- Local/Remote Configuration
- Multiple Display Modes
- Configurable Alarm Thresholds
- Delayed Alarming
- Flexible Control Configurations
- Optional Password Keypad Lockout
- On-Board Diagnostics
- Alphanumeric LCD
- Membrane Keypad
- Cleanroom Compatible Enclosure

A sophisticated serial interface allows the device to be both configured and monitored remotely. In addition to the standard RS-232 interface, the Intelligent Differential Pressure Controller also supports RS-485, allowing up to 17 units to be connected to a remote computer via a single cable.

All configuration parameters are also accessible locally via a built-in LCD display and membrane keypad interface. The interface, which has an optional password lockout, can be used to configure and monitor the unit.

Finally, the Intelligent Differential Pressure Controller has a host of flexible control parameters that allow it to be tuned to the specific air handling requirements of the application. Minimum and maximum control output, PID parameters, control types, and the sensor-sampling rate can all be adjusted to yield a truly responsive and stable system.

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Options

Part #	Option
802-IDP485:	RS-485 interface
802-IDPEXTALARM:	External alarm actuator

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802-IDP5VOUT:	0-5V output
802-IDP4-20OUT:	4-20mA output
802-IDP10KHOUT:	0-10KHz output
802-IDP220V:	220VAC input
802-IDPAUDALARM:	Audible Alarm Buzzer

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Sensors (H2O)

Top Access		**Side Access**	
SDB.1	± 0.1"	MDB.1	± 0.1"
SDB.25	± 0.25"	MDB.2	± 0.2"
SDB.1	± 1"	MDB.3	± 0.3"
SDB2.5	± 2.5"	MDB.5	± 0.5"
SDU.1	0-0.1"	MDB1	± 1"
SDU.25	0-0.25"	MDB2	± 2"
SDU.5	0-0.5"	MDB3	± 3"
SDU1	0-1"	MDB.1	± 5"
SDU2.5	0-2.5"	MDB.10	± 10"
SDU10	0-10"	MDU.1	0-0.1"
SDU25	0-25"	MDU.2	0-0.2"
		MDU.3	0-0.3"
		MDU.5	0-0.5"
		MDU1	0-1"
		MDU2	0-2"
		MDU3	0-3"
		MDU5	0-5"
		MDU10	0-10"

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Pinouts

Pin No.	**Pin Name**	**Pin No.**	**Pin Name**
1	Chassis GND	9	EXT_LWRB
2	RD_232	10	EXT_UPRA
3	TD_232	11	EXT_UPRB
4	5V	12	EXT_FRQA
5	GND	13	EXT_FRQB
6	TX/RX+	14	Analog_Out
7	TX/RX-	15	Analog_GND
8	EXT_LWRA		

Note: MDB.1 is the standard sensor supplied. Please specify if a different sensor is required.

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Technical Specifications

- 10.3"L x 5.7"W x 1.95"H
- 4.5 lb / 2.0 kg / 72 ounces
- Operating temp: 0-50° C
- Operating humidity: 15-90% RH (non-condensing)
- Storage temp: -40° to 70° C
- Input voltage:
  - 115VAC, 7A, 50-60Hz or 230VAC, 8A, 50-60Hz
- Power output:
  - 115VAC, 7A, 50-60Hz
  - 230VAC, 8A, 50-60Hz
- User replaceable fuses:
  - 115VAC, 7A, 125V
  - 230VAC, 8A, 250V

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