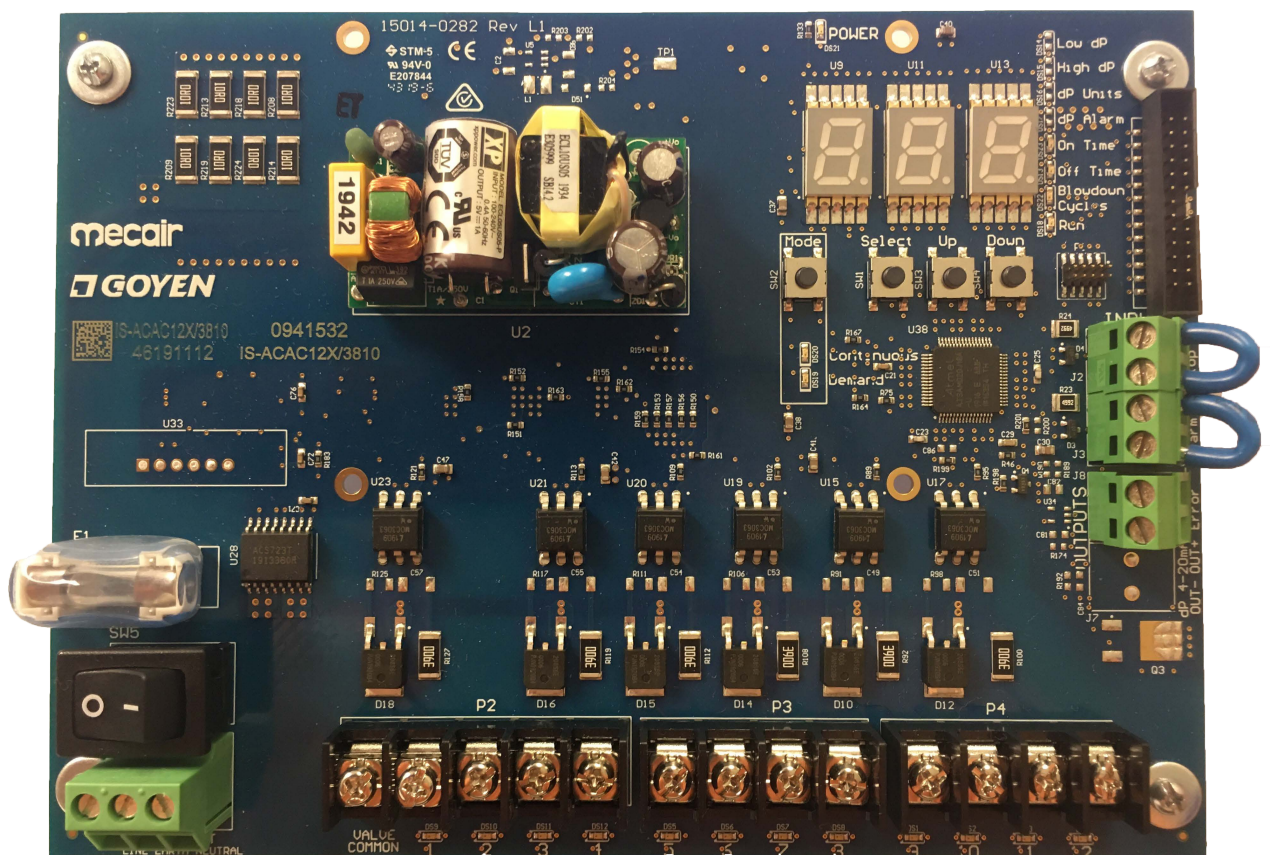


C&W Pulse Timer

ET077 - Sequential Timer

ET085 - On Demand Sequential Timer

Operating and Service Manual



C & W DustTech

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Rev B. 01/23/20

Description



HELPFUL TIP

C&W Pulse Timer can be used for any pulse style dust collector on the market.

The Integrato Sequencer (IS & ISP) features integrated controls intended for use with reverse pulse jet filter cleaning systems. The IS & ISP have been designed to operate across a wide range of environmental conditions. It is suitable for use with all types of filters, including bags, cartridges, sintered metal or ceramic filters.

The IS (ET077) sequencer operates in continuous mode, whereas the ISP (ET085) has a built-in differential pressure sensor, allowing this sequencer to be demand driven.

IS & ISP may be ordered as the sequencer only, in an enclosure (polycarbonate), or integrated into the motor control cabinet.

Features

- Low temperature operation -40°C (-40°F) Minimum
- Automatic valve detection.
- Voltage-free coil error output and a visual indication on the display showing which pilot valve output has an error, enabling quick fault finding and debugging.
- Controls multiple pilot valves. Each AC output can have 10 pilot valves connected in parallel, enabling up to 400 pilot valves to be supported.
- Conforms to the requirements of UL, CE, FCC and RCM.

Technical Characteristics and Performance

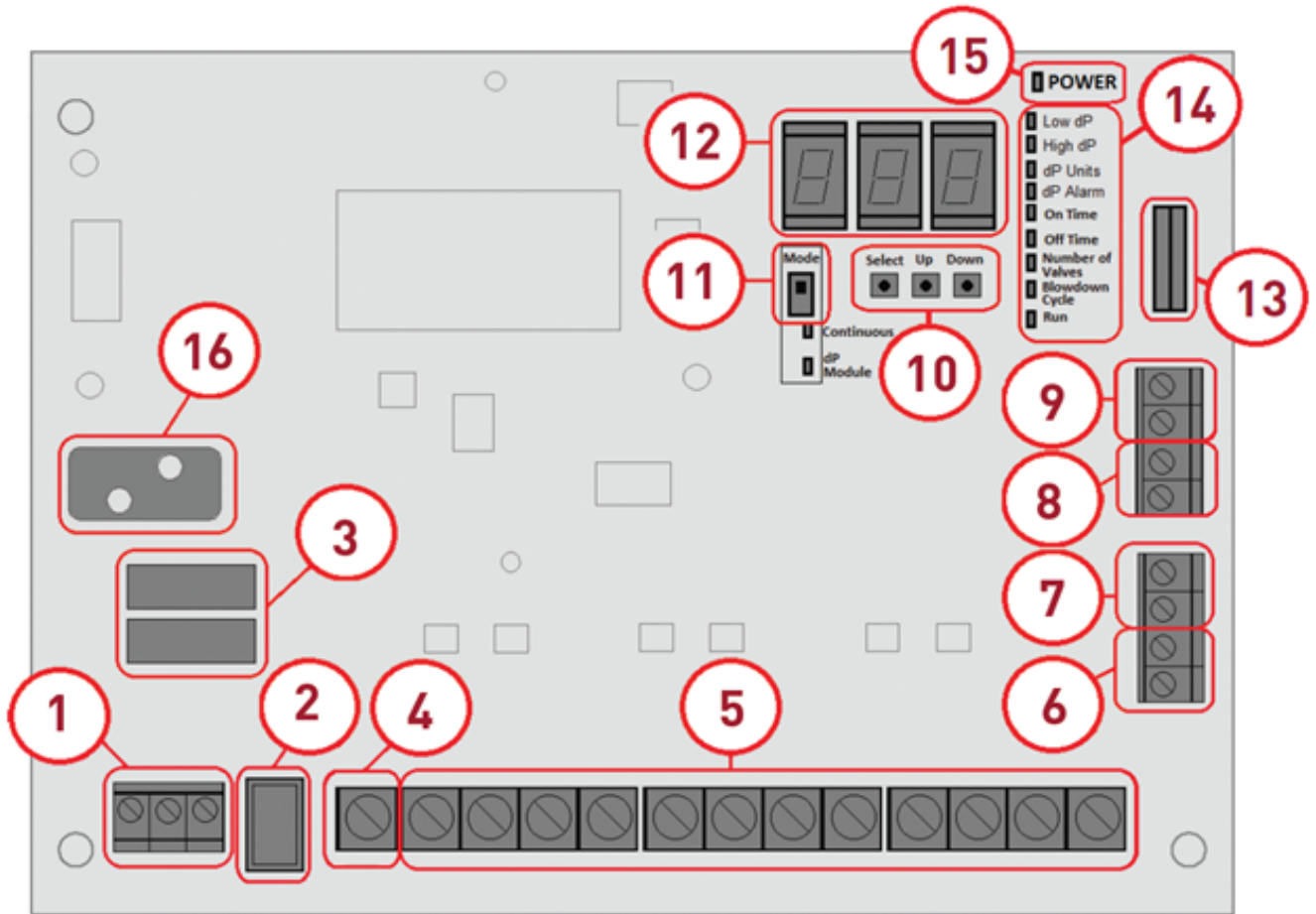
- Input Voltage: AC: 100/240 V @ 50/60 Hz
- Output Voltage AC: 100/240 V @ 50/60 Hz (same as input) (Note: Must Match Valve Coil Voltage)
- Maximum Input Power AC IN=AC OUT: 225 W AC IN
- Discrete Solenoid Outputs: 12, 20 or 40 outputs available
- Operating Temperature -40°C to 60°C (-40°F to 140°F)
- ON Time: 30 ms to 1000 ms
- OFF Time: 1 s to 1000 s
- Inputs are Voltage Free: Fan Stop (Normally Open), Low Header Alarm (Normally Open)
- Output is Voltage Free: Coil Error Output
- ISP Version Pressure Sensor Range: 0 to 18.08 InWC
- ISP Version has Analog Output: 4-20 mA dP signal



HELPFUL TIP

See page 10 for troubleshooting and display codes.

Circuit Board Layout



Circuit Board Instructions on Next Page



Lock out/Tag out procedures have to be followed when servicing the timer board.

Questions? Call 1-800-880-3878 for C&W Customer Support!

Circuit Board Layout Cntd.

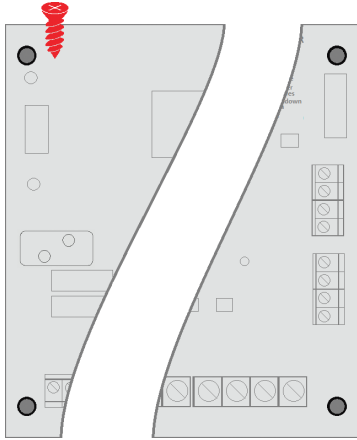
1. **AC Input Voltage:** Electrical connection to the board. Load, Earth (Ground) and Neutral connections. Max. cable size 14 AWG.
2. **ON:OFF Power Switch:** Activates or Deactivates the board.
3. **Fuse F1** (Solenoid Short – Part# EB247).
4. **Outputs Common Terminal:** This is the valve common terminal for all 12 of the solenoid outputs. Max. cable size 12 AWG.
5. **Discrete Solenoid Output Terminals:** Connect each solenoid wire to a separate output terminal. Max. cable size 12 AWG.
6. **4–20 mA dP Output:** This output mirrors the output of the built in dP sensor in the form of a 4–20 mA signal. Shielded cable required (ISP version only)
7. **Coil Alarm Output (Voltage Free):** This output triggers when the coil fails to pulse correctly. It may indicate a fault with the coil or wiring to that coil. Max cable size 14 AWG.
8. **Low Header Alarm Input (Voltage Free):** This input allows for the connection of a sensor to monitor the header tank pressure or lid position on the LPR series. In the event the pressure drops below the preset level or the LPR lid is opened, the pulsing cycle is paused as a safety measure. Max. cable size 14 AWG.
9. **Fan Stop Input (Voltage Free):** This input is used to start and stop the controller remotely. It may be connected to the blower fan control, pressure switch or flow switch so the cleaning cycle is only active when air is moving through the collector and automatically activates a blow down sequence when off-line. Max. cable size 14 AWG.
10. **Input Buttons:** These buttons are used to control the menu and program the controller.
11. **Mode Switch:** Use to change the controller between Continuous Mode and Clean On Demand Mode. (ISP version only)
12. **7-Segment LED:** Displays the menu and controller operation.
13. **Interface Screen Socket:** Ribbon cable socket for the optional interface screen. Carefully insert the ribbon cable securely into the socket and test the interface screen to confirm it is functioning correctly.
14. **Menu Interface LEDs:** These show the status of the controller and are used to indicate the setting during programming mode.
15. **Power LED:** When lit, it indicates the controller is powered ON.
16. **dP Sensor:** Connect the clean and dirty air lines to the sensor as shown on wiring diagram on page 7. (ISP version only)

Installation Instructions

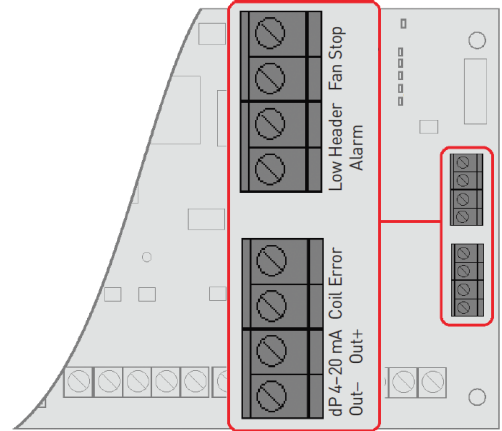


WARNING: This installation must be performed by a technically competent person. To prevent injury, damage or malfunction, read the following instructions carefully. If in doubt, contact your representative for further advice.

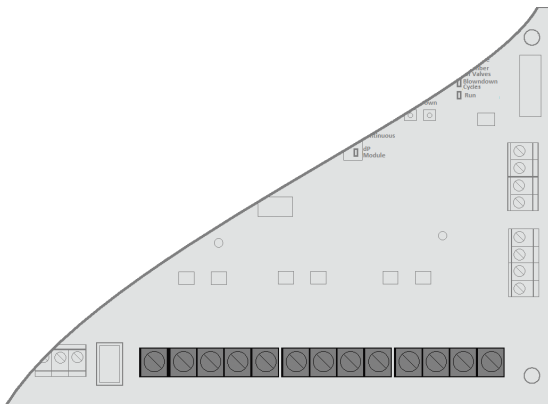
STEP 1 Carefully mount board



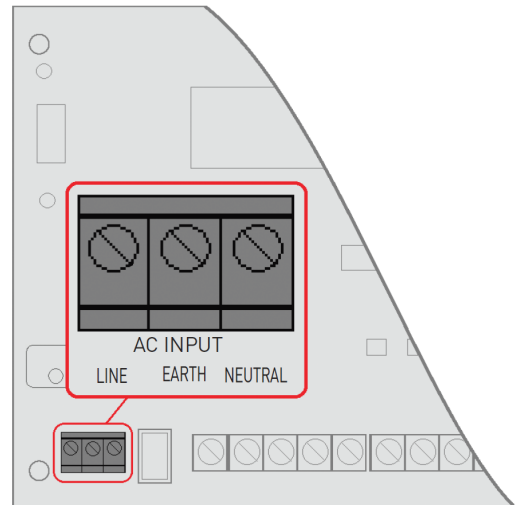
STEP 2 Connect Inputs



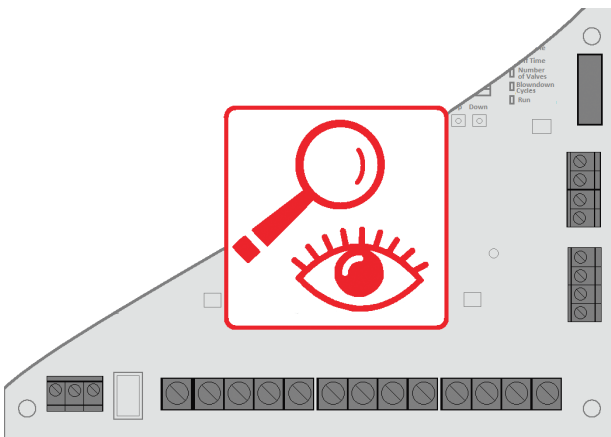
STEP 3 Connect discrete solenoid outputs



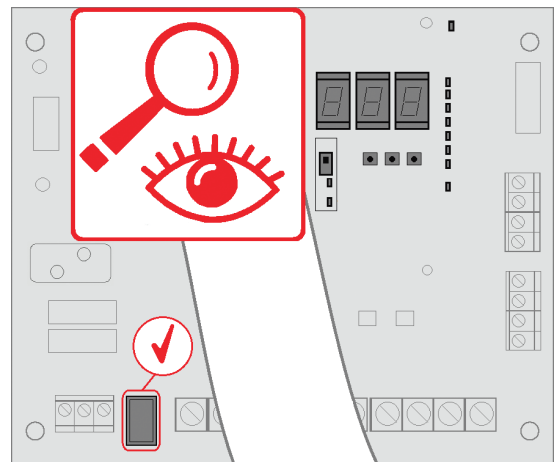
STEP 4 Connect input voltage



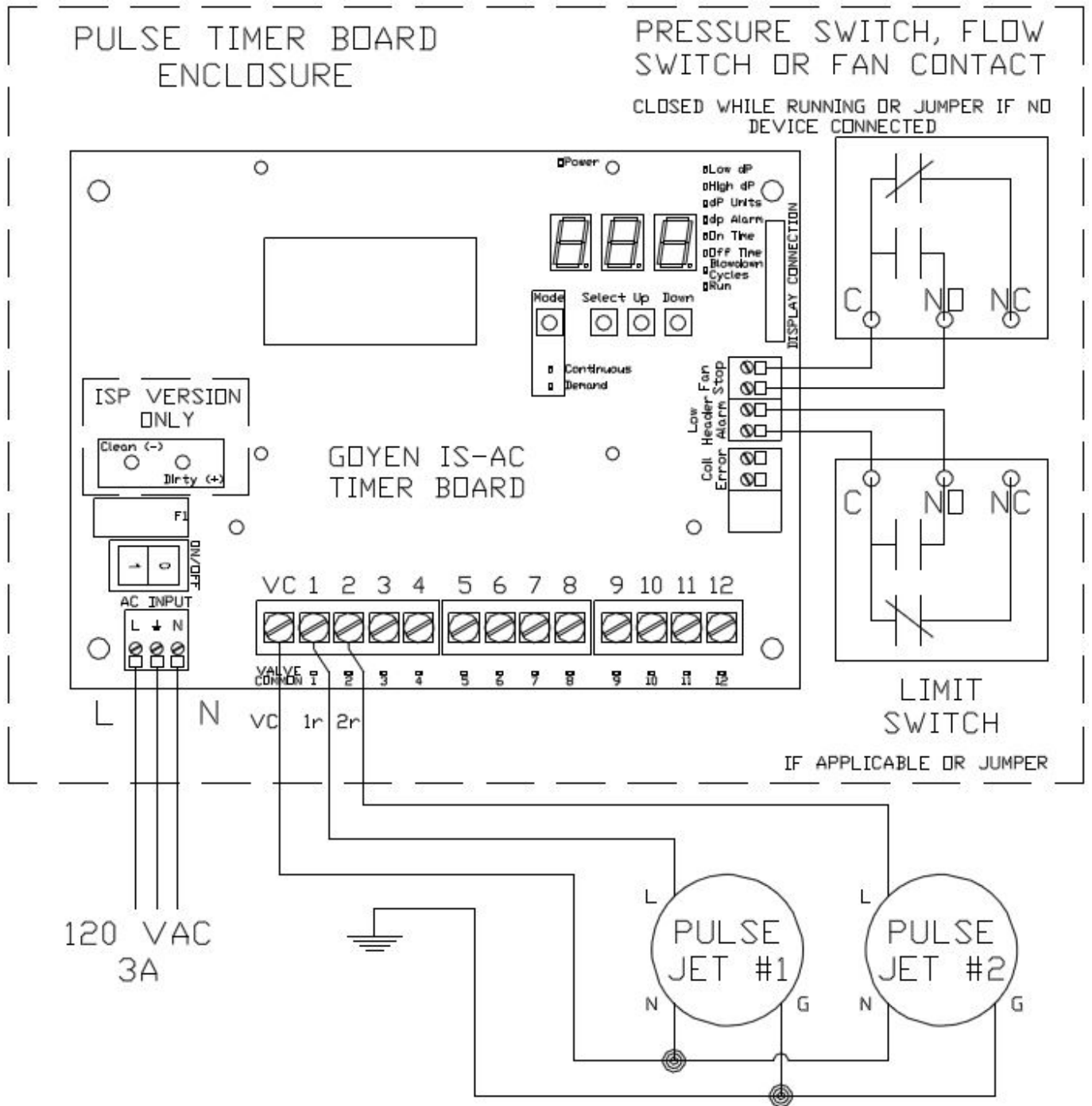
STEP 5 Inspect all connections



STEP 6 Power up and check settings



Example Wiring Diagram



Programming



HELPFUL TIP

Timer settings are specifically designed for the type of dust collector the pulse timer is being used on.



HELPFUL TIP

The collector main power and air needs to be left on until the blowdown cycle is completed.

To enter Programming Mode:

- Press Select , Up , Down , Up , Select in sequence.
- The 'dP Low' or 'On Time' LED should now be lit depending on model.
- Press Down to scroll down the list.
- The LED indicates the function to be programmed.
- Press Up to scroll up the list.
- Press Select to change the settings for that function.

On Time

- Press Select when the 'On Time' LED is lit.
- This LED should start to flash, indicating it is in programming mode.
- Use the Up and Down buttons to select an On Time in milliseconds between 30 ms and 990 ms, in increments of 10 ms.
- Press Select to confirm the setting.
- Note: Please see collector IOM for design settings.

Off Time

- Press Select when the 'Off Time' LED is lit.
- This LED should start to flash, indicating it is in programming mode.
- Use the Up and Down buttons to select an Off Time in seconds between 1s and 999s.
- Press Select to confirm the setting.
- Note: Please see collector IOM for design settings.
- Note: **The Off Time must allow each solenoid to have a 60-second rest between pulses.**
- Note: This setting **MUST** allow air header to fully recover pressure between pulses.

Blowdown Cycles

- Press Select when the 'Blowdown Cycles' LED is lit.
- This LED should start to flash, indicating it is in programming mode.
- Use the Up and Down buttons to select the number of blowdown cycles you require, between 0 and 10. (recommended number of cycles = 6)
- Press Select to confirm the setting.
- Note: Blowdown cycles can only be triggered by the Fan Stop Input and will be indicated on the display with 'FSP' when in Blowdown mode.
- Note: This is connected to Pressure Switch, Flow Switch or Fan Controller depending on dust collector model, and only allows the pulse system to operate when the collector is active.

Run

- Press Select when the 'Run' LED is lit.
- This will automatically exit Programming Mode and save your settings.

Core Ready-Mix Timer Settings

- 150 milliseconds On Time
- 45 Seconds Off Time

Questions? Call 1-800-880-3878 for C&W Customer Support!

ISP Version Only - Additional Programming

dP Units * Set This First *

- Press Select when the 'dP Units' LED is lit.
- This LED should start to flash indicating it is in programming mode.
- Use the Up and Down buttons to select a the dP Units in either hPa or H2. (H2 is preferred unit of measure and stands for inches of water column, hPa is measured in Pascals)
- Press Select to confirm the setting. The 'dP Units' LED should now be lit.
- Press Down to scroll down the list.

dP High

- Press Select when the 'dP High' LED is lit.
- This LED should start to flash indicating it is in programming mode.
- Use the Up and Down buttons to select a high dP limit. When in demand mode, the cleaning cycle will start at this setting. (Default 02.4)
- Press Select to confirm the setting. The 'dP High' LED should now be lit.
- Press Down to scroll down the list.

dP Low *

- Press Select when the 'dP Low' LED is lit.
- This LED should start to flash indicating it is in programming mode.
- Use the Up and Down buttons to select a low dP limit. When in demand mode, the cleaning cycle will stop at this setting. (Default 1.4)
- Press Select to confirm the setting. The 'dP Low' LED should now be lit.
- Press Down to scroll down the list.
- Note: This setting cannot be higher than the dP High setting.

High dP Alarm *

- Press Select when the 'dP Units' LED is lit.
- This LED should start to flash indicating it is in programming mode.
- Use the Up and Down buttons to set the value that will trigger the High dP Alarm in the event the dP rises above this setting. (See recommended filter change in Dust Collector IOM)
- Press Select to confirm the setting. The 'High dP Alarm' LED should now be lit.
- Press Down to scroll down the list.

Run

- Press Select when the 'Run' LED is lit.
- This will automatically exit Programming Mode and save your settings.

Troubleshooting

Display Codes:

Display Code	Meaning	Tips
01 through 12	Indicates the next solenoid in line to pulse.	
FSP	Indicates fan has stopped. Timer will execute blowdown sequence then wait for fan to turn on again.	Check pressure switch, flow switch, or fan contact for proper functionality. Can troubleshoot by placing a jumper on the fan stop contacts to enable timer functions.
LoH	Low Header Contact Alarm. Timer will pause until this contact is made again. Used as a safety switch on LPR models to prevent pulsing with lid open.	Check limit switch on LPR for proper functionality. Can troubleshoot by placing a jumper on the low header contacts to remove alarm status.
F00	No Solenoids were found	Check solenoid connections, verify all of the commons are connected back to valve common, check fuse F1 for continuity. Add a jumper from VC (valve common) to ground (Earth).
F01 through F12	Number of Solenoids recognized.	Verify this number with the number of valves on the dust collector.
HdP (ISP only)	Filter dP is above alarm setpoint.	Check tube connections for blockage in dirty air line or replace filters.
cXX	Short Circuit on pilot valve where 'XX' is the output number the coil is connected to.	Check wiring first, replace coil if required. Power will need to be cycled on board to clear this message.
oXX	Open Circuit on pilot valve where 'XX' is the output number the coil is connected to.	Check wiring first, replace coil if required
No Lights or display	Issue with Incoming 120v power.	Check that power is supplied, on/off switch in the on position and fuse F1 for continuity.

Spare Parts List

EB247 - Fuse F1 (Solenoid Short)
 ET079 – Replacement Jumper
 ET077 - Replacement IS Board
 ET085 – Replacement ISP Board