
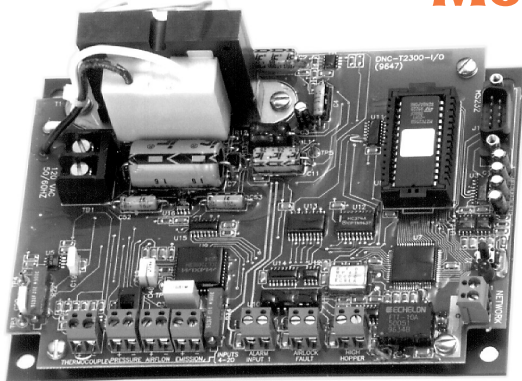


**Features**

- Enhances T2310 & T2320 Timer Operation
- Monitors Three 4-20mA Analog Inputs
- Monitors Three Switched Inputs
- Monitors one "J" Type Thermocouple
- Operating Temperature Range from -40° F to 150° F
- Communicates via RS232 Port to Intelligent Controller
- Communicates via 2 wire Network to Remote Sites
- Interconnectable for Overall System Management
- Large Storage Capacity for Historical Trending of System Data
- Aids in System Diagnostics
- Use to Increase Overall System Efficiency
- RTV Coating: Conformally coated for protection against vibration, humidity and contamination
- Metal Chassis Provided: For mounting directly into NEMA-4 Box
- Timer Life Tested to eliminate field failures
-  File #E65038
- One Year Warranty: Warranted to be free from defects in materials or workmanship for One Year from date of purchase
- Made in USA

# Dust Collector Controls

## Intelligent Dust Collector Controller Remote Input/ Output Module Model DNC-T2300-I/O



The Model DNC-T2300-I/O module provides several functions. It communicates with a T2310 or T2320 Dust Collector Timer via the RS-232 port to form an Enhanced Timer system, and it communicates pertinent system data to remote control/display devices via the 2 wire Enhanced Timer Network. It also incorporates three 4-20mA current loop inputs, three contact closure type inputs, and one "J" type thermocouple input. In addition, the I/O board provides 16K bytes of non-volatile memory for the storage of up to one year of input trending data. The I/O board requires either a T2310 or T2320 Timer to program and operate the board and a T2300 Display Panel to access data trending reports.

The I/O board offers significant versatility to the "Intelligent Dust Collector Controller" system. It can monitor, display, alert, and store dust collector system parameters from pressure sensors, emission monitors, plenum air flow sensors, broken bag detectors, fan motor current sensors and any other device which has a 4-20 mA current output or contact closure output. The unit works in conjunction with the T2310 & T2320 Timers and also with the DNC-T2300-DSP Display Panel.

**Operating Logic:** Upon application of power to the unit, communication will be established with the T2310 or T2320 Timer via the RS-232 port. The I/O board can then be configured for the inputs provided to it by using the keypad on the controller. Alarm setpoints and 4 - 20 mA scaling can be programmed for different types of inputs to be displayed in a meaningful fashion on the controller's 8 character display and output via the two wire Enhanced Timer Network to the DNC-T2300-DSP remote display panel.

**Inputs:** There are three general purpose 4-20mA current loop inputs which are configured by the Timer. Depending on how the particular 4-20 mA inputs are configured, the messages that appear on the Timer's display would either show a generic range of 0-100% based on the 4-20 mA input or data units specific to three pre-programmed sensing devices would be displayed.

There are two general purpose switched inputs which will monitor and report up to two contact closures as alarm conditions to the Timer, and one contact closure input which allows the user to place the Enhanced Timer system in standby mode.

The I/O board also has the capacity to monitor the temperature of a "J" type thermocouple in degrees F, with a range of 40°F to 700°F .

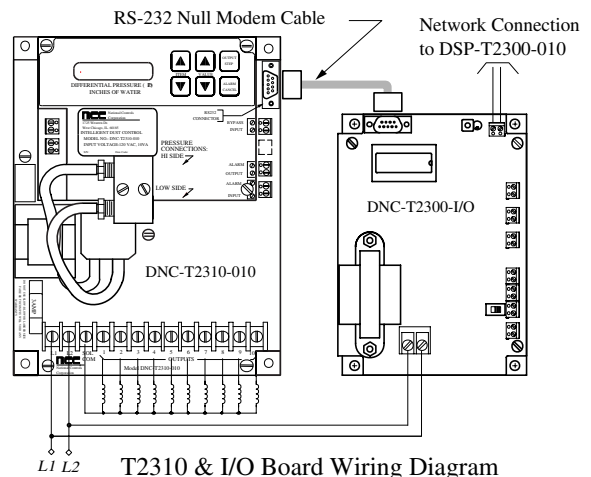
**History Trending:** The I/O board has the capability to store data generated by the Timer connected to its RS-232 port as well as data generated by the various sensing devices connected to its inputs. Data history is subdivided into three categories: Short term history, Long term history, and Alarm history.

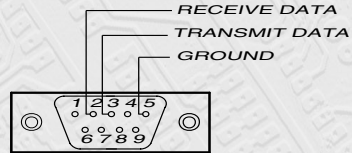
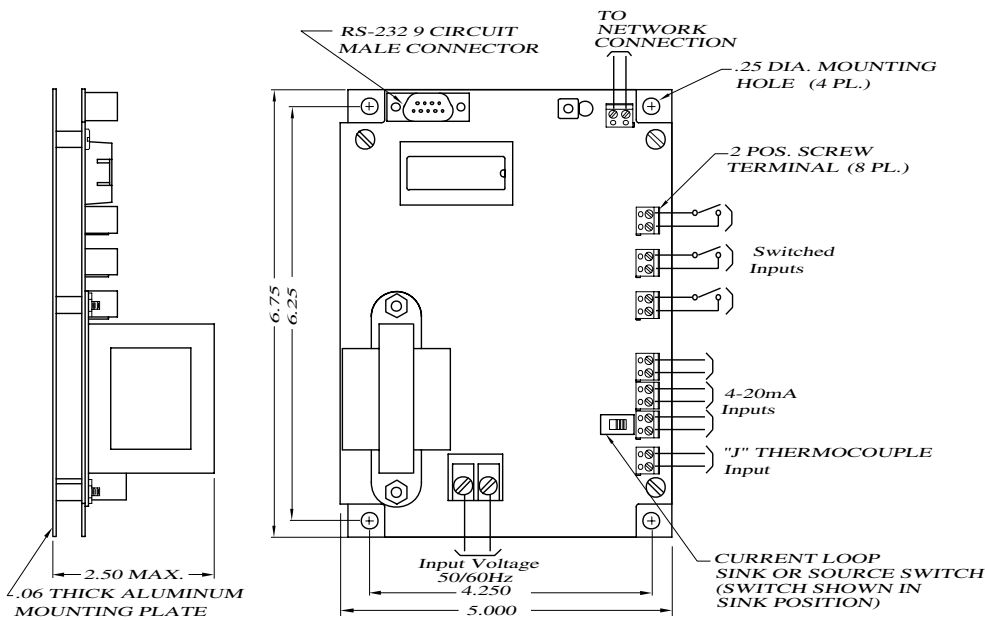
Short term history is a time and date stamped recording of the hourly averages of the 4-20mA inputs, the Differential Pressure from the Timer, the highest temperature recorded, and the number of outputs that were pulsed in that hour. This Short term history period is two weeks, after which time the oldest 24 hours of recorded data is averaged along with the highest recorded temperature and the number of outputs that were pulsed for that period and is stored in Long term history.

The Long term history period is one year, after which time the oldest recorded data is discarded to make room for new data.

Alarm history is event driven, if any alarm conditions occur, a time and date stamped "snapshot" of all the system parameters is recorded in a First-In-First-Out circular data buffer. This FIFO buffer can store up to 212 alarm events and is not time dependent.

In order to generate the Data History Reports, a DNC-T2300-DSP Remote Display Panel and a terminal device capable of communicating standard ASCII via an RS-232 connection are required.





RS232 CONNECTOR (TOP VIEW)

9-PIN RS232 D-SUB (PLUG) CONNECTOR MOUNTED ON CONTROLLER MATES WITH 9 PIN (RECEPTACLE) CONNECTOR AMP # 747150-1 OR EQUIV.

## Specifications

### Inputs:

**Voltages:** 105 - 135 VAC, 50/60 Hz.  
210 - 270 VAC, 50/60 Hz

#### 4-20mA Current Loops:

Input Impedance: 401.5 ohms +/- 20 ohms  
Accuracy: +/- 1% of applied signal.

#### #1: Emissions/Aux1 (Sink Capability Only)

User Selectable Functions:

*Emissions* - Output is Percent of full scale input.

*Generic* - Output is Percent of full scale input.

#### #2: Air Flow/Aux2 (Sink Capability Only)

User Selectable Functions:

*Air Flow* - Pitot Tube sensing device required,

Output range: 0 to 6.5 Mega SCFM<sup>①</sup>

*Generic* - Output is Percent of full scale input.

#### #3: Manifold/Aux3 (Source or Sink Capability)

Source Voltage: +24v +/- 2v

User Selectable Functions:

*Manifold pressure* - Output range: 0 to 999 PSI<sup>②</sup>.

*Generic* - Output is Percent of full scale input.

### Switched Inputs:

Alarm Input Open Circuit Voltage: 40 VDC

Alarm Input Short Circuit Current: 4.5 mA

#### #1: Airlock Fault/Aux4 Alarm

Input will be labeled and recorded as either "Air Flow" or "Aux4" depending on user selection.

#### #2: High Hopper/Aux5 Alarm

Input will be labeled and recorded as either "High Hopper" or "Aux5" depending on user selection.

#### #3: Standby

Function: Dedicated as a Remote Standby Switch Input.

### Thermocouple Input:

Thermocouple: Type: J

Temp. Measurement Range: -40 to 700°F

Temp. Measurement Accuracy: +/- 4° F.

### Serial Communications:

Null Modem type connection required between Controller and I/O board.

**Type:** RS-232.

**Mode:** 4800 Baud, 8-Data Bits 1-Start Bit 1-Stop Bit, X ON - X OFF, No Parity

**Function:** Dedicated For Communication with a T2300 Series Dust Collector Controller.

**Connector:** Type 9-Pin Male IBM Compatible D-SUB Connector. Null Modem type connection required between Controller and I/O board.

### Network Connection:

**Type:** 2 Wire Twisted Pair

**Termination:** 52.3 ohm, 1%, 1/8 watt resistor

**Network Connection Device:** FTT-10A Transceiver

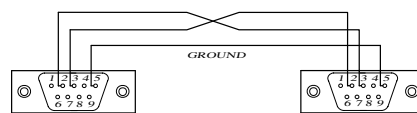
### Environmental:

**Operating Temperature Range:**-40° to 150°F  
-40° to 65° Celsius

**Humidity:** 90% Non-Condensing

**Environmental Protection:** RTV Conformal Coating for Humidity and Vibration

**Contact Factory for Additional Information**



RS232 CONNECTORS (TOP VIEW)

9-PIN RS232 D-SUB (PLUG) CONNECTOR MOUNTED ON CONTROLLER MATES WITH 9 PIN (RECEPTACLE) CONNECTOR AMP # 747150-1 OR EQUIV.

RS-232 Null Modem Cable Wiring Diagram

<sup>①</sup> Standard Cubic Feet per Minute

<sup>②</sup> Pounds per Square Inch

## Ordering Information

Input Voltage	Part Number
105 - 135 VAC	DNCT2300-I/O
210 - 270 VAC	DNC-T2301-I/O

### Accessories:

Enclosure For:	Dimensions	Part Number
DNC-T2300-I/O	8" x 6" x 3 1/2"	BOX-A0806-CHNF

### Important Notice to Users:

Our timers are capable of use in a wide array of devices and in various applications. Any device or system incorporating a timer should be so designed that, in the event of failure, malfunction or normal wear-out of the timer, the system will become inoperative in a manner which will prevent property damage or bodily injury.

### Caution:

- Do not mount controls in high vibration areas without shock mounts.
- Do not mount controls in areas of high dust or corrosive atmospheres without a protective enclosure.
- Do not use a converter or inverter for the power source.
- Do not mount control in high transient voltage areas without an isolation transformer
- Do not leave control box open.
- Do not allow a local repair shop to repair the controls, as we employ some very sophisticated components that could be further damaged. For service, call us directly: 800-323-2593