



DIVERSITECH
Air Pollution Solutions

Operation & Maintenance Manual

FILTERHAWK CARTRIDGE DUST COLLECTOR



FH.02



FH.04



FH.06



FH.09

READ AND SAVE THESE INSTRUCTIONS

Visit our Website for more information on this product



www.diversitech-air.com



www.diversitech.ca

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SECTION 1 - SAFETY PRECAUTIONS OF FUME & DUST EXTRACTION/COLLECTION



READ BEFORE USE

This manual contains specific cautionary statements related to worker safety. To protect yourself and others, read this manual thoroughly and follow as directed before use. Not all hazards of fume & dust control are listed in this manual, and no hazards related to welding, sanding, grinding, or other applications are listed. Consult a qualified safety professional.

1.1 Symbols

This manual uses several symbols to highlight specific hazards. Be familiar with these symbols and when you see them in this manual, read adjoining warning text to avoid the hazard.



WARNING!
DANGER!



ELECTRIC
SHOCK



MOVING
PARTS



HOT
PARTS

1.2 Users Responsibility

- Improper use can be hazardous.
- It is your responsibility to follow all applicable ANSI, OSHA, UL, CSA, National & Local Fire Codes, and other regulatory guidelines covering the safe use of equipment that extracts fumes, collects dusts, and exhausts filtered air either indoors or outdoors.
- Before use, inspect the unit for damage and verify it is working properly.
- Only qualified persons should install, operate, maintain, or repair this unit.
- Do not modify or repair the unit with parts or accessories not supplied by the manufacturer.
- Consult filter manufacturer's instructions for filter use and reuse, including instructions for cleaning.

1.3 Dust Collection Hazards

- Dusts from many metalwork, woodwork, food production, pharmaceutical, other material processing applications can be combustible.
- Due to potential fire hazards, do not mix combustible substances with material that would be a potential source of ignition.
- Do not use or install equipment where any potential for combustible fumes or dusts are present, until a qualified person has indicated it is safe to do so.
- Never use or install equipment where the potential for combustible fumes or dusts are present without a fire/explosion protection system.
- If you are unsure if the product you purchased is correct for your application, call Diversitech at 1-800-361-3733.

SECTION 2 - SPECIFICATIONS

2.1 Diagram & Description



FH.02

Up to 1800 CFM
Cartridge Dust Collector



FH.04

Up to 4000 CFM
Cartridge Dust Collector



FH.06

Up to 5000 CFM
Cartridge Dust Collector



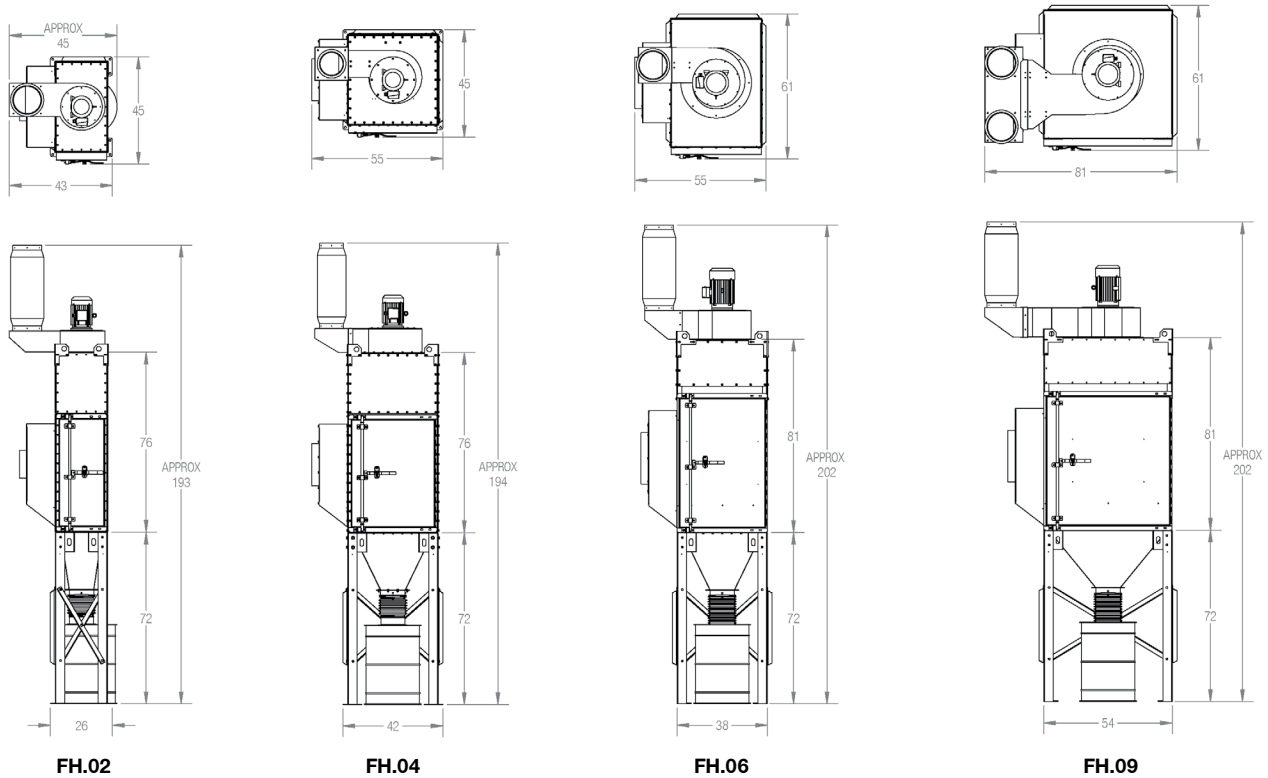
FH.09

Up to 6500 CFM
Cartridge Dust Collector

2.2 Specifications

Model	Nominal Airflow (CFM)	Motor		Cartridges / Filters			
		(H.P)	(p/hz)	Qty.	Area (SQFT)	Size	Type
FH.02	1,200	1.5	1/60	2	630	36" height	MERV 15 Nanofiber
	1,800	3.0	3/60				
FH.04	1,800	3.0	3/60	4	1,260	36" height	MERV 15 Nanofiber
	3,000	5.0	3/60				
FH.06	3,000	5.0	3/60	6	2,520	48" height	MERV 15 Nanofiber
	3,600	7.5	3/60				
FH.09	3,600	7.5	3/60	9	3,780	48" height	MERV 15 Nanofiber
	4,000	10.0	Call				
FH-Custom				IMPORTANT : If your equipment was purchased after <u>November 15, 2018</u> , a Replacement Filter Card, featuring filter details and simple instructions to easily order replacement filters, will be located on the filter door.			

2.3 Dimensions



SECTION 3 - SETUP / INSTALLATION

3.1 To Setup or Install Safely



- The location of the unit(s) must be planned to maximize effective operation and simultaneously afford access for service/maintenance, while keeping safety considerations at the forefront.
- Refer to **SECTION 2: Specifications**, to know the electrical requirements of the unit you are installing and ensure adequate input power that is properly sized, rated, and protected.
- This unit must be grounded for safe operation.

3.2 Un-Packaging

1. Inspect all equipment before moving it from the vehicle. Photograph and log any damage or defects. Large dents reduce the strength of the housing.
2. The Diversitech Filterhawk is not assembled before shipping and must be assembled by installation personnel. The Filterhawk requires common hand tools for assembly. Heavy equipment, such as a crane, forklift, and a chain-fall, are needed to lift and place some components, such as the fan and motor located on top of the unit.
3. You must install, connect, and verify the safe operation of all electrical, water, air connections, and regulation equipment.
4. Diversitech Filterhawk units ship in multiple containers. One container contains the filter module assembly. A second container holds the hopper (optional) section. The remaining containers hold the fans, structural components, airlocks, safety monitoring filters, and custom accessories. Verify that all of the items listed in the Bill of Loading have been received and are present in your containers. The exact list of components included with your Filterhawk depends on the specifics of your purchase.
5. The item serial number, model, and electrical ratings are listed on the nameplate. Record this information in the Maintenance Record provided in **APPENDIX 1: Maintenance Record**, or your own preventative maintenance system.

3.3 Selecting a Location

- Choose a location where the unit will be used, near the operator.
- Choose a location sufficiently close to a grounded power source.

3.4 Tools Required

1. SAE socket wrench set
2. Screwdriver sets
3. Impact wrench
4. Hammer drill
5. Masonry drill bit
6. Floor anchors
7. General tools for electrical connection needs
8. Electrical conduit
9. 1/2" or larger black iron pipe or equivalent compressed air connections
10. Thread sealant
11. Forklift
12. Overhead Hoist
13. Level

The tools above are required for unit assembly.

3.5 Installation

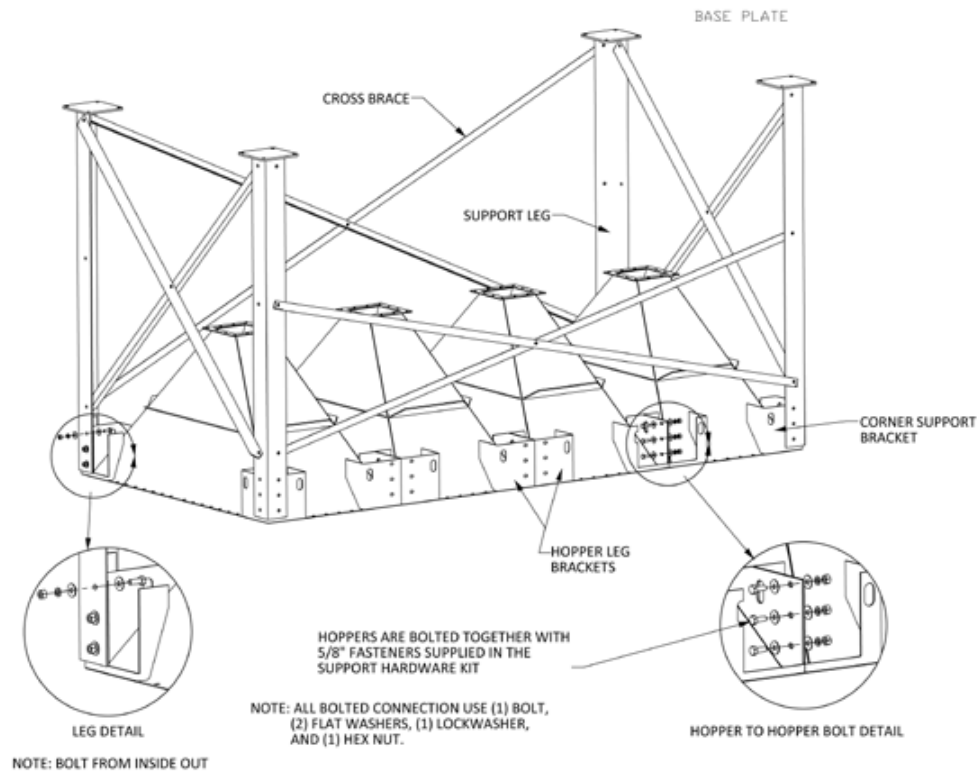
Drawer System or Optional Hopper and Support Leg Assembly.



The Drawer system is factory installed and required no further assembly.

Follow these steps to locate and install the hopper units.

1. Find the hoppers and support legs.
2. Move the hoppers to a level surface. In the case of a multi-hopper system, use the configuration guide in the General Drawing to place them.
3. Square the hoppers.
4. Using the corner support brackets, bolt the hoppers together as shown.



5. Once the hopper and support leg assembly is complete, turn the assembly over into a standing position. Heavy machinery is required, such as a forklift or chain hoist. There are slots for lifting located in the corner support brackets.
6. Using heavy machinery, carefully rotate the completed hopper and support leg assembly into a standing position. Ensure that all inspection panels and connections are oriented properly.
7. Level the hopper flange(s).
8. Using concrete anchors, secure the support legs to the floor.

Filter Module Assembly

When assembling the filter module, there are several precautions to keep in mind:

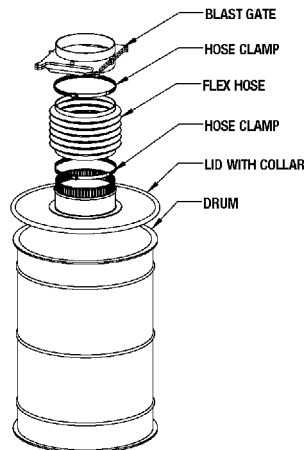
- Always keep the entire weight of your collector supported by heavy machinery, such as a crane or forklift, until all bolts have been installed and tightened.
- It may be necessary to use alignment pins or a drift to align holes.
- When inserting bolts, start at the corners and move to the center of the collector. Do not tighten bolts when aligning the hopper. Small adjustments may be necessary, which are not possible when the bolts are tightened. Wait until all bolts are aligned, inserted, and started before tightening.



Discharge Assembly (optional)

The hopper discharge assembly is a large drum with either a sliding gate or a rotary airlock, depending on your accessory.

1. Find the hopper discharge assembly.
2. Install the accessory to the hopper discharge flanges using the General Drawing.
3. Thoroughly clean the top surface of the gate flange and apply rope caulk.
4. Before attaching the slide gate, ensure that the installation location and orientation does not hit the support bracing when pulled out.
5. Attach the slide gate with bolts to the hopper discharge flange.
6. Cover the drum with the lid.
7. Put the drum latching ring over the top of the drum, so it lies over the drum lid.
8. Ensure the clamp is not upside down.
9. Put one end of the flex hose over the drum's collar and secure with a hose clamp.
10. Put the barrel assembly under the hopper and put the other end of the flex hose onto the slide gate's collar. Secure it with a hose clamp.
11. Open the slide gate.

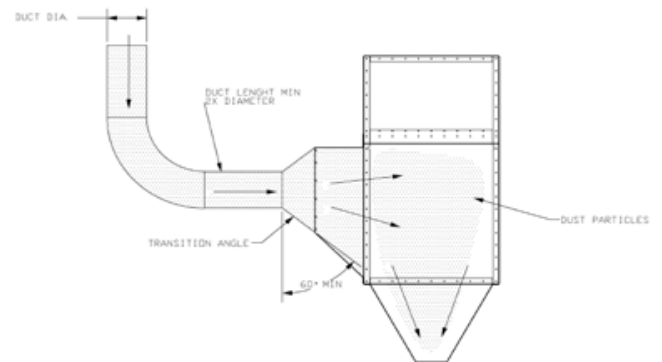
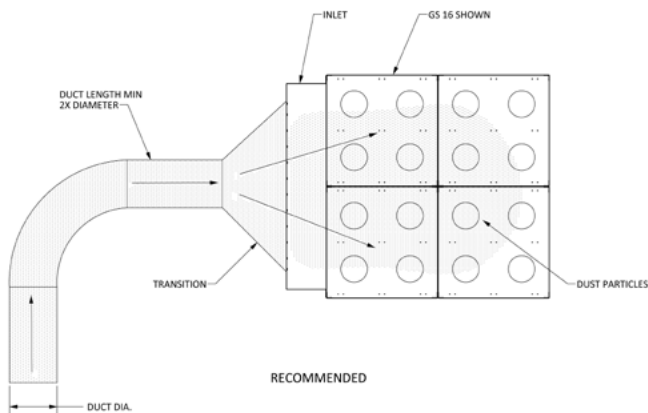


Inlet Duct Design

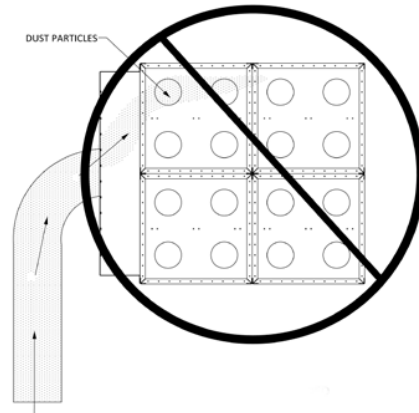
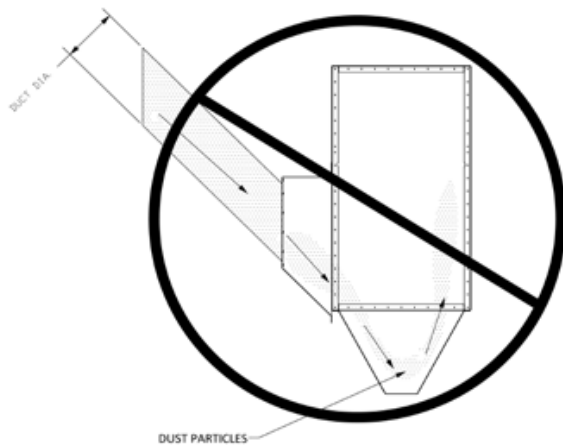
Duct work design is dependent on the unique location of your Filterhawk.

Use these guidelines when customizing an installation solution for your specific location.

1. The air duct connection to the inlet flange should be straight and at least 2 duct diameters.
2. 60 degrees is the minimum angle from the duct to the inlet flange.
3. This example shows a recommended design. Note that the angle from the duct to the inlet flange is 90 degrees, above the sixty-degree minimum, and the horizontal length is at least 2 duct diameters to distribute dust evenly.



4. The following examples are not recommended: note that the duct enters the inlet flange at 0 degrees, below the 60-degree minimum. As a result, previously filtered dust re-enters the air stream. In Figure 2, the duct is not long enough and bends too sharply, sending the flow of air to one section of the Filterhawk, which causes uneven filter loading.



Remote Mount Fan Discharges

Remote mount fans provided by Diversitech will be ducted to the collector by removing one or multiple upper panels and attaching the duct work to the frame of the Diversitech Filterhawk dust collector.

Top Mount Fan Discharges

Top mount fans, provided by Diversitech, are field mounted on the top of the Diversitech Filterhawk collector.

Utility Connections

Motor Connections

Diversitech can supply a fan, motor starter, and discharge devices such as rotary air locks. If you choose, you can supply your own fan or other accessories. Please discuss any supply changes with your Diversitech representative. Before ordering your own accessories, ensure that they meet the electrical specifications for your equipment. All accessories and equipment must be installed in accordance with local electrical code and safety regulation standards.

To connect the motor starter, follow these steps:

1. Choose a convenient location to mount the motor starter. Some recommended locations are:
 - a. A support leg
 - b. A plant wall near the collector
2. Mark any drilling holes by using the motor starter enclosure as a template.
3. Mount the motor starter enclosure.
4. Diversitech recommends J-style current limiting fuses that meet or exceed the full load amperes listed on the motor nameplate by 150%. Please consult the National Electronic Code for further information and follow your local code regulations.
Diversitech fans are intended for continuous duty. It is not recommended to cycle power to the fans more than twice an hour. Cycling power to the fans more than twice per hour results in premature failure of the motor starter, fan motor, fan, and voided warranty claims

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Timer Control Connections

1. Refer to the General Electrical drawing and confirm the electrical requirements for your equipment and installation location
2. Mount the timer control close to the Filterhawk to monitor performance. Recommended locations include:
 - a. A nearby wall
 - b. A nearby stand

Do not mount the timer control on the side panels of the dust collector. The pulse jets vibrate the side walls which can damage electrical connections to the timer control.

Solenoids Connections

1. Locate the solenoid cover.
2. Loosen the two Philips head screws on the bottom of the housing.
3. Lift the cover straight up to expose the solenoids.
4. There are two wires attached to each solenoid:
 - a. One wire for the numbered row of cartridges.
 - b. A second wire, called the "common," is attached to all the solenoids. The common is pre-wired by the solenoids manufacturer.

Attach common wire to either end of the pre-wired common terminals

Attach numbered hot (load) wired from controller to corresponding solenoid



Collector Timer Control Connections

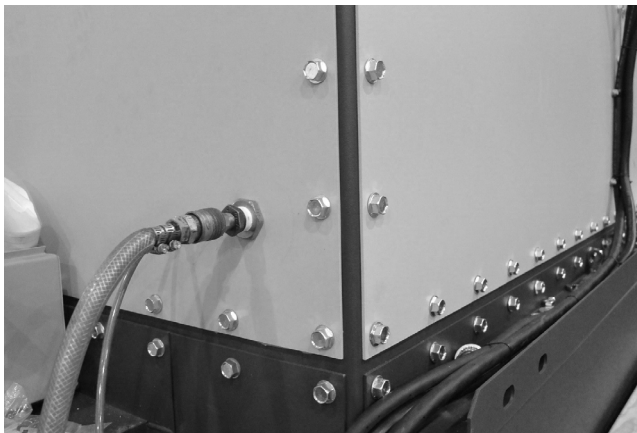
Your Filterhawk has a control timer or a Magnahelic gauge to monitor the differential pressure inside the collector.

1. Locate the control package which contains the assembly hardware.
2. Locate the 1/8" NPT pressure taps, located on the top and bottom end panels of the collector, labeled as "Dirty Air / High Pressure" and "Clean Air / Low Pressure."
3. Remove the two 1/8" elbow fittings from the control package.
4. Attach the elbow fittings to the 1/8" NPT pressure taps.
5. Remove the 1/4" black polylines. Each line is labeled to match the 1/8" pressure taps on the collector. The collector timer control uses similar labels
6. Attach the labeled port on the timer control with the matching labeled port on the collector using the black polyline that has the same label.
7. If your Filterhawk comes equipped with a Magnahelic gauge, the installation process is the same, but the labels are "High Pressure" and "Low Pressure".

Compressed Air Connection.

The compressed air reservoir located in the header of your Filterhawk requires clean, compressed air in the range of 90-105 psi.

Compressed air line fitting size 3/4" FNPT



Do not use unclean compressed air lines with your Filterhawk. Oil or water in the compressed air-line causes premature filter failure. Your compressed air supply should have the following:

1. Manual shut-off valve
2. Filter or separator
3. Air regulator
4. Pressure gauge
5. Dew point of -40 F
6. Air reservoir condensation draining equipment, such as an automatic tank drain The first four items should be close to the unit to allow operators to monitor system performance. While the Filterhawk is operating, air consumption varies depending on the amount of dust in the air and cleaning cycle set points.

To inspect the compressed air for your Filterhawk:

1. Slowly open the shut-valve.
2. Pressure gradually builds in the tank. Let it reach the optimum range of 90-105 psi.
3. Close the valve.
4. Check the following location for air leaks:
 - a. Header
 - b. Valves
 - c. Fittings
 - d. Solenoid valves
5. Stop any leaks by tightening relevant clamps and fittings.
6. Open the air shut-off valve.

Sprinkler Connections (Optional)

If your purchase includes a sprinkler system, follow these instructions to connect them. If using more than one sprinkler system, ensure the supply pipe is sized correctly to allow for the target flow rate. Check the National Fire Protection Agency (NFPA) guidelines and your local codes and regulations for more information.

1. Locate the sprinkler connection coupling(s).

Explosion Vents (Optional)

In an industrial setting, many types of dust are combustible. Dust is considered any particle smaller than 420 microns. Combusting dust results in injury, loss of life, and property damage. Special precautions must be taken to ensure a safe work environment when working with combustible dusts. The National Fire Protection Agency (NFPA) provides extensive information and protocols on explosive dust. The following list contains publications recommended by Diversitech that meet NFPA regulations on handling, collecting, and processing combustible dusts:

- NFPA 654 Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids
- NFPA 69 Standard on Explosion Prevention Systems
- NFPA 68 Guide for Venting of Deflagrations
- NFPA 664 Standard for the Prevention of Fires and Explosion in Wood Processing and Woodworking Facilities
- NFPA 651 Standard for the Machining and Finishing of Aluminum and the Production and Handling of Aluminum Powders
- NFPA 77 Recommended Practice on Static Electricity

This list is not a comprehensive list of all NFPA publications relevant to your specific application. Each NFPA publication in this list cites additional NFPA publications which must also be referenced if applicable to your situation. Always use the most recent publication.

Concerning Explosion Vents

The dust collectors provided by Diversitech are only one part of a full dust collection system. The installation of an explosion vent by itself is often insufficient to meet NFPA recommendations, and additional equipment is advised. For example, according to NFPA 654:

“Systems that handle combustible particulate solids shall be designed by and installed under the supervision of qualified engineers who are knowledgeable of these systems and their associated hazards.”

Adherence to NFPA standards and recommendations is important to minimize the risks involved with combustible dusts. Diversitech is not involved with the design of your dust collection system and does not guarantee that using an explosion vent satisfies all standards and recommendations of the NFPA.

General Explosion Vent Guidelines

The following information contains paraphrased content from the reference NFPA publications. The content is a guide on how to work with explosive dusts, but it does not relieve the purchaser or operator of responsibility. It is the purchaser and operator's responsibility to ensure that the complete dust collection system is designed, installed, and operated in accordance with NFPA standards and recommendations.

- It is important to note that venting does not prevent a deflagration. Venting can, however, minimize the destructive effects of a deflagration.
- Refer to NFPA 654 Standard for design requirements for the complete dust collection system.
- Systems that handle combustible particulate solids shall be designed by and installed under the supervision of qualified engineers who are knowledgeable of these systems and their associated hazards.
- Several methods are available for the design of explosion protection for equipment. See NFPA 68, Section 3.1.1
- Where an explosion hazard exists, isolation devices shall be provided to prevent deflagration propagation from air-material separators up stream to the work areas. Isolation devices include, but are not limited to, those listed in NFPA 654 section 3.1.3.1 §1 through §5.
- The specific conditions of the hazard and the objectives of protection are the basis for the choice of the most effective and reliable means for explosion control. Venting of explosions only minimizes the damage that results from combustion.
- Substances other than oxygen can act as oxidants. NFPA 68 vent calculations apply only where the oxygen in the air is the only oxidant. If chemical oxidants are present as either solid particulate or gas, then explosion suppression and isolation equipment are required as recommended in NFPA 69.
- Situations can occur in which it is not possible to provide calculated deflagration venting as described in NFPA 68. Such situations do not justify the exclusion of all venting. Provide the maximum practical amount of venting, since some venting should reduce the damage potential. Also, consider other protection and prevention methods.
- It is not possible to successfully vent a detonation.

Explosive Dusts

Dusts are solid particles 420 microns or smaller and capable of passing through a U.S. #40 sieve. Particle size distribution characterizes how fine the dust is. The maximum pressure and Kst of a dust increase as the size of the particle decreases.

Combustion properties of a dust are a result of its chemical and physical characteristics. Published dust flammability data is available for many dust particles. However, inadequate vent design can result if the process dust is not the same as the dust in the published particle data. When using published particle data, ensure that the following characteristics of the particles being processed are the same:

- Size
- Shape
- Chemical properties

Please see NFPA 68 Section B-5 for more information.

Explosion Vent Guidelines

Please use the following guidelines when operating your explosion vent system.

- The goal of venting is to limit the pressure inside an enclosed space during the event of combustion through the controlled release of expanding gasses.
- If an explosion hazard exists, then dust collectors must be installed outside of the building. Some exceptions exist, such as isolation and suppression systems listed in NFPA 654 Section 3.1.1.
- Always direct a venting path outside to a safe location. Failure to do so may result in injury, death, and property damage. Please see NFPA 68 3.2.3 for further information.
- The venting path does not enter into personnel traffic areas.
- The vent path should not allow vented material to enter air intakes.
- Do not use shields that deflect the pressure exiting a vent during a combustion event. Do not orient the vent such that a nearby object, such as a wall or machine, acts as a shield to deflect pressure waves. If the vent exhausts gasses into a congested area, the pressure increases, and potentially cause the ignition of unburned gasses or dust outside of the system.
- The space on both sides of the vent must be clear so the vent can open and close without restriction.
- Vents must operate properly for the vent system to function. Check vents for blockage, such as snow, paint, corrosion, or buildups inside the system. Do not seal a vent closed by painting over its surface.
- Vent closures should be maintained in accordance with Chapter 10 of NFPA 68 and the manufacturers' recommendations. The occupant of the property in which the deflagration vent closures are located is responsible for inspecting and maintaining such devices.
- Maintain all vents by the regulations outlined in NFPA 68, Chapter 10, and the manufacturer's guidelines. In some cases, replacing a vent is necessary to ensure proper operation.
- Always select materials for your vents that are corrosive resistant for your target application.
- Maintain all signs for explosion vents. Replacement signs are available from Diversitech if a sign has become illegible.

Location of Vents and Vented Equipment

Ignition Sources

- Some types of ignition sources include electric (arcs, sparks, and electrostatic discharges), mechanical (friction, grinding, and impact), hot surfaces (overheated bearings), and flames (welding torches, and so forth).

Vent Discharge Ducts

- If a dust collector is located inside a building it should be located near an external wall and the exhaust from the vent ducted to the outside
- The addition of a vent discharge duct can substantially increase the pressure developed in a vented enclosure. (See NFPA 68 Section 5.4.) Sizing of the vent should take this into consideration.
- Ducts that are used to direct vented gases from the vent to the outside of a building should be of noncombustible construction and should be strong enough to withstand the expected Pred. Ducts should be as short as possible and should not have any bends. (See NFPA 68 Section 5.2.9.)
- The duct length must be calculated per NFPA Guidelines if it extends beyond the Hydraulic Diameter of the Vent and must not interfere with the operation of the vent.
- Bird screens or weather hoods must be low restriction and their affect should be taken into consideration when sizing the vent area.

Vent Inspection and Maintenance

- Diversitech offers rupture diaphragm style explosion vents on their dust collectors. Explosion vents should be inspected every three months. The inspection and maintenance points are outlined below.
- Remove obstructions such as snow, ice, dust inside and out if present, with equipment not running.
- Replace safety decals if missing or illegible.
- Tighten and replace bolts if missing.
- Area around vent is free and clear of obstructions.
- Check that flammable materials are not stored near the vent.
- Rupture diaphragms have no moving parts and should be inspected for tears rips or cracks, replace if present.

Filter Installation and Replacement

Multiple types of replacement filters are available.

Contact Diversitech for assistance in acquiring the best replacement filters for your needs at 1-800-361-3733.

Follow these steps to replace the filter:

Disconnect

1. Disconnect electrical power to the fan and control box. Disconnect compressed air service from the compressed air header. Bleed all air from the air header. Perform an OSHA approved lockout/tag-out procedure on these and any other energy sources.
2. Open the access doors at the front of the unit, swinging them out of the way.
3. Unlatch the clamp bars as shown in below. With your left hand, rotate the right clamp bar up and pull it toward you, until its locking tab clears the rectangular cut-out on the left clamp bar. With your right hand, rotate the left clamp bar up and push it away from you until its locking tab clears the rectangular cut-out on the right clamp bar. Rotate both clamp bars down until they are vertical and clear of the cartridge extraction path. Remove all dirty filter cartridges by sliding them off the clamp bar channels. Clean the surface of the tube sheet in the areas where the filter gasket forms a seal.
4. Remove a new cartridge from the shipping carton, taking care not to cut or otherwise damage the filter media. Make sure the clamp bar handles are fully opened and will not interfere with the cartridge during installation. Grasp the new cartridge by the top metal pan and set it onto the clamp bar channels. Holding the cartridge level, slide it forward, pushing on the cartridge pan, do not push the media, taking care not to drag the gasket along the tube sheet. Push the cartridge in just far enough to leave room for the next cartridge to rest on the clamp bar channels. Repeat steps 4 and 5 until the row is full.
5. To seal the new cartridges, repeat the instructions in Step 3 in reverse order. With your left hand, rotate the left clamp bar counter clockwise or up to between 80° and 90°. While pushing the left clamp bar away from you, rotate the right clamp bar clockwise or up, with your right hand. Insert the locking tab on the left clamp bar when it lines up with the rectangular cut-out on the right clamp bar. Release the left clamp bar. With both hands rotate the right clamp bar clockwise or up and pull it toward you, until the locking tab inserts into the rectangular cut-out on the left clamp bar. The clamp bars must be bent slightly if the locking tabs do not stay inserted in the rectangular cut-outs.
6. Repeat steps 3 through 6 until all the rows of cartridges are changed



Pre-coating of Filters (optional)

Pre-coating filters extends the filter life. Pre-coat when the dust concentration is low and or the dust particles are less than 0.5 microns. Maximum filter efficiency requires a layer of dust to cover the filter media, which in low concentration or small particle applications, can require weeks to achieve. Pre-coating brings the filter to maximum efficiency in a few hours. This is especially important for applications where the dust recirculates through the safety filters, contains hydrocarbons, or if the dust is toxic.

Pre-Coating Procedure (Optional)

To pre-coat your filters, follow these steps:

1. Verify that all filter cartridges are installed properly.
2. Install a clean, empty discharge container under the unit.
3. Remove safety filters, if any are present.
4. Disable the dust collector unit by shutting off the compressed air then bleeding the compressed air reservoir, or by turning off the power to the timer control.
5. Using table X, weigh out the appropriate amount of pre-coat dust.
6. Start the dust collector and add pre-coat dust into a suction hood in the duct system.
 - a. If the suction hoods are not accessible, remove the container under the discharge and add pre-coat through the hopper discharge.
7. The fan outlet emits dust. This is normal.
8. When the dust stops exhausting from the fan outlet, the pre-coat process is complete.
9. When all the dust has been applied, collect the dust from the discharge container and repeat the above procedure.
10. Log the reading on the Magnehelic gauge.
11. Measure the airflow using a pilot tube or similar device.
12. Set the fan damper to correspond to the system designed airflow.
13. Remove any pre-coat dust remaining in the ducting outlet and discard according to local codes and regulations.
14. Re-enable the collector by either opening the compressed air line or turning on the power to the timer control (see step 4).
Do not pulse on continuous.
15. The system is now ready for use.

SECTION 4 - OPERATION

Diversitech has prepared this proprietary user's manual for the exclusive use of its customers. The recommendations contained herein are based on proven techniques and on test data believed to be reliable. It is intended that personnel having specialized training in accordance with currently accepted practice and normal operating conditions use this manual. Variations in environment, changes in operating procedures or extrapolation of data, may cause unsatisfactory results. Since Diversitech has no control over the conditions of service, it expressly disclaims responsibility for the results obtained or for any consequential or incidental damages of any kind incurred.

The Diversitech Filterhawk dust collector described in this manual is designed for the collection of welding fumes and/or the capture of airborne particles generated from mixing, sanding, grinding and cutting operations involving wood, metal, fiberglass, plastics, advanced composites or similar materials.

4.1 System Operation

The Diversitech Filterhawk operates as follows:

1. Dust enters the inlet.
2. A baffle forces large or heavy dust particles to drop into the hopper.
3. The clean air passes through the filter media from the outside to the inside of the filter cartridge and exits through the open top of each filter cartridge.
4. The air then flows from the filters into the clean-air plenum, where it enters the fan inlet and is exhausted. The dust is captured on the outside surface of the filter media.
5. Clean air is exhausted.

For the filters to work properly, they must be covered in a "dust cake", which results in a drop in air flow. The filters must also be cleaned periodically, so a balance needs to be met between a dust cake, cleaning cycles, and reduced air flow. The timer controller or Magnehelic gauge maintains this balance by pulsing the filter material, which maintains an optimal dust cake. Pre-coating the filters with a Diversitech-provided dust designed for pre-coating applications is strongly recommended for optimal efficiency and lifetime of your filters. Different filter materials are available for different applications. If you have questions about which filter material to use, contact Diversitech or your local Diversitech representative.



Always use caution when working near the Filterhawk. Always wear appropriate safety gear, including eye and ear protection. The noise level of the cleaning cycle can cause hearing damage. The diaphragm valve may discharge projectiles. Do not operate the Filterhawk with the access doors open.

Cleaning the Filters

The filters go through a cleaning cycle while the machine is operating. There is no need to shut the machine down to clean the filters. Filter cleaning involves reversing the flow of air through the material in pulses, which dislodges accumulated dust. The filter set being cleaned is cycled so that the remaining filters are available to clean the air in the environment.

Cleaning the Header (Compressed Air Pressure Reservoir)

To clean the header, supply it with clean, dry, compressed air in the optimal range of 90-105 psi.

Solenoid/Diaphragm Valves

There is one solenoid per diaphragm valve.



Solenoid-operated valves on the collector operate typically one diaphragm valve each. Diaphragm valves on the air reservoir operates one pulsejet blowpipe each. The automatic timer control energizes the solenoid, which causes the valve to decrease air pressure through the exhaust port. This release of pressure also releases pressure from the outer chamber or back side of the diaphragm valve. The resulting difference in air between the outer chamber and the compressed air reservoir allows the diaphragm valve to open. This allows the air in the header to be released into the pulsejet blowpipes. The size of the diaphragm valves is 1" or 1-1/2", depending on the size of the collector.

4.2 Controls



Display/Keypad

- There are four round buttons on the front panel for controlling the device and turning on the display as shown in the following figure.
- Press SET to open and close the programming menu and activate the manual solenoid test by selecting function F06.
- Press + and - to select a function, increase/decrease values, view the total hour counter (+) and the maintenance counter (-).
- Press OK to confirm data and reset the alarms.

Menu Diagram



How to access programming:

- Press SET, the letter F flashes. (see figure).
- Press + and - to select the required function.
- Press OK to confirm.
- Increase or decrease the value of the parameter.
- Press OK to confirm and exit.
- Press SET again to exit programming mode.

4.3 Shutdown Procedure

1. Stop the operation that generates dust.
2. The fan, dust removal device and cleaning mechanisms must continue to operate for at least 20 minutes after the process or dust generating operation are stopped to purge any moisture that remains in the collector.
3. Shut off the fan.
4. Follow all established lock-out/tag-out procedures.
5. To replace the filters, continue pulsing the collector for an additional 20 minutes after the fan shut down, so they are lighter and more convenient to move. If the filters are not to be replaced, do not pulse the unit after the fan is turned off.
6. Close the compressed air line valve.
7. Follow all established lock-out/tag-out procedures.
8. Turn off the controller, discharge devices, and all other electrical equipment.
9. Follow all established lock-out/tag-out procedures.
10. The collector is now ready for filter replacement, maintenance, or storage.
11. If the Filterhawk is stored outside or gathers condensation for any reason, install a heater to allow warm air to pass through the collector while it is shutdown.

4.4 Recommended Timer Settings

If your Filterhawk is equipped with a timer, please use these recommended settings as a starting point:

On-Time Pulse Duration: 150 milliseconds

Off-Time Pulse Duration: 15 seconds

- Pulse Duration (on time) 150 milliseconds This is Diversitech's recommended setting.
- Pulse Frequency (off time) 15 seconds Increasing this value will decrease compressed air consumption. Decreasing this value will increase compressed air consumption. You would decrease this value if your application involves high dust loads and dust that does not easily release from the cartridge. On applications with light dust loads this value can be increased to conserve compressed air.
- High DP Set Point 2 in wg Initiates differential pressure cleaning.
- Low DP Set Point 1.5 in wg Stops differential pressure cleaning.
- High Alarm 6 in wg This value will protect the cartridges from damage due to high differential pressures.

If your system uses differential pressure cleaning, then adjusting these settings is only required for very aggressive applications. Please consult with your Diversitech representative if you feel that different settings are required.

If your system is set to clean continuously, then optimizing these settings is encouraged results in longer filter life. Please follow these steps to optimize your timer settings:

1. Set the timer to the recommended settings.
2. Log the pressure for 4 weeks.
3. If the pressure is below 2 in w.g., increase the pulse frequency by 2 seconds or reduce the pulse duration by 10 milliseconds.
4. Repeat steps 2 and 3 until the pressure stabilizes into the optimal range of 2-3 w.g.
5. As the filters age, these settings may need to be reversed to keep pressure within the optimal range.

Over-cleaning filters reduces their life, increase emissions, and increase energy costs.

SECTION 5 - MAINTENANCE

5.1 To Maintain this Product Safely



- Read and understand **SECTION 1: Safety Precautions** and **SECTION 4: Operation** before maintenance.
- Do not breathe the dust collected from product while changing/cleaning filters or performing maintenance on this product.



- Disconnect power before performing any maintenance on unit, including filter inspection. The input power to this unit is high voltage, and touching any live electrical parts can cause fatal shocks or severe burns. Do not touch live electrical parts.



- Keep away from all mechanical moving parts including motor, gears, and other pinch points while operating.



- Operating this unit causes some parts to heat to a point that will burn bare hands. Before maintenance allow parts to cool, or use proper tools and personal protection equipment during maintenance.

5.2 Tools Required



**EYE
PROTECTION**



RESPIRATOR



GLOVES



**WASTE
CONTAINER**

5.3 Routine Maintenance

Filter Elements

Replace filters that meet any of the following conditions:

- 2 years old
- Damaged by environmental conditions, such as by moisture or high heat.
- Cleaning does not achieve a w.g. level of 6 inches or greater.
- The pressure drop across filter elements increases quickly when the filters are new or clean. After use, the pressure drop increases more slowly.

Hopper

Use the following guidelines to maintain your hopper:

- Always inspect the hopper at the start of each shift.
- Never use the hopper to store material.
- Empty and replace collection containers often.
- Do not overfill containers.
- While the Filterhawk is operating, the slide gate should remain open.

Fan Motor Lubrication

Improper lubrication of the fan is the most common cause of premature bearing failure in your Filterhawk system. There are two types of fans provided by Diversitech:

1. Sealed for life bearings. No maintenance required.
2. Grease fittings located on the top and bottom motor. Maintenance required.

It is possible to lubricate the fan while the fan is running for initial lubrication only if safety permits. After the initial lubrication, the fan must not be running. The frequency that bearings need lubrication varies. Use all proper safety precautions when working with fast moving parts. Loose clothes, jewelry, and other things can catch and lead to serious injury or death.

Use the following guidelines to lubricate the fan:

- Lubricate the grease fittings with high-quality NLGI No. 2 or No. 3 multi-purpose ball bearing grease. Ensure that the ball-bearing grease has rust inhibitors and anti-oxidant properties.
- Lubricate the bearings before an extended shutdown or before moving the unit into storage.
- Rotate the motor shaft every month.
- Suggested greases include:
 - a. Shell Alvania No. 2
 - b. Mobil Mobilith 22
 - c. Gulf Gulfcrown No. 2
 - d. American-Rykon Premium 2

Solenoid and Diaphragm Valves

The frequency that solenoid and diaphragm valves need maintenance depends on compressed air quality. Check each valve regularly by putting a small screwdriver or paper clip into the base of the solenoid and pushing upwards.

Automatic Timer Control

If your Filterhawk comes with an automatic timer, it does not require any routine maintenance. Check that the board is operating and ensure any user-defined settings are correct. Please note that dirt and moisture damages the timer, so check inside the enclosure regularly.

Cleaning and Repair

Treat the inner and outer surfaces of your Filterhawk like any other painted metal. Visually inspect for corrosion and surface damage regularly.

APPENDIX 1 - MAINTENANCE RECORD

Diversitech Inc. authorizes this page to be photocopied or otherwise reproduced as needed for management of maintenance records.

MANUFACTURER:	DIVERSITECH INC.	MODEL N°	CARTRIDGE DUST COLLECTOR	SERIAL N°	
SERVICE LOCATION:				CONTROL N°	

Date	Description of Service	Serviced By	Location	Comments

Only use manufacturer approved replacement parts on this unit.

APPENDIX 2 - ELECTRONIC CONTROL SYSTEMS FOR DUST COLLECTORS

WARNING: Risk of electrical shock. It is highly recommended that any electrical work be performed by a licensed electrician

List of Functions

F01:

Configuring the operation mode.

Possible values:

- 0 – Manual (dP excluded)
- 1 – Automatic (Default) (dP included)
- 2 – Automatic with forced cycle (dP included)
- 3 – Proportional (dP included)

F02:

Solenoid activation time.

Possible values: 0.05 seconds – 5.00 seconds step 0.01 seconds.

Default = 0.20 seconds.

F03:

Washing pause time between solenoid valves.

Possible values: 001 seconds – 999 seconds step 1 seconds.

Default = 20 seconds.

F04:

Number of connected outputs.

Possible values: 01 – 56.

depending on the version of the instrument, step 1.

Default = 001.

F05:

Output voltage setting

Possible values: 24 Vdc.

Default = 24 Vdc.

F06:

Manual output activation.

Possible values: 1 – number of outputs set in F04.

Press SET to activate the set output.

F07:

Zero dP threshold.

Possible values: 0.00 inch WC - 20 inch WC step 0.01.

Default = 0.00 inch WC.

F08:

Cleaning cycle start threshold high dP set point.

Possible values: 0.00 inch WC - 20 inch WC step 0.01.

Default = 3.2 inch WC.

F09:

Cleaning cycle stop threshold low dP set point.

Possible values: 0.00 inch WC - 20 inch WC step 0.01.

Default = 1.6 inch WC.

F10:

Max dP Alarm Threshold

(Filter Clogging if detected for longer than 20 seconds)

Possible values: 0.00 inch WC - 20 inch WC step 0.01.

Default = 12 inch WC.

F11:

Fan on recognition mode for after cycle cleaning.

Possible values: 0 from contact – 1 from dP.

Default = 1 from dP.

F12:

dP threshold for fan on recognition if F11=1.

Possible values: 0.00 inch WC - 20 inch WC step 0.01.

Default = 0.4 inch WC.

F13:

Number of post cleaning cycles after stopping the fan.

Possible values: 01 – 99 step 1.

Default = 01.

F14:

Post cleaning mode pause time between solenoid valves (fan off).

Possible values: 001 seconds – 999 seconds step 1 seconds.

Default = 10 seconds.

F15:

Maintenance frequency expressed in tens of hours (e.g.: 1=10h, 10=100h).

Possible values: 001 – 999 step 1.

Default = 100 (=1000h).

F16:

Maintenance deadline alarm enable.

Possible values: 0 (disabled) – 1 (enabled).

Default = 0 (disabled).

F17:

Maintenance hour counter reset.

Possible values: 0 (disabled) – 1 (reset).

Default = 0 (disabled).

Note: The maintenance hour counter will be reset and the F17 parameter will be set back to 0 by setting F17 to 1.

F18:

Precoating function enabling.

Possible values: 0 (disabled) – 1 (enabled).

Default = 0 (disabled).

F19:

dP threshold for precoating function.

Possible values: 0.00 inch WC - 20 inch WC step 0.01.

Default = 8 inch WC.

F20:

Enabling Minimum dP Alarm function if detected for longer than 60 seconds.

Possible values: 0 (disabled) - 1 (enabled).

Default = 0 (disabled).

F21:

Min dP Alarm Threshold (Broken Sleeve/Cartridge)

Possible values: 0.00 inch WC - 20 inch WC step 0.01.

Default = 0.8 inch WC.

F22:

Selection of minutes or hours for Forced Cleaning Cycle.

(Only if the operating mode F01 = 2)

Default = Minutes (0 =minutes, 1 =hours).

F23:

Setting time interval for Forced Cleaning Cycle in relation to the choice of F22.

Setting values: 1 - 999 step 1.

Default = 240 (240 minutes).

F24:

Setting the date on the internal clock.

Settable values: Day 1 – 31 d.

Month 1 – 12 m.

Year 00 – 99 y.

F25:

Setting of the time for the internal clock.

Settable values: Hours: 0 – 23 HH.

Minutes: 0 – 59 m.

F26:

Exclusion of valve in short circuit.

The default setting is 0, the valve in short circuit is tested at each cycle.

If set to 1, when a valve is in short circuit is excluded from the cycle and is not rechecked.

Alarms

The unit runs a number of checks during the start-up cycle and during normal operation. The possible alarms and respective solutions are shown in the following table.

Alarm number	Description	Action
E01	F05 set to 24Vdc AC jumper detected	- For 24Vdc, switch the device off and move the AC/OC jumpers to DC. Jumper table p. 12. - For 24Vac, press OK, then press SET, set the function F05 using "+" and "-", select a24 and press OK to confirm.
E02	F05 set to 24Vac — DC jumper detected	- For 24Vac, switch the device off and move the AC/OC jumpers to AC. Jumper table p. 12. - For 24Vdc, press OK, then press SET, set the function F05 using "+" and "-", select d24 and press OK to confirm.
E03	F05 set to 24Vac or dc. Voltage out of range detected	- To use 24V valves, switch the device off and move the output voltage selection jumper to 24V. Jumper table p. 12. - If the jumper is in the correct position, press OK, then SET, select the F05 function with "+" and "-", set 115 or 230 (as jumper) and press OK.
E04	F05 set to 115V. Voltage out of range detected	- To use 115V valves, switch the device off and move the output voltage selection jumper to 115V. Jumper table p. 12. - If the jumper is in the correct position, press OK, then SET, select the F05 function with "+" and "-", set 115 or 230 (as jumper) and press OK.
E05	F05 set to 230V. Voltage out of range detected	- To use 230V valves, switch the device off and move the output voltage selection jumper to 230V. - If the jumper is in the correct position, press OK, then SET, select the F05 function with "+" and "-", set a24, d24 or 115 (as jumper) and press OK.
E06	Solenoid valve current lower than minimum threshold or disconnected solenoid valve	Check correct connection of the solenoid valve and respective data. The alarm is self-reset.
E07	Solenoid valve current higher than maximum threshold	Check correct connection of the solenoid valve and respective data. The alarm is self-reset.
E08	Output short circuit. Alarm The signaling of the code E08 alternates with the indication of the interested output is shown as Uxx where xx is the number of the output and the value of dP	Switch the device off and back on after having checked the solenoid valve system.
E09	dp maximum pressure exceeded (F10) Detected for longer than 20 seconds	Check state of filtering elements.
E10	dp sensor hardware offset out of range	The self-calibration of the dp sensor has determined that a value is out of range. Disconnect the air tubes and repeat the function. Take the device to be serviced if the alarm occurs again.
E11	Maintenance deadline reached	Carry out maintenance.
E12	dp sensor full-scale value reached Immediate reporting without any delay	- Check state of filtering elements. IMPORTANT: Running in this condition may damage the device.
E13	Minimum dp alarm value ranging from F12 to F21 (warning: the alarm is generated with a fixed delay of 60 seconds)	Check the status of the filtering elements.
E14	Indicates that a valve in short circuit has been excluded from the cycle. The signaling of the code E14 alternates with the indication of the interested output is shown as Uxx where xx is the number of the output and the value of dP. An output is considered a shot circuit if not responding for 3 following activations. An activation without error resets the counting	Switch the device off and back on after having checked the solenoid valve system.
E20	Internal Clock error	Replace buffer battery

Description of Operation

The installed SW version and the symbol —, meaning that coherence between settings stored in E2Prom and the set jumpers is being checked, will appear on the display when the economiser is powered up. A corresponding error code will appear in case of discrepancies between settings (see Alarms Table). Only editing functions will be allowed on the unit. The operator may switch off the unit and configure the jumpers correctly.

Symbol **0_0** will appear on the display if the test is entirely successful. The following pages will then appear:

1. In automatic mode (F01=1):
 - dP value alternating with OFF if the enabling contact (14-15) is open.
 - dP value alternating with -0- if the enabling contact (14-15) is closed and the fan is off.
 - dP value only if the fan is enabled and active.
2. In manual mode (F01=0):
 - OFF if the enabling contact is open (14-15).
 - -0- if the enabling contact (14-15) is closed and the fan is off.

Manual Operating Mode F01=0

The economiser will work as a programmable cycle sequencer in manual mode. The connected outputs will be activated at the programmable frequencies. Manual mode can be activated by accessing the configuration menu and setting F01 to 0. F02 and F03 will set the activation time and the pause time, respectively.

Automatic Operating Mode F01=1

By selecting automatic mode (F01=1), the economiser will work autonomously can carry out the pneumatic washing cycle only when needed. The device will start the washing cycle if the obstruction is higher than Threshold_dP_Start (F08). Washing is suspended when obstruction drops under Threshold_dP_Stop (F09) level until it reaches a value higher than the Threshold_dP_Start threshold once again. When washing is active, the economiser respects the times set in F02 (operating time) and F03 (pause time).

Automatic Mode With Forced Cycle F01 = 2

Identical to the automatic mode, except for the fact that it is possible to obtain a cleaning cycle with the activation of the solenoid valves connected without reaching the Threshold_dP_Start (F08). The forced cleaning interval may range from 1 to 999 h and can be selected through function F22 and F23.

Proportional Mode F01 = 3

With the proportional mode, the economiser will work in full autonomy, initially setting the dP_Start threshold (F08), activation time (F02) and pause time (F03). When the Start Cleaning threshold is exceeded, the solenoid valves are automatically activated in sequence. If the dP threshold drops below 15% at the end of an entire cycle of pulses of the connected solenoid valves, the washing is suspended until pressure returns to a value above the Start Cleaning dP value. If the dP value does not drop below 15% of the Start Cleaning threshold, the frequency of the cycle time is automatically reduced in proportion with each entire cycle of pulses of the connected solenoid valves, until a minimum cycle time between solenoid valves reaches 10 seconds. The minimum threshold of 10 seconds has been chosen so as not to hamper the dispensing of air by the compressor connected to the filter.

Cleaning Function With Fan Off (PCC)

This function allows to carry out one or more cleaning cycles (the number of cycles is defined by F13) when the fan is off. The on or off state of the fan may be determined by the state of the contacts 12- 13 (contacts open = fan off) if F11=0, or may be determined automatically (with F11=1) when the dP pressure drops under the threshold defined in F12. The pulse time of the valves will always be that defined in F02, while the pause time in this case is defined in F14. The display alternately shows the number of the valve activated and the word PCC.

Number Of Output Selection

The number of outputs (solenoid valves) on which the economiser will run the cleaning cycle can be selected. Cleaning will be carried out in order from the first to the last solenoid valve. The valves can be adjusted by the F04 function.

Precoating Function (F18=1)

This function is used to carry out precoating. Precoating is a filtering element treatment carried out with precoating powder. Washing and manual output activation is suspended during precoating until the precoating thresholds defined in F19 is reached. The dP value and the message PC (precoating) will appear alternatively on the display.

dP Zero Calibration (F07)

This function is used to reset dP reading with the fan off. Increase or decrease the value shown by pressing "+" and "-" as required. This value will be subtracted from the value read by the dP sensor.

dP Sensor Self-Calibration

This function allows to reset dP reading with the fan off automatically. Hold "SET" and "OK" pressed at the same time with the device off. The message "CAL" will appear after the start-up test. Release the buttons. The unit will go back to normal state after a few instants. Automatic calibration is complete.

Fuse

A fuse which can be reset in case of need is located near the power terminal board. Use a delayed fuse 5x20mm.

SD Memory Card

The Micro SD memory card slot is located on the bottom right of the control unit under the polycarbonate lid.

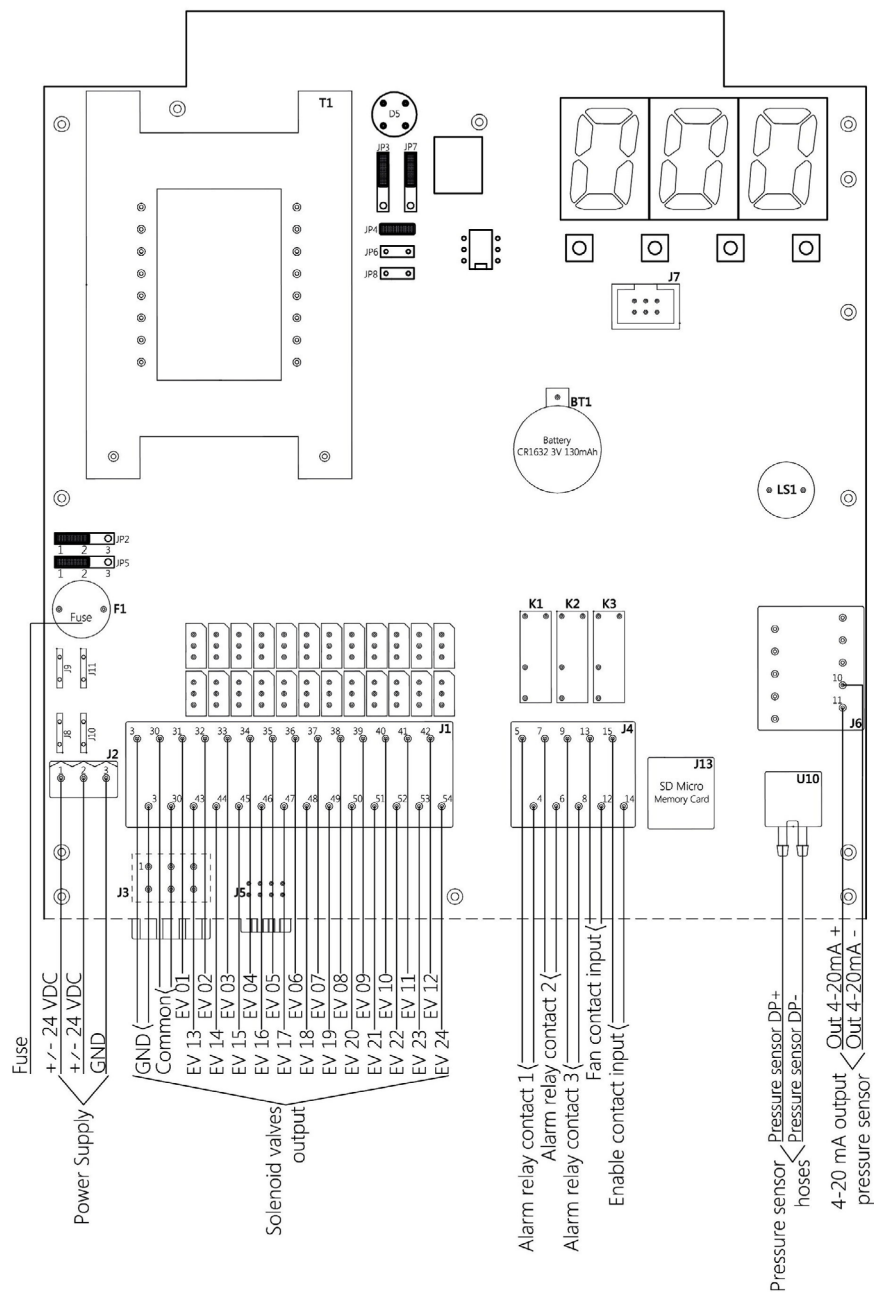
The card is not supplied with the control unit. A card with a maximum of 32GB can be used.

The card must be formatted FAT32, which is the format recognized by all devices and operating systems.

Before removing the memory card, press the OK button with the control unit on, wait for the cd (card) indication and the alternating flashing of the horizontal lines of the third figure $\equiv$. The card can now be safely removed. The Micro SD Card connector is push-pull.

Press upwards and extract the card to remove it.

Connection Diagram



Contacts And Relay Terminal Block J4

Enable contact input consensus 14.15 terminals.

Is used to activate the control unit remotely, it can be turned on and off remotely.

The unit is supplied with a jumper on the two terminals 14:15, without it will not turn on.

Fan contact 12.13 input terminals.

Indicated by the control unit that the plant has been started and is in operation.

The unit is supplied with a jumper on two 12:13 terminals to simulate the state of the plant, as if the fan was turned on.

Alarm Relay K1 4.5 terminals.

The relay is normally closed, opens in case of alarms, and opens to the control unit off in the absence of power.

The alarms that open the relays are:

Problem with solenoid valves E06-E08.

Maintenance interval has been reached.

If one of these occurs, the relay is activated.

Alarm Relay K2 6.7 terminals.

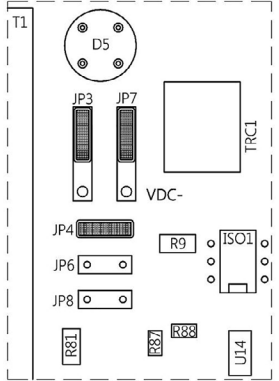
The relay is normally closed, opens in case of alarm, and opens to the control unit off in the absence of power.

The alarm that open the relays is:

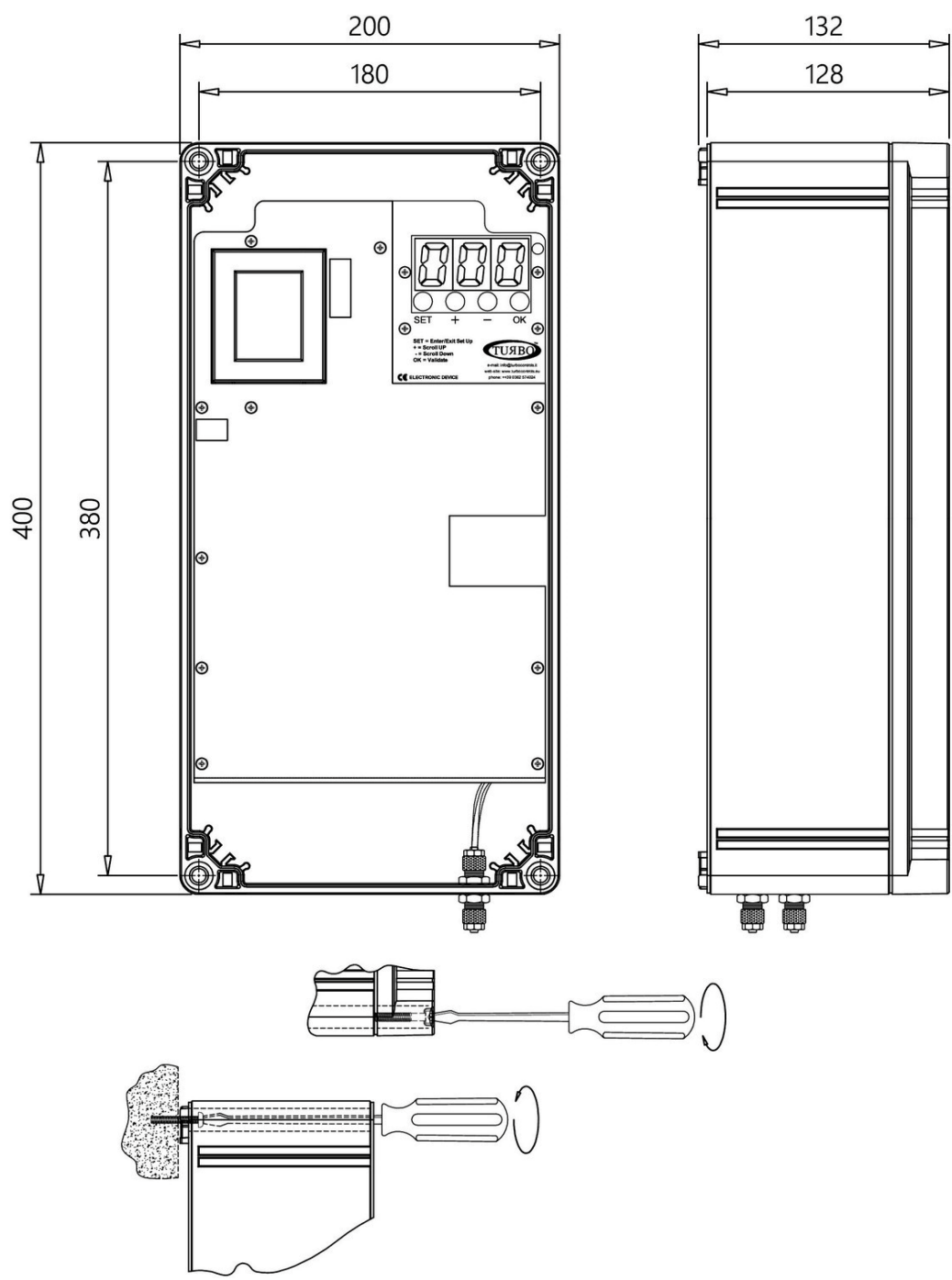
Max dP has been reached.

Expansion Boards

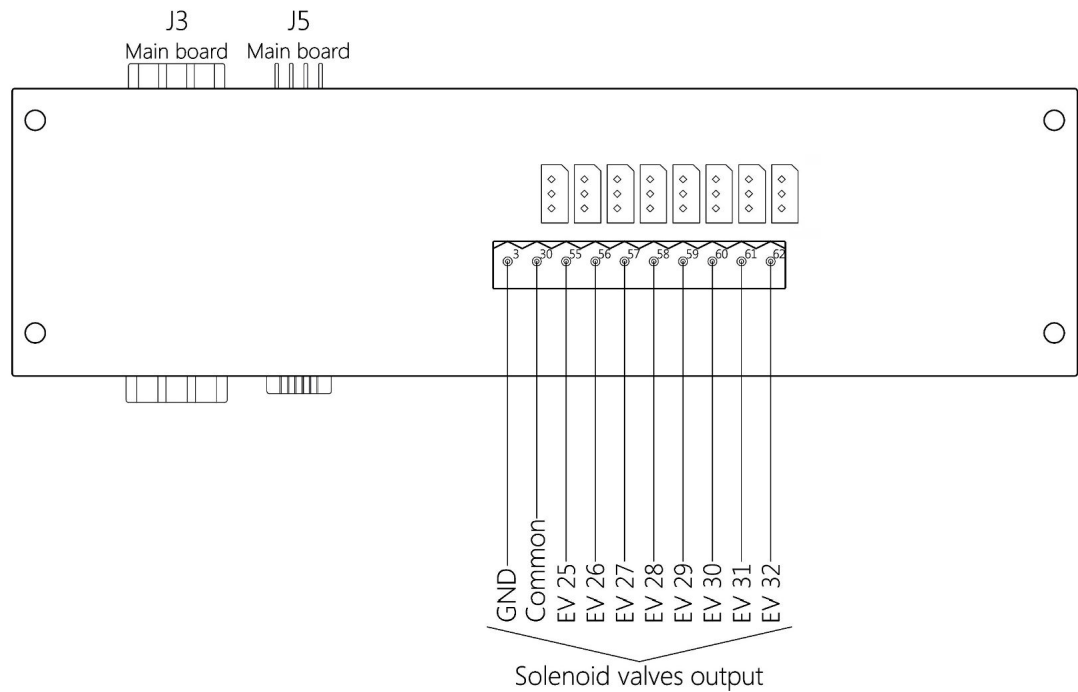
Expansion up to 32 channels		Expansion up to 48 channels	
Terminal	Description	Terminal	Description
03	Earth (GND)	03	Earth (GND)
30	Solenoid valve common	30	Solenoid valve common
55	Solenoid output 25	71	Solenoid output 41
56	Solenoid output 26	72	Solenoid output 42
57	Solenoid output 27	73	Solenoid output 43
58	Solenoid output 28	74	Solenoid output 44
59	Solenoid output 29	75	Solenoid output 45
60	Solenoid output 30	76	Solenoid output 46
61	Solenoid output 31	77	Solenoid output 47
62	Solenoid output 32	78	Solenoid output 48
Expansion up to 40 channels		Expansion up to 56 channels	
Terminal	Description	Terminal	Description
63	Solenoid output 33	79	Solenoid output 49
64	Solenoid output 34	80	Solenoid output 50
65	Solenoid output 35	81	Solenoid output 51
66	Solenoid output 36	82	Solenoid output 52
67	Solenoid output 37	83	Solenoid output 53
68	Solenoid output 38	84	Solenoid output 54
69	Solenoid output 39	85	Solenoid output 55
70	Solenoid output 40	86	Solenoid output 56

Fuse Table	Jumper Configuration Output				
<table> <tr> <th>Voltage</th><th>Value</th></tr> <tr> <td>24 Vdc</td><td>3 A</td></tr> </table>	Voltage	Value	24 Vdc	3 A	 24VDC
Voltage	Value				
24 Vdc	3 A				

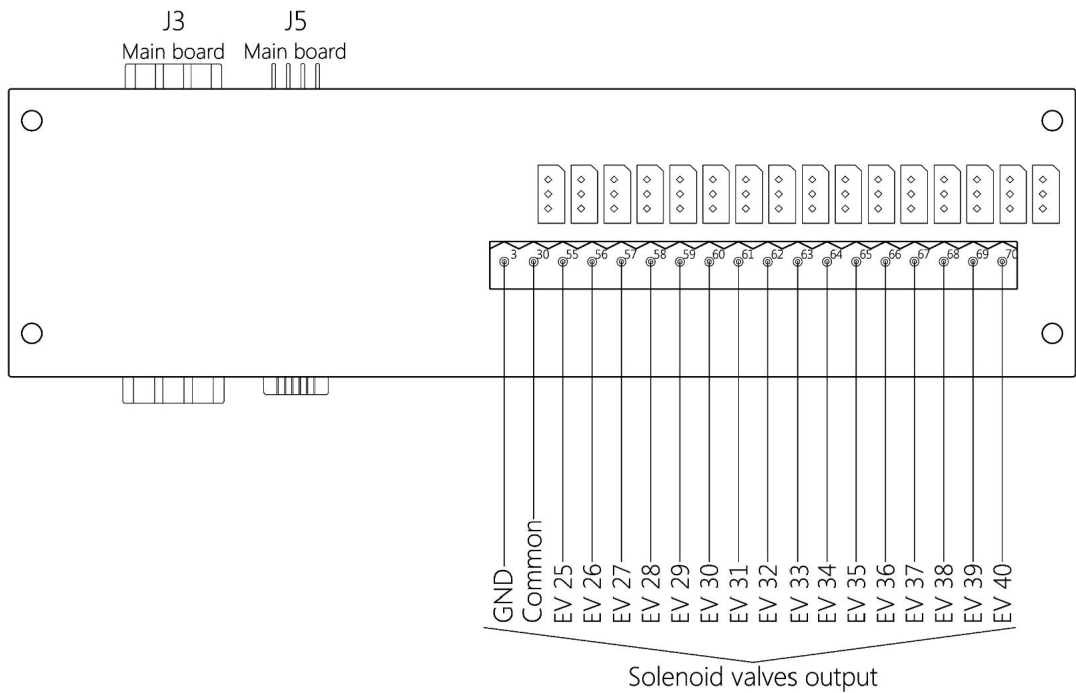
Installation - And Casing Dimensions



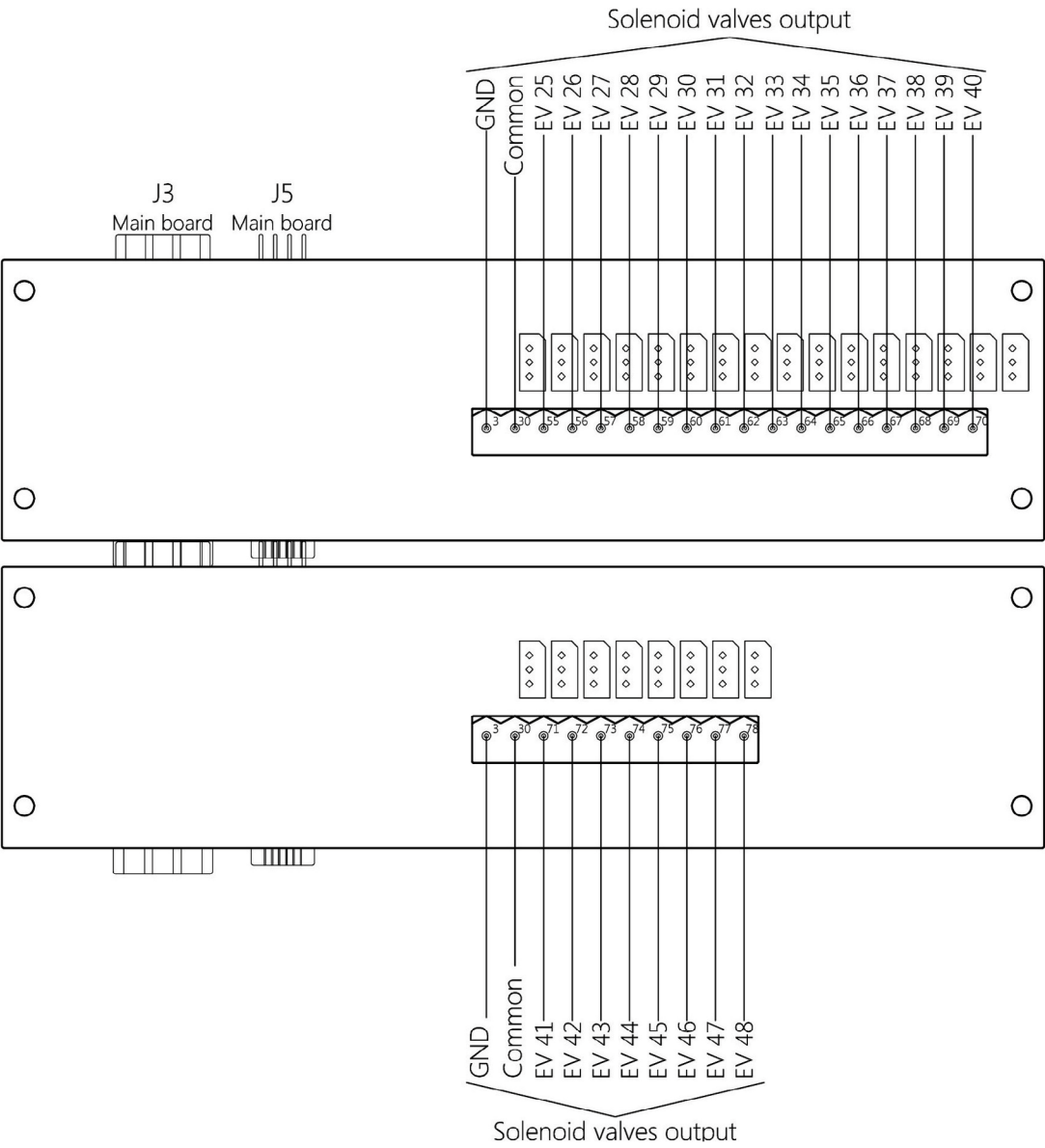
Connection Diagram Expansions - Expansion Up To 32 Channels



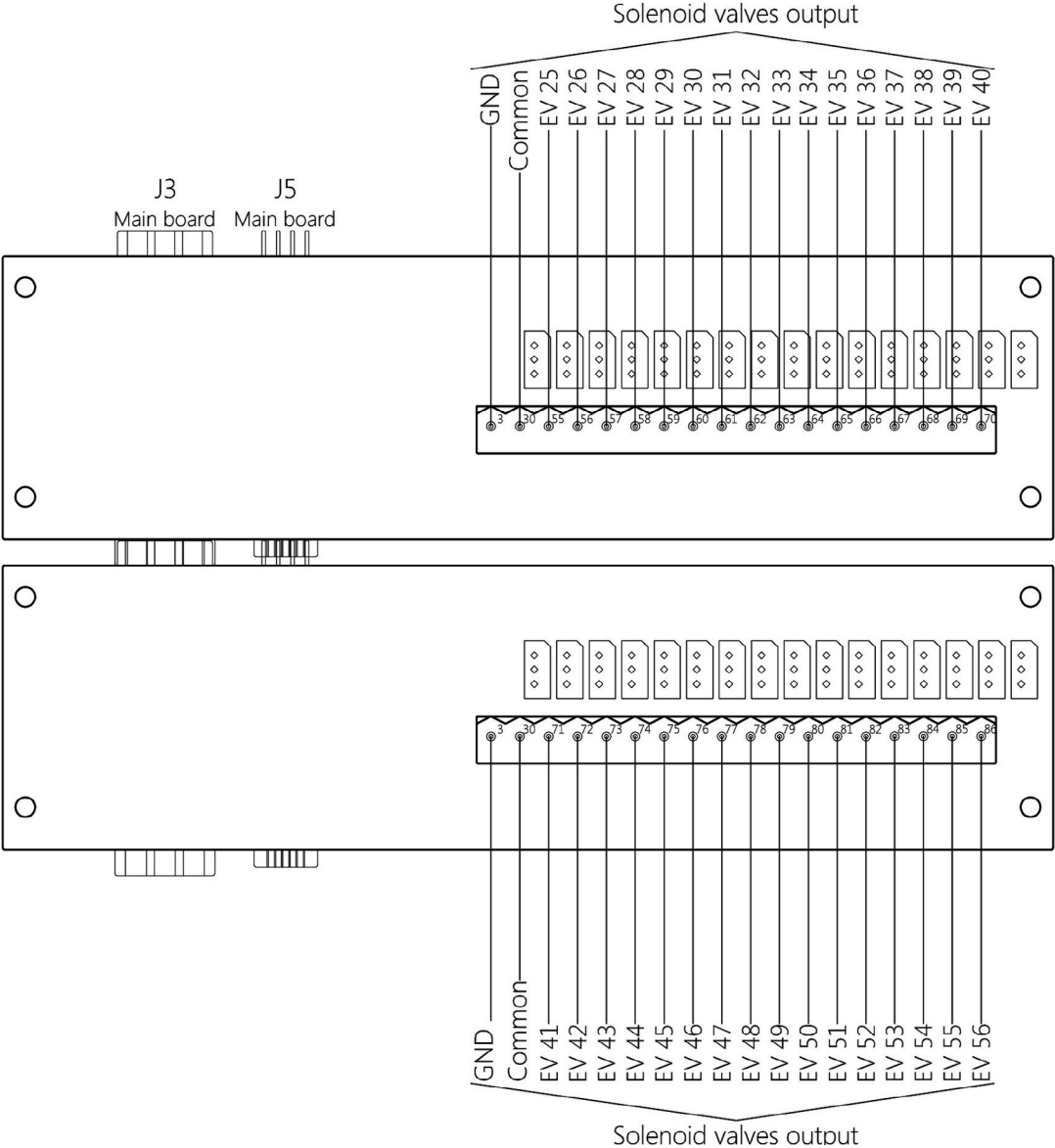
Expansion Up To 40 Channels



Connection Diagram Expansions - Expansion Up To 48 Channels



Connection Diagram Expansions - Expansion Up To 56 Channels



Function Default Settings

Function N.	Description	Set Value
F01	Automatic setting using dP (1) or manual (0)	1
F02	Solenoid valve activation time	0.20 sec
F03	Washing pause time between solenoid valves in normal cycle	20 sec
F04	Number of outputs	1
F05	Output voltage 24 Vdc, 24 Vac, 115 Vac, 230 Vac	115 Vac
F06	Manual solenoid valve activation	1
F07	Zero dP threshold	0 inch WC
F08	Cycle start dP threshold	3.2 inch WC
F09	Cycle stop dP threshold	1.6 inch WC
F10	Max. dP level	12 inch WC
F11	Fan mode: 0 from contact, 1 from dP	1
F12	Fan dP threshold (if F11=1). If < fan off	0.4 inch WC
F13	Number of cycles after fan stop	1
F14	Pause time between solenoid valves in cycle with fan off	10 sec
F15	Maintenance frequency in 10h (1=10h, 100=1000h)	100
F16	Maintenance deadline alarm on (1) or off (0)	0
F17	Maintenance hour counter reset: set 1 and confirm to reset the maintenance hour counter	0
F18	Precoating on (1) or off (0)	0
F19	Precoating dP threshold (if F18=1)	8 inch WC
F20	Enabling Min. dP Alarm function	0
F21	Min. dP Alarm threshold (Broken Sleeve / Cartridge)	0.8 inch WC
F22	Cleaning Cycle Forced (only available in operating mode F01=2) Set if it handled in minutes or if in hours	0
F23	Setting the interval time in relation to the choice of F22	240
F26	Exclusion of valve in short circuit	0

Troubleshooting

Fault	Possible Cause	Solution
The display does not light up.	Burnt fuse.	Check the protection fuse on the power voltage. Check that the power voltage is present and compliant with that required for the device (terminals 1 and 3).
The outputs are not activated.	Incorrect output voltage. Wiring to solenoid valves.	Check that the unit and solenoid valve output voltage agree. Check wiring between economiser and solenoid valves.
The differential pressure reading is not correct.	Obstructed pneumatic connections. Damaged pipes.	Check that the differential pressure is 0.00 inch WC with the pipes disconnected. In this case, check that the connection pipes between device and filter are not obstructed or damaged.
The cleaning cycle is not carried out.	The set cycle start threshold (F08) is too high and therefore the cycle is not activated.	Adjust the start-up pressure threshold or set the economiser to MANUAL mode (F01=0).
Do alarm messages appear?		Check the alarm code with the table.
Do the alarms fail to activate signalling devices?	System wiring errors. No power to alarm devices.	The alarm devices must be powered by voltage external to the economiser. Activating to open the respective relay.
Does post-cleaning start during normal cleaning?	Fan threshold (F12) set too high.	Change the post-cleaning start-up threshold (F12) lowering it.
Does post-cleaning fail to start when the normal cleaning cycle ends?	Fan threshold (F12) set too low.	Check that the measured pressure is lower than the post-cleaning activation pressure when the fan is off.
Does the economiser occasionally reset?	Check that there is no filtered pulse load on the power line (spot welding machines, welding machines, plasma cutters etc.).	Install a filter on the power line of the economiser, if needed.
The value of 0.0 inch WC does not appear on the display when the fan is off.	dP zero calibration (F07) is not correct	Calibrate the dP zero by appropriately setting the parameter F07 or running the self-calibration function explained on page 10.

Startup Procedure

- Begin with a system check.
 - Check the status of the fan, discharge devices, ductwork, electrical wiring, and compressed air connections.
 - Ensure that the filters are in the clamped-down position.
 - Check that the collector doors are closed, latched, and the slide gate is in the open position.
- Supply compressed air and electrical power to the collector.
- Check the fan for the direction of rotation arrows.
- Turn on the collector fan and hopper devices. The goal is to visually inspect the fan and ensure it rotates in the direction indicated by the wheel rotation arrows on the fan.
- If the filters are not pre-coated, the amount of excessive air flow may cause premature filter failure. Pre-coat your filters to avoid this problem. Always inspect fans regularly to ensure they are running in the correct direction and do not vibrate excessively or cause any unusual noises.
- Verify that the airlocks are operating and the slide gates are open.

[illegible]

[illegible]

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

TERMS AND CONDITIONS TO SALES ORDERS

1. INTERPRETATION

- 1.1. All references to “we” herein mean Diversitech Equipment and Sales (1984) Ltd.
- 1.2. All references to “you” herein mean:
 - (a) the “Customer” referred to herein and in the Sales Order joining these presents (such Sales Order together with any amendments, supplements and additional agreements related thereto and all annexes and schedules in respect thereof, collectively the “**Sales Order**”); and
 - (b) any affiliates and any party related, whether directly or indirectly, to such “Customer”.

2. LIMITED WARRANTY AND LIABILITY

- 2.1. All units and equipment sold by us to you (collectively “**Units**”) pursuant to the Sales Order are warranted to be free from defects in material for a period of **2 years from the date of purchase** (the “**Warranty Period**”).
- 2.2. We will repair or replace, at our discretion, any defective parts that fail during the Warranty Period, returned to the manufacturer’s plant with freight prepaid. This warranty is limited to replacement parts ONLY, subject to on-site or in- house evaluation of defective materials and does not apply to any personal liability or property loss that occurs due to the use or installation of this equipment.
- 2.3. We expressly exclude all warranties whatsoever, other than those included in Section 2.1 hereof, express or implied, legal or conventional, including, without limitation, any and all warranties of quality, merchantability and fitness for a particular purpose.
- 2.4. To the extent that any Units are integrated with any products, equipment, units, connections and/or systems of a third-party (“**Third-Party Products**”), we hereby expressly exclude all of the following warranties, express or implied, namely:
 - (a) warranty against defects of any kind (latent or apparent), fitness for purpose, merchantability or functionality to the extent of any such Third-Party Products; and
 - (b) any warranty against any defects or problems of any kind, whether latent or apparent, in respect of Units or a Third-Party Product, caused or arising directly or indirectly as a result of the integration with or use of Units in connection with any Third-Party Product.
- 2.5. You hereby expressly waive and renounce to any and all claims against us relating to loss of profits, loss of business or goodwill, interruption of business and all indirect, special, incidental or consequential damages of any kind whether arising from or in connection with the Sales Order or from the use of Units, however caused, and whether in the nature of breach of obligations, breach of warranty, repudiation of contract, tort, negligence (save in the event of gross negligence or intentional fault) or otherwise. Accordingly, save in the event of gross negligence or intentional fault, we shall have no liability whatsoever towards you under this agreement for any losses or damages, direct or indirect, consequential, exemplary, incidental or otherwise, regardless of whether we received advanced notice or were advised of the possibility of such claim, loss or damage.
- 2.6. You are solely responsible for determining if Units fit your particular purpose and are suitable for your designated process, application, fitment, tooling, set-up and uses(s).

3. FREIGHT CLAIMS

- 3.1. Shipments must be inspected by you upon arrival. All Units are sold ex-plant. Therefore, it is the receiver’s responsibility to file any freight claims with the carrier for obvious or concealed damages. Damaged shipments must be refused at the time of receipt.

4. RETURN MATERIAL POLICY

- 4.1. Prior to the return of material, for whatever reason, a return merchandise authorization number (“**RMA#**”) is required from our customer service department. This procedure is necessary for proper control and handling of returned materials. Call **1-800-361-3733** or email **support@diversitech.ca** to obtain a RMA #. All material must be returned prepaid. Credit will be given for returns for warranty repair or replacement. Freight collect shipments will not be accepted. It is the shipper’s responsibility to ensure that material being returned to us is adequately packaged for shipment in order to prevent damages.

5. FEES AND CANCELLATION CHARGES

5.1. You will be responsible for any additional charges and fees not expressly included in the Sales Order, including, without limitation, any fees or charges relating to installation, service calls, consulting, installation, customization, "right-sizing", engineering, maintenance and/or repair. For greater certainty, unless expressly provided in the Sales Order, we do not provide you with any form of service with respect to Units, including, without limitation, installation, repair and maintenance services.

5.2. In the event that you:

- (a) cancel the Sales Order at any time whatsoever, including, without limitation, prior to shipment;
- (b) refuse to honour the Sales Order; or
- (c) fail to take possession of any Units for any reason whatsoever,

you will be responsible for reimbursement to us of any and all costs, expenses and charges we have incurred to date.

5.3. In the event that:

- (a) the Sales Order is for a customized product, including, without limitation, any custom engineered product; and
- (b) an event set forth in Section 5.2 hereof occurs,

you will be responsible for payment of the entire amount of the Sales Order in addition to the reimbursement set forth in Section 5.2 hereof.

6. JURISDICTION AND ATTORNMENT

6.1. The interpretation, validity and enforcement of these presents and the Sales Order shall be subject to and governed by the laws of the Province of Quebec and the laws of Canada applicable therein.

6.2. The parties hereto expressly submit, attorn and consent to the exclusive jurisdiction of the appropriate Court for the District of Montreal, Province of Quebec, with respect to any controversy arising out of or relating to these presents and the Sales Order, or any supplement hereto or to any transactions in connection therewith. To the extent permitted by applicable law, you irrevocably waive any objection (including any claim of inconvenient forum) that you may now or hereafter have to the venue of any legal proceeding arising out of or relating to these presents and the Sales Order in such courts.

7. GENERAL

7.1. If any provision of these presents or the Sales Order shall be held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall in no way be affected or impaired thereby.

7.2. These presents and the Sales Order shall be binding upon and inure to the benefit of the parties' respective successors and assigns.

7.3. The parties hereto acknowledge that they have requested and are satisfied that the foregoing as well as the Sales Order and all notices, actions and legal proceedings be drawn up in the English language. / Les parties à cette convention reconnaissent qu'elles ont exigé que ce qui précède ainsi que le « Sales Order » et tous avis, actions ou procédures légales soient rédigés et exécutés en anglais et s'en déclarent satisfaites.

For full product support, visit our website;
<http://bit.ly/33LgwtU>



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An Absolent
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