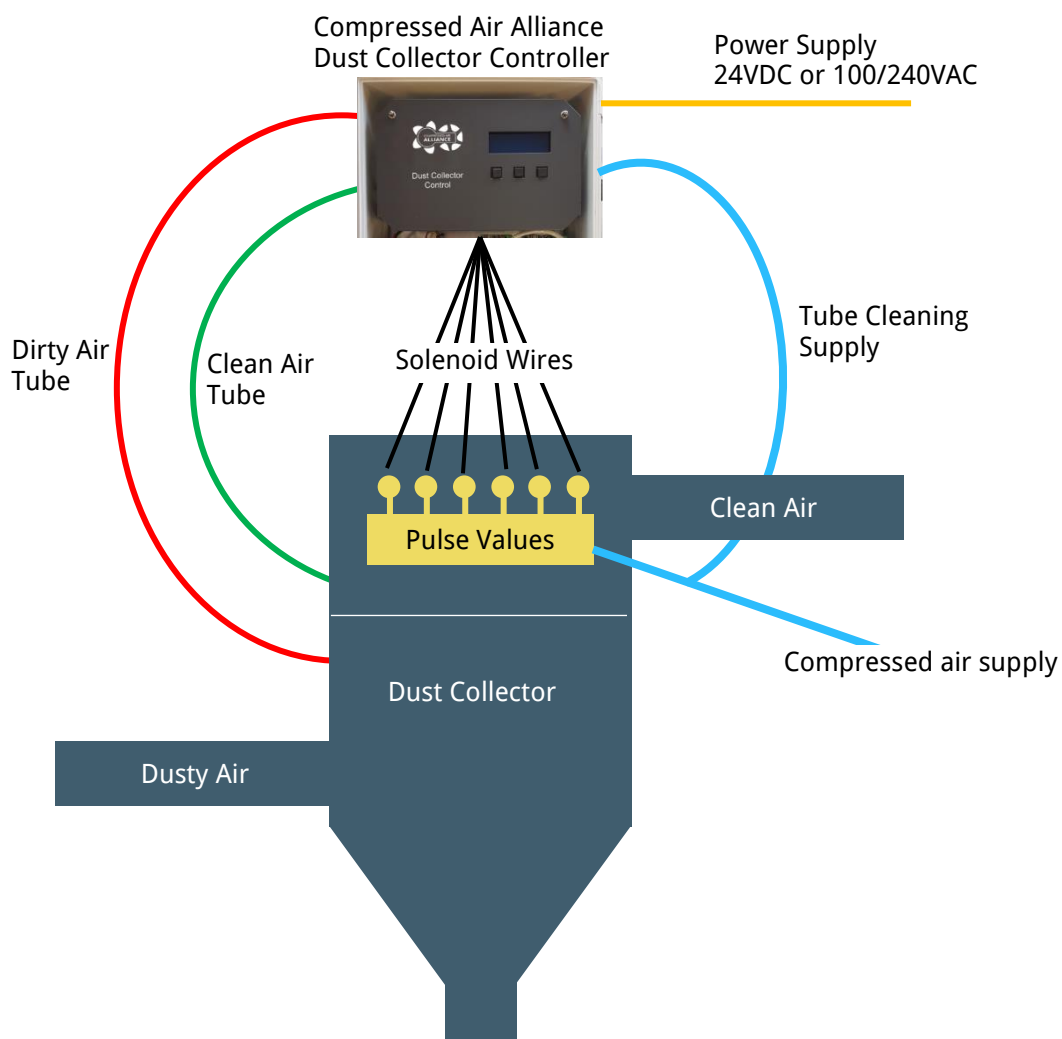# About this Quick Guide

This quick start guide provides basic information on installing and setting up the Dust Collector Controller. For more detailed information, refer to the User Manual (available on at: www.compressedairalliance.com). The Dust Collector Controller should only be installed by a suitably qualified person and all local electrical standards must be observed.
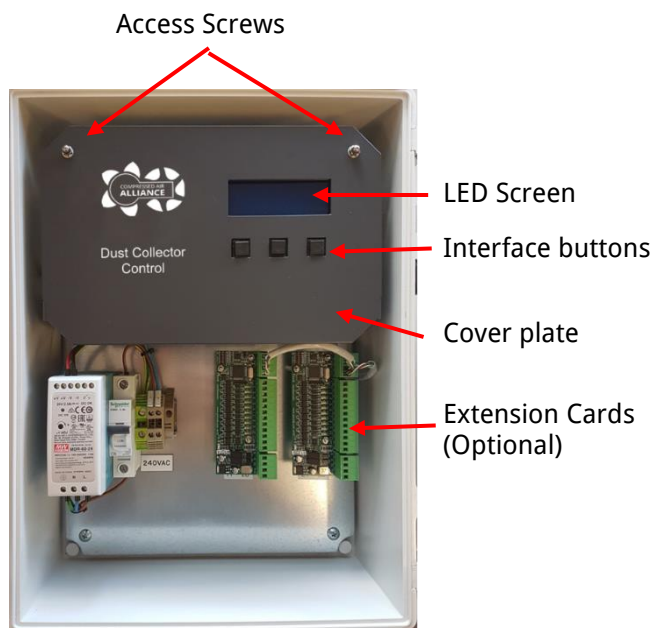
Installation

Remove existing Dust Collector Controller and install the new Compressed Air Alliance Controller.

- Connect dirty and clean air tubes to the new Controller. Install tubes if they are not present.

- Connect tube cleaning supply from the compressed air supply to the new Controller.

- Connect solenoid wires from the existing pulse vales to the new Controller. If solenoids are installed existing controller, move them to the pulse valves and run wiring.
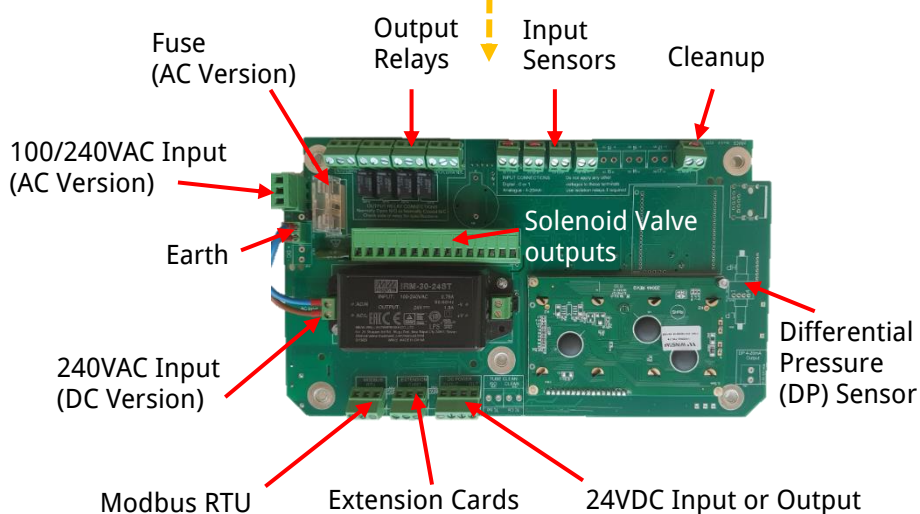

Compressed Air Alliance Dust Collector Controller

Power Supply 24VDC or 100/240VAC

Dirty Air Tube

Clean Air Tube

Solenoid Wires

Tube Cleaning Supply

Clean Air

Pulse Values

Compressed air supply

Dust Collector

Dusty Air

Dust Collector Controller Box

External Layout

Access Screws

LED Screen

Interface buttons

Cover plate

Extension Cards
(Optional)

Internal Layout

To connect power and solenoid valve wires:

1. Remove access screws
2. Tilt cover plate forward

Fuse
(AC Version)

Output
Relays

Input
Sensors

Cleanup

100/240VAC Input
(AC Version)

Solenoid Valve
outputs

Earth

Differential
Pressure
(DP) Sensor

240VAC Input
(DC Version)

Modbus RTU

Extension Cards

24VDC Input or Output

Note: the AC Version is shown here

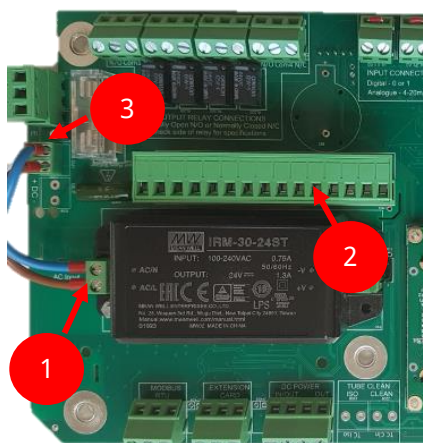# Connecting Power and Solenoid Valves

To connect power and solenoid valves:

1. Remove access screws

2. Tilt cover plate forward

3. Remove the board from the brass spacers to access the bottom of the board.

⚠️ DO NOT double up solenoid valves, only connect one solenoid valve per position.

DO NOT mix commons between the main and extension cards if extension cards are connected.

Doing both these will cause the Controller to detect valve faults.
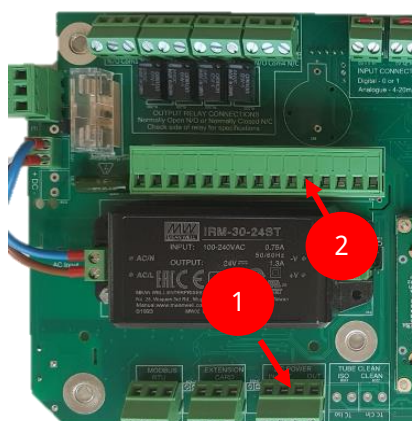
DC Solenoid Version

DC SOLENOID VERSION

AC input power and 24VDC solenoid output

For this configuration the AC input voltage can be between 100-240VAC, but the output voltage is fixed at 24VDC

1. Connect the 100 to 240V AC incoming power supply directly to the power supply

2. Connect the 24VDC solenoid coils to terminal marked SOLENOIDS (terminal J306). This plug is removable to assist the installation process.

3. Connect the earth if required. The jumper plug behind the earth terminal connects earth to the 0V of the PCB
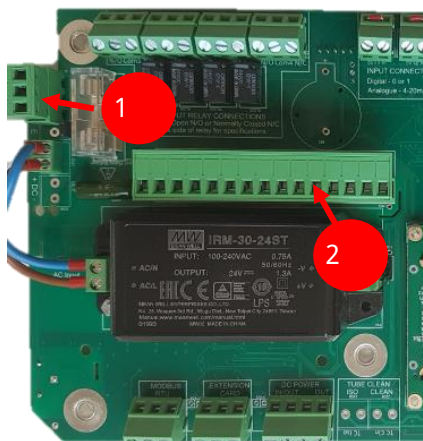

DC SOLENOID VERSION

DC input power and DC solenoid output

For this configuration the DC input voltage can be between 10-30VDC and the output voltage to the coils is identical to the input voltage. So 10VDC in, 10VDC out. 24VDC in, 24VDC out etc.

1. Connect the DC incoming power supply to terminal marked DCVI (terminal J104)

2. Connect the 24VDC solenoid coils to terminal marked SOLENOIDS (terminal J306). This plug is removable to assist the installation process.

AC Solenoid Version

AC SOLENOID VERSION

AC input power and identical AC solenoid output

For this configuration the AC input voltage can be between 100-240VAC and the output voltage to the coils is identical to the input voltage. So 240V in, 240V out. 110V in, 110V out etc.

1. Connect the 100 to 240V AC incoming power supply to terminal marked ENA (terminal J103). This plug is removable to assist the installation process.

2. Connect the 100 to 240V AC solenoid coils to terminal marked SOLENOIDS (terminal J306). This plug is removable to assist the installation process.

Differential Pressure Measurement (Internal Sensor)
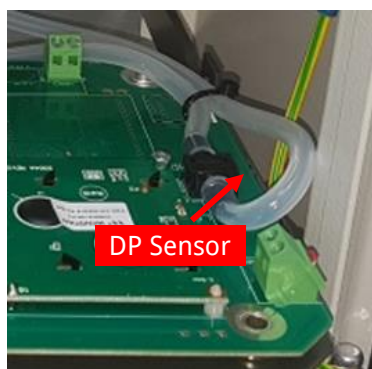
The controller has an onboard pressure sensor used to measure the differential pressure over the filter bags.

The controller comes with the Differential Pressure (DP) sensor already connected via silicone based flexible hoses.

Bulkhead fittings are provided on an external point on the enclosure (see picture to the left).

1. The high pressure (HP) air supply must not exceed 7 bar. This is the cleaning air used to clean the measurements tubes.

2. The clean side measurement (C or L) must be connected to the clean low-pressure side of the baffle plate.

3. The dirty side measurement (D or H) must be connected to the dirty side of the baffle plate.
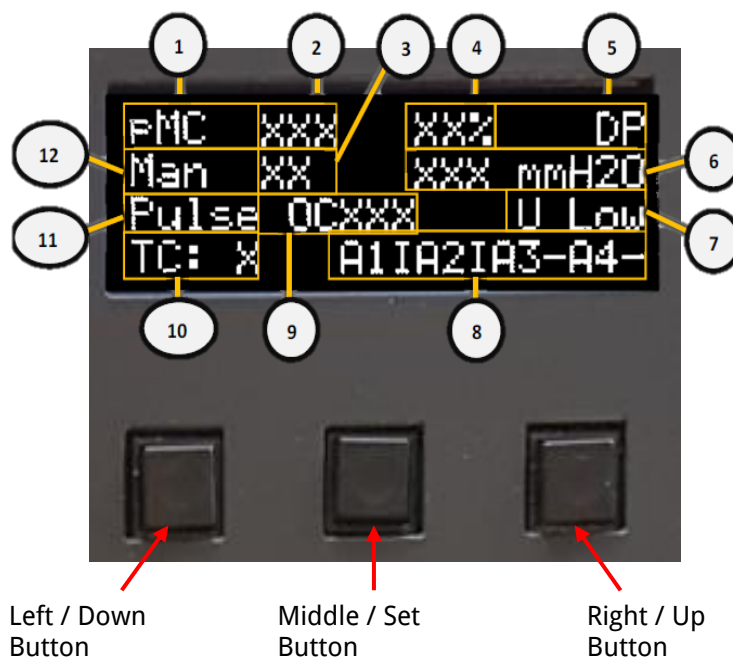
⚠️ DO NOT connect high pressure air into the clean or dirty side tube connections. This will damage the differential pressure sensor and result in the board not operating correctly.

User Interface

The user interface for the Dust Collector Controller consists of three push buttons and an LCD screen. All functionality of the Controller can be accessed using this interface.
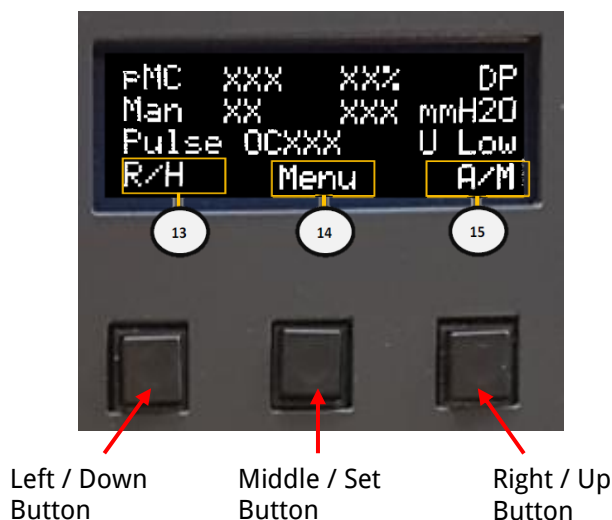
Main Run Page

The main run page gives the user a snap shot of the current status of the dust collector. There is a lot of information on this screen so please take a minute to read this section.

Left / Down Button   Middle / Set Button   Right / Up Button

1	Model Name	Indicates the model of the Dust Collector Controller.
2	Count Down Time	Indicates the time in seconds until the next valve pulses.
3	Next Valve	Indicates the next valve that will pulse. This will be a number between 1 and 240 depending on setup and how many extension cards are connected.
4	Percentage Savings	Indicates the number of pulses saved operating in differential pressure mode when compared to a sequential timer with identical on and offtime settings. The higher the value, the greater the savings achieved.
5	Differential Pressure Sensor	Indicates whether an internal or external DP is being using to control the dust collector. • DP = The internal differential pressure sensor is controlling the dust collector • XDP = An external differential pressure sensor is controlling the dust collector

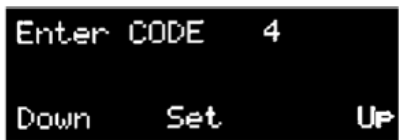| 6	**Differential Pressure Value**	Indicates the current differential pressure over the filter bags. The units of measurement can be. • mmH20 = mm of water column • inH20 = inches of water column • kPa = kilopascals
7	**Differential Pressure Alarm**	Indicates what alarm level the current differential pressure reading is at; this is a user defined setting. • U Low = Ultra Low Differential Pressure • Low = Low Differential Pressure • High = High Differential Pressure, timer OFF time 1 active • Fast = Higher Differential Pressure, timer OFF Time 2 active • Alarm = Differential Pressure above selected alarm level
8	**Alarm State**	Indicates the alarm status for alarms 1 to 8 (the screen will toggle between A1IA2IA3-A4+ and A5IA6-A7-A8-). • I = Interrupt • - = alarm disabled • + = alarm enabled • * = alarm enabled and ON (activated)
9	**Solenoid State**	Indicates the last solenoid valve that fired and what the result of the valve as (whether the coil of the last valve is faulty or not). • OK = NO Fault • OC = Open Circuit • SC = Short Circuit
10	**Tube Cleaner**	Indicates the number of times the tube cleaning valves have fired.
11	**Manually Stopping the Dust Collector**	Indicates the current state of the controller. The dust collector can be manually halted if required. • Halt = The dust collector has been halted either manually or by the differential pressure cleaning mode • Pulse = The dust collector is pulsing
12	**Mode Of Operation**	Changes the operation of the dust collector from between manual (sequential) or auto (on demand) modes. • Auto = The dust collector is running in on demand mode, it is using the differential pressure sensor to control the pulsing • Man = The dust collector is running in manual mode and is operating as a basic sequential timer

If any of the three buttons are pressed the following screen will appear. This allows the user to change between auto or manual mode, pulsing or halting and allow the user to enter the Menu section.

Left / Down Button	Middle / Set Button	Right / Up Button

13	Pulse or Halt	Press on the **left button** to manually change the state between Halted and Pulsing. ⚠️ This option is only available in manual mode. If the unit is in Auto mode it cannot be manually halted.
14	Menu	Press on the **middle button** to check alarms, enter maintenance mode or to alter the settings of the controller.
15	Auto or Manual	Press on the **right button** to manually change the controller between Manual and Auto mode.

Accessing the Menu Area

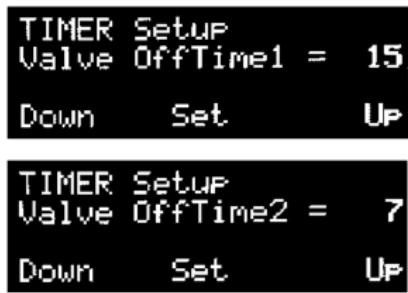From the main screen, continue pressing the middle button unit the *Enter CODE* page appears.

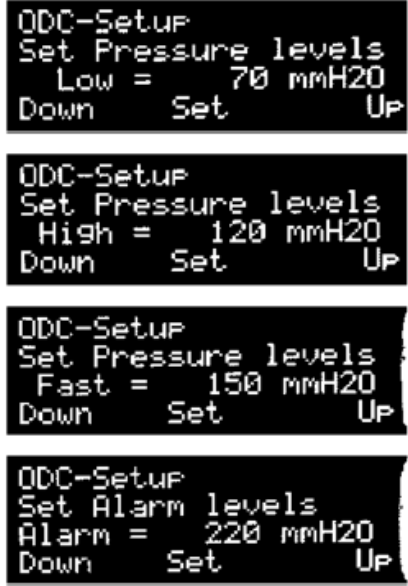|	
	To enter the code, press the **Left / Down** or **Right / Up buttons**. The **password** code for all controllers **is set to 4**. When this has been entered press the **Middle / Set button**.

Timer Settings

The Timer Settings menu allows the user to change the settings of the controller such as number of valves, sequencing, the pulse on and off times. Keep pressing NEXT (Right button) until the *TIMER Setup* page is displayed.

| ```
   TIMER Setup...
EXIT   Select   NEXT
``` | To modify the controller timer settings, press the **Middle / Select** button. |
| ```
TIMER Setup
Total Valves = 10

Down     Set      Up
``` | The *Total Valves* page specifies the number of valves connected to the Controller.<br><br>To alter the number of valves connected to the system use the **Left / Down** or **Right / Up buttons**. When the desired number of valves has been entered press the **Middle / Set button**. |
| ```
TIMER Setup
Valve OnTime(ms)=150

Down     Set      Up
``` | Keep pressing the **Middle / Set button** to skip the next few pages until the user gets to OnTime page.<br><br>The *Valve On Time* page modifies the length of the pulse duration. The pulse duration is user selectable in milli seconds (ms) and can be between 1ms to 999ms in length.<br><br>To alter the on time OnTime press the **Left / Down** or **Right / Up buttons**. When the desired on time has been entered press the **Middle / Set button**.<br><br>In this example the on time is 150 milli seconds. |
| ```
TIMER Setup
Valve OffTime1 =   15

Down     Set      Up
```<br>```
TIMER Setup
Valve OffTime2 =    7

Down     Set      Up
``` | The *Valve Off Time* pages modify the length of time between pulses. The interval between pulses is user selectable in seconds (sec) and can be between 1s to 999s in length.<br>   • **OffTime1** - This is the off time used during normal operation when the differential pressure is between Low and Fast settings (see ODC Settings below)<br>   • **OffTime2** - This is the off time used during normal operation when the differential pressure is between Fast and High settings (see ODC Settings below)<br><br>To alter the off times, press the **Left / Down** or **Right / Up buttons**. When the desired off time has been selected press the **Middle / Set button**.<br><br>In this example off time 1 is 15 seconds and off time 2 is 7 seconds. |

On Demand Cleaning (ODC) Settings

This menu allows the user to change the differential pressure settings that initiate and terminate the cleaning cycle. Keep pressing NEXT (Right button) until the ODC Setup page is displayed.

ODC Setup... EXIT Select NEXT	To modify the on demand cleaning settings, press the **Middle / Select button**.
ODC-Setup Pressure Units=mmH2O Down Set Up	The **Pressure Units** page specifies the units for differential pressure measurement. The user has three options • **mmH2O** – this unit of measurement is millimetres of water gauge. The range of measurement is 0 to 250mm H2O • **inH20** – this unit of measurement is inches of water gauge. The range of measurement for this unit is 0 to 10" water • **KPa** – this unit of measurement is kilopascals. The range of measurement for this unit is 0 to 2.5KPa. To alter the units, press the **Left / Down** or **Right / Up buttons**. When the desired units have been selected press the **Middle / Set button**.
ODC-Setup Set Pressure levels Low = 70 mmH2O Down Set Up ODC-Setup Set Pressure levels High = 120 mmH2O Down Set Up ODC-Setup Set Pressure levels Fast = 150 mmH2O Down Set Up ODC-Setup Set Alarm levels Alarm = 220 mmH2O Down Set Up	The **Set Pressure Levels** page specifies the differential pressure levels to initiate and terminate the pulsing sequence. The user needs to program four differential pressure levels • **Low = Low Differential Pressure**. When the differential pressure drops below this value the Controller will stop pulsing the solenoid valves. • **High = High Differential Pressure**. When the differential pressure is between the Low and High settings then the Controller will use the Valve OFF time 1 setting to pulse the solenoids valves (see Timer Settings above for Off Time 1). • **Fast = Higher Differential Pressure**. If the differential pressure keeps increasing past the High setting, then the dust collector is not pulsing frequently enough. When the differential pressure exceeds the Fast setting then the Controller will use the OFF time 2 setting to pulse the solenoids valves (see Timer Settings above for Off Time 2). • **Alarm = Alarm level**. If the differential pressure continues to increase, then the dust load is either too high or there has been multiple failures of the solenoid valves. To alter the differential pressure values, press the **Left / Down** or **Right / Up buttons**. When the desired units have been selected press the **Middle / Set button**.

Maintenance Mode

Maintenance mode allows the user to manually pulse and test the valves. Keep pressing NEXT (Right button) until the *Maintenance* page is displayed.

Maintenance... EXIT Select NEXT	To enter maintenance mode, press the **Middle / Select button**.
Valve Number to test = 1 DOWN PULSE UP	This page allows the user to select the valve to test. To select the valve to pulse, press the **Left / Down** or **Right / Up buttons**. When the valve to be tested has been selected press the **Middle / Pulse button** to test the valve.
Valve Number to test PULSED!! 1 OC DONE NEXT	This page shows the test result of the valve just pulsed. The test result of the coil will be shown to the right of the PULSED! text and will be one of the following three possibilities • **OK** – The solenoid valve is functioning correctly • **SC** – The solenoid valve is showing a short circuit. • **OC** – The solenoid valve is showing an open circuit. This could mean the valve is not connected or the coil has burnt out. Press the **Left / Done button** to return to the main menu or press the **Right / Next button** to test and pulse another valve.

Contact

If further assistance is required, please refer to the full User Manual avaliable on the Compresed Air Aliance website: www.compressedair.com, or contact:

Compressed Air Alliance

Email: sales@compressedairalliance.com

Phone (Australia only) 1300 558 526.

Web: www.compressedairalliance.com