



DIVERSITECH
Air Pollution Solutions

Operation & Maintenance Manual

TYPHOON WX SERIES OF WET DUST COLLECTORS



WX 1200



WX 3000



WX 5000



WX 6500

READ AND SAVE THESE INSTRUCTIONS

Visit our Website for more information on this product

www.diversitech.ca

1200 55th Avenue, Montreal, Quebec H8T 3J8
Tel: 1.800.361.3733 | Fax: 1.514.631.9480 | info@diversitech.ca

Table of Contents

SECTION 1 – SAFETY PRECAUTIONS OF FUME & DUST EXTRACTION/COLLECTION	3
1.1 Symbols	3
1.2 User Responsibility	3
1.3 Dust Collection Hazards	3
SECTION 2 – SPECIFICATIONS	4
2.1 Diagram & Description	4
2.2 Specifications	4
2.3 Dimensions	4
2.4 Dimensions with optional DowndraftTable	5
SECTION 3 – SETUP / INSTALLATION	6
3.1 To Setup or Install Safely	6
3.2 Un-Packaging	6
3.3 Selecting a Location	6
3.4 Installation	6
3.5 Preparing Unit for Operation	8
SECTION 4 – OPERATION	9
4.1 To Operate Safely	9
4.2 Controls	9
4.3 Principles of Operation	10
Control System Explained	10
Water Level Monitoring	10
Alarms	11
Level Set Point	11
SECTION 5 – MAINTENANCE & TROUBLESHOOTING	12
5.1 To Maintain this Product Safely	12
5.2 Tools Required	12
5.3 Routine Maintenance Schedule	13
5.4 Troubleshooting Procedure	14
APPENDIX 1A – ELECTRICAL DIAGRAM MANUAL-WATER LEVEL	15
APPENDIX 1B – SETTING THE SENSING WINDOW	16
APPENDIX 2 – HEPA FILTER, TEMPERATURE SENSORS, AND EXHAUST FAN OPERATION	17
APPENDIX 3 – MAINTENANCE RECORD	18
NOTES	19
Limited Equipment Warranty	Back Cover
Freight Claims	Back Cover
Return Material Policy	Back Cover

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, cutting, grinding, painting, deburring or other applications are listed. Consult a qualified safety professional.



DO
NOT
USE

Do not use this equipment:

- To collect smoke, fumes, liquid vapors, or aggressive fumes such as acids.
- If the power cord has been damaged or ground (third prong) removed.
- Without the proper water level in the basin.

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.
- Combining dusts from of different materials can introduce additional hazards as chemical reactions can happen in the airstream or in the water basin. Consult a qualified person before mixing more than one base material in a wet dust collector.
- 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



WX 1200

16 gallon, 1200 CFM
Wet Dust Collector



WX 3000

40 gallon, 3000 CFM
Wet Dust Collector



WX 5000

80 gallon, 5000 CFM
Wet Dust Collector



WX 6500

80 gallon, 6500 CFM
Wet Dust Collector

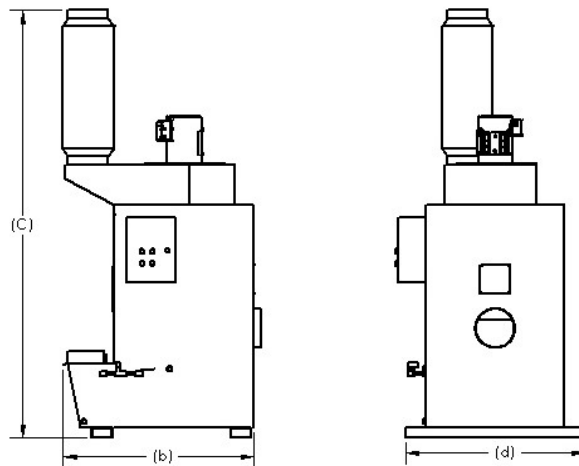
2.2 Specifications

Model	Water Fill System	Nominal Airflow (CFM)	Tank Capacity (Gallons)	Motor (H.P)	Power				Noise @5ft. (dB)
					Phase (hz)	@230V (amps)	@460V (amps)	@575V (amps)	
WX-1200	auto	1200	16	3.0	3P / 60Hz	9.6	4.8	3.9	74
WX-3000	auto	2000-3500	40	5.0	3P / 60Hz	15.2	7.6	6.1	78
WX-5000	auto	3000-5000	80	10.0	3P / 60Hz	28.0	14.0	11.0	78
WX-6500	auto	4000-6500	80	15.0	3P / 60Hz	34.0	16.9	14.0	80

1. For 1200, Airflow @ 2" external static pressure.

2. For WX-3000, WX-5000, WX-6500, Airflow @ 2.5" external static pressure.

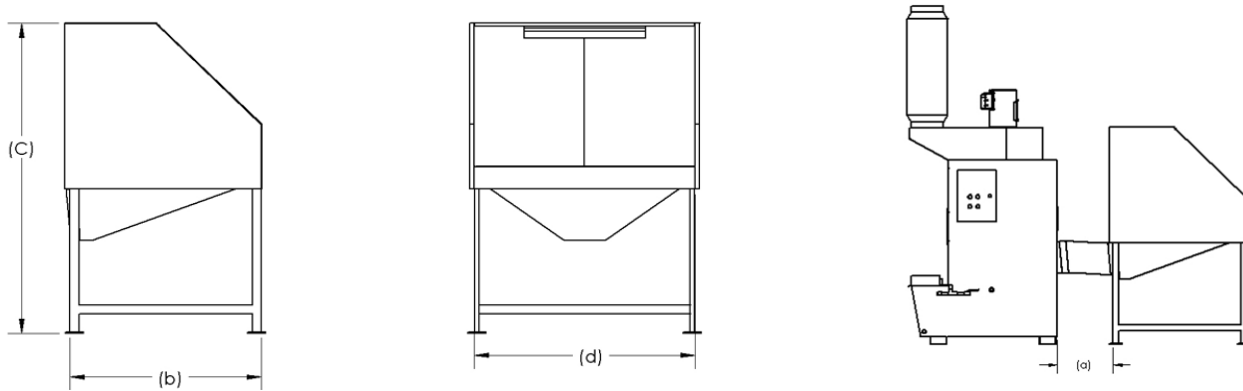
2.3 Dimensions



Model	Inlet Collar Diameter (in.)	Footprint			Water	
		Length [b]	Height [C]	Width [d]	Supply (in.)	Drain (in.)
WX-1200	6	34"	86"	32"	1/2" NPT	1 1/2" NPT
WX-3000	10	47"	109"	44"	1/2" NPT	1 1/2" NPT
WX-5000	16	61"	117"	57"	1/2" NPT	1 1/2" NPT
WX-6500	16	67"	129"	67"	1/2" NPT	1 1/2" NPT

1. Water Level is marked on each unit.

2.4 Dimensions with optional DOWNDRAFT Table



Collector Model	Table Model	Optimal Connection [a]	Footprint			Water		Water Level (in.)
			Length [b]	Height [C]	Width [d]	Supply (in.)	Drain (in.)	
WX-1200	MINI	15"	36"	36"	30"	1/2" NPT	1 1/2" NPT	±0.5"
WX-3000	3'x4	15"	48"	36"	42"	1/2" NPT	1 1/2" NPT	±0.5"
WX-5000	3'x6	20"	72"	36"	42"	1/2" NPT	1 1/2" NPT	±0.5"
WX-6500	3'x8	20"	96"	36"	42"	1/2" NPT	1 1/2" NPT	±0.5"

SECTION 3 - SETUP / INSTALLATION

3.1 To Setup or Install Safely



- Do not place unit near flammables or combustible surface.
- 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.

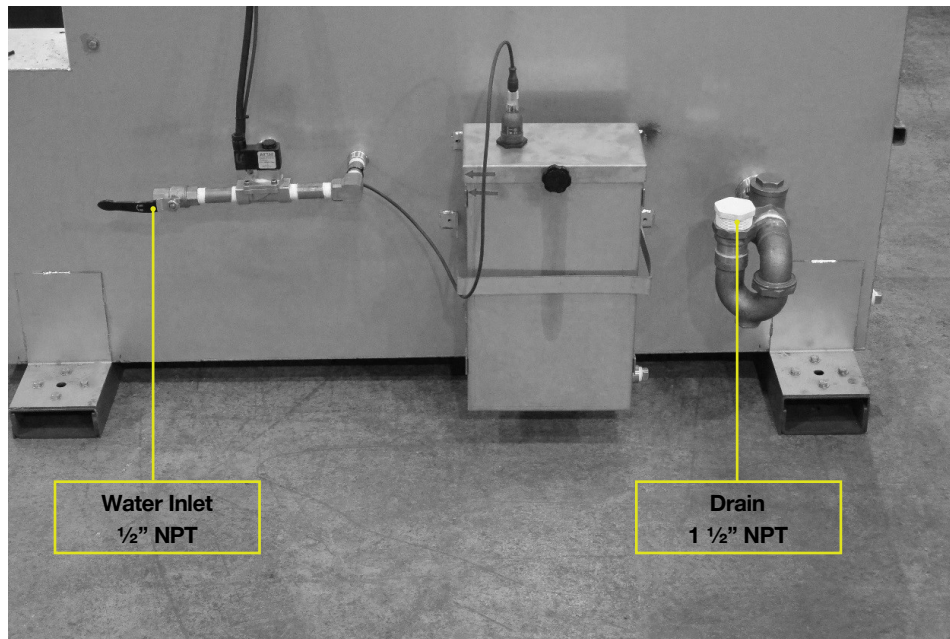
3.2 Un-Packaging

1. Immediately upon receiving the unit, carefully examine the carton for damage during transit.
2. Remove packing material.
3. Avoid tipping or inverting during handling.
4. The item serial number, model, and electrical ratings are listed on the nameplate. Record this information in the Maintenance Record provided in **APPENDIX 2: 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 Installation



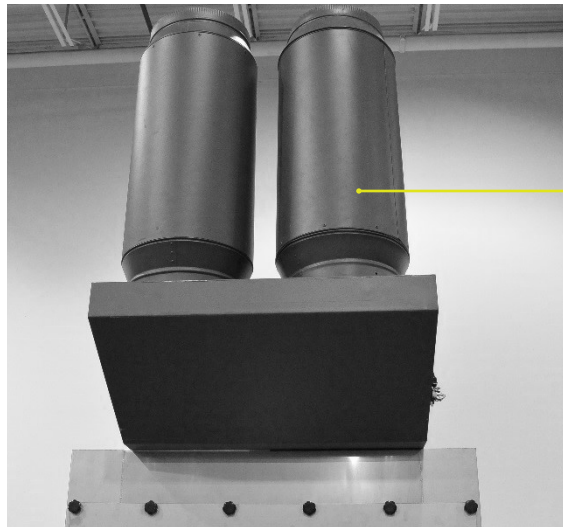
- Connect water feed as indicated
- Diversitech recommends that the overflow drain be connected to a suitable and approved collection/drainage. The overflow drain is provided in case the water monitoring system fails.

- Connect ducts to air inlet, considering:
 - Duct diameter, length, and material type will effect performance;
 - Use smooth bore ducting wherever possible as flexible ducts can have up to three times more airflow resistance;
 - Inlet ducts should be full diameter, and changes in section or size should be gradual;
- The scrubber is designed to accommodate an auxiliary vent fan that operates when the scrubber is not in operation. Its function is to vent the air and gases from the scrubber. The fan should exhaust outdoors. If the fan is to exhaust indoors it is important to check with local regulations and test the exhaust air as required.
- Ensure that the backdraft damper is installed on the vent fan.



Backdraft Damper

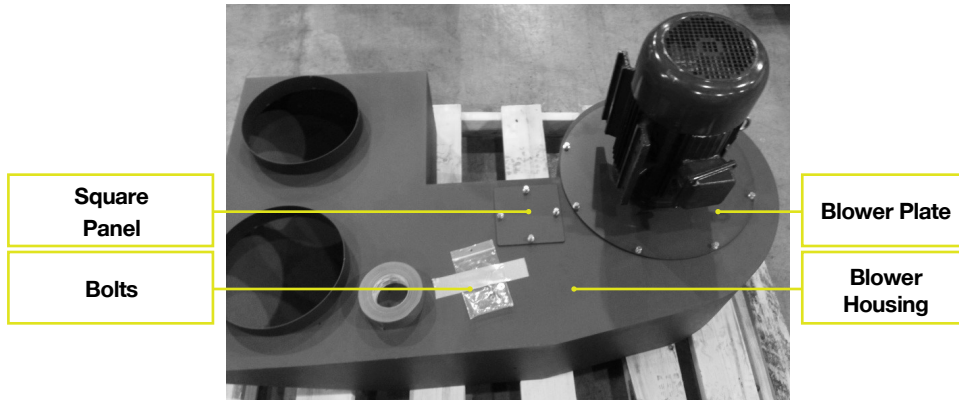
- The scrubbers are all designed to be operated with exhaust silencers. The silencer(s) are shipped separately and should be installed on the exhaust collars of the blower housing using self tapping screws.



Exhaust Silencer

- Connect power as outlined in **APPENDIX 1: Electrical Diagram [230/460/575v] 3-Phase Power.**
- Ensure that motor rotation is clockwise when looking top-down from unit.
- For the WX-6500, the motor and the auxiliary vent fan are shipped separately from the main cabinet. Once reinstalled the electrical connection to the main control box must be made as per the provided wiring diagram

- Instructions to install 15HP Blower (Lift truck required to hoist motor)



1. Unbolt and remove square panel, unbolt and remove blower plate.
2. Inside the blower housing, fasten 2 bolts attaching the scroll to the wet collector.
3. Using the hardware, fasten the cone to the scroll while aligning the cone in the center of the Blower Wheel.



Cone

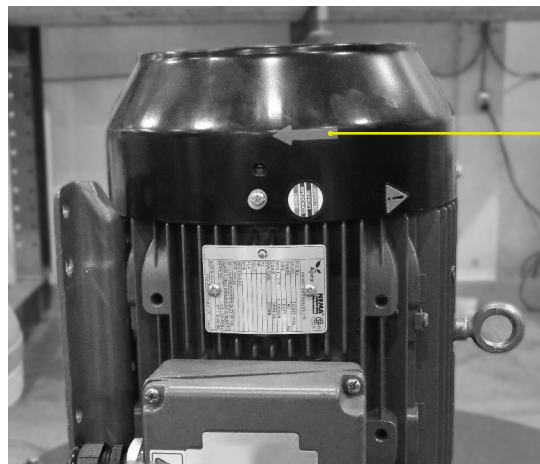


Blower wheel

4. Wire the motor to electrical panel using the existing wiring.

3.5 Preparing Unit for Operation

- Before plugging unit in to an input power source, look at the manufacturer's label located on the exterior of the unit and ensure the source is correctly sized in terms of Voltage and Amperes.
- Prior to use in your application, turn the unit ON, and perform a function test. To do so:
 1. Turn switch to ON position for a few seconds to check that the motor rotation is correct by looking down the back of the motor and checking that the motor fan turns in the direction of the arrow. Optionally a current measurement can be done to ensure that the motor is not drawing excessive current (a sign of reverse rotation)



Make sure the rotation matches the rotation stickers

2. LISTEN: Does the motor and suction sound smooth and within expected volumes.
 3. FEEL: Place your hand on top of the unit and sense for unexpected vibration. Place your hand in front of the intake hood/surface and sense for expected level(s) of suction.
- Inform all potential users of this equipment where they may find and review this manual.

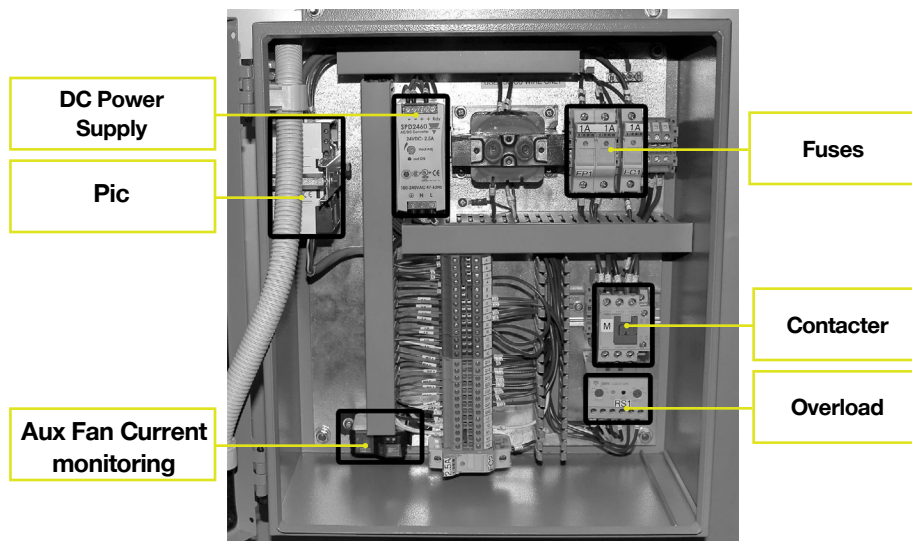
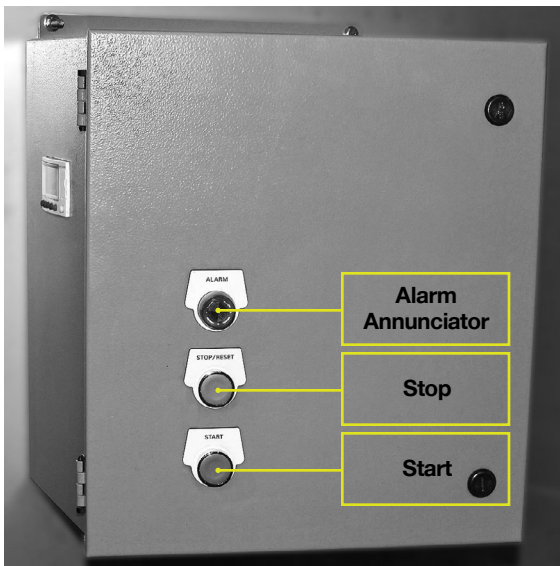
SECTION 4 - OPERATION

4.1 Operate Safely



- Read and understand **SECTION 1: Safety Precautions** and **SECTION 4: Operation** before use
- Read and understand all Material Safety Data Sheets and Manufacturer's instructions of all process materials, consumables, and equipment used in conjunction with this equipment.
- Keep away from all mechanical moving parts including motor, gears, and other pinch points.
- Do not use product without first confirming if a Spark Arrestor is required and installed for the type of dust, or fumes you are extracting and/or collection. If you are unsure, call a Diversitech representative at 1-800-361-3733.

4.2 Controls



4.3 Principles of Operation

This product is designed to capture potentially combustible dust particulate from certain industrial applications using a wet filtration process. When operating, air and dust is drawn into the table, passes through installed ducts, into the Wet Dust Collector's filtration system, and then finally exhausted out the top discharge. The agitation of water creates a humid environment within the collector, trapping the hazardous dusts, which will settle in the bottom of the basin.

This product consists of five basic components:

1. A cabinet for housing all components
2. A motor blower assembly
3. Electrical assemblies
4. Collecting assemblies (filters pad and water)
5. Downdraft table (optional)

During the normal operation of the wet collector, shop air is drawn into the collector. As this air passes through the collector's water it removes some water in the form of humidity and over a period of a few hours this results in a drop of the collector water level. The WX-series of collectors rely on a sophisticated ultrasonic control system to continually monitor water levels and refill automatically the collector on-line. In addition, the controls support

1. High water alarm
2. Low water alarm
3. Blower shut down in case of alarms
4. Interface for Photohelic (Included with HEPA option)
5. Interface for temperature sensors (Included with HEPA option)
6. Interface for auxiliary vent fan
7. Current sensing/alarm for auxiliary vent fan
8. Master / Slave input for scrubber to run when dust producing equipment is "on" (may require additional hardware)
9. PLC LCD display showing water level and alarm conditions

Control System Explained

As soon as the start button is pressed, the main motor will start if no alarm conditions are present and will run until an alarm occurs or the stop button is pressed. If connected, there is also a remote control input on the PLC that can trigger the Start/Stop command. Note, the controls at the front of the panel will have priority on the machine state for safety reason. (ex. The remote control has started the machine but, if the stop button is pressed, the machine will stop). Meanwhile, the machine will try to maintain the water level to a set water level while running and while stopped.

When the machine is stopped, an exhaust fan will start running.

Water Level Monitoring

As soon as the machine is powered, the water level is monitored through an ultrasonic sensor. The machine is designed to operate at a level set on the interface by the factory. When the water level reached a certain difference with the set point, the water valve is opened and the machine begins to fill up. When the water level reaches the set point value, the valve is closed.

A low and high water level has been factory set and the alarms will activate when either of those levels are reached. As a result, the machine will shut down and won't restart as long as the alarm condition persists.

Alarms

Any alarm condition will be indicated on the user interface and the buzzer on the panel will be heard. When one of these alarms is present, the machine will lock-down and will not allow to be started:

- Motor Overload: if the main motor overload is tripped. The alarm will remain until the situation is corrected and the over load is manually reset.
- High temperature: if the temperature in the filter units exceed the threshold. The alarm will remain until the situation is corrected.
- Pressure switch (optional): if the pressure in the unit exceed the threshold set on differential unit. The alarm will remain until the situation is corrected.
- Exhaust fan: if the exhaust fan is not detected as running within a certain amount of time once the machine is stopped. The alarm will remain until the situation is corrected.
- Low level: if the water level reaches the low level set point set from the interface for 5 seconds or more. The alarm will remain until the situation is corrected.
- High level: if the water level reaches the high level set point set from the interface for 5 seconds or more. The alarm will remain until the situation is corrected.

Level Set Point:



CAUTION: This should only be done in consultation with an authorized Diversitech technician! The following steps have been done at the factory and should not need adjustment

Initial Set Point Adjustment if the PLC has been factory reset

At the initial star-up, the set point will be at 0.

To set the running water level, the machine has to be powered and "on". Once on, the button #1 can be pressed to enter the manual set point entry. Then, use the button #2 and #3 to modify the set point value. If no key is pressed within 5 seconds, the interface will go back to the main screen. The other way would be to fill the machine to the desired level (start between 7 to 7.5 inches of water) and then press the button #4 for 5 seconds to teach the set point.

The machine is ready to start.

Since the water level has to be higher while stopped, the running set point has to be set once the water has reached turbulent levels. To set the "Running Set Point" press button 4 for 5 seconds or until the display shows the current level=running level. Note the refill sequence has been set to start when the current level is 4 below the running level for at least 30 seconds.

Level alarms:

To set the level upper limit, the button #2 can be pressed. Then, use the button #2 and #3 to modify the set point value. If no key is pressed within 5 seconds, the interface will go back to the main screen.

To set the level lower limit, the button #3 can be pressed. Then, use the button #2 and #3 to modify the set point value. If no key is pressed within 5 seconds, the interface will go back to the main screen.

Initial Sensor Setup

SECTION 5 - MAINTENANCE & TROUBLESHOOTING

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**



SLUDGE VAC

5.3 Routine Maintenance Schedule

Whenever several inches of dust buildup inside the wet collector water tank, it is necessary to remove the material as soon as possible. Depending on application dust loading, The Wet Collector may need to be maintained daily.

Cleaning Instructions:

1. Open the knobs or latches on the two front panels of the wet dust collector



2. Inspect the mist eliminator filters inside the unit for holes or dust accumulation, replace the media if torn or dirty

- The filter frame must be replaced so that the cage side is facing upwards to prevent the media from being sucked out of the frame



- Inspect the HEPA after filters and replace if the filters are saturated



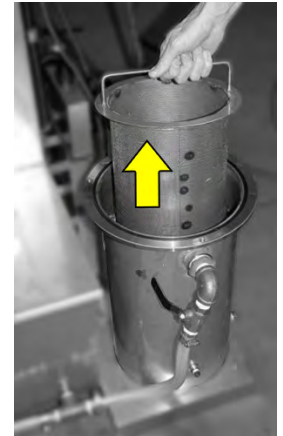
3. Clean the inside of the unit completely from top to bottom, using wire brush or scraper and a pressure washer to remove all accumulated sludge and debris

- Remove the inlet duct to clean the inside of the back of the collector and inspect the inlet ductwork for dust accumulation

4. Drain the dirty water using the optional WV-55 sludge-vacuum to separate the metal fines from the water, remove sludge on the bottom of the tank and skim the residual material floating on the water surface



- All debris must be stored in a ventilated metal drum to prevent hydrogen gas buildup
- If the collector has the optional strainer system, remove the basket and dump the accumulated dust, clean out the basket and replace it.
- Dust needs to be disposed of according to local regulation

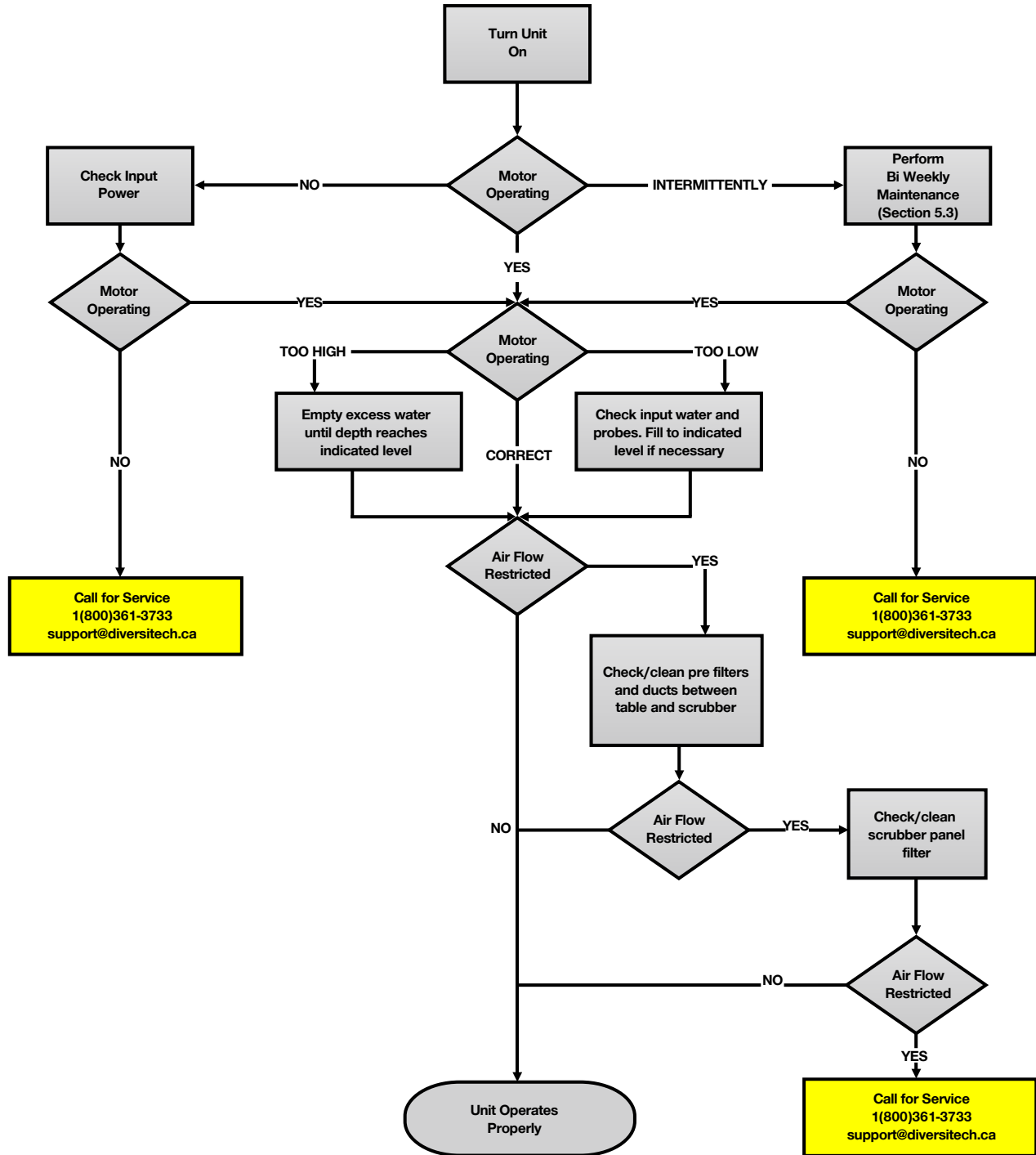


5. Open the water level control box to inspect the level probes or ultrasonic sensor and remove all accumulated particulate
6. If the level probe is loose, tighten the terminal screw and ensure the probes are at the right level and touching each other. Ensure the probe gasket is cleaned of all residue
- If the level probes require maintenance use an abrasive sponge to remove all accumulated particulate



7. Ensure the passage from the probe housing to the water basin is free and clear of debris
8. Once the entire machine has been cleaned out, re-install the front doors, mist filters, and probe box assembly

5.4 Troubleshooting Procedure



APPENDIX 1A - ELECTRICAL DIAGRAM MANUAL-WATER LEVEL

[230/460/575V] 3-Phase Power



ELECTRIC SHOCK HAZARD

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.

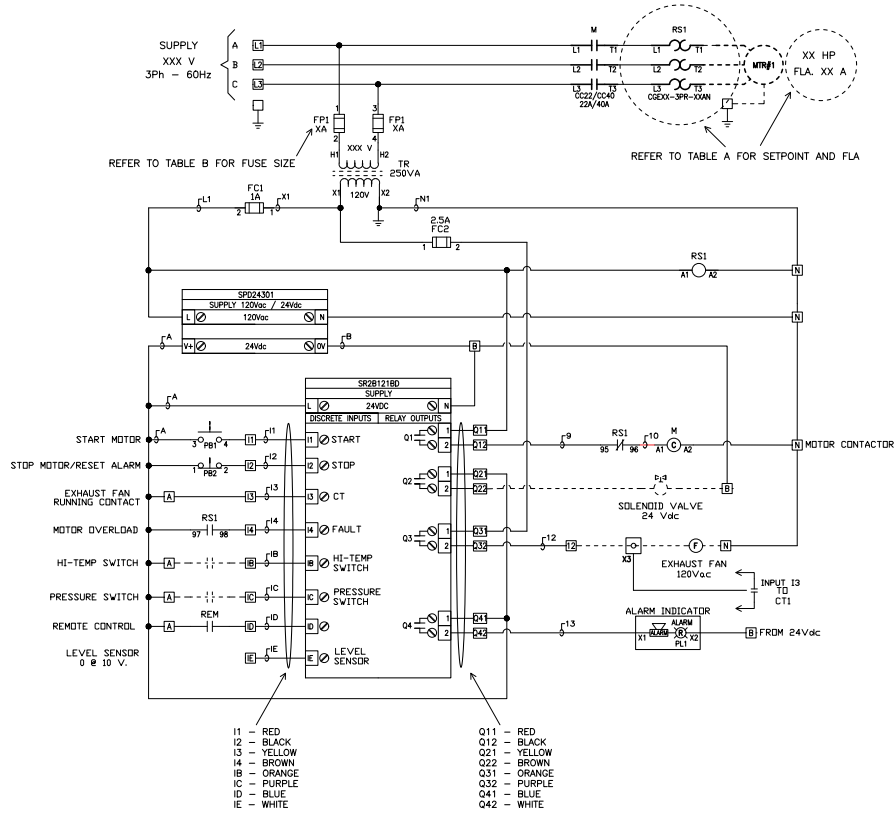


TABLE A : OVERLOAD MODEL AND SETPOINT (FLA)

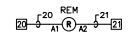
HP	3	5	7.5	10	15
208	CGE22-22A (11)	CGE22-22A (17.5)	CGE40-40A (25.3)*	CGE40-40A (32.2)*	XXXX
230	CGE22-22A (9.6)	CGE22-22A (15.2)	CGE22-22A (22)	CGE40-40A (28)*	XXXX
480	CGE22-5A (4.8)	CGE22-22A (7.6)	CGE22-22A (11)	CGE22-22A (14)	CGE22-22A (21)
600	CGE22-5A (3.9)	CGE22-22A (6.1)	CGE22-22A (9)	CGE22-22A (11)	CGE22-22A (17)

* USE CONTACTOR CC40 WHEN USING CGE40 OVERLOAD

TABLE B : FUSE SIZE

V	TRANSFO	FP1 (TYPE FNQ-R)
208		2A
230	DL10742QE	1 1/2A
480		1A
600		1A

REMOTE CONTROL RELAY

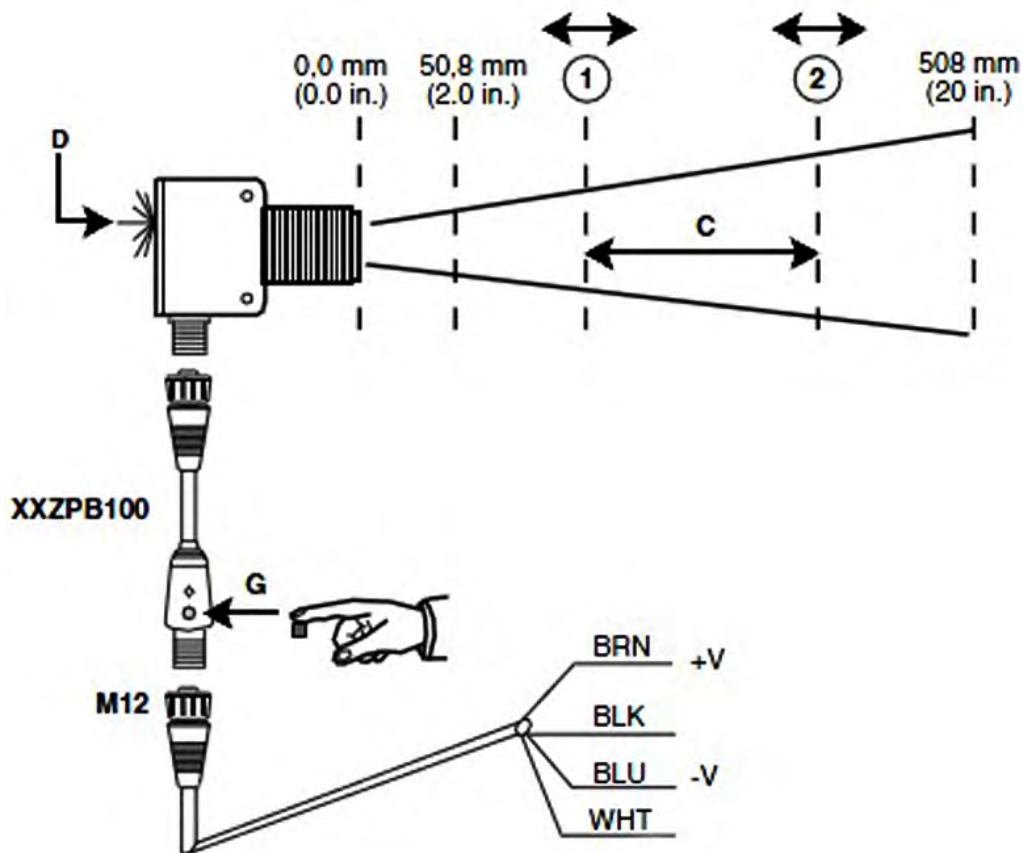


*120 Vdc RELAY FOR REMOTE CONTROL
LEAVE UNWIRED IF UNUSED

ULTRASONIC SENSOR



APPENDIX 1B - SETTING THE SENSING WINDOW



Setting the Sensing Window

Note: For manual setup use the external contact in place of button G.

1. Install accessory XXZPB100
2. Remove all objects from the sensor's field of detection
3. Align the sensor with the object to be detected
4. Push and hold the setup button (G) until the bicolor LED (D) rapidly flashes green
5. Release the button. The bicolor LED continues to flash green
6. Within 30s, insert an object into position 1, then push and release the setup button. The bicolor LED flashes green, then turns steady amber

The device is set up properly if:

- The LED turns amber when an object is sensed in the window.
- The LED turns green when an object is not sensed

To reset the sensor, repeat Step 4.

When setup is complete, disconnect power and remove accessory XXZPB100

Reconnect power to the sensor

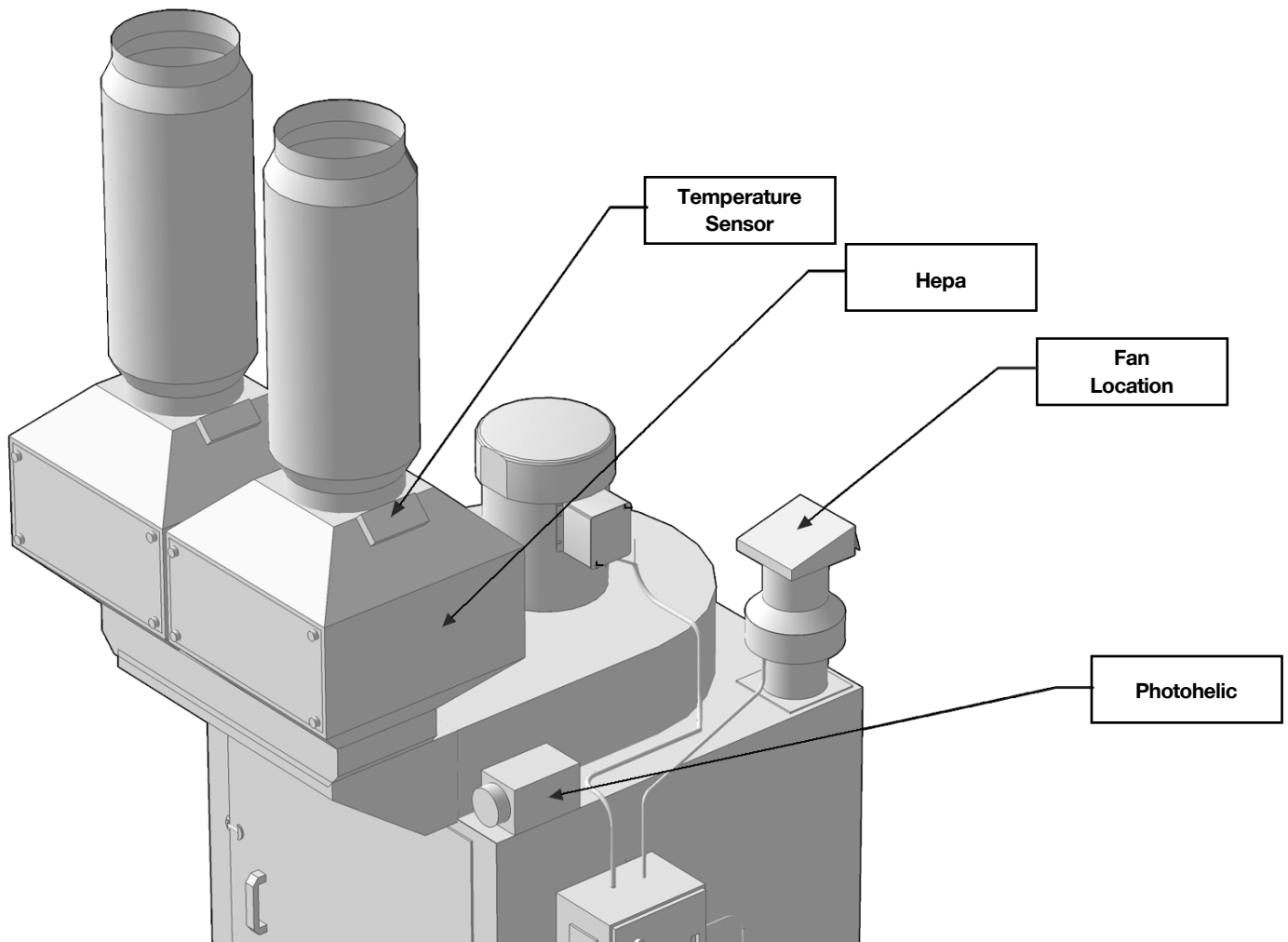
APPENDIX 2 - HEPA FILTER, TEMPERATURE SENSORS, & EXHAUST FAN OPERATION

Exhaust Fan

Exhaust fans are configured to operate the fan only once the main blower is "off". Once activated the exhaust fan pushes open a damper and exhaust any air from the collector. To ensure that the fan is safely operating, a current sensor determines if the fan motor is properly operating. Should the fan stop, an audible and visual alarm will be activated.

HEPA Installation

HEPA installations follow NFPA guidelines, thus temperature sensors are installed on the exhaust side of the HEPA filter. These sensors are set at approximately 450 degrees Fahrenheit which represents the ignition temperature. In addition a photohelic meter is installed to monitor the differential pressure between the input of the filter and the output of the filter. Photohelic pressure settings are set at the factory and they represent the "when filter is new" pressure and the suggested replacement pressure for the HEPA.



APPENDIX 3 - 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°	WET COLLECTOR	SERIAL N°	
SERVICE LOCATION:				CONTROL N°	

Date	Description of Service	Serviced By	Location	Comments

Only use manufacturer approved replacement parts on this unit.

LIMITED EQUIPMENT WARRANTY

For a period of 2 years from the date of purchase, all Diversitech products are warranted to be free from defects in material, workmanship, and construction, when used in accordance with installation, maintenance instructions, and expressly stated proper use application(s). Diversitech Inc. will repair or replace, at our option, any defective parts which fail during the warranty period. This warranty is limited to replacement parts ONLY, and does not cover personal liability, property loss, normal wear; and does not cover losses resulting from (or due to) improper installation, inadequate maintenance, misapplication, misuse, or use above rated capacities.

FREIGHT CLAIMS

Shipments must be inspected upon arrival. All Diversitech 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 time of receipt, by consignee.

RETURN MATERIAL POLICY

Prior to the return of material, for whatever reason, a return manufacturing authorization number (RMA#) is required from the Diversitech 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 an RMA.

All material must be returned prepaid. Credit will be given for returns for warranty repair or replacement. Freight collect shipments, or freight without an RMA, will not be accepted. It is the shipper's responsibility to ensure that material being returned to Diversitech is adequately packaged for shipment to preclude damages.



Visit our Website for more
information on this product
www.diversitech.ca

1200 55th Avenue
Montreal, Quebec H8T 3J8
Email: info@diversitech.ca