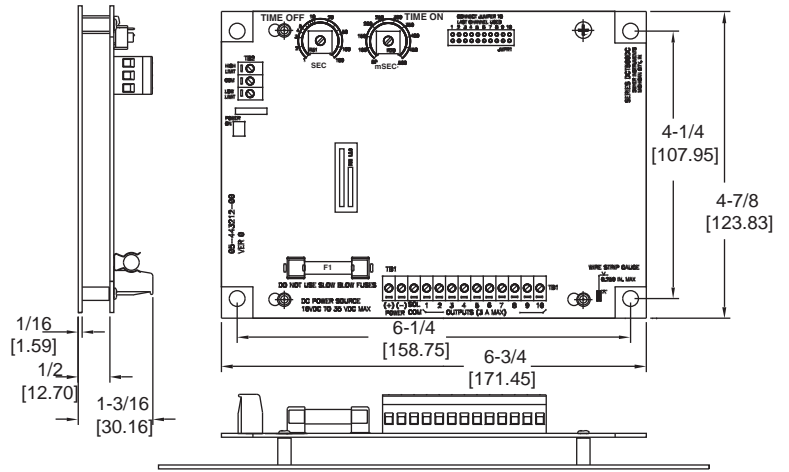
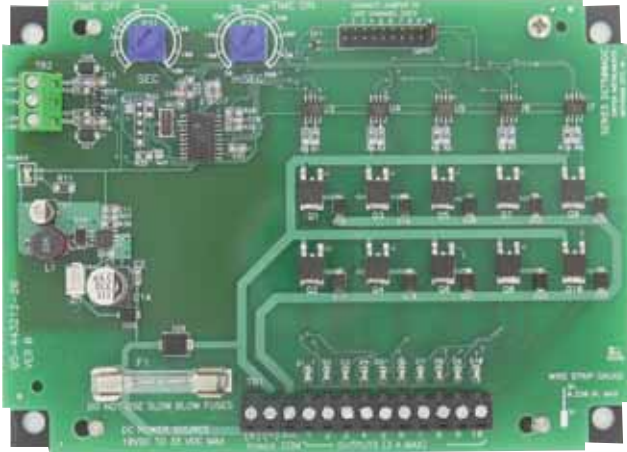




Specifications – Installation & Operating Instructions



Introduction

The Series DCT500ADC Timer Controller is a timing system for pulse-jet type dust collectors or pneumatic conveying systems in either continuous or on-demand cleaning applications. It is provided with either 4, 6, or 10 channels. The DCT500ADC was designed for ease of installation in your dust collector system. For installations requiring fewer channels than available on the board, a shorting plug is provided to allow selection of the last used channel. Time-on and time-off settings are selected using two potentiometers. High-limit and low-limit control inputs are provided for use with on-demand systems. When used in a continuous mode the high-limit input is jumpered.

Installation



Warning: Always replace the fuse with the proper type and rating. The fuse is Type 3 AG fast acting 3 Amp @ 250V. DO NOT use slow-blow type fuses. Failure to comply with this requirement will void manufacturer's warranty.



This equipment is intended to be powered using a recognized Class 2 power supply. If powered from a DC bus a suitable transient protection device meeting Installation Category II requirements must be used. Protection provided by the equipment may be impaired if the equipment is used with accessories not provided or recommended by the manufacturer, or is used in a manner not specified by the manufacturer.

Power Requirements

The DCT500ADC Series controller is designed for operation with a DC power supply. The supply voltage must be between 10 VDC and 35 VDC. Exceeding 35 VDC may damage the unit. The solenoid outputs are driven from the power supply so the solenoids must be rated for operation at the power supply voltage. The solenoids are connected as shown in the wiring diagram and must not be connected to any other external circuit. The solenoid common is the positive (+) lead and is internally connected to the fused positive (+) supply. The individual outputs are switched to the negative (-) supply input through an open drain field effect transistor (FET). The outputs are protected for inductive flyback transients of the solenoids.

Location

The system must be located in an enclosure that meets relevant safety standards and electrical codes. There are no other special orientation requirements. Mount it using the four mounting holes in the baseplate. The baseplate back is flush, so no special spacers are needed to accommodate obstructions except for those imposed by the location itself.

SPECIFICATIONS

- Output Channels: 4, 6, & 10 channels.
- Voltage Requirements: 10 to 35 VDC (≡).
- Power Consumption: 0.6 W.
- Input Power: 106 W @ 35 VDC (≡) max.
- Load: 3A max per channel.
- Fuse: Type 3 AG, 3A @ 250 VAC (-).
- Ambient Operation Temperature: -40 to 149°F (-40 to 65°C).
- Storage Temperature Limits: -40 to 176°F (-40 to 80°C).
- Humidity Conditions: 5 to 95% noncondensing.
- On Time: 50 to 500 msec.
- On Time Accuracy: ±5% of setting.
- On Time Repeatability: ±1 msec.
- Off Time: 1 to 180 seconds.
- Off Time Accuracy: 5% of setting.
- Pollution Degree: 2.
- Altitude: 6560 ft (2000 m) max.
- Environment: Indoor use, must be installed in a weather-proof enclosure for outside applications.
- Weight: 9 oz (255 g).
- Agency Approvals: CE.

Connections

The power and solenoid connections are located at the lower edge of the board. The terminal block is a "Euro" style connector system that clamps the wire within the connector body. The connector will accept wire sizes from 14 to 22 gages. These terminals should be torqued to 5 in. lb. The connectors are specified for single connection but multiple wires may be connected to a single lug provided local codes allow this and good workmanship practices are followed. When using stranded wire, make sure that there are no "stray" strands. These may cause system failure or damage. Connect the (+) (-) power to (+) and (-). Connect the solenoids between the selected output and the solenoid common. Solenoid common and (+) are internally connected through fuse. Refer to Figure 2-1.

The wire should be stripped to no more than 0.25 in. A strip gauge is provided at the lower right corner of the board. Longer than this may cause shorts. Switches connected to the control inputs at the top of the board must be isolated normally open contacts connected only to the relevant terminal and to the common terminals.

The following subparagraphs describe the external switch connections. Refer to figure 2-1 for switch connection illustration.

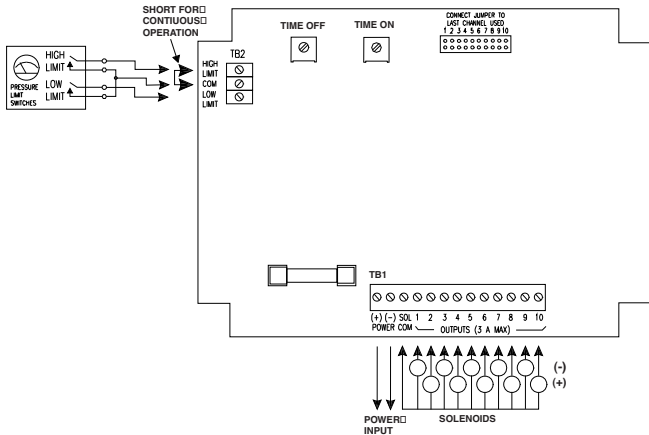


FIGURE 2-1 Switch Connections

**External Limit Switch Connection**

The controller may be used with an external pressure limit switch or sensor to provide demand-cleaning operation. A three pin terminal block provides connection for external high and low limit switches. A simple on-off system can be established with a single pressure switch connected to the high limit input. Better control can be achieved with a high and low limit switch/gage such as the Dwyer Photohelic® pressure gage. The switches must be isolated contacts between the high or low limit input and the common connection. The wiring from the switches must be two or three wires with no other connections made to these. The common line must not be connected to equipment ground or protective ground, since these may introduce electrical noise and cause improper operation or possible damage to the control board. The operation of these inputs is summarized as follows:

Current Operation	Low Limit Switch	High Limit Switch	Next Operation
Hold	Open	Open	Hold
Hold or Run	X	Closed	Run
Hold	∅	Open	Hold
Hold	Closed	∅	Run
Run	Closed	≠	Run
Hold	Closed	∅	Run
Run	≠	Open	Hold

∅ – Transition from open to closed  
 ≠ – Transition closed to open  
 X – Either open or closed

**Operating Modes**

**Continuous Cycle Mode**

The DCT500ADC has two operating modes available for different applications. Starting with the most basic mode, it is capable of operating in a continuous cleaning cycle. This can be initiated by placing a jumper between the high limit input and the common connection. Two setup parameters control operation: time off, time on. Time on and time off specifically deal with the solenoid on time and the time interval between the end of the on pulse and the start of the next.

**Demand Mode**

Demand mode operation can be configured using the high limit and low limit inputs. A simple on-off system can be setup with a single pressure switch connected to the high limit input. Better control can be achieved with a high and low limit switch set such as is provided in the Dwyer Photohelic® pressure gage. In this on-demand mode, time on and time off may be programmed to define the cleaning cycle. When the cycle is completed, the controller will continue the cycle until the last channel is pulsed. The next cleaning cycle will always start on channel 1. A factory installed option is available that will not clean to the end of a cycle, but rather stop where the cleaning cycle ended. The next demand for cleaning will start where the last cleaning cycle left off.

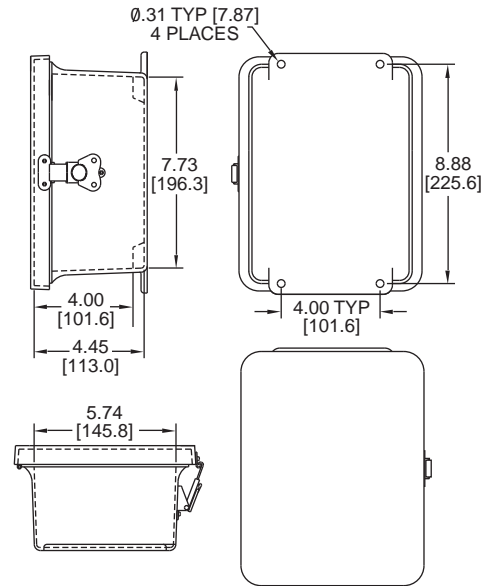
**System Setup**

**Last Channel Selection**

A jumper connector is provided to select the last channel used. Place the jumper on the two pins corresponding to the last channel used in the installation.

**Time Off and Time On Setup**

Time off defines the period of time between solenoid activations when no channels are enabled. This value may be set between 1 second and 180 seconds with a resolution of 1 second. Time on defines the solenoid on time. The value may be set between 50 msec and 500 msec with a resolution of 10 msec. If adjustments are made while the system is in operation, the new setting will take effect in the following solenoid cycle. Do not use excessive force to turn the potentiometers. This will damage the unit. A factory installed option is available for a time on range of 0.05 to 10 seconds.



Weatherproof Enclosure Option

**Explanation of Symbols:**

Symbol	Description
	Caution: Risk of electric shock
	Caution: Risk of danger, refer to user's manual for further information
	Direct current
	Alternating current

**Agency Approvals and Test Standards:**

- CE: IEC 61000-4-2: 2001
- IEC 61000-4-3: 2006
- IEC 61000-4-4: 2004
- IEC 61000-4-5: 2005
- IEC 61000-4-6: 2006
- CENELEC EN 55022: 2007
- FCC Part 15 CFR Title 47: 2007
- ICES-003: 2004 Digital Apparatus (Industry Canada)
- ANSI 63.4-2003
- CENELEC EN 61326-1: 2006
- 2004/108/EC EMC Directive