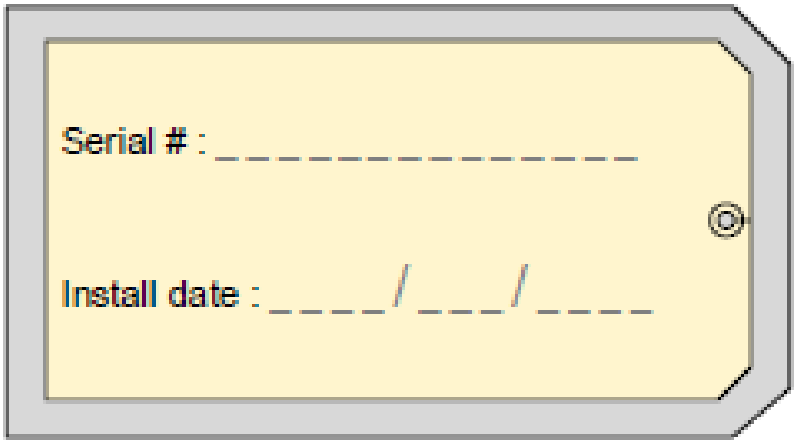
USER MANUAL

MB800
Grossing Station

Rev 10-7-16 ©



Mopec®
Better By Design™

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UNPACKING

1) Carefully inspect the exterior of the shipping container before opening. If the crate is damaged and the product has sustained damage then immediately contact Mopec and the freight carrier. **Never discard the shipping container even if it is damaged beyond recognition.**

2) Have the delivery driver note any suspected damage on the Bill of Lading and sign it. Mopec will help assist in filing a claim for product repair and/or replacement.

3) Carefully open the containers and inspect the equipment for concealed damage. If visible damage is noticed (i.e. broken welds, dented stainless, scratches, etc.) follow through as noted above. Do not discard the shipping material. They are important in settling claims.

CAUTION: There are loose components in the packaging of your product. Be very careful in examining the packaging material as it may contain installation parts and/or product components.

INSPECTION

1) After carefully unpacking your Mopec Grossing station please inspect the items in the list below prior to installing the unit. The Grossing station should be thoroughly checked for loose screws, defects, or damage that may have occurred during shipping or packaging.

MB800 Grossing Station Installation Instructions

Locate package of smaller items (dissection board, tissue boxes, duct hose or filters)
When removing from the shipping platform, be careful if the unit has a foot pedal. The unit should be removed from the shipping platform as to not cause damage to the copper plumbing attached to the foot pedal

Leveling and Setting Unit in Place

The unit should be off the floor and resting on the leveling pads. The unit should be leveled to ensure proper drainage. This allows water to evaporate or dry in case of a leak without getting trapped by the base of the unit Ensure there is a Minimum of 6.5" from the wall to the back of the unit. This allows for elevating units to move freely without any obstructions to the wall.

Utility Connections

The only connections necessary are the Electric, Cold and Hot water supply, the drain connection and the HVAC connections if in house ventilation. If the disposal option is ordered the disposal will need to be installed prior to the electrical hook up. The unit is already pre wired and plumbed for the options ordered.

Electrical Connection

All electrical, water and ventilation stubs should be prepared in accordance with our rough-in dimensions shown on rough in diagram of this manual.

The electrical service provided for the MB600 must include:

1) A switch or circuit breaker for each circuit to which the wiring harnesses from the workstation will be connected.

Remove the access panels (see photo on next page). Elevate the unit to its maximum upper position using the Vertical Position Switch. If ordered, install the optional disposal and make all connections that apply, including the additional 115V, Single Phase, 60 Hz, 20 Amp circuit to your electrical service. (This should be on a separate dedicated line.) Replace the access panels.

Each MB Series Grossing Station has a three foot whip for attachment to the facility, unless a plug and cord are requested. The whip leads are labeled. And depending on the options selected there are either 3 wires or 5 wires. L1 and C1 are for the unit electrical options such as lights, lifts and fans if a recirculation unit. L2 and C2 are for the disposal.
115V Info

Without a disposal there are three wires:
Black Labeled as L1
White Labeled as C1
Green w Yellow Stripe Ground

With the Disposal there are five wires
Black Labeled as L1
White Labeled as C1
Green w Yellow Stripe Ground
Red Labeled L2
White Labeled C2

The flexible water tight conduit and connections is the preferred conduit and is not provided with the unit. This is due to an unknown length needed and variances possible in the rough in process. If the disposal option is purchased there MUST be two separate circuits for the two circuits on the grossing station. You must have separate circuits for the disposal and unit.

Drain Connection
The MB Grossing stations are equipped with 1.5" Diameter drain and connections. DO NOT modify the drain line or connections without contacting MOPEC first. The Units are built in accordance with the rough in drawings specific to the unit. The drain connection provided unless specifically requested otherwise is Orion Acid Waste Pipe 1.5" Diameter. The height is per the rough in drawings provided at the time of the order.

Water Supply Connection
The water supply connections are ½" DIA copper pipe. The unit has been cleared of water and debris during the manufacturing and testing of the unit. The rough in drawing for the unit suggests a 1/4 turn valve to be connected to the wall. This is to allow the water to be localized and disconnected should the need arise to work on plumbing in the future. Before connecting the unit to the facility water supply, check the lines in the facility for debris by flushing the lines for a moment. After the connections are made remove the aerator from the faucet and turn the water on and open the faucet and other water options after the faucet to allow any debris to evacuate the system. Then one option at a time, open the valves for the other water options (i.e. Perimeter Rinse, Spray Hose and then the Disposal). This is the time to look for leaks or other plumbing issues. The plumbing is tested for leaks and function at the facility and is put under pressure for 45 minutes to check for leaks. However the plumbing is hard copper and soldier connections. During transport a unit may experience a failed soldier joint. Contact MOPEC immediately if there is a leak.

Ventilation Connection
Ventilation is one of two types for the MB Grossing stations; In House Ventilation or Recirculation. For in house the unit is connected to the facility ventilation system via duct work. The duct work will vary depending on the model of grossing station.

In House
If your unit elevates, it will have two 8" diameter flexible duct hoses. The duct hoses are connected to the grossing station chamber door on top of the unit and to corresponding stubs at the ceiling per the rough in drawing. The ducts are provided as well as the stainless steel band clamps. The typical flexible duct hose length is 3 foot. If your unit does not elevate the ventilation connection is on the top back of the unit and will vary by model.

MB100/MB200 (48" wide models) the connection is a 3" x 46" rectangular stub on the top back of your unit. The duct work is not provided by Mopec unless specifically ordered.

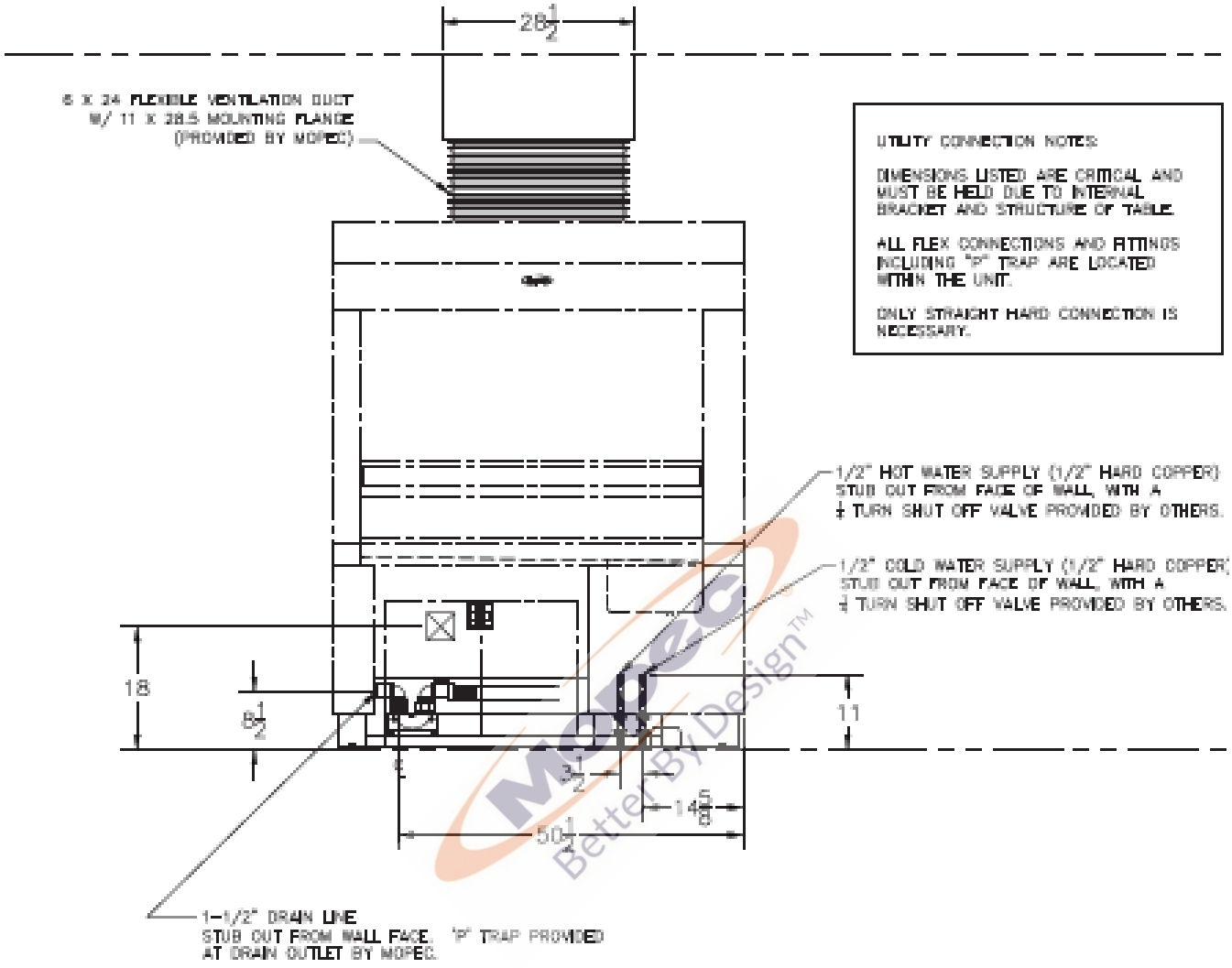
MB400 (60" wide models) the connection is a 3" x 58" rectangular stub on the top back of your unit. The duct work is not provided by Mopec unless specifically ordered.

MB600/MB650, MB670 and MB700 the connection is an 8" round duct supplied with the unit. MB600. MB650 and MB700 have two ducts the larger MB670 has three 8" round ducts. Clear PVC flexible duct is provided with the unit as well as mounting clamps.

Recirculation
For recirculation models, the filters will need to be installed and the clearance above the unit verified at its highest elevation if the unit elevates. You should have a minimum of 12 inches or more above the grossing station at its highest position. Air flow is generated by multiple fans in the recirculation models. They are set up so one fan is on constantly when the unit is on and the other fan is controlled by a rheostat to control volume/speed.

**** Caution ** These are general guidelines and installation is specific for each of the MB units. Professional installation is recommended.**

Rough In Drawings

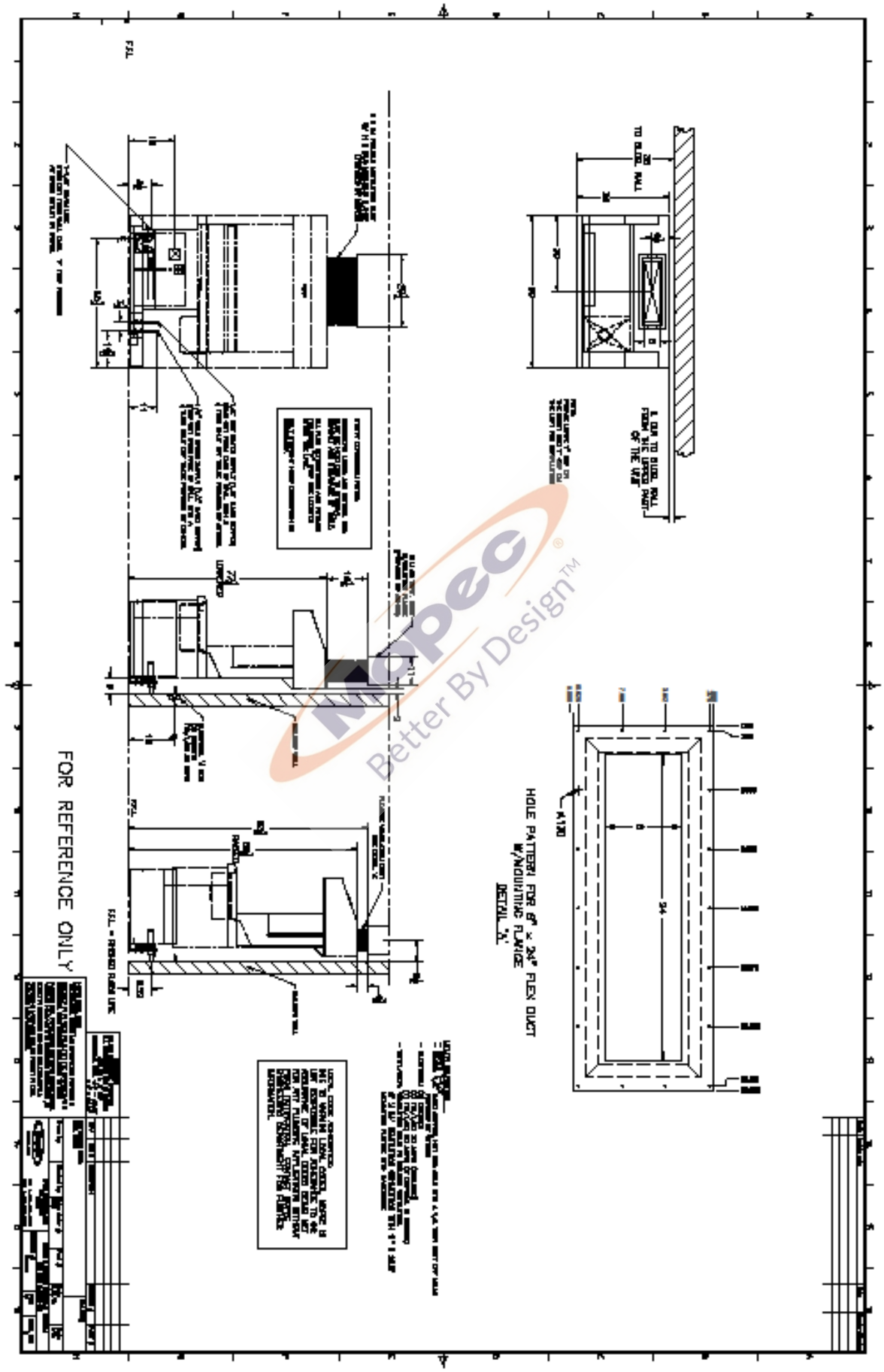


REFERNCE ONLY for specifics refer to your approval drawing

The electrical service provided for the MB600 must include:

1.) A switch or circuit breakers to which the wiring harnesses from the workstation will be connected.

MB800



INTRODUCTION

Mopec's MB800 grossing station is available with a variety of options which make them advantageous for a wide variety of users.

The MB800 workstation provides a safe work area free from toxic formaldehyde fumes. The MB800 may be ducted to an existing laboratory exhaust system or the option of "Filtration/Re-circulation" system requires no ducting and incorporates variable speed exhaust fans that evacuate the work surface of harmful formaldehyde fumes. Toxic formaldehyde fumes from the work area are filtered through potassium permanganate impregnated filters which safely absorb and neutralize those fumes. The disposable filters are easily accessible through a specially designed front filter access panel.

The MB800 incorporates an advanced adjustable height technology into an all stainless steel workstation. From its lowest counter height of 29 ½" to a maximum counter height of 41 ½". With the capability to preset 3 elevating positions in memory.

With the Industrial Touch Screen Controller the unit can be set, adjusted and functions such as fan speed, air flow, optional formalin dispensing and collection, all monitored from a central touch screen.

Manual or hands free control of lights, fans for a more ergonomic environment and single lever mixing valve faucet. Recessed 7" LED Lights. GFCI with 5 Amp USB Ports, and additional USB ports and camera ready integration. With functions like air speed, programmable lights, motion sensor to shut the MB800 off or on automatically when walking up to the unit.

The MB800 also features a modular back splash design to allow the user to move items they use to where they would like them or add additional items from the tissue boxes to the paper towel dispenser, magnetic tool bar and shelves.

Grid plates and optional work surface grid plates provide a level stable work surface while allowing fluids to be flushed or drain from the work surface

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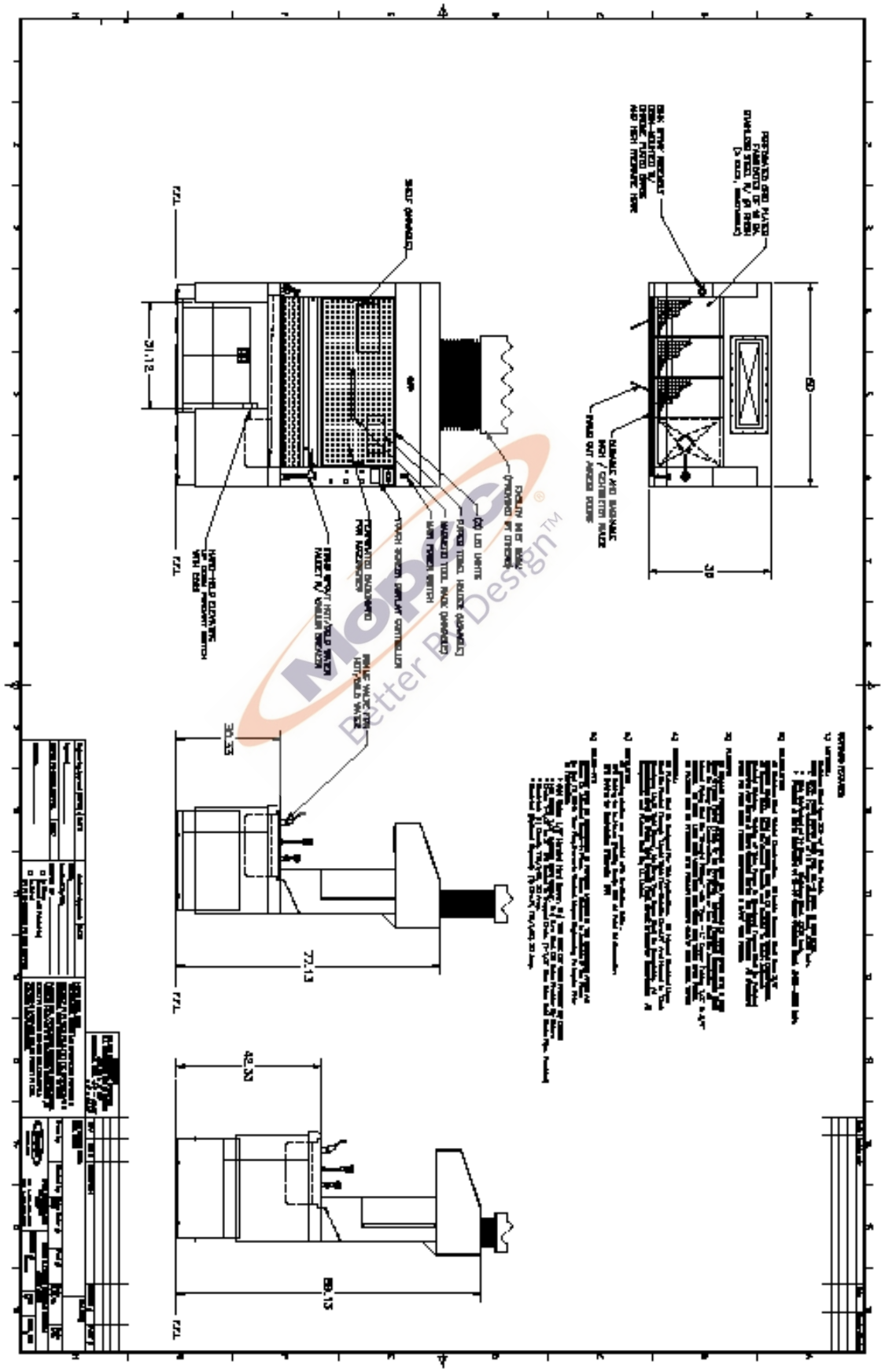
UNIT DRAWING

MB800



FEATURES

The **"MB800"** consists of the following:

Work Grid: 14 Gauge, type 304 Stainless Steel with a # 4 Satin Finish
Housing: 18 & 20 Gauge, Type 304 Stainless Steel with a # 4 Satin Finish
Electrical: 115 v / 1ph / 60 Hz Current Draw: 20 Amp maximum
Electrical: 230 v / 1ph / 50 Hz Current Draw: 10 Amp maximum

Standard Features
Adjustable Magnetic Instrument Tool Bar
Adjustable Paper towel Holder
Adjustable Stainless Steel Shelves
Adjustable Storage Shelf
Backdraft Ventilation
Built In USB Data Ports
Dissection Board Grid Plate
Elevating Workstation w/3 memory positions
G.F.C.I. Outlet with USB 5V plugs
Hand Spray Rinse
Large Rinse Sink
Modular Backsplash
Perforated Vent Grill
Recessed LED Lighting
Single Lever Hot/Cold Water Fixture
Stainless Steel Paper Towel Holder
Washable In/Cm Ruler
Work Surface Grid Plates
Optional Features
1 HP Waste Disposal
Additional Adjustable Backsplash items
Built in Camera – Multiple Available Options
Computer Monitor/Keyboard Ultra
CPU Mounting Bracket
Dictation Equipment Stand
Dissection Board Grid Plate
Elevated Grid Plate (1" taller in Height)
Foot Pedal
Formalin Collection System
Formalin Dispensing Container 2.5 Gal
Formalin Dispensing Cubetainer Style
Perimeter Rinse
Safety Splash Shield
Self-Contained Exhaust System
Ventilated Trash Container
Video Camera Arm

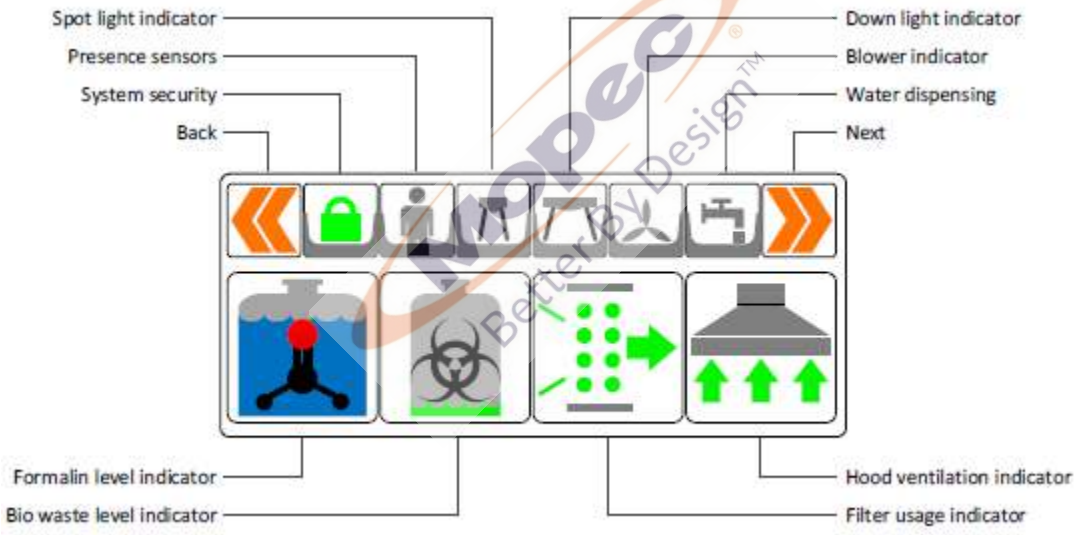
TOUCHSCREEN OPERATION

The GS1 is a microprocessor based system designed to enhance the functionality and user experience of a grossing station. The GS1 system also adds new features to improve the grossing station performance while providing a safe work environment.

The GS1 is a control system designed specifically for grossing stations to consolidate different features and options into one system. The GS1 is a feature-rich system that includes touch-free lighting and ventilation activation, filter usage tracking and maintenance alert, ventilation flowrate (CFM) monitoring with low performance warning, energy saving mode, Formalin level monitoring with warning alarm, waste level monitoring with warning alarm, touch-free water dispensing, and remote diagnostics. The GS1 system comes with industrial grade sensors and a color touchscreen for improved reliability and user interface.
The GSC uses a color touchscreen to allow the user to scroll through multiple screens to access configuration parameters and monitor the grossing station performance. This document includes step by step explanations on how to configure and use the GS1 system.

The GS1 at a glance

The GS1 has multiple screens that can be viewed by pressing the upper left and right arrows. Each screen displays information about the system. Some screens, when accessed with the proper password, allow parameter changes and system calibration.

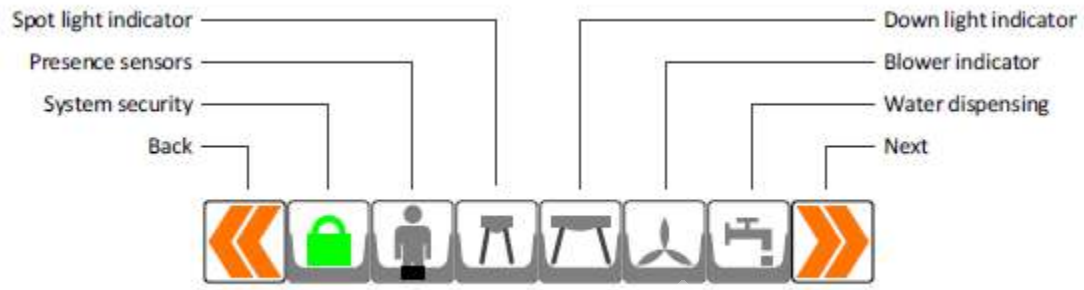


Main screen

When the GS1 is first powered up, the main screen, shown above, is displayed. This main screen is divided into two sections: The upper section containing small icons and the lower section containing larger icons.

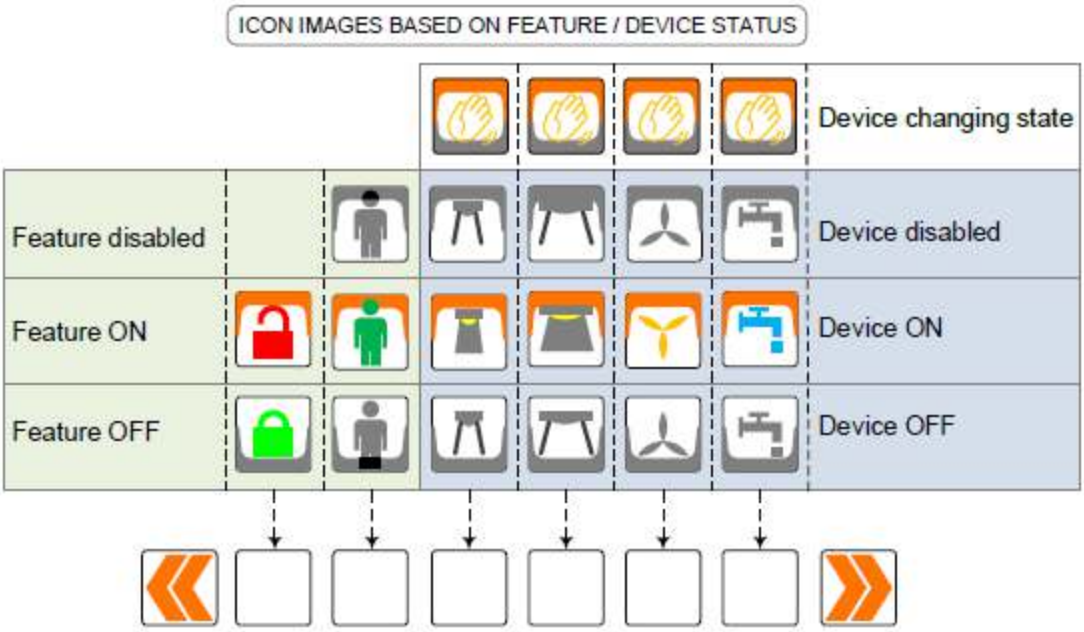
Main screen upper icons

The main screen upper section contain small icons. These icons also referred to as actuator icons. When the user activates a device, the corresponding actuator icon will acknowledge the request and change its image to display the device status. The purpose of these icons is to provide user feedback and to display the status of the different devices in the grossing station. These icons do not set any alarms and do not react to user touch.



Actuator icons indicate the status of their corresponding device by their appearance. Most icons can take on up to 4 different appearances: the first would be to indicate that the device or feature is OFF, the second that the device is ON, the third that the system is not equipped with the feature or that the feature is disabled, and finally the fourth would be to indicate that the device is transitioning from one state to another (meaning from ON to OFF or OFF to ON).

The table below gives an overview of the different icon appearances based on device status.

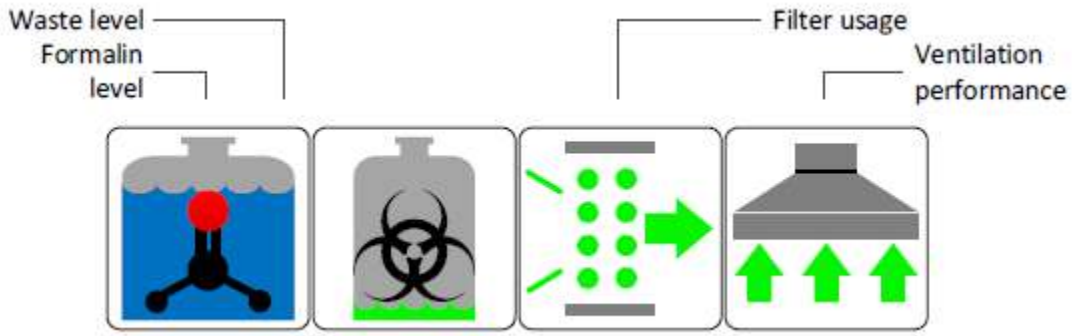


	When touched, the "go back" icon will switch the screen to the previous screen.
	The security icon indicates the system security status. If locked, which is the normal state, the icon will be OFF and will display a green locked padlock. To switch to a lock status, in case it is not, scroll to the system security screen and press lock. A locked status will prevent accidental edits of critical system parameters. If the system is unlocked, this icon will change to the ON status and will flash. This indicates that the system is unlocked. An unlocked system will allow the user to change calibration and other sensitive parameters.
	The "user present" icon will stay in the OFF status as long as a user is detected in the area. If there is no activity in the work area for a preset amount of time as configured in the energy saving screen, this icon will turn ON to allow the system to go into ECO mode. If the ECO mode is disabled or if the system is not equipped with this feature, the feature disabled icon will be displayed.
	The spotlight icon shows the ON/OFF state of the spotlight. If the spotlight is not present or the feature

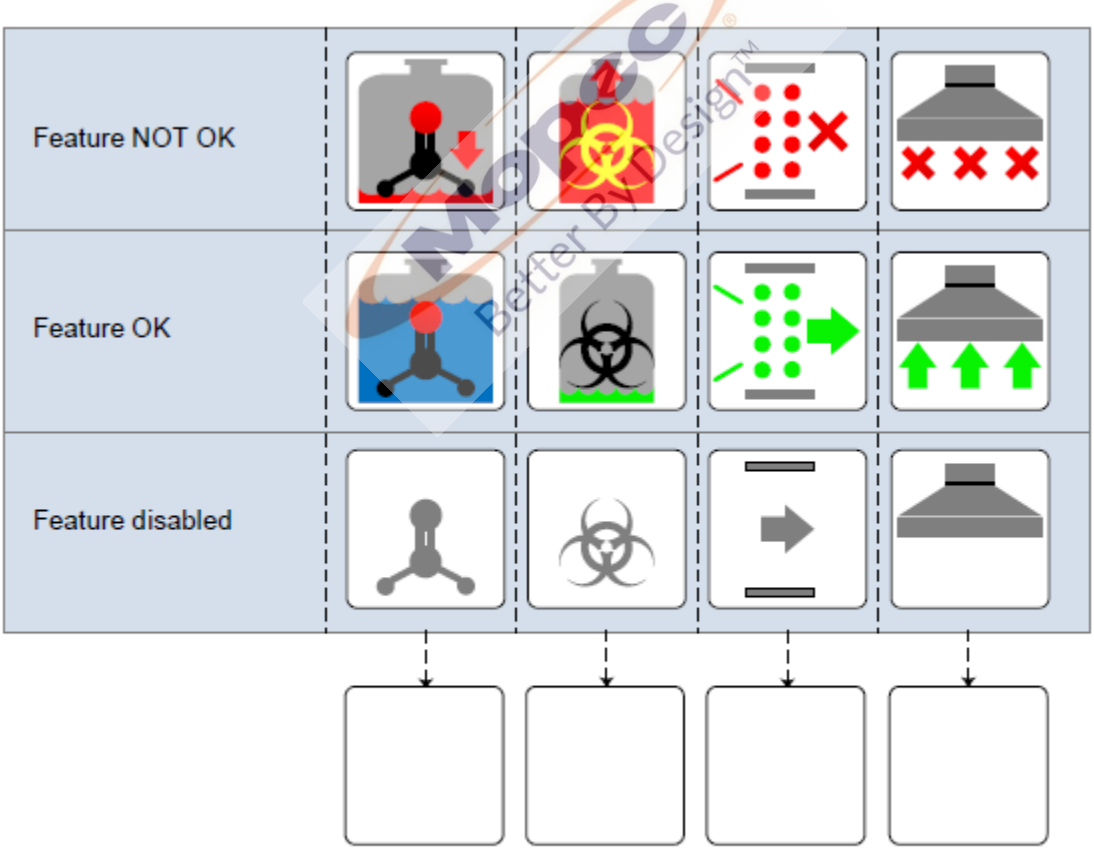
	is disabled, this icon will display the “device disabled” icon. When the spotlight state is changing from ON to OFF or OFF to ON, this icon will display the “device changing state” icon.
	The downlight icon shows the ON/OFF state of the downlight. If the downlight is not present or the feature is disabled, this icon will display the “device disabled” icon. When the downlight state is changing from ON to OFF or OFF to ON, this icon will display the “device changing state” icon.
	The ventilation blower icon show the ON/OFF state of the blower. If the blower is not present or the feature is disabled, this icon will display the “device disabled” icon. When the blower state is changing from ON to OFF or OFF to ON, this icon will display the “device changing state” icon.
	When the user triggers the hands-free dispensing system, this icon will change from the OFF state to the ON state if the Mom (momentary) configuration is set. If the “Mom” is not set, the water valve will switch from ON to OFF when the user waves a hand in front of the sensor and OFF to ON when the motion is repeated. If the hands-free dispensing system is not enabled or if the system is not equipped with this feature, this icon will show the “device disabled” icon.
	This icon indicates that a device is changing status from ON to OFF or OFF to ON. When the user waves a hand in front of the ON/OFF proximity sensor, this icon will turn ON indicating what device is being switched ON or OFF.

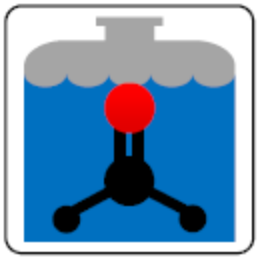
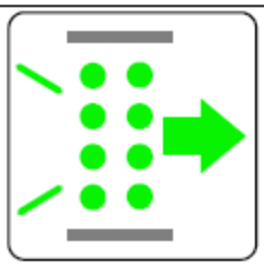
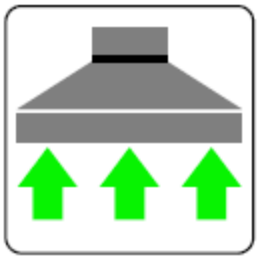
Main screen lower icons

The lower section of the main screen contains larger icons. These are indicator icons displaying the status of the formalin level, the waste container level, the filter usage, and the ventilation status.



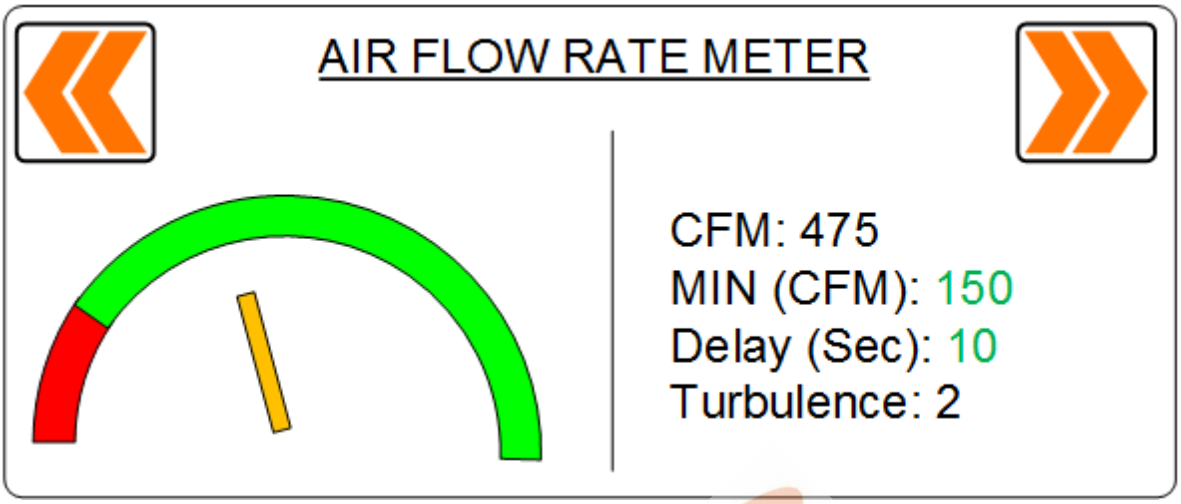
These icons can display multiple images describing the related system state. The table below gives an overview of the different icon appearances based on system status.



	The formalin level monitor icon will turn to the Not OK state if the formalin level drops below the set low limit. Once enough formalin is added to the tank, the icon will change to the OK state. This feature can be disabled if the system is not equipped with it; in this case, the icon will change to the “feature disabled” status.
	The waste level monitor icon will turn to the Not OK state it the waste container is full. Once the waste container is emptied, the icon will change back to the OK state. This feature can be disabled if the system is not equipped with it; in this case, the icon will change to the “feature disabled” status.
	The filter usage monitor will display the Not OK status if the filter hour-meter has exceeded the allowed time. Once the system is serviced, the reset hour-meter button can be pressed to reset the timer and the icon back to the OK state.
	The ventilation icon will display the Not OK icon if the flowrate (CFM) level drops below the set low limit. This limit can be set in the CFM meter screen. This icon will automatically switch to system OK mode once the CFM exceeds the low limit value.

Ventilation screen

The purpose of the flowrate (CFM) meter is to approximate the air flow rate. This meter is not a substitute for an anemometer instrument. The ventilation air flow rate meter screen can be displayed by scrolling to the right once. This screen shows the CFM meter and a few ventilation parameters.



The gauge provides a visual indicator for the CFM. The Min CFM parameter and the “Delay” parameter can both be modified to customize the meter and its alarm triggers.

MIN (CFM): This parameter sets the minimum CFM value that is allowed before an alarm is triggered. Unlock the system in the security screen to edit this parameter.

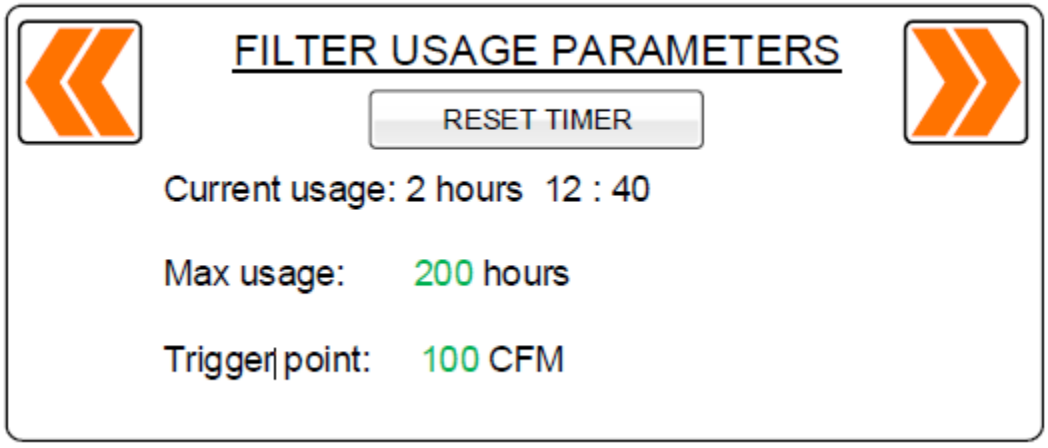
Delay (sec): This parameter sets the delay before setting the alarm. Unlock the system in the security screen to edit this parameter.

Turbulence: This is a unit-less indicator to quantify how much flow fluctuations are present.

Note: All parameters that can be edited are highlighted in green. See security screen to unlock / lock the system.

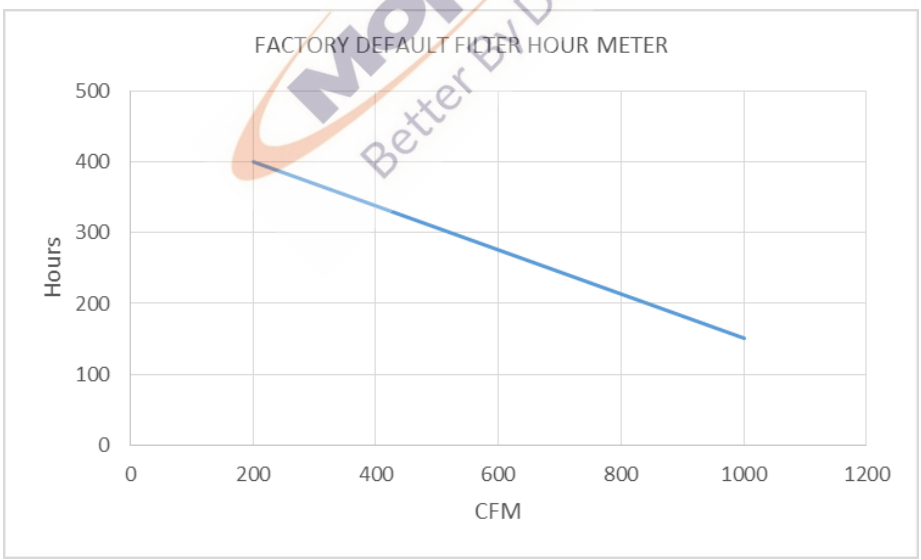
Filter hour-meter

The filter hour-meter tracks the filter run time. This is the time the ventilation CFM level is above the CFM trigger point. Scroll to the filter usage screen to view and configure this feature



Current usage: This parameter shows the current filter usage in hours. Once this value exceeds the maximum usage time, the alarm will sound if equipped and the filter icon will change state to Not OK.

Max usage: This parameter holds the maximum number of hours a filter can operate before replacement. This value must be adjusted by the user based on the work environment air quality data. Below are the default factory values for this parameter based on CFM. System security must be unlocked to edit this parameter.



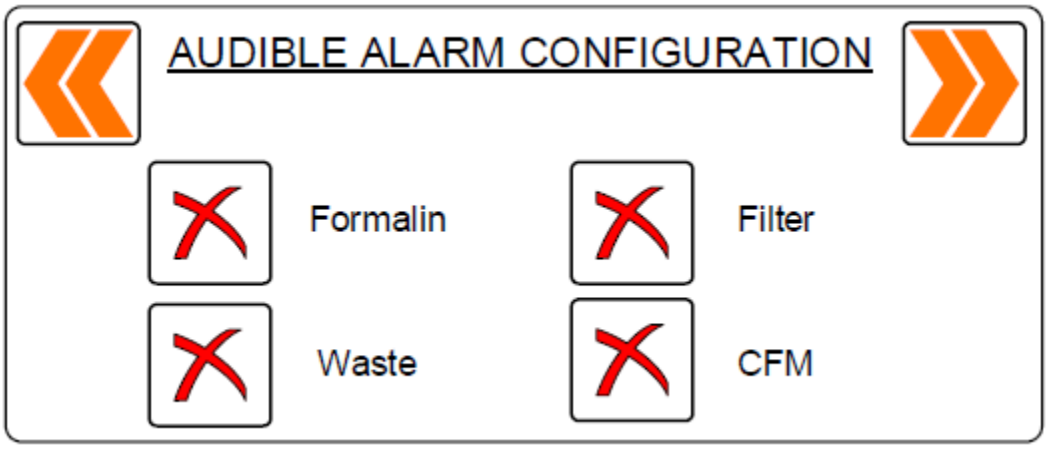
Trigger point: This parameter holds the minimum CFM level before the filter timer starts to count. This is used to stop the timer if the ventilation is turned OFF. Unlock the system and touch the parameter to edit.

Reset timer button: When pressed, this button will reset the current filter usage hours to zero. This button is only active when the system is unlocked.

Note: All parameter that can be edited are highlighted in green. See security screen to unlock / lock the system.

Alarm configuration

The alarm screen can be reached by scrolling through the screens using the left or right arrows.



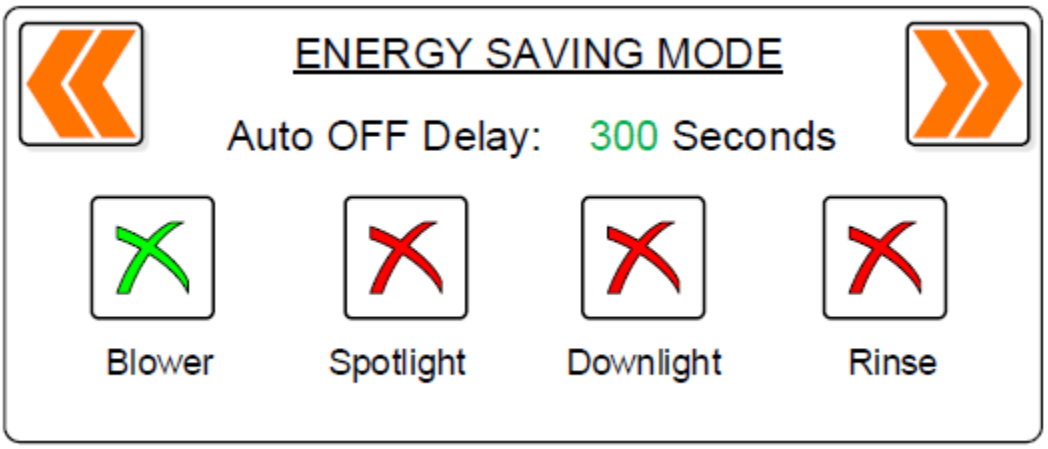
The alarms for the different features can be enabled / disabled by pressing on the related buttons. The system does not have to be locked to change this configuration. A regular user can change how the alarms are configured. A green check mark will be displayed next to the features that are configured to alarm. The screen above shows an example where the waste level monitor has been set to alarm.

Security unlock is not needed for this configuration.

Note: When the alarm is triggered, touching the screen will mute the alarm. It is important to address the alarm triggers and resolve the issues. The alarm will automatically turn OFF is the issue is resolved.

Energy saving mode

The ECO mode can be configured by the user to enable the system to shut off the ventilation, the spotlight or the downlight if a user leaves the area for a preset amount of time.



Auto OFF Delay: This parameter sets the time delay for a user to not be present in the work area before the ECO mode takes effect. This feature can be set to control, the blower, the spotlight, the downlight, and the table rinse. The example above shows 300 seconds. This means that if the user leaves the grossing station for more than 300 seconds, the ECO mode takes control over the ventilation blower. It will then turn the items that are checked green (in this example, the blower) OFF until the user returns to the work area.

(NOTE) the controls must be in the hands-free operation for the unit to shut down

When the system detects the user entering the work area, the devices that were initially ON prior to triggering of the ECO mode, are turned back ON.

MOPEC screen

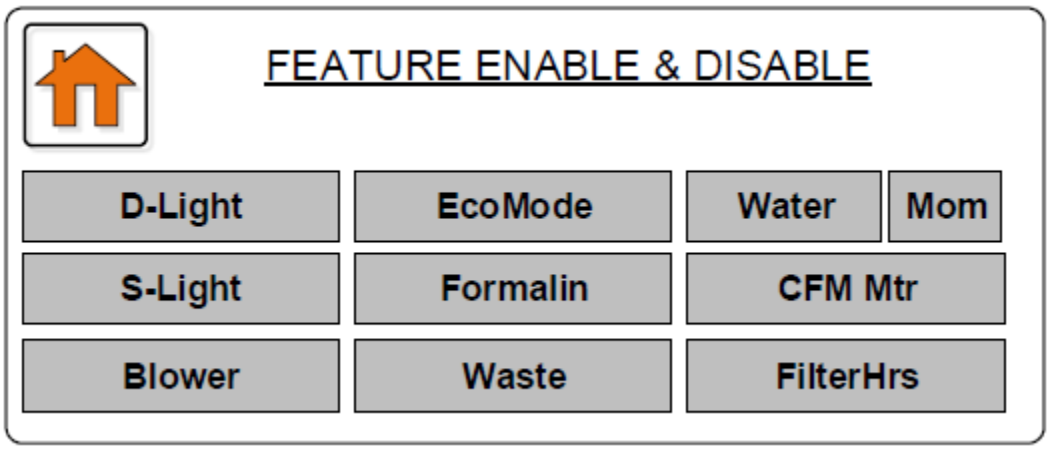
The MOPEC screen provides access to information, configuration and calibration screens that require system security unlock to access.

The user must first unlock the system before accessing these screens. Below is a description of the icons on this screen.

	When pressed, this icon will display the configuration screen. This icon is only active if the system is unlocked. If the system is locked, pressing this icon will be ignored.
	The calibration icon will display the calibration screen. This icon is only active if the system is unlocked. If the system is locked, pressing this icon will be ignored.
	The information icon will display the product information screen. This icon is always active. The system does not need to be unlocked for this icon to be active.

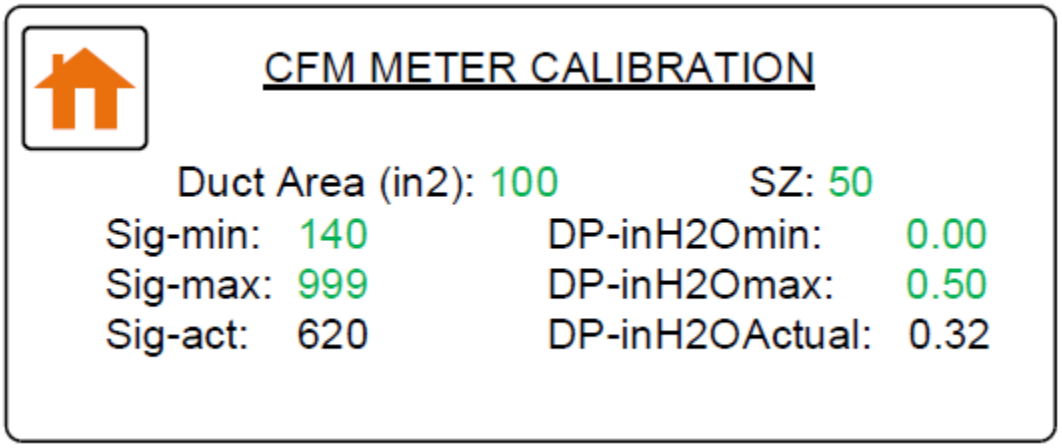
Feature configuration screen

The feature configuration screen can only be accessed by the OEM.



Calibration screen and procedure

The calibration screen is used to calibrate the CFM meter. The parameters in the screen are very critical to the operation of the CFM meter and all other related features (e.g. filter usage, etc.).



Below is a description of the home button along with the parameters that are shown in the CFM meter calibration screen.

	When pressed, the home button returns the user back to the MOPEC screen.
Duct area	This value represents the exhaust duct surface area in square inches. *(factory set)*
SZ	This parameter contains the air velocity sample size. The larger this number the slower the CFM meter response. (Factory set, *but can be changed after equipment installation if needed).*
Sig-min	This parameter is the lowest signal value that the system can read. This will happen at no air flow
Sig-max	This represents the highest signal value the system can ever see. This happens at maximum air flow
Sig-act	The actual signal value at a given air flow rate
DP-inH2Omin	Minimum static pressure that can be detected by the system (typically 0 inH2O)
DP-inH2Omax	Maximum static pressure that can be detected by the system (typically 0.5 inH2O)
DP-inH2OAct	The actual static pressure in inches of H2O

The parameters highlighted in green can be edited using the procedure described below.

Calibration procedure:
Unlock system security, then scroll to the calibration screen

1 - Turn ventilation OFF

2 - Write the value in Sig-Act as shown in the display into the Sig-min parameter by pressing on the Sig-min value and typing the value in the popup keypad.

3 – Remove all filters, if equipped, and increase the ventilation flow until 0.5 inches of H2O of static pressure is reached.

4 – Write the Sig-Act value into the Sig-max parameter by pressing on the Sig-max value and typing the value in the popup keypad.

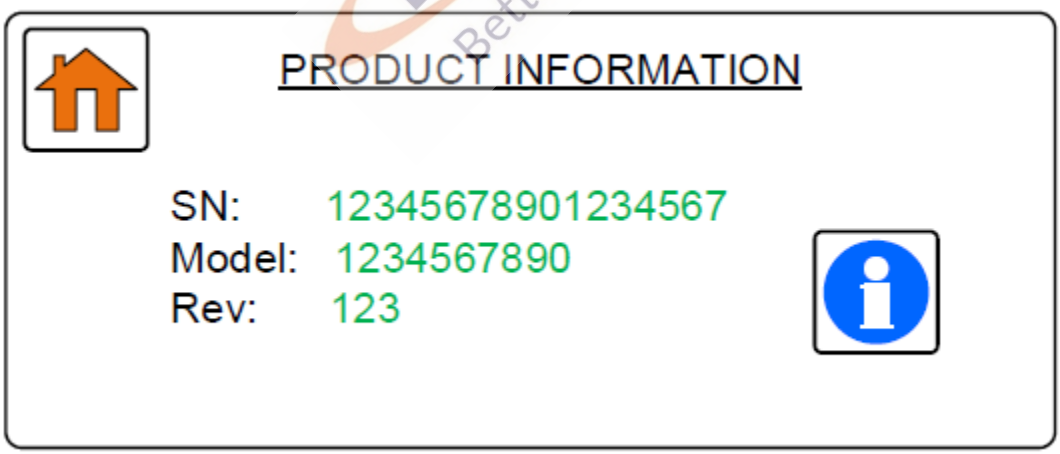
Note:

If steps 3 and 4 are not possible at the customer site, keep the Sig-max as the default value (typically 999)
The CFM meter is not a substitute for an anemometer instrument. Periodic checking of the air flow using an anemometer is highly recommended. A deviation exceeding +/- 60CFM or a customer set target should be noted and addressed by calibrating the system or initiating repair.

Product information

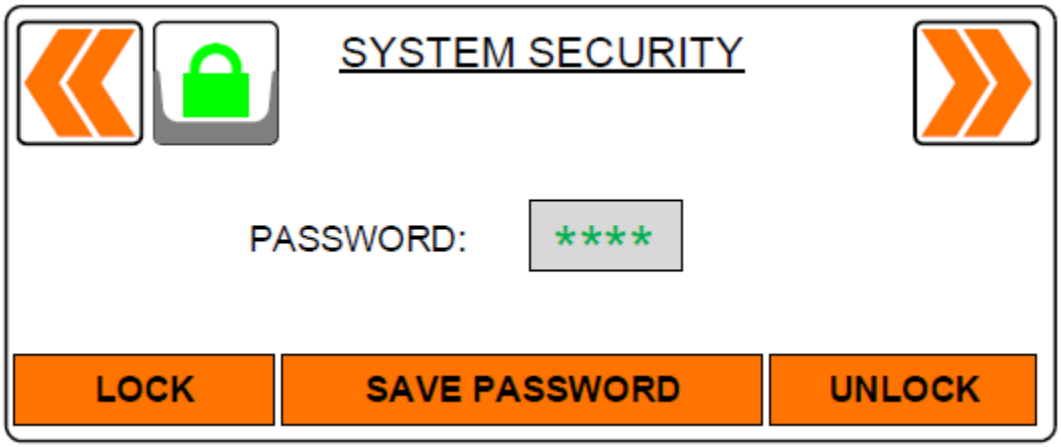
The product information screen can be accessed by pressing the information icon. This screen does not require the system to be unlocked.

This screen displays the MOPEC serial number, the model number and the software revision number.



System security

The GS1 has 3 operating modes: a user mode, a service mode and an OEM mode. The system security screen displays the security icon which indicates the current mode the system is in. As shown below, the default mode will be indicated by a green lock. In this mode the system is locked to prevent accidental changes to the system parameters.



To unlock the system, press the password input box, enter the passcode and then press unlock. If the code is valid, the security icon will change to a red unlocked state. In this state, this icon will flash until the user locks the system back.

The user can create a 4 digit passcode by first unlocking the system using the default passcode, then typing the new passcode into the passcode box, and then pressing the save password button.

Saving new password:

1 – Type the default password then unlock the system.

2 – Type the new password then press the “save password” button.

When done with the unlock state, simply press the lock button to lock the system and go back to the user mode.

9 - Keypads

This system has 2 different type of keypad. And alphanumeric keypad and a numeric keypad. Below are images of the keypads

Numeric Keypad:

When touching a parameter that can be edited when the system is unlocked, a keypad will be displayed on the screen. If the parameter is numeric, a numeric keypad will be displayed. If the parameter is alphanumeric, and alpha numeric keypad will be displayed. The images below show example of the keypad.

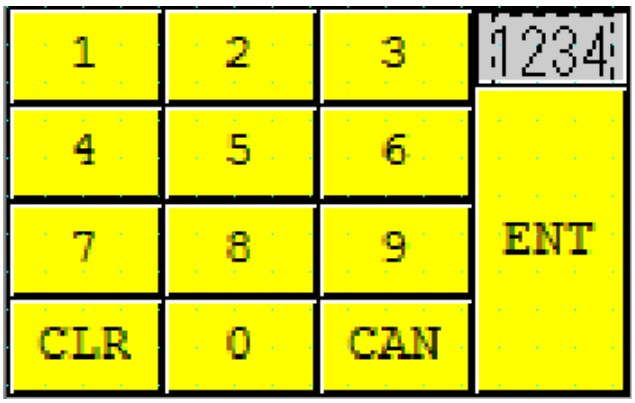
Numeric keypad

A numeric keypad will only display number. The buttons are self-explanatory.

CLR: clears the screen to the upper right

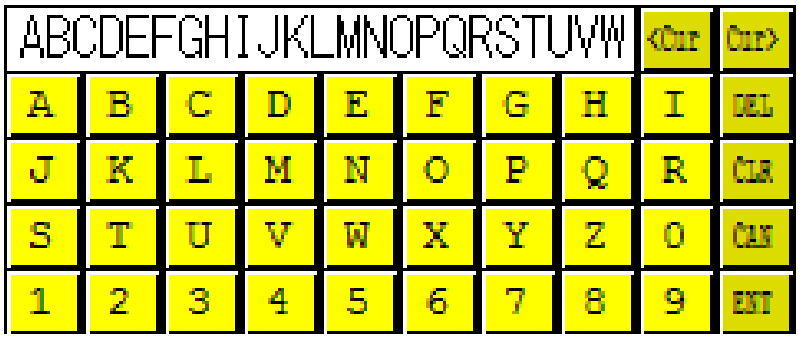
CAN: cancel and return to the parent screen

ENT: save the value



Alphanumeric keypad

The alpha numeric keypad allows the entering of text for fields requiring both numeric and alphabetic characters. This keypad is mainly used at the OEM to input the model, and serial number.



Touch free system

The touch free system uses proximity sensors that require a hand wave to actuate the related device. A hand must be within 6” of the sensor for about half a second before the controller registers the motion as an ON/OFF user request.

When the proximity sensor is triggered, the corresponding device icon will change from its current state to a hand, then to the desired state. The example below shows the downlight switching from the OFF state to the ON state.

Touch screen

The GS1 color touch screen uses a resistive membrane to detect the pressure at any area of the screen. Using sharp objects to operate this screen will cause damage that is not covered under the warranty. This screen is sensitive enough to detect a light finger press. If the screen is not responding, follow the steps in the troubleshooting section.

DO NOT USE PENSICEL, PENS, NAILS, ANY SHARP OBJECTS, OR EXCESSIVE PRESSURE ON THE SCREEN AS IT WILL CAUSE DAMAGE

Troubleshooting the Controls

The troubleshooting table below covers some possible problem scenarios and root causes. Detailed diagnostics for each root cause is documented in the next section. Please note that this troubleshooting guide does not include any diagnostics related to wiring and connection issues or any other basic or obvious root causes.

Failures and root causes

Symptom	Troubleshooting and possible causes
Light will not turn ON or will not turn OFF	Make sure the light feature is enabled. Faulty LED light or LED driver. Faulty sensor. Faulty controller.
Blower does not turn ON	Make sure the blower feature is enabled. Faulty power transformer (if applicable). Faulty potentiometer. Faulty sensor. Faulty controller.
Formalin tank empty but no alarm	Make sure the formalin feature is enabled. Incorrect alarm configuration. Faulty float switch. Faulty controller.
Waste tank full but no alarm	Make sure the waste feature is enabled. Incorrect alarm configuration. Faulty float switch. Faulty controller.
Hour meter not incrementing	Make sure the hour meter feature is enabled. Incorrect setting of the CFM trigger point. Hour meter must be reset.
CFM meter not working	Make sure the CFM meter feature is enabled. Improper calibration parameters.
	Faulty signal transmitter. Air flow sensor hoses not connected. Faulty air flow sensor. Faulty controller.

Alarm does not turn ON for certain monitors	Make sure that the monitor in question has a green check next to it in the alarm screen. Make sure that the feature in question is enabled. Make sure that the alarm trigger points for the feature in question are properly set. Faulty controller.
Touch screen will not suppress the alarm	Reboot the system. If the issue persists, replace the controller.
Touch screen not responding	Reboot the system. If it persists, replace controller.
Cannot unlock security	Try using the default passcode.
Energy saving mode not working	Make sure the feature is enabled. Make sure the icon for the device in question has a checkmark next to it in the energy saving screen. Faulty motion sensor.
Lights or blower will not come back ON after shutting down due to ECO mode	Faulty motion sensor. Faulty controller.

Component testing and diagnostics

Proximity sensor testing:

Check sensor voltage output to controller and LED in the back. If there is no output voltage when a hand is placed in front of the sensor or the LED does not turn ON, the sensor is faulty and must be replaced.

Controller testing:

The controller has inputs, outputs, and a touch LCD.

Testing the inputs:

Activate the input and check the voltage at the controller. If a voltage above 19VDC is present and the controller does not react to the signal and the related feature is enabled, then the input on the controller may be faulty. If that is the case, the controller will need to be replaced.

Testing the outputs:

The outputs of the controller are relay based. When an output is turned ON, the voltage at the output will be changed. If the relay is not clicking or the voltage is not present, the output could be damaged and the controller may need to be replaced.

CFM meter testing:

The CFM meter contains two main components: an air flow sensor and a signal transmitter. First make sure that the hoses connecting the airflow sensor to the signal transmitter are properly connected.

Check the air flow sensor to make sure there is no obstruction. If the sensor is blocked or dirty, it will cause incorrect readings.

Turn the ventilation OFF and check the voltage at the controller's input (see schematics for more details). The voltage should be less than 2 volts. If the voltage is above 2 volts, then the signal transmitter may be defective.

Turn on the ventilation to the max and check the voltage at the input again. The voltage should be above 5 volts. If the voltage is not changing or is less than 5 volts, the signal transmitter could be faulty.

If the voltage is changing properly, then the controller could be damaged or the CFM meter parameters were changed to incorrect parameter values. The default parameters are shown in the CFM meter screen in the calibration section.

Formalin and waste monitor testing:

Manually (while wearing proper safety protection), move the float switch up and down. The voltage at the controller input should change from 0V to 24VDC. If the voltage does not change, replace the float switch.

Lights testing:

Make sure the driver has the correct input voltage (110VAC / 220VAC). Check the light driver output voltage. Replace driver if it does not output any voltage. Change the light if the driver is outputting the correct voltage but the light is still not turning ON.

Blower system testing:

The blower system consists of the blower, potentiometer, and power transformer for 110VAC installations.

Turn the blower ON and check the input to the power transformer (for 110VAC installations). If the input voltage is 110VAC, check the output voltage. If the output voltage is not 220VAC then change the transformer.

To check the potentiometer, remove the center lead and short it to one of the leads that are next to it. The blower should either stop or run at full speed depending on which lead was shorted to the center lead. If this test does not make a difference, then the potentiometer may not be defective. To see if the potentiometer is defective, disconnect it from the blower circuit and measure its resistance (normal resistance should be around 10 k Ohms).

Testing the blower can be done by checking the continuity across the motor's coil.

Motion sensor testing:

The motion sensor is an NPN sensor and can be checked by monitoring its voltage output or observing the corresponding relay.

Checking the output voltage of the motion sensor will consist of placing the positive lead of a voltmeter on +24VDC and the negative lead on the negative terminal of the motion sensor relay coil (remove the relay for this test). The voltage should change when the sensor detects motion.

If the relay is known to be functional, simply put an object next to the motion sensor and notice the related relay turn ON. Stop all motions for about 20 seconds to turn the relay back OFF.

Filter hour meter:

When the CFM reading exceeds the filter trigger CFM, the hour meter starts counting. Check the CFM trigger point CFM parameter in the filter usage screen to make sure it is not set too high or too low.

Relays testing:

The relays used in this system have a manual override (small red button). This override may be pressed to manually turn the relay ON. This will allow for some basic testing.

Power supply testing:

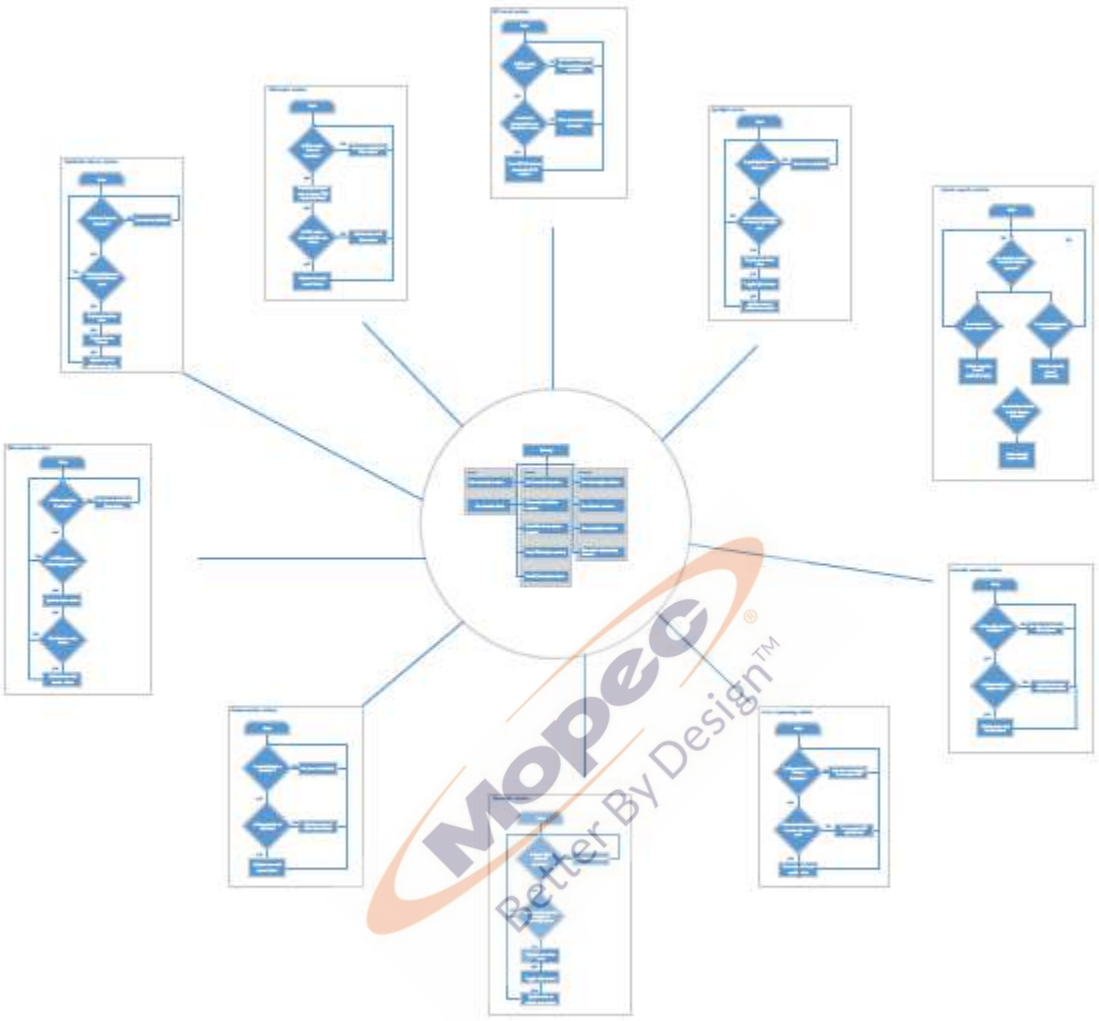
Check the input voltage to make sure it is at 110VAC/220VAC. The output voltage should be around 24VDC.

Checking that a feature is enabled:

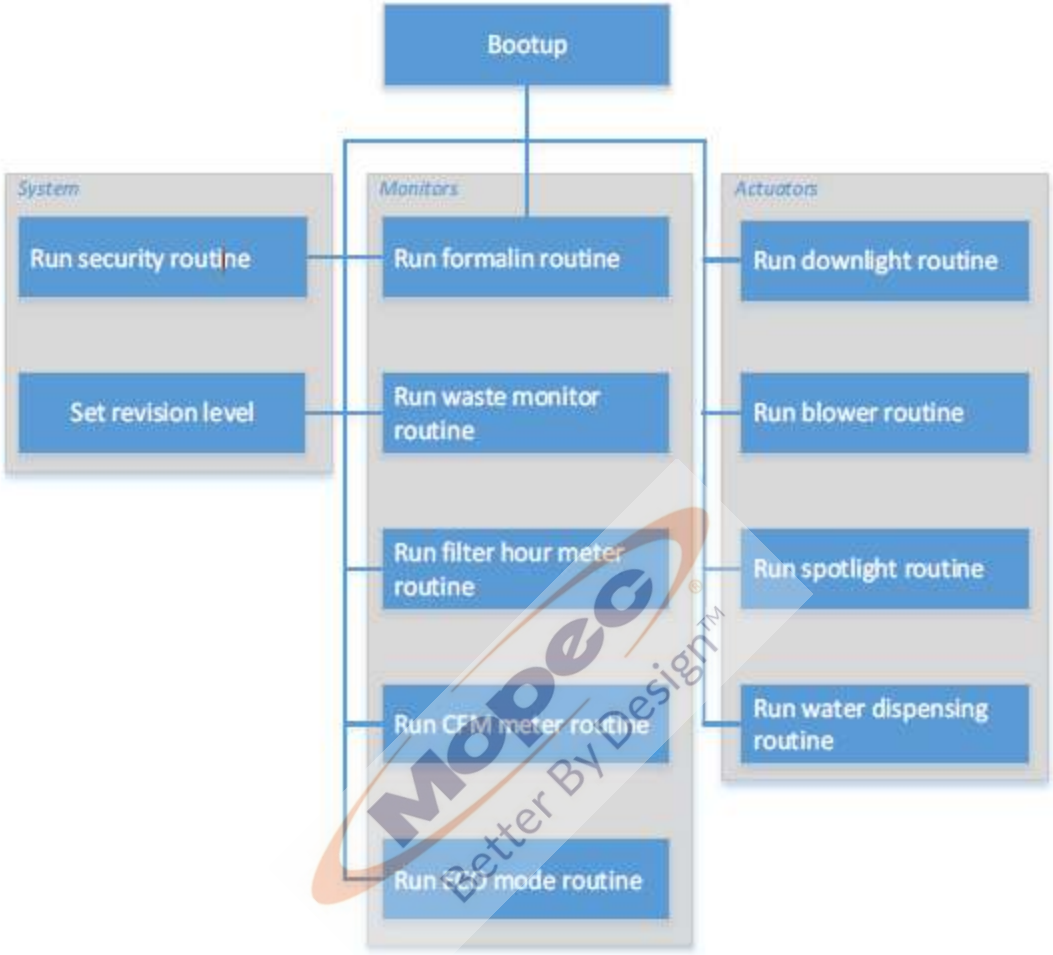
A feature that is disabled will have a feature disabled icon displayed. The sections above show the different icons for the different features.

Operating logic

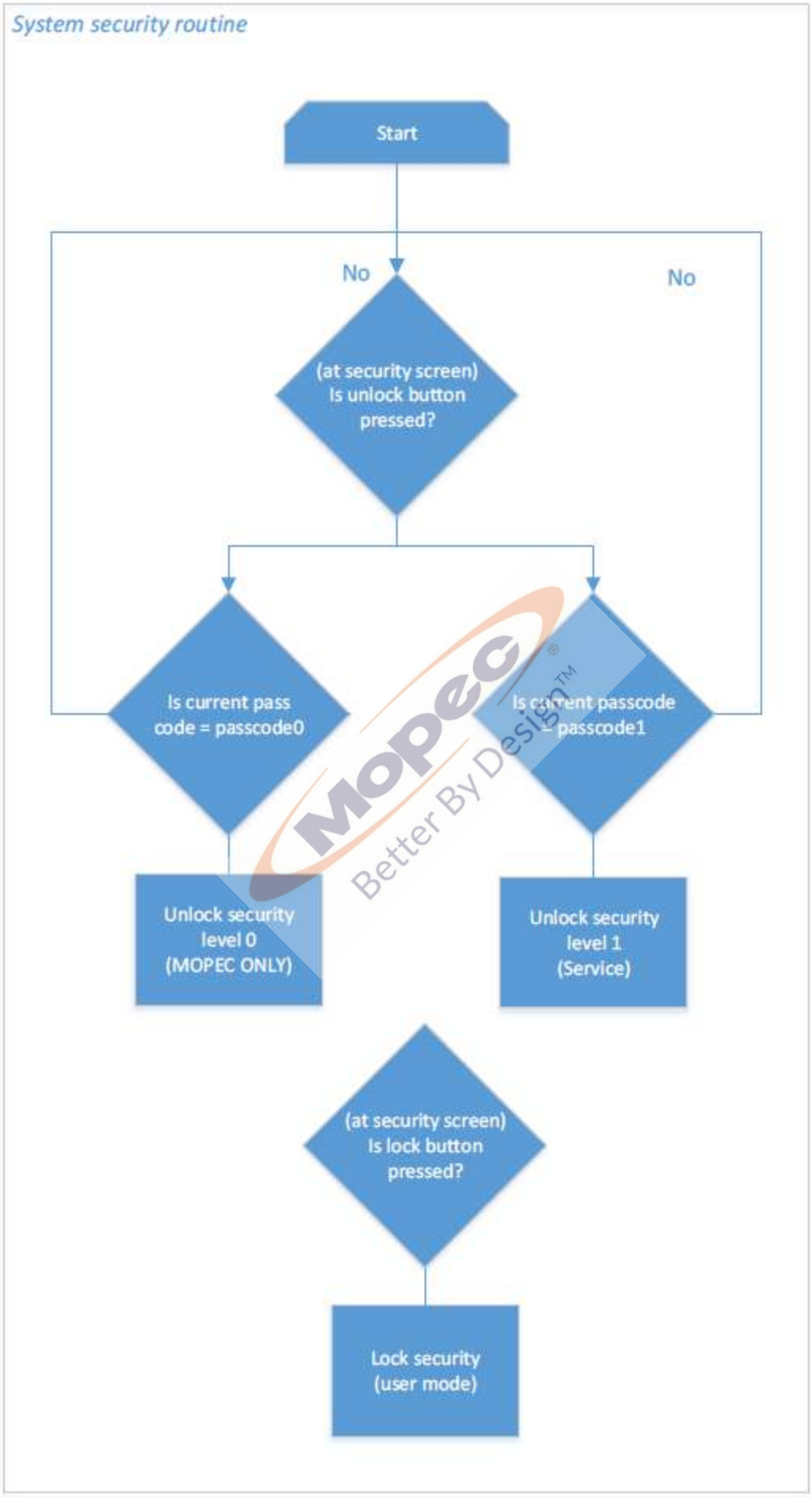
The flow charts in this section are for reference only and do not include all software details and parameters. The information in this section is for training and basic troubleshooting purposes only. Several system features are not described in this section



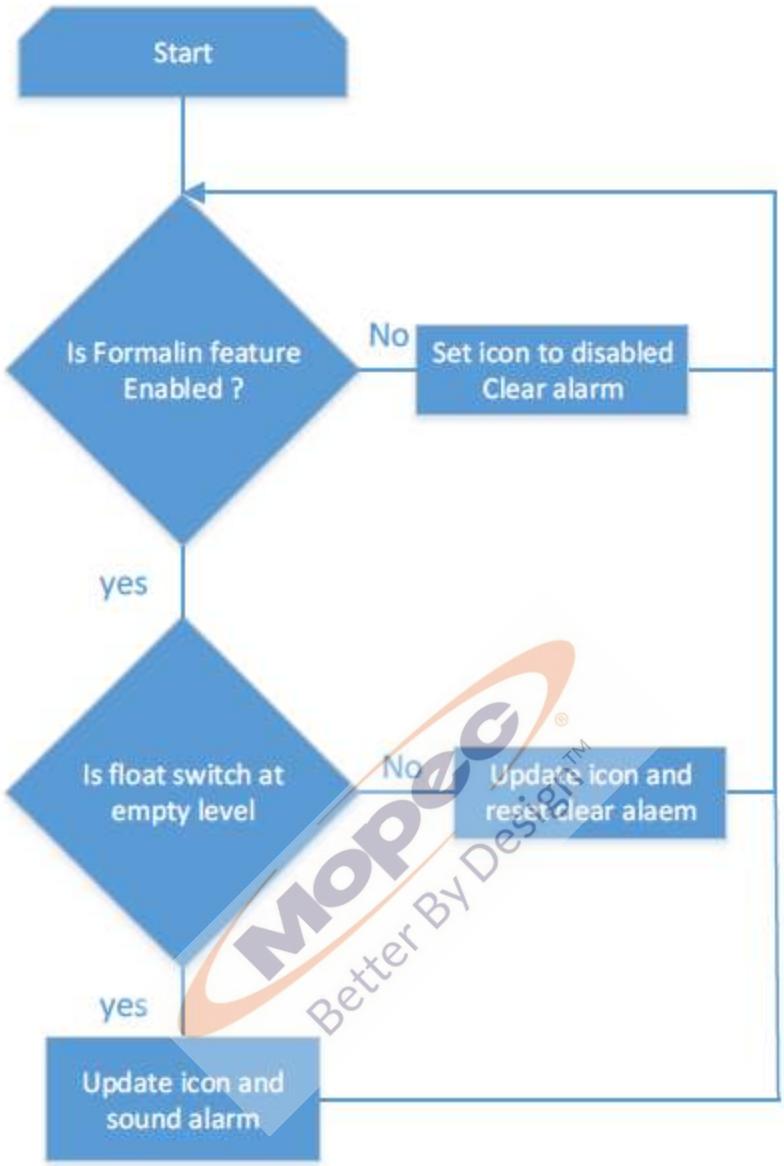
Main routine



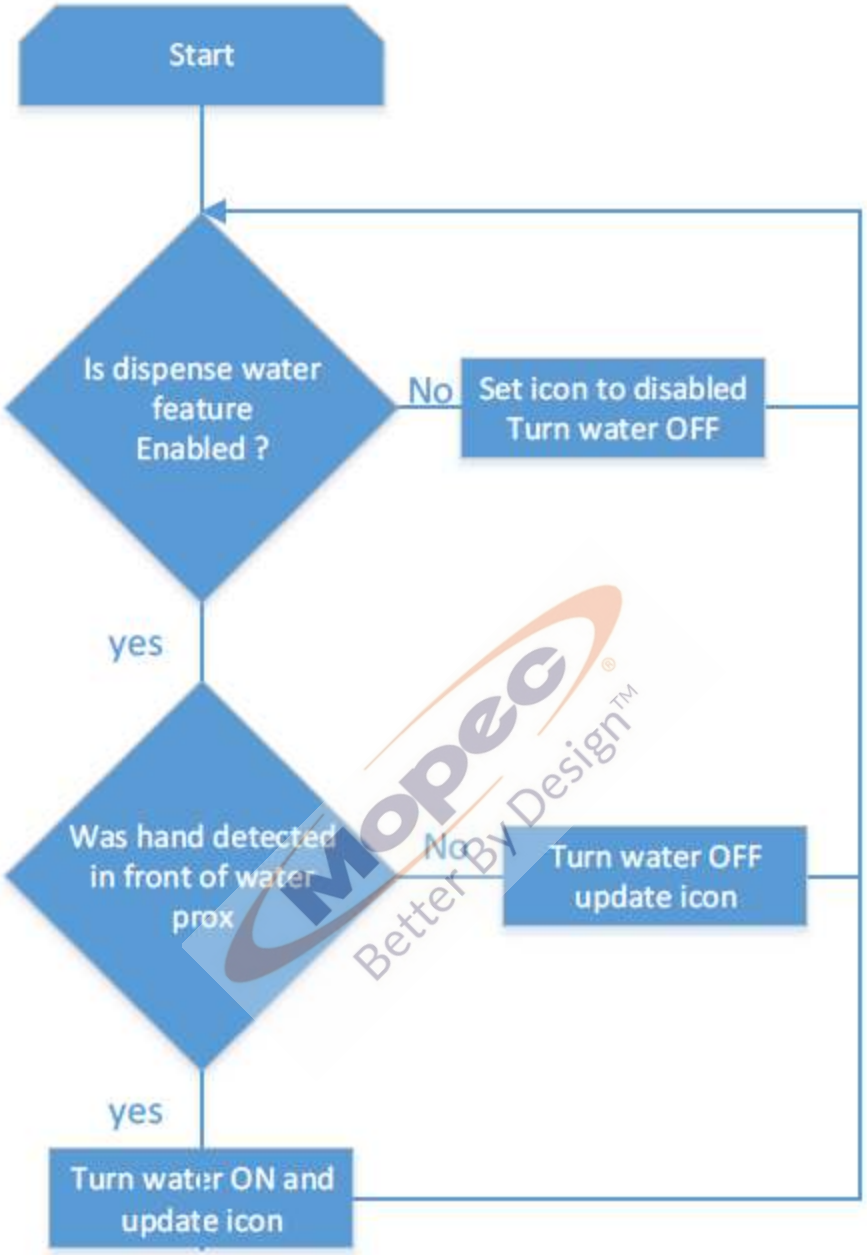
System security routine



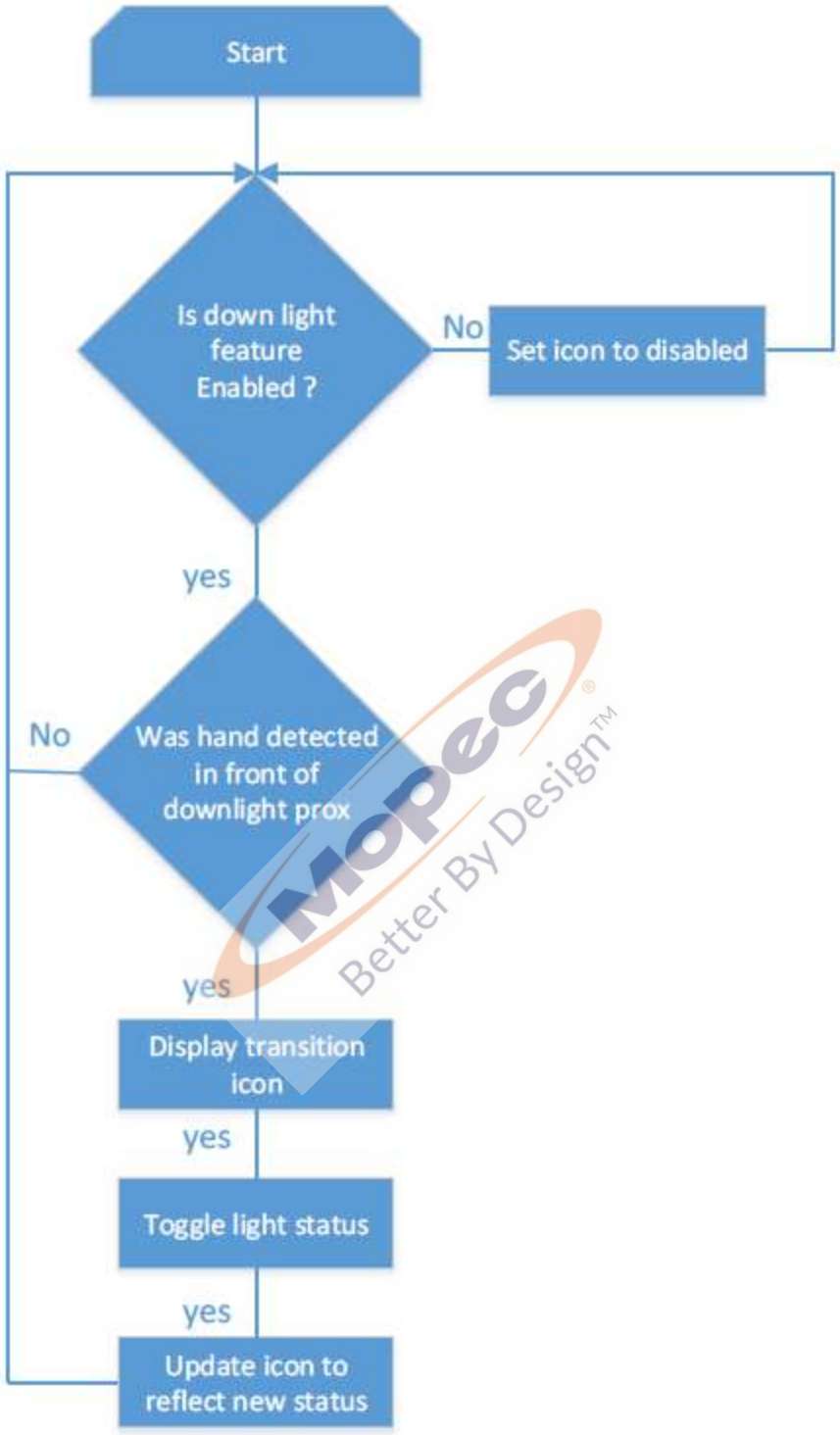
Formalin monitor routine



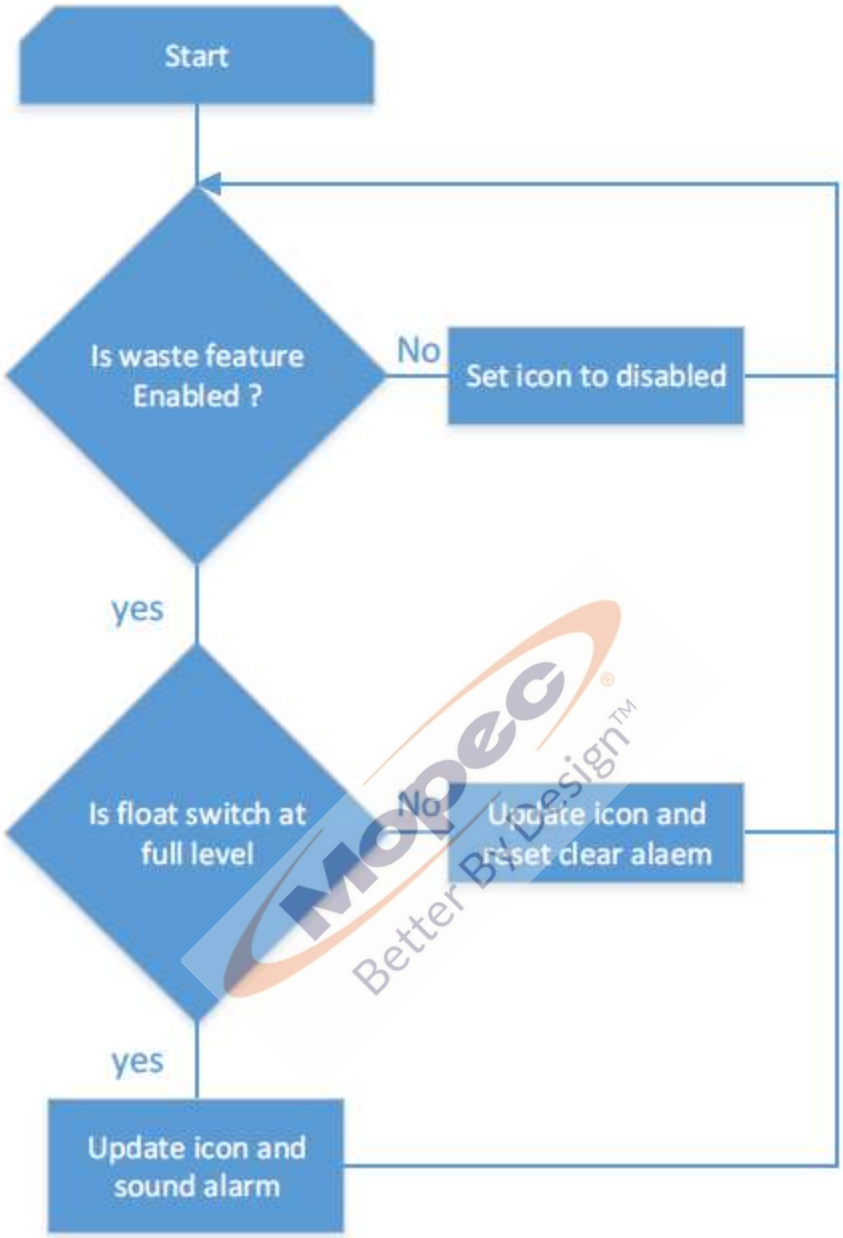
Water dispensing routine



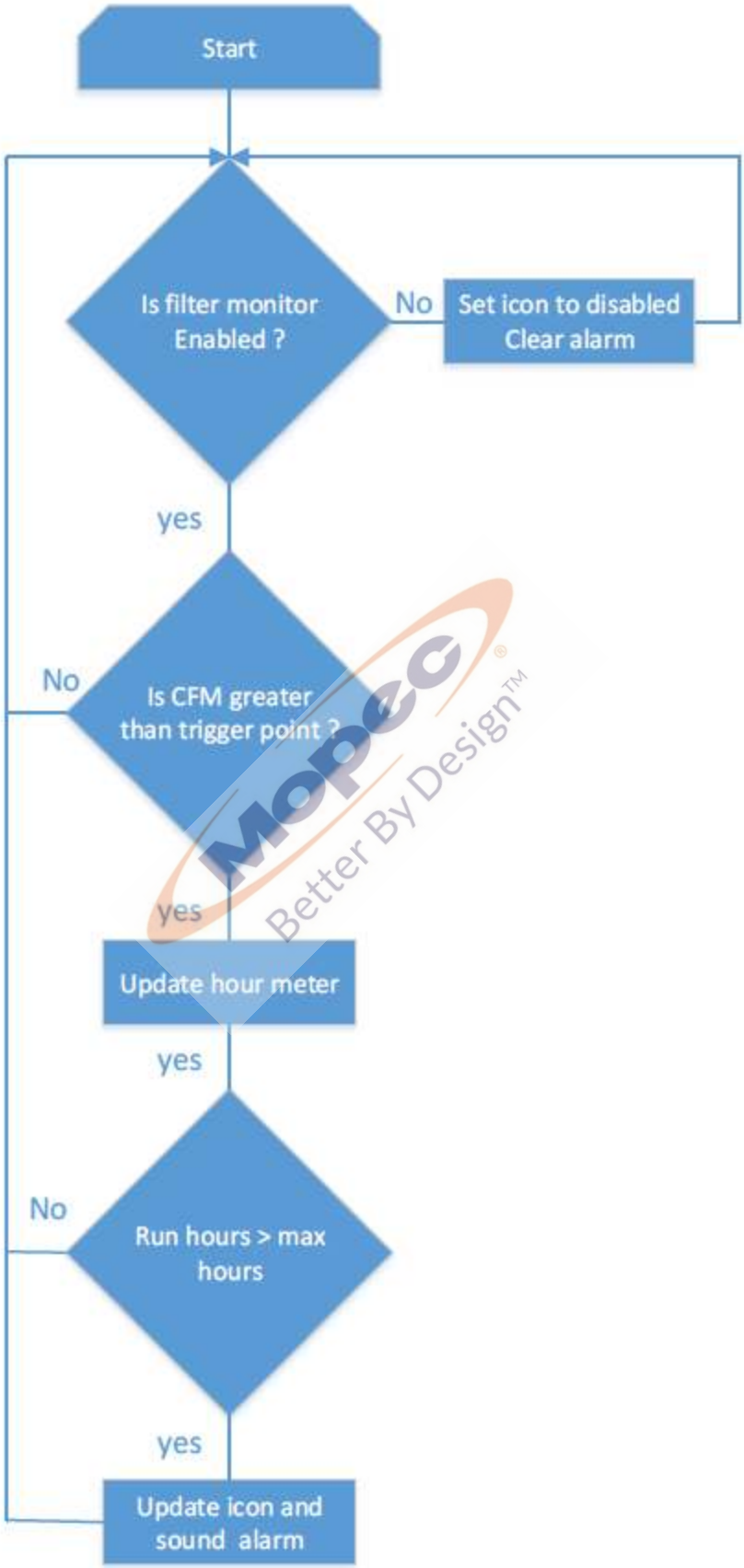
Downlight routine



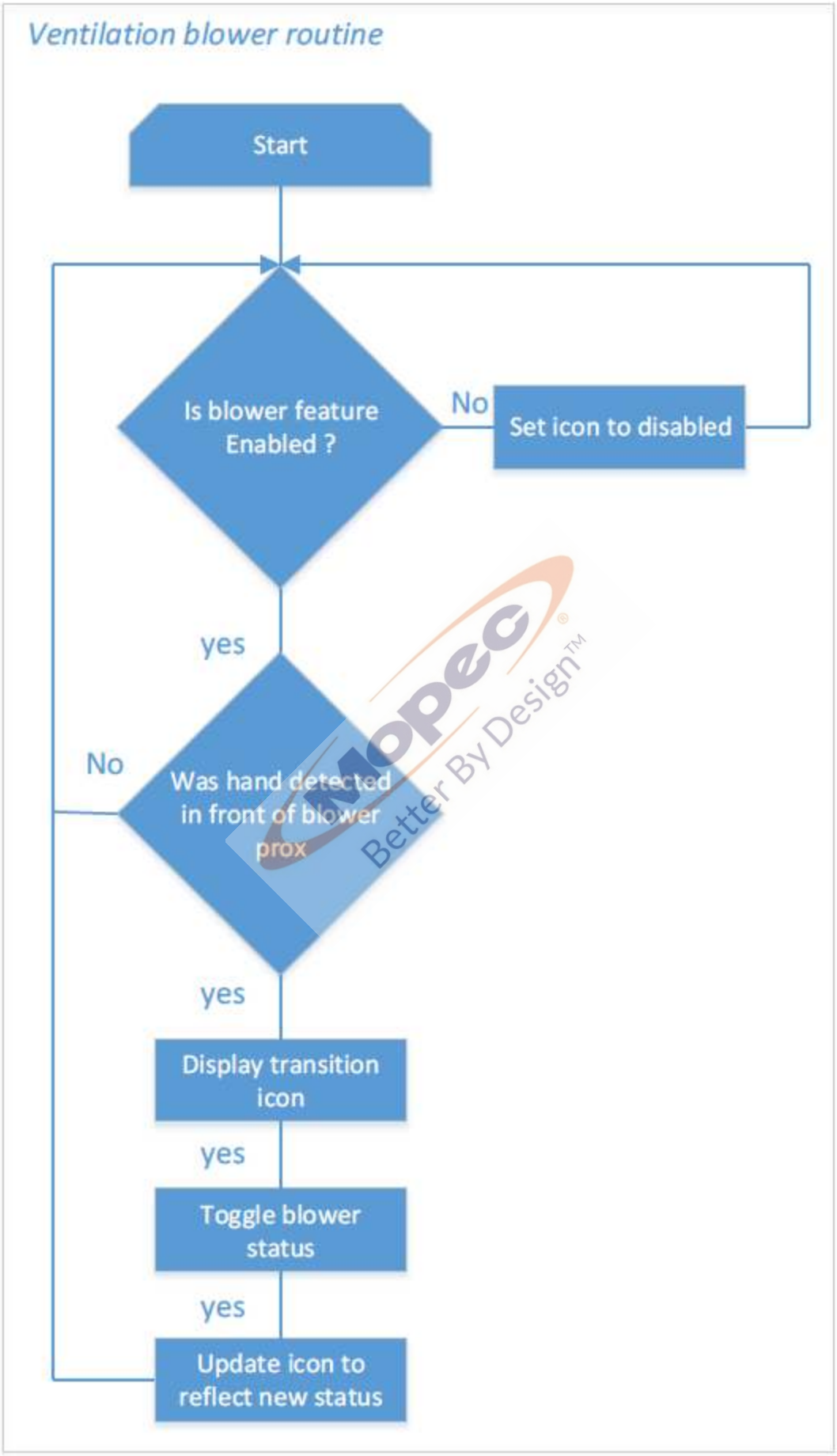
Waste monitor routine



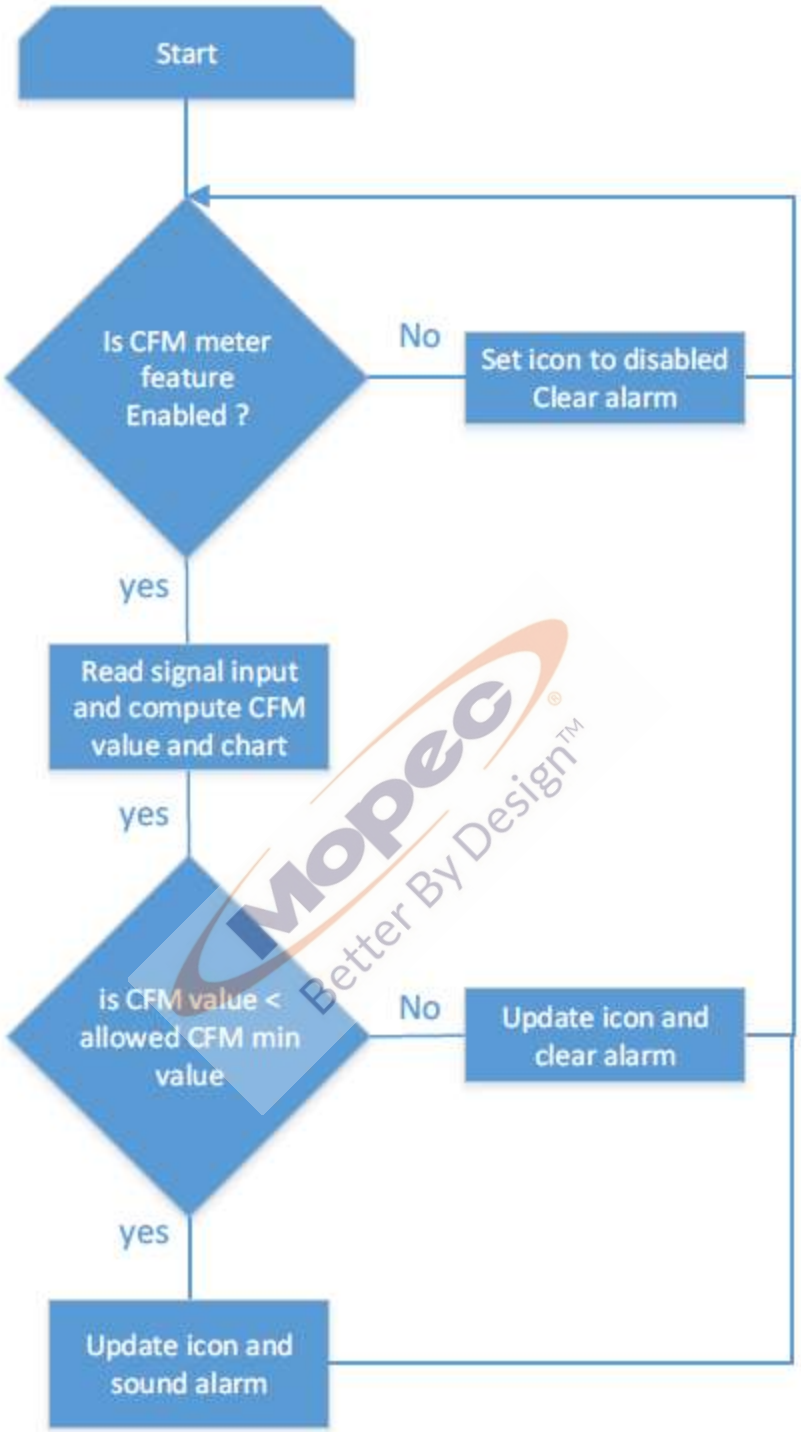
Filter monitor routine



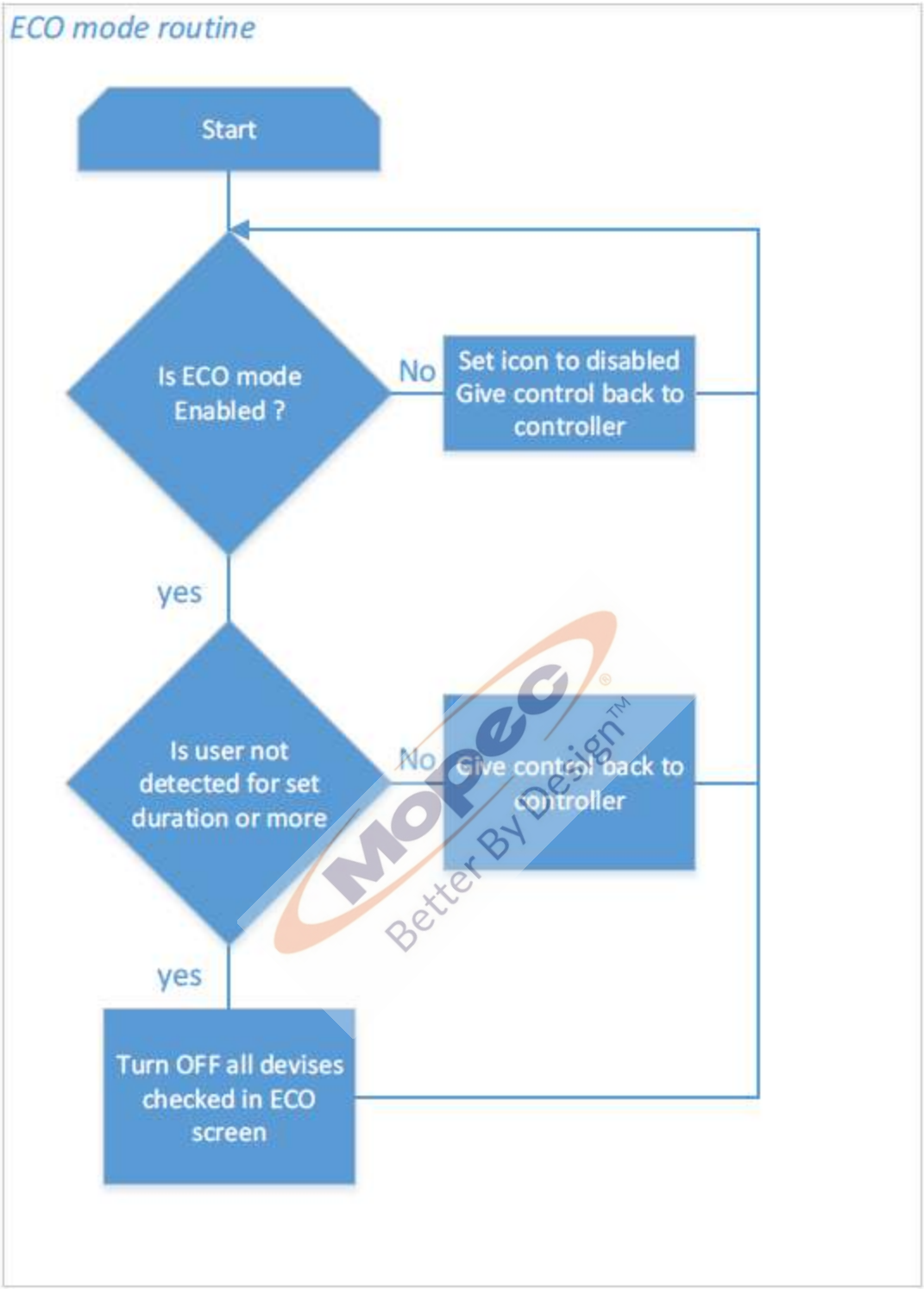
Ventilation blower routine

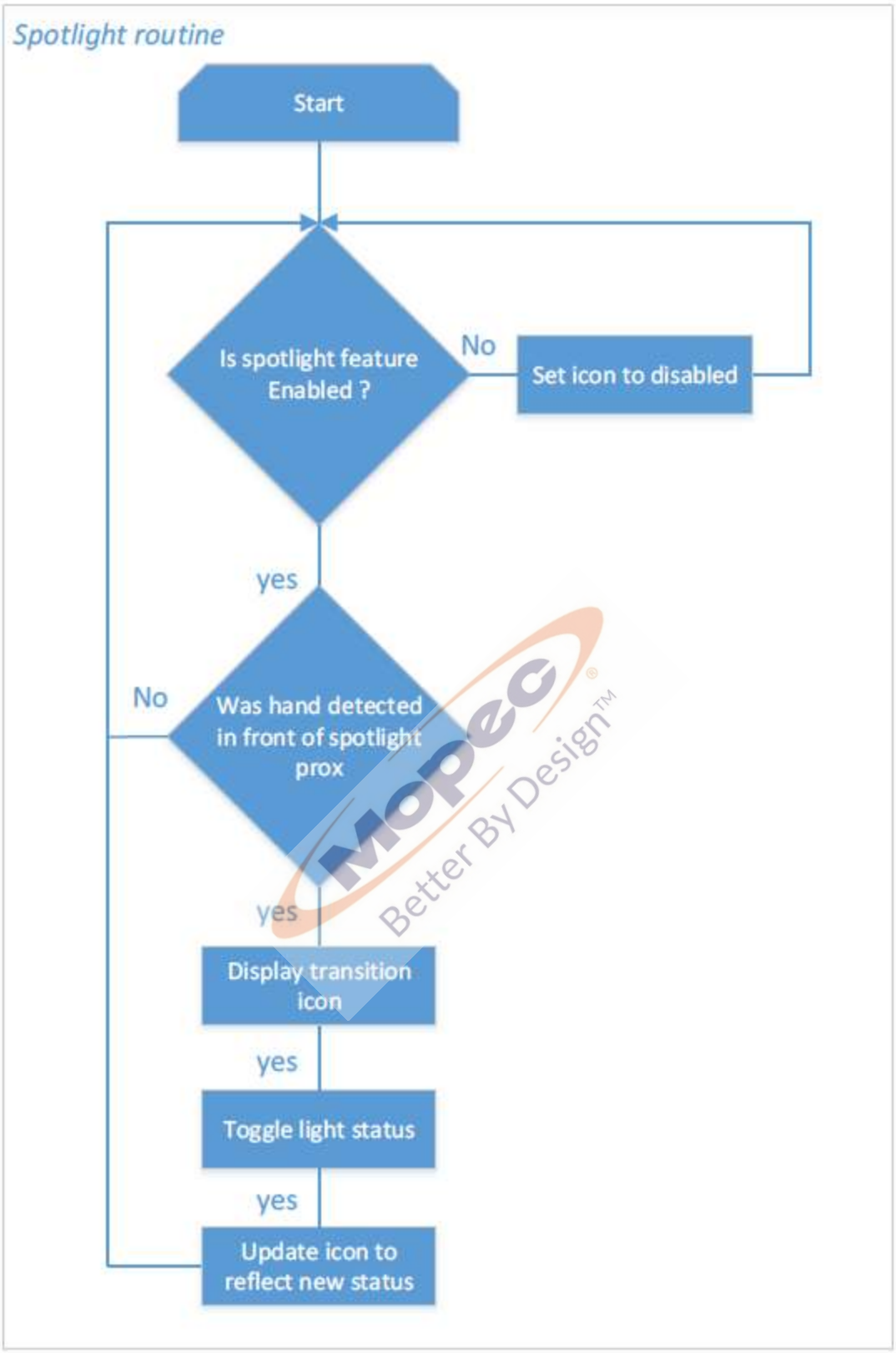


CFM meter routine



ECO mode routine





Preventative maintenance (PM)

The primary reason for a maintenance schedule is to monitor the system and take action if needed.

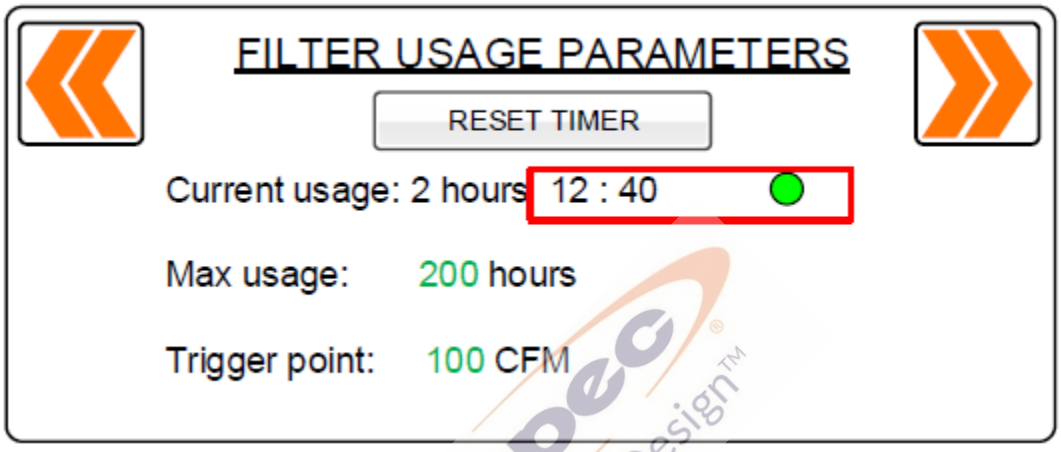
Filter hour meter check

The purpose of the filter hour meter check is to insure that the meter is operational. Incorrect parameter setting or a malfunction in the CFM meter could cause the meter to not function or not function correctly causing it not to alarm when the filter is due for replacement.

Maintenance Procedure

Turn the ventilation ON then scroll to the filter hour meter screen and observe the meter clock counting. This will be displayed in the area highlighted in red.

Turn the ventilation OFF and observe the meter clock stopping.



CFM meter check

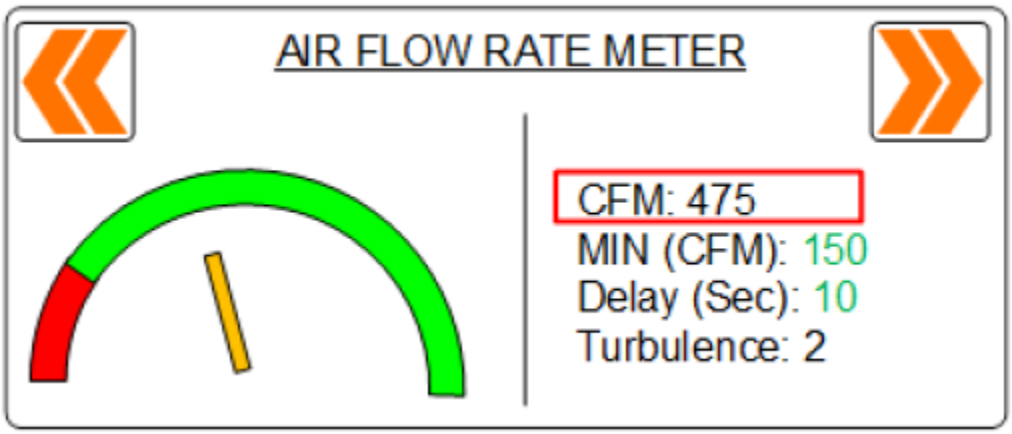
The purpose of the CFM meter check is to insure that the meter is operational. Incorrect parameter setting or a malfunction in the CFM meter could cause the meter to not function or not function correctly causing it not to alarm if the ventilation system is not adequate.

Maintenance Procedure

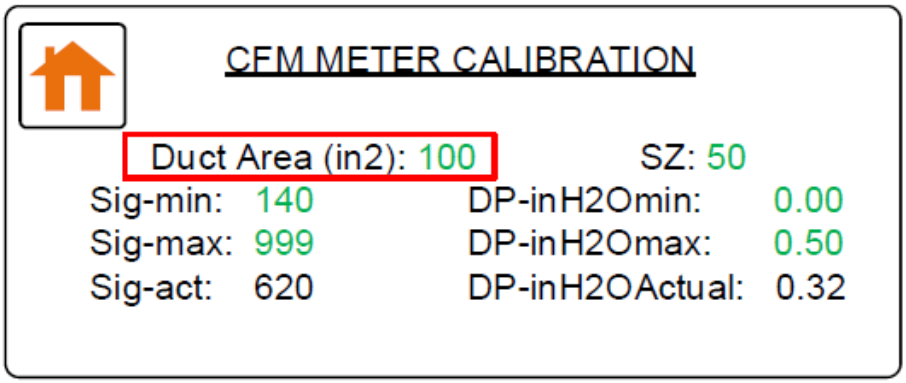
If the ventilation system is connected to the building ventilation and equipped with a damper, slowly close the damper while observing a decrease in CFM.

If the system is equipped with blower that is controlled at the station, reduce the blower speed while observing a decrease in CFM.

The CFM values can be observer in the CFM screen as shown below.



To check the meter for accuracy, insert a hot wire CFM probe into the auxiliary CFM check port. Turn the ventilation ON and wait for steady state (about 3 minutes) then compare the CFM meter reading to the GS1 CFM reading. If the different is larger than desired (20%), calibrate the GS1 system.
Note: when using a hot wire CFM meter, use the same surface area used in the CFM configuration screen.



Touch free system
Observe the change in icons when using touch free sensors. Insure proper functionality between 1” and 6” distance from the sensor. Insure that the system does not detect presence at a 10” distance.

Cleaning

Turn the GS1 system OFF before cleaning. Use a damp cloth to wipe the screen and sensors. Wait to dry then turn the system back ON.

Blower speed adjustment

If the system is equipped with variable speed ventilation blowers, scroll to the CFM meter and adjust the blower speed to be at least 30% higher than the minimum CFM target.

Warranty

Refer to the MOPEC system warranty for more information.

The following information covers general GS1 **“Do’s and Don’t”** to not void the warranty on the GS1 system.

Normal use

Never use sharp objects to operate the GS1 screen. If the system is not responding correctly, switch to manual mode or turn the system OFF then follow the steps in the troubleshooting section.

Autonomous maintenance

If cleaning is required, a water damp cloth may be used to wipe the screen while the system is OFF. Using harsh chemicals could result in damage to the GS1 screen or proximity sensors

Service and maintenance

The GS1 system uses both 110VAC and 24VDC. It is important to first take the proper precautions when working on this system. Servicing the GS1 shall be performed by trained electricians only. Incorrectly testing of the GS1 system could cause damage that will not be covered under the warranty. (e.g. connecting a 24VDC component to 110VAC will cause damage that will require the replacement of multiple components including the controller)

Transportation and installation

Excessive vibrations or incorrect handling of the system could cause damage that is not covered under the warranty. Incorrect installation will cause damage and/or unsafe conditions that are not covered by the warranty.

BL800: 1HP HEAVY DUTY DISPOSAL

Heavy Duty
Includes Solenoid to supply water directly into disposal

Vacuum Breaker to prevent back siphoning of water

On/Off switch

(Requires separate power circuit other than grossing station)

Operation of Option

The BL800 disposal is an option for disposing of tissue and bone pieces that are not needed. The disposal switch activates the disposal and allows water to enter the disposal from the electric solenoid. When the disposal is turned off, the water stops. The vacuum breaker prevents back siphoning of water through the disposal. The disposal option requires one 20 amp circuit dedicated to the disposal.

DO NOT USE BLEACH OR OTHER CAUSTIC CHEMICALES IN THE DISPOSAL, THIS CAN DAMAGE THE UNIT. ENSURE ALL DISENFECTANTS ARE RINSED THOUROUGHLY.

MB003 Formalin Dispensing System

2.5 Gallon capacity Nalgene poly dispensing container.

Dispensing valve provided for small controlled dispensing of customer supplied formalin.

MB004: Dictation Equipment Stand

Angled surface for easy viewing of most dictation systems.

Dictation stand is portable and can be placed anywhere.

Stainless steel construction.

Operation of Option

The dictation stand can be placed on the shelf or any other flat surface.

Dictation Equipment Stand Video Link

Operation of MB004

MB007: Foot Pedal

Dual foot pedal Hot/Cold water control valve with swing spout faucet

Wrist blade handle controls are available with this option.

Operation of Option

The foot pedal is operated by pressing down on the right pedal for cold and the left pedal for hot. Pressing both pedals will mix the hot and cold water. Water pressure adjustment is limited by the short stroke of the pedal, if your water pressure is high try adjusting the pressure by closing the shut off valve installed between the wall and the unit or adjustable water pressure regulators can be installed (not supplied with unit).

Foot Pedal Video Link

Foot pedal operation

MB009: Perimeter Rinse System

Full perimeter rinse on three (3) sides.

Control valve w/atmospheric vacuum breaker protection included for water flow adjustment

Operation of Option

The perimeter rinse water flow is controlled by the valve. The water must be connected to the grossing station. The perimeter rinse is placed on the work surface with the hose connected to the valve and the perimeter rinse bar.

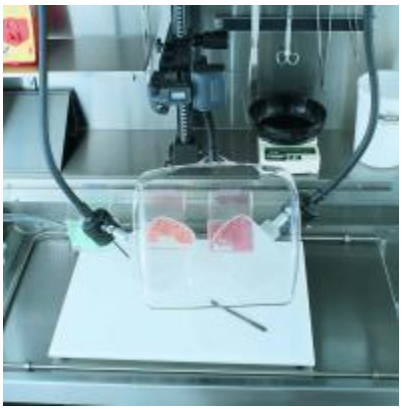
Perimeter Rinse System Video Link

Perimeter rinse operation

MB011: Safety Splash Shield

11" x 12" Lexan shield on flexible arm for easy positioning

Removable



Operation of Option

The Safety splash shield is on a flexible arm and can be moved up and out of the way as well as right and left. The shield can also be removed from it's mount. The splash shield may have some distortion due to the curve of the molded plastic shape. The splash shield should be cleaned with soap and water and a soft cloth. We recommend you do not use paper towels on the splash shield.

Safety Splash Shield Video Link

Splash shield operation

MB015: Video Camera Arm

Easy positioning of camera over full length of grossing station.

Overhead positioning with articulating arm to support most camera systems

Video camera not included.

Operation of Option

The video arm can be moved the length of the grossing station and be configured to overlook an operation at the table. To move the arm the top turn knob must be loosened and the arm will slide to the new position, and the knob tightened to hold the arm in place.

Video Camera Arm Video Link

Video Camera arm operation

MB029: Computer CPU Bracket

Adjustable width mounting bracket for CPU.
Two piece construction consisting of a mounted plate to the side panel of the Grossing Station and a sliding plate that adjusts to the width of the CPU. CPU holder comes with tightening knobs or nuts to secure permanently, rubber feet, spacer block and safety strap.

Computer not included.

Operation of Option

The CPU bracket is adjustable. The CPU is secured in the bracket by the rubber feet and the outside bracket sliding to hold the CPU the safety strap is to keep the CPU from accidently being knocked off the grossing station. The CPU should be centered in the bracket to support the unit properly.

MB043: Self Contained Exhaust

Two (2) dual blower fans w/filters for air filtration complete with lighted on/off switch and variable speed control

Three (3) potassium permanganate 13.75" W x 12.75" L x 1" H filters provided with unit **BF035**

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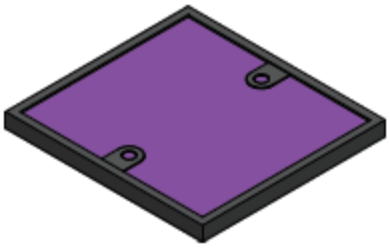


Operation of Option

The unit has two fans, both operate when the fan power switch is turned on. The variable speed is operated by the touch control pad for adjustment. The fans can be turned on or off with the rocker switch or the IR sensor.

The filter saturation rate depends on hours of operation and fumes to be filtered. Instructions on how to change and check the saturation of the filters are shown in the following links. The filters are unique and can be rotated 180 degrees. Only one half of the filter is used at a time.

Replacing Filters Video Link

Filter replacement

Filter Evaluation Video Link

Filter evaluation

Dispose of contaminated filters in accordance with your facility, state and federal procedures for hazardous materials disposal. See the SDS for the chemicals exposed to the filters for directions.

MB049: LCD Flat Screen Monitor & Keyboard Adj. Arm System

Allows positioning & of LCD display for greater visibility
Re-position your LCD with just a touch. Up, down, forward and back
Full range of motion for maximum comfort level
Keyboard Adjustable Arm
Provides vertical and side to side motion

Flat screen, monitor, keyboard and computer not included.

Operation of Option

The adjustable arms allow positioning & of LCD display for greater visibility and
re-position your LCD with just a touch. Full range of motion for maximum comfort level, up, down, forward and back

Keyboard Adjustable Arm provides vertical and side to side motion. Effortlessly position a keyboard in the most comfortable typing position, seated or standing use. Keyboard can be positioned for maximum comfort and productivity with a range of 25.6" (65cm) extend/retract motion 11-1/2" (29cm) Height adjustment
Tray tilts back at negative 5 Degree angle for ergonomic and healthy data entry
Mouse tray slides out to left or right, depending on user preference

MB051: Formalin Dispensing System (Cubetainer)

Includes pump and backsplash mounted valve

Quick Connect coupler to connect the formalin cube

Does not include the formalin collection system or formalin

Operation of Option

The Formalin dispensing option is operated by turning on the electrical switch to activate the pump. The pump is a self-priming pump. The amount of fluid is controlled by turning the needle valve to allow the liquid to flow. *Do not over tighten the dispensing valve when closing* this could cause damage to the plastic needle valve seat or the needle.

To connect the formalin cube to the dispensing system; Turn the pump off, set the cube under the grossing station, remove the cap, install the male connector to the formalin cube, push the female connector onto the male half until it clicks in place. Turn on pump. The pump may run for a few minutes to get to pressure. Open valve to dispense fluid.

Formalin Dispensing Video Link

Replacing the formalin cube

MB059: Formalin Collection System

Includes collection funnel piped to a 2-1/2 gallon collection carboy w/easy grip handles, located under the grossing station. Includes 2 Collection carboys PM0141. One with a plain cap, the other with the Sensor and fittings.
Quick disconnects included with safety caps provided for safe transport to disposal or recycling area

Formalin not included

Operation of Option

The formalin collection system is piped from the collection point at the sink to the storage bottle below the grossing station with vinyl tubing. The collection system has a stainless steel funnel to allow simple pouring of the formalin to be collected. The collection has a float sensor and indicator light to notify the operator the collection bottle is full. The Formalin collection bottle has quick disconnect caps for the hose and the bottle to allow for safe handling of the carboy container. Has a pull out containment tray to access the collection carboy

Formalin Collection Video Link

Formalin collection operation

Intergrated Camera Options

MB070

MACROPATH PRO-X DIGITAL CAMERA KIT COMPLETE

- State-of-the-art camera 16 megapixels' resolution, lens 10x
- Auto light adjusting, autofocus, auto white balance
- Built in LED illumination and USB extender
- Point-of-care terminal with 17 & rdquo; touch screen
- Waterproof IP68 keyboard
- Foot control module (zoom in/out-save-recording)
- Camera system provided by Milestone Medical Technologies
- Integrated into the MB800, sold separate for all other models

MB071

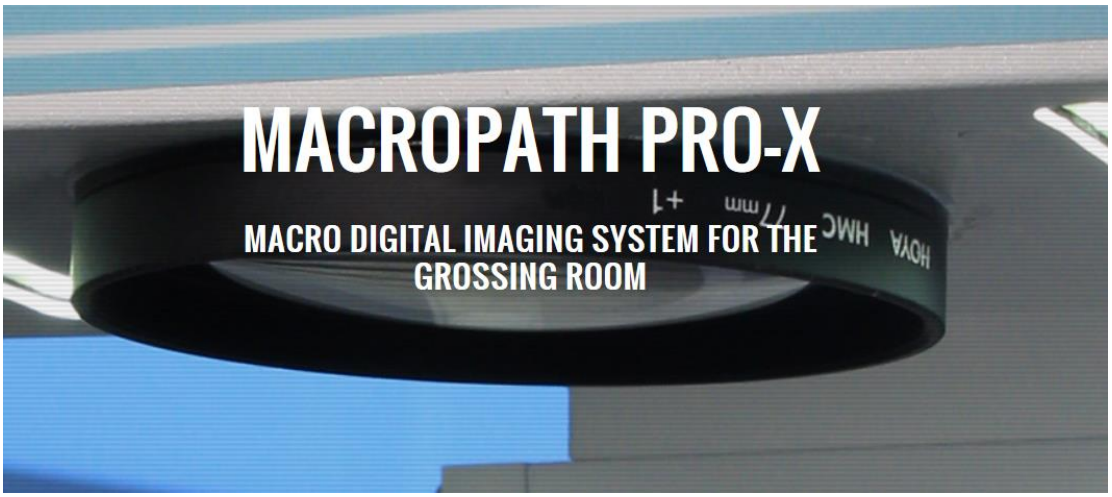
MACROPATH PRO-X DIGITAL CAMERA KIT WITHOUT CPU

- State-of-the-art camera 16 megapixels' resolution, lens 10x
- Auto light adjusting, autofocus, auto white balance
- Built in LED illumination and USB extender
- Point-of-care terminal with 17 & rdquo; touch screen
- Foot control module (zoom in/out-save-recording)
- Camera system provided by Milestone Medical Technologies
- Integrated into the MB800, sold separate for all other models

MB072

MACROPATH PRO-X DIGITAL CAMERA ONLY

- State of the art camera 16 megapixels' resolution, Lens 10x
- Auto-light adjusting, auto focus, auto WB
- Built-in LED illumination and USB extender
- Camera system provided by Milestone Medical Technologies
- Foot control module (zoom in/out-save-recording)
- The LCD, CPU and Keyboard with corresponding adjustable arms are not included



AIR HANDLING

MB800 Grossing Workstation Design Parameters:

The MB800 Grossing Workstation is designed with the basis of fulfilling one goal and that is to adequately ventilate the work surface. An adverse effect of ventilation is noise that has been considered but does not govern the ultimate design criteria. Our design criteria is the most stringent utilizing exerts as outlined from "Industrial Ventilation" by Committee on Industrial Ventilation and Escape Velocity Parameters. Design data is unfortunately based on the table as a completely flooded vat of formaldehyde. Ideal conditions in a grossing environment obviously do not warrant such a large amount of formaldehyde, yet concentration levels are on a higher extreme regarding design data parameters available. Therefore assumptions are made regarding grossing practices and ultimately formaldehyde concentrations. The MB800 Grossing workstation is provided with two (2) blowers. The target number for face velocity is 125 LFM (face velocity at the grill). The airflow is monitored on the touchscreen on the unit. With all the above considered, below is a chart of actual ventilation parameters for MB800 Grossing Workstations along with their respective definitions:

Identification	Description	Ventilation System	Volume Requirements
MB800	Grossing workstation elevating [a]	Re-circulating (Fan 1) (Both fans at RPM)	600 cfm [b]
MB800	Grossing workstation elevating	Facility Ventilation	600 cfm

[a] Re-circulating (Self-contained exhaust Systems): This system is simply a self-contained exhaust system provide with the MB800 Elevating Grossing Workstation. Air is ventilated through the exhaust grill and circulated through potassium permanganate filters and exhausted out the top of the Grossing Workstation. The exhaust fans are internal and are provided.

The grill for the MB800 is 8" high at an angle of 60 Degrees and 48" Long with (994) 3/16" x 5/8" holes. The vent grill is perforated with 3/16" x 5/8" slots on 13/16" x 3/8" staggered centers, yielding a 30% open area.

[b] Specifications for Fans are "Free Air" cfm. And at Max RPM

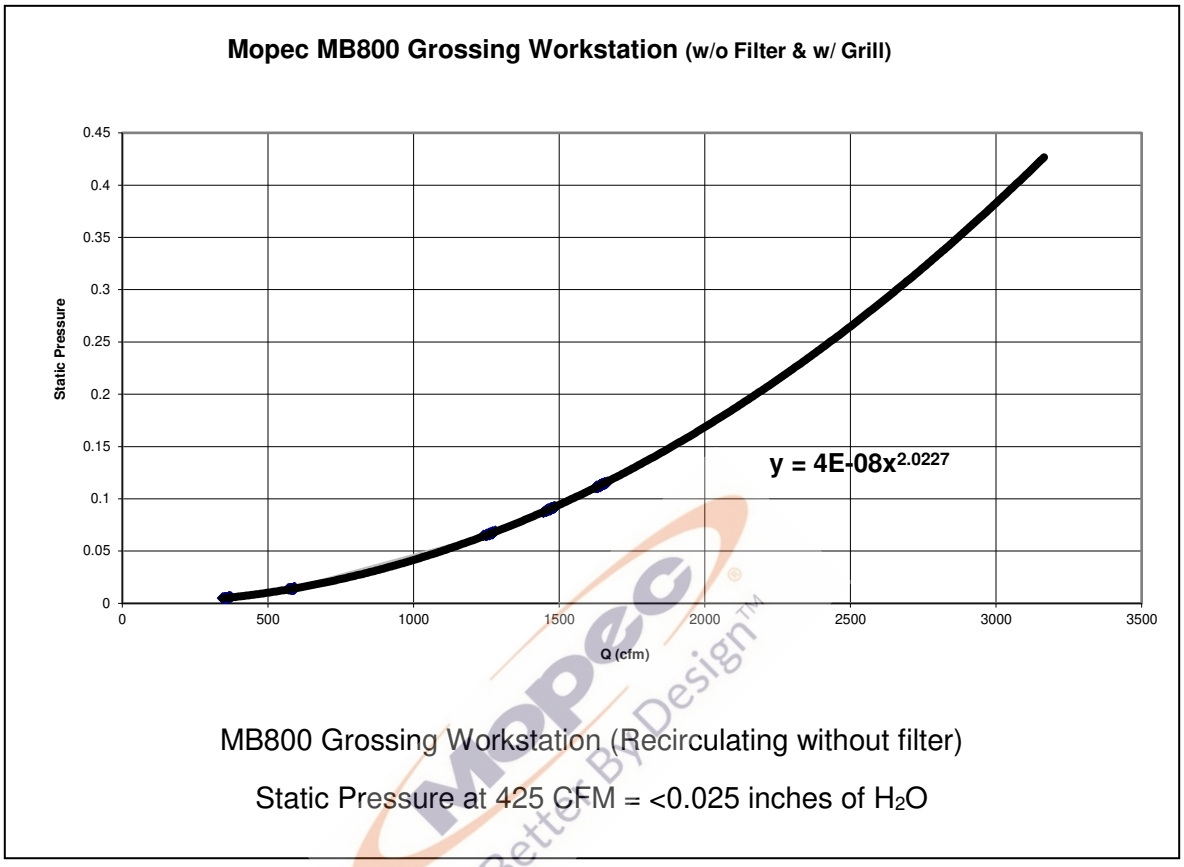
GOOD PRACTICE WILL OPTIMIZE OUR PROTECTION:

1. Never block the ventilation grill.
2. Placing open containers as close to the exhaust grill as possible, yet never blocking the ventilation grill.
3. Grossing should be accomplished as close to the exhaust grill as possible.
4. Strategically locate the Grossing Station away from room air currents.
5. Practice complete rinsing of residual formaldehyde with hand held spray.

Although the Mopec Grossing Workstation can be the answer to formaldehyde exposure, Mopec cannot assume responsibility of exposure since good laboratory practices and room conditions are beyond Mopec's control.

DESIGN PARAMETERS (Non-Recirculating)

The following chart is based on actual test data with the MB800 Externally Exhausted Workstation (Non-Recirculating). An optimum installation would provide 600 CFM of draft (In House Ventilation). The chart will demonstrate static pressure at various quantities of air flow.



MB800 Grossing Workstation (Recirculating without filter)

Static Pressure at 425 CFM = <0.025 inches of H_2O

DISINFECTING AND CLEANING STAINLESS STEEL SURFACES

All stainless steel surfaces can be cleaned with soap and water, which will remove debris.

The stainless steel surfaces can be disinfected with a non-caustic disinfectant. We suggest using BE045 Path Cloud or BE047 Bench Wipe for cleaning purposes. We recommend you **NOT USE** a bleach solution to clean your unit. Bleach will eventually erode stainless steel if not thoroughly rinsed. The use of chlorine bleach will **VOID THE STAINLESS STEEL WARRANTY**

To maintain your stainless steel product, follow these four steps:

1) **Never, ever use wire brushes, Brillo, steel wool or abrasive cleansers (like Ajax or Comet).** If something needs to be aggressively cleaned only use a Scotch-brite pad or similar product and only scour with the "grain" of the stainless. As an example, please reference the photo on page 2 of this document. It is clear that a very abrasive product was used in an area on the unit and that did not follow the grain of the stainless. The effects of this scratching may diminish over time with proper care but the effects of this scouring are obvious. (The use of the Scotch-brite Pad following the grain over time may help scratches such as this). Depending on the surface finish of your stainless steel, abrasive cleaners can cause scratching. Duller finishes probably won't show scratching as much as mirror or highly polished finishes. When in doubt, test in a hidden spot, and also work from the least risky type of cleaning, (i.e. water) to the heavy duty stuff. Do not use cleaners containing chlorine. While it may be second nature to bleach everything, stainless steel and chlorine do not mix well. Do not use bleach when cleaning stainless steel. Do not allow bleach or bleach water to sit for long periods. Bleach can eventually cause staining and pitting. Bleach stains are removed with stainless steel cleaning polish.

2) **Keep the surface clean of grime, tissue and particulates.** This can be accomplished by using the "Water Hand Spray Rinse" and use of cleaning products.

3) **Rinse the surface after using disinfectant.** In Pathology and other medical areas the act of disinfecting is desired. There are a number of ways to do this including using Mopec's Bench Spray & Wipe Disinfectant. Labs use any number of different products including 10% bleach or other disinfectant sprays and wipes. For the most part, each and every one of these has high salt contents and lower PH levels to aid with disinfection. Most disinfectants must be followed up with a water rinse to remove the salts that remain after these products dry. We advise to always follow up a disinfection cleaning with a thorough rinse of water. We advise not to use diluted bleach, if you must; we stress the importance of a thorough rinse of water after use. If not rinsed properly, these salts can become visible after the disinfectant dries. They can appear with a whitish characteristic or contain light lines of white with a grainy feel when you wipe your hand across the work surface. If these residues are not removed with a thorough water rinse and wipe down they will accumulate and eventually degrade the appearance and integrity of your stainless surface. Rust is a long term possibility if salts are allowed to remain on the work surfaces over time. Gritty, dirty water or residue from cleaning solutions left on a stainless steel surface can stain or damage the finish.

4) **All stainless steel products should be protected by a polish.** As a prime example before any product leaves Mopec it is coated with WD-40 as a protecting coating for the stainless. Mopec offers a Stainless Steel Cleaner and Polish in both wipe and spray. These Mopec products will not only deep clean your stainless but will also protect their finish from chemical, low PH and salt and keep the finish looking like new.

Decal

Mopec advises that if the technicians are not taking the proper precautions when using the Decal solution the possibility of two things will occur, a brown or rust ring where the Decal resides along with a milky white substance on the surface. (As an example, reference the below photos to see the rust rings.) Decal is very harsh, even the fumes can and will cause staining on stainless steel. One thing that you might want to consider doing is to place the Decal

container you currently use inside a plastic base that will help catch drips that might occur. Clean and rinse your station after every use of Decal solution.

Rust

Rust can and will occur on stainless if it is not maintained properly. The most common cause of rust is from using metal or stainless racks that are not made of 304 stainless. This is referred to as "transfer rust". Leaving of salts from cleaners or disinfectants can and will lead to possible rust areas in the long term. Always rinse all disinfectants before they dry. Decal solutions and even fumes are very aggressive and can cause rust if not cleaned up and used properly around stainless. Formalin use has not been shown to cause rust in any way.

Conclusions & Suggestions

We are confident and can assure you that if you institute the suggestions detailed above that your Mopec Grossing station will look as it did the day it arrived. **Do not assume it's the cleaner.** If you do have some spotting or staining, and you've followed all of the suggestions, it may not be the cleaner. Water, especially hard water, can leave spotting and staining on stainless steel surfaces. Hard water can leave mineral deposits, resulting in whitish-colored spots and streaks. Remove hard water stains with vinegar or with stainless steel cleaning polish. Prevent hard water stains by towel-drying after every wash.

Do not allow soaps and cleaners to dry on surfaces. The chemicals in many soaps and cleaners can cause staining. Never use corrosive cleaners such as mineral spirits. Use stainless steel cleaning polish and a non-abrasive scrub pad to remove dried cleaner stains. Baking soda mixed with liquid dish soap can make a good paste to gently rub on stains. Be sure to rinse the stainless steel surface thoroughly, and towel dry.

If stains remain Mopec recommends trying a stainless steel cleaner and polisher. Barkeeper's Friend is a good powder formula that can clean without scratching. Be sure to follow the directions, rinse thoroughly, and towel dry. These methods should help remove any discoloration.

Fingerprints and Stains – The most common surface contaminates that occur from normal use are fingerprints and mild stains. These usually affect only appearance so fortunately they do not have an effect on corrosion resistance. They can easily be removed by a variety of simple cleaning methods. The most troublesome marks to remove from the surface of smooth polished or bright finished stainless steel are fingerprints; fortunately they can be removed with a common glass cleaner or by gently rubbing with a paste of soda ash (sodium carbonate) and water which would be applied with a soft cloth. Again, it is best to follow with a warm water rinse.

Clean Water and Wipe – The method that will do an adequate job and is the simplest, safest and the least costly is the best method. There is no surface coating to wear off of stainless steels so the surface will thrive with frequent cleaning. The first choice to clean mild stains and loose dirt and soil should always be a soft cloth and clean, warm water. Rinsing with clean water and wiping the surface dry will finish the process and eliminate the possibility of water stains.

Solvent Cleaning – To remove oils, greases and fresh fingerprints that have not had time to oxidize or decompose, use a solvent that does not contain chlorine. There are many organic cleaners on the market today that optimize safety attributes and clean ability. Spray or vapor methods or by wiping with clothes containing solvents can also clean surfaces. The wiping technique will sometimes leave the surface streaked.

Scratch Repair

A surface scratch can be repaired using the following technique. Completely removing the scratch will depend on how severe it is.

Use 120 grit emery cloth or paper and firm pressure to sand the scratch. Sanding must always go in the direction of the grain. Sand in a perfectly straight line, avoiding the natural tendency to sand in an arc. Sand the surface until the scratch is gone.

Polish using a very fine grade of 3M scotch-brite pads. Use the same motions as with sanding. Polish the surface until the original finish is restored.

For stubborn spots, stains, light discoloration, water marking or light rust staining use a mild, non-scratching cream or polish. Apply with soft cloth or soft sponge and rinse off residues with clean water and dry. Avoid cleaning pastes with abrasive additions. Suitable cream cleansers are available with soft calcium carbonate additions, or with the addition of citric acid. Do not use chloride or acidic solutions

Nylon abrasive pads should be adequate for dealing with most deposits (DO NOT USE STEEL WOOL OR BRILLO PADS). If a more severe treatment is needed to mask coarse scratches or physical damage on a surface, use the finest abrasive medium consistent with covering the damage marks. With directional brushed and polished finishes, align and blend the new "scratch pattern" with the original finish, checking that the resulting finish is aesthetically acceptable. Silicon carbide media may be used, especially for the final stages of finishing. Avoid using hard objects such as knife blades and certain abrasive/souring agents as it is possible to introduce surface scuffs and scratches. Scratching is particularly noticeable on sink drainer areas. These are usually superficial and can be removed with proprietary stainless steel cleaners or, alternatively, with a car paint restorer, such as 'T-cut'.
Rust marks or staining on stainless steels is unlikely to be the result of corrosion to the stainless steel itself (similar marks may also be found on porcelain and plastic sinks). These marks are likely to result from small particles of carbon steel from wire wool.

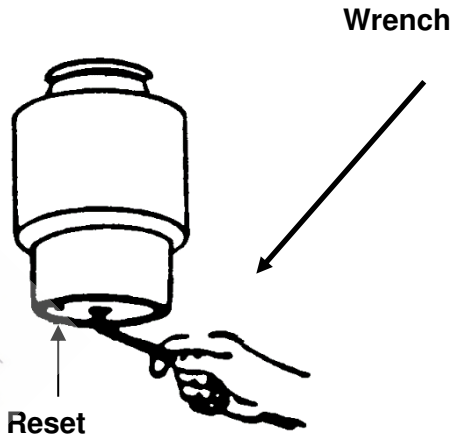
Lexan surfaces will scratch if cleaned with an unsuitable cleaner and improper cleaning. Many plastic cleaners are available and we suggest using one. Wipe dry with a clean, absorbent cloth or paper towel turning often.

CLEAR DISPOSAL JAMS

The accidental entry of foreign material will cause any Waste Disposal unit to jam. To free jammed material, follow these steps **to avoid personal injury**.

1. Turn off Waste Disposal and shut off cold water.
2. Insert one end of your Self Service Wrench, provided with your Waste Disposal, into the center hole of the bottom of the disposer as shown (fig. 1).
3. Work the wrench back and forth until it moves freely for at least one complete revolution. **Remove the wrench before restarting the Disposal.**
4. Wait 3 to 5 minutes to allow Waste Disposal motor to cool and then push the reset button (fig. 1). **Be sure the main Disposal control switch is in the OFF position before pressing the reset button.**

Fig. 1



CLEANING DISPOSER

Over time, particles may accumulate in the grind chamber and baffle. An odor from the disposer is usually a sign of buildup, caused by insufficient water flow during and after disposer use.

To clean disposer:

1. Turn off disposer
2. Place stopper in sink opening and fill sink halfway with warm water.
3. Mix 1/4 cup baking soda with water. Turn disposer on and remove stopper from sink at same time to wash away loose particles.
4. Remove Quiet Collar Sink Baffle and clean by hand or in dishwasher. Do not operate disposer without Quiet Collar Sink Baffle in place.

LIFT RESET PROCEDURE

The following instructions can be used to perform the reset procedure on motorized lift units. These instructions should be used if a new controller is introduced to the system, the limits have changed on the controller, or if the system is simply behaving unexpectedly. To reset the controller:

- Turn the main power switch Off (Approx. 45-60 seconds)
- Turn the main power switch On
- Press and hold the up and down button on the switch for 5 seconds. An intermittent signal confirms the action
- Press and hold the down button at this point, all legs should begin slowly creeping downward to the "zero" (fully retracted) position

Your lift system should be reset to its home position at this time. To verify, try operating the system by moving it upwards with the up button, and again downwards; ensure the system returns to the home position

If this should not correct the problem please contact Mopec at 800-362-8491

LIFT HEIGHT PROGRAMMING PROCEDURE

The MB800 can be set up with three preset heights or adjusted anywhere in-between. To program the three preset heights.

Move the unit to the height you want as a present with the up down button.

Press and hold the memory button top left corner of hand set.

Then press and hold the numbered button you want assigned to that elevation for 5 sec.

Your unit has now been programmed for your desired height settings

LIFT TROUBLESHOOTING AND FAULT ELIMINATION

Fault Cause	**Measure to be taken**
Actuator not functioning No supply voltage present	Check the supply voltage
Poor connector contact	Plug in the connecting plug correctly or check the terminal connections
	Plug in the control device plug correctly
Motor cable defective	Contact Mopec
Control device / control	Exchange the control element defective device/ control element
Internal fuse defective	Contact Mopec
Motor defective	Contact Mopec
Markedly reduced speed Motor, gears or nuts	Take the actuator out of defective service immediately and Contact Mopec
Very loud running noise Motor, gears or nuts	Take the actuator out of defective service immediately and contact Mopec
Play in the guidance gliding elements worn	Contact Mopec

EVALUATING FILTERS FOR REPLACEMENT

The BF035 filters in your MB800 unit contain alumina pellets impregnated with potassium permanganate, $KMnO_4$, which is a fast oxidizer. Formaldehyde passing through the filter is converted to carbon dioxide and water. **The filter's life depends entirely on the amount of formaldehyde fumes passing through the filter.**

The pellets are bright purple when new and become dark brown when spent. Once the inner part of the pellet is brown it is totally spent and must be replaced.

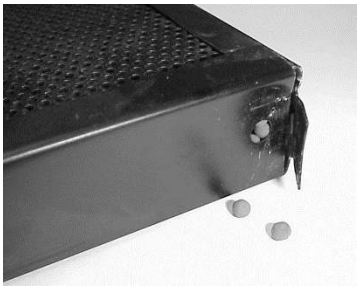
This chemistry is very effective and essentially removes all formaldehyde as long as there is active $KMnO_4$ available. The efficiency drops off as the filter media approaches its maximum capacity. The last 15-20% capacity will exhibit some pass through of formaldehyde.

Health Hazard Data - Alumina Permanganate Filter Media

Effects of Exposure – The filter media is non-toxic upon oral, skin, and inhalation exposure and is non-irritant of the skin. Breathing of dust may cause sneezing. Skin may feel dry after contact. The filter media is an eye irritant.

PROCEDURE - EVALUATING FILTERS FOR REPLACEMENT

One side of the filter will have a small tab which can be opened just enough to allow one or two pellets to be removed. (See photo)



To determine when the $KMnO_4$ has been exhausted, remove a pellet and slice it in half.

Eye protection is recommended based on the above "Health Hazard Data".

The usefulness of the filter is approximately 80% diminished when the purple color first disappears from the core.

Place the sliced pellet(s) on a paper towel and add a few drops of water. The water running off the pellet(s) should be initially purple and then turn a deep iodine color. If no purple coloration is present, the $KMnO_4$ (Potassium Permanganate) material is totally spent. Filter Evaluation Video Link

When the purple color first disappears from the core of the pellet as described above, the rate at which formaldehyde is removed from the air stream is slowed considerably.

SUMMARY OF EVALUATING FILTERS FOR REPLACEMENT

From a practical standpoint, it may be desirable to perform the tests above more frequently during initial usage of the filters to determine when the purple first begins to disappear from the core of the sliced pellet. Based on these early observations, the user can establish a Replacement Testing Cycle with occasional re-checks for verification.

Dispose of contaminated filters in accordance with your facility, state and federal procedures for hazardous materials disposal. See the SDS for the chemicals exposed to the filters for directions.

USER PARTS

Replacement parts are available from Mopec The can be ordered by contacting Mopec at 800-362-8491.

Due to the many configurations your unit may not have some of the parts listed below:

POTASSIUM PERMANGANATE FILTER	BF035 (REQUIRES 3)
LED TASK LIGHT REPLACEMENT HEAD	PE0332
RULER SELF ADHESIVE/CHEMICAL RESISTANT	PM0002
POLY DISSECTING BOARD 23X16X3/4" (WHITE)	BC001
SHELF 14" STANDARD – STAINLESS STEEL	
MAGNETIC TOOL BAR	
PAPER TOWEL/GLOVE BOX HOLDER	
REPLACEMENT FORMALIN COLLECTION CARBOY	PM0141

PREVENTITIVE MAINTENANCE CHECKS

Controller Preventive Maintenance

The primary reason for a maintenance schedule is to monitor the system and take action if needed.

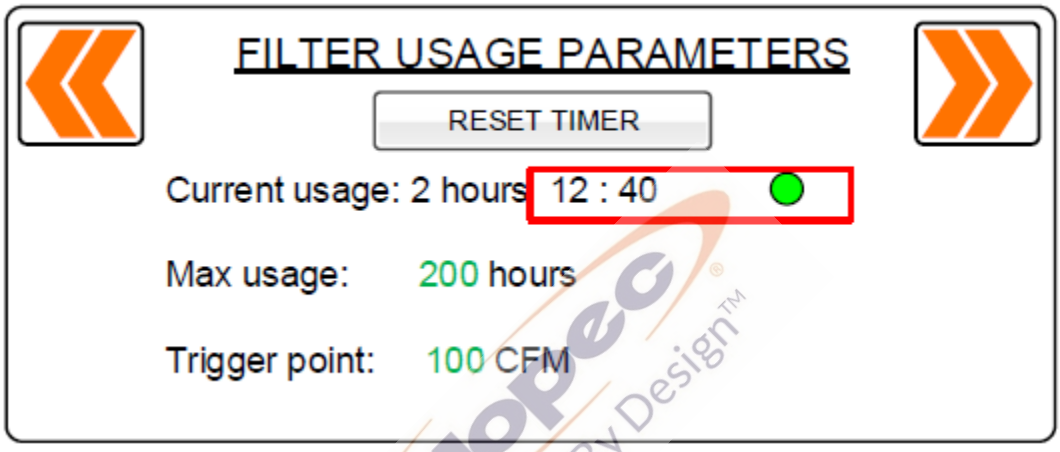
Filter hour meter check

The purpose of the filter hour meter check is to insure that the meter is operational. Incorrect parameter setting or a malfunction in the CFM meter could cause the meter to not function or not function correctly causing it not to alarm when the filter is due for replacement.

Maintenance Procedure

Turn the ventilation ON then scroll to the filter hour meter screen and observe the meter clock counting. This will be displayed in the area highlighted in red.

Turn the ventilation OFF and observe the meter clock stopping.



CFM meter check

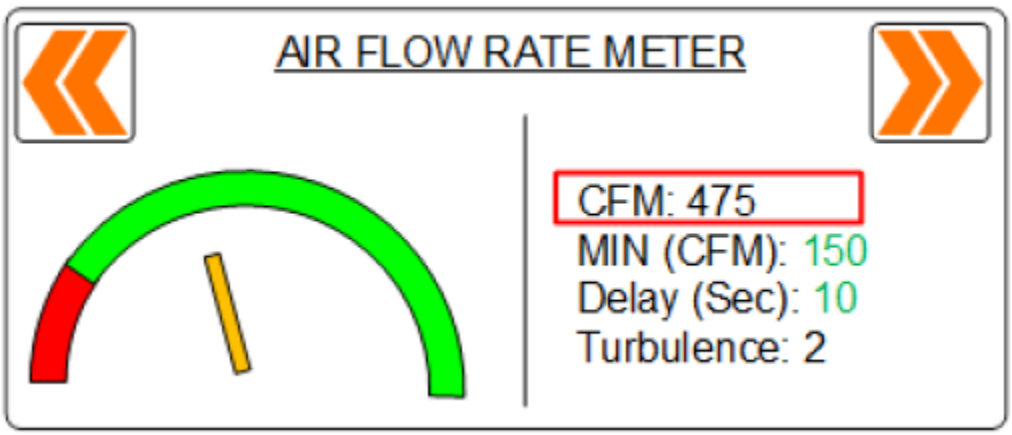
The purpose of the CFM meter check is to insure that the meter is operational. Incorrect parameter setting or a malfunction in the CFM meter could cause the meter to not function or not function correctly causing it not to alarm if the ventilation system is not adequate.

Maintenance Procedure

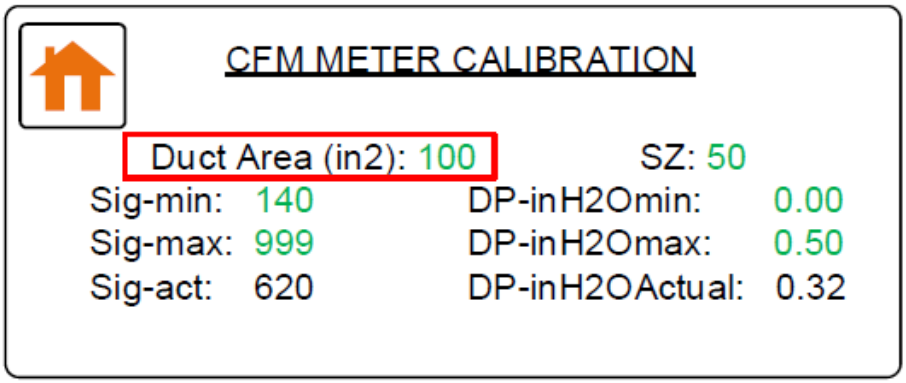
If the ventilation system is connected to the building ventilation and equipped with a damper, slowly close the damper while observing a decrease in CFM.

If the system is equipped with blower that is controlled at the station, reduce the blower speed while observing a decrease in CFM.

The CFM values can be observer in the CFM screen as shown below.



To check the meter for accuracy, insert a hot wire CFM probe into the auxiliary CFM check port. Turn the ventilation ON and wait for steady state (about 3 minutes) then compare the CFM meter reading to the GS1 CFM reading. If the different is larger than desired (20%), calibrate the GS1 system.
Note: when using a hot wire CFM meter, use the same surface area used in the CFM configuration screen.



Touch free system

Observe the change in icons when using touch free sensors. Insure proper functionality between 1" and 6" distance from the sensor. Insure that the system does not detect presence at a 10" distance.

Cleaning

Turn the GS1 system OFF before cleaning. Use a damp cloth to wipe the screen and sensors. Wait to dry then turn the system back ON.

Blower speed adjustment

If the system is equipped with variable speed ventilation blowers, scroll to the CFM meter and adjust the blower speed to be at least 30% higher than the minimum CFM target.

Warranty

Refer to the MOPEC system warranty for more information.

The following information covers general GS1 **"Do's and Don't"** to not void the warranty on the GS1 system.

Normal use

Never use sharp objects to operate the GS1 screen. If the system is not responding correctly, switch to manual mode or turn the system OFF then follow the steps in the troubleshooting section.

Autonomous maintenance

If cleaning is required, a water damp cloth may be used to wipe the screen while the system is OFF. Using harsh chemicals could result in damage to the GS1 screen or proximity sensors

Service and maintenance

The GS1 system uses both 110VAC and 24VDC. It is important to first take the proper precautions when working on this system. Servicing the GS1 shall be performed by trained electricians only. Incorrectly testing of the GS1 system could cause damage that will not be covered under the warranty. (e.g. connecting a 24VDC component to 110VAC will cause damage that will require the replacement of multiple components including the controller)

Transportation and installation

Excessive vibrations or incorrect handling of the system could cause damage that is not covered under the warranty. Incorrect installation will cause damage and/or unsafe conditions that are not covered by the warranty.

Hardware Preventive Maintenance

Visually check the exterior of equipment for any signs of damage.

Visually check the condition of the power cord and plug(s) for cracks, cuts, bare or broken wires and signs of excessive heat (discoloration).

Visually inspect electronics for signs of damage and/or overheating.

Ensure all the receptacles and covers are operating properly (testing GFCI).

Verify correct operation of unit including all controls, buttons, displays and indicators when applicable.

Access the main pedestal to ensure no leaks, dry rotted hoses, or electrical issues under the table.

Check all water fixtures.

Operate Lifting Mechanism up and down several times.

Verify correct operation of all lift movements.

Sync the unit per instructions in the manual.

Verify correct lubrication of all applicable parts.

Clean exterior of unit.

Return the unit to service.

Calibration log

Clibration schedule: ______________________ Calibration service contact: ______________________

Date	Time	Inspector		New parameters					
dd/mm/yy	HH:MM am/pm	Name	ID	Sig-min	Sig-max	DP-inH2O min	DP-inH2Omax	Duct Area (in2)	SZ

NOTE: A parameter drift of more than 15% should be investigated

Filter change log

Filter maintenance log: ____________________ service contact: ____________________

Date	Time	Inspector		Filters swapped / replaced			
dd/mm/yy	HH:MM am/pm	Name	ID	Filter 1	Filter 2	Filter 3	Filter 4
example 01/01/2015	*4:00 PM*	*John S.*	*N/A*	*replaced*	*replaced*	*flipped*	*N/A*

Events and maintenance log

Date/ Name / problem description / corrective action / notes

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LIMITED WARRANTY

Products manufactured by Mopec will be free from defects in material and workmanship and conform to Mopec's description or specifications. If a warranty claim is made within one (1) year from the earlier if the date of acceptance/first beneficial use, the defective or nonconforming Product or Part thereof will be repaired or (at Mopec's option) replaced free of charge, FCA Mopec's dock. All warranty claims must be in writing and received by Mopec within the warranty period. The warranty is not transferable (other than to customers of Mopec's authorized Distributors), and will not apply unless the Equipment has been properly installed, maintained and operated in accordance with all instructions; and does not apply to defects, nonconformities or other failure due to Equipment misuse, abuse, modifications, or other causes outside Mopec's control. If a warranty claim is made in writing within the warranty period, the defective or nonconforming Equipment (or Part thereof) will be repaired or (at Mopec's option) replaced free of charge, FCA Mopec's dock.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. THE WARRANTY AS SET FORTH HEREIN IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

To the extent that Mopec is acting as a supplier of Products manufactured by a third party, the Products will be warranted only to the extent that they are warranted by their manufacturers and Buyer (or its customer) agrees to look solely to the Product manufacturer for all warranty claims.

MOPEC, 21750 COOLIDGE HIGHWAY, OAK PARK, MI 48237

BEFORE SERVICING THE UNIT LOOK FOR AND HEED THE FOLLOWING LABELS

Symbols that may be found on the Equipment

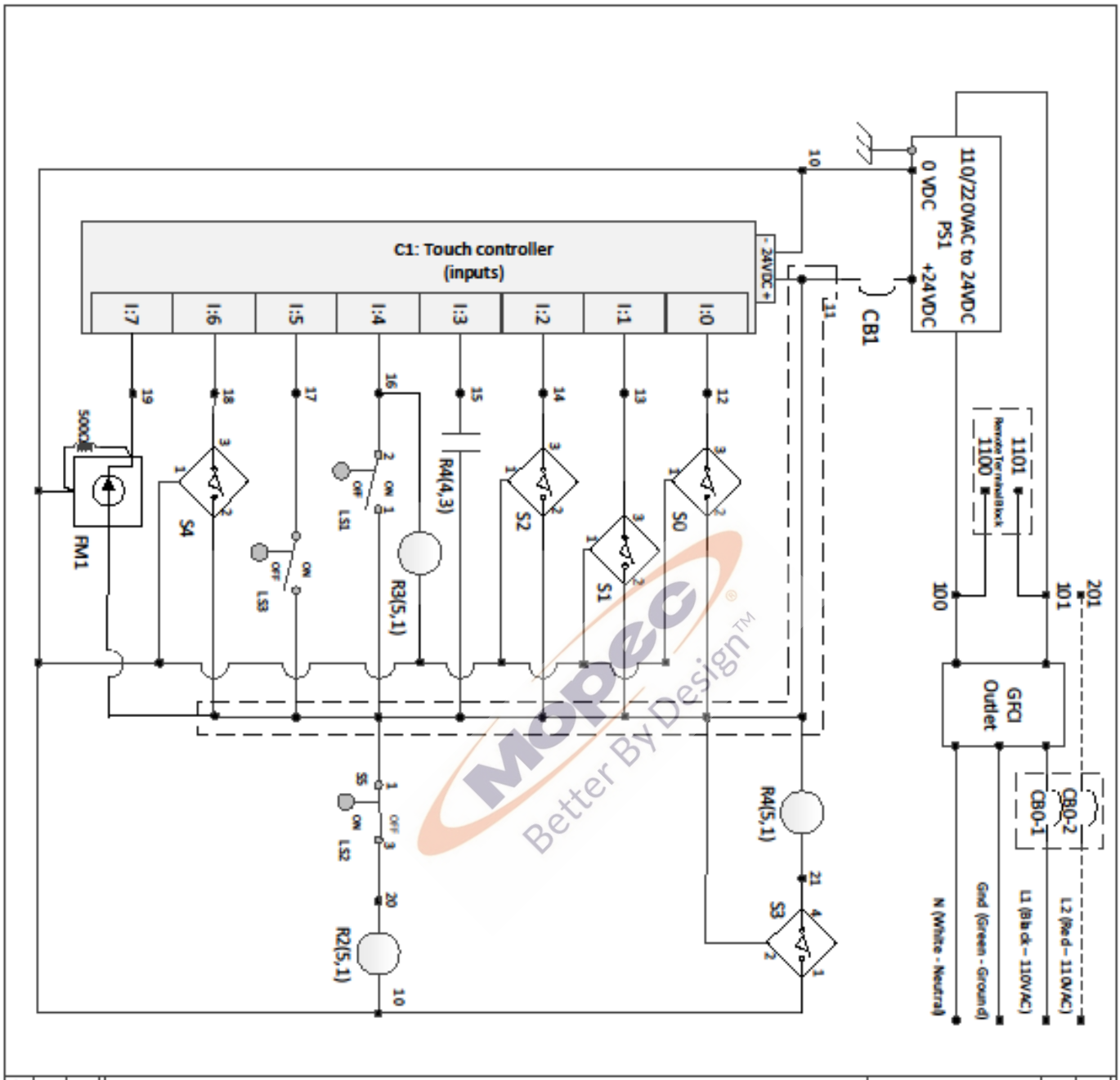
TROUBLE SHOOTING

Problem	**Possible Solution**
My Unit does not turn on	Assure your facility circuit breaker has not been tripped.
	Assure the G.F.C.I. has not been tripped (off) – Reset to on.
My unit does not elevate	Assure your facility circuit breaker has not been tripped.
	Assure the G.F.C.I. has not been tripped (off) – Reset to on.
	MB600/MB670 units ensure the doors are closed.
My unit's faucets do not work	Assure the water valve from your facility is on.
My hand spray does not work	Assure the water valve from your facility is on.
	Assure the concealed shut off valves to the hand spray are on.
	Assure hose is not kinked.
My disposal is not working	Assure your facility circuit breaker has not been tripped.
	Assure the G.F.C.I. has not been tripped (off) – Reset to on.
	Reset circuit breaker on the bottom of disposal or switch box for the disposal.

LIFT FAULT ELIMINATION

Fault Cause	**Measure to be taken**
Actuator not functioning No supply voltage present	Check the supply voltage
Poor connector contact	Plug in the connecting plug correctly or check the terminal connections
	Plug in the control device plug correctly
Motor cable defective	Contact Mopec
Control device / control	Exchange the control element defective device/ control element
Internal fuse defective	Contact Mopec
Motor defective	Contact Mopec
Markedly reduced speed Motor, gears or nuts	Take the actuator out of defective service immediately and Contact Mopec
Very loud running noise Motor, gears or nuts	Take the actuator out of defective service immediately and contact Mopec
Play in the guidance gliding elements worn	Contact Mopec

ELECTRICAL DIAGRAM



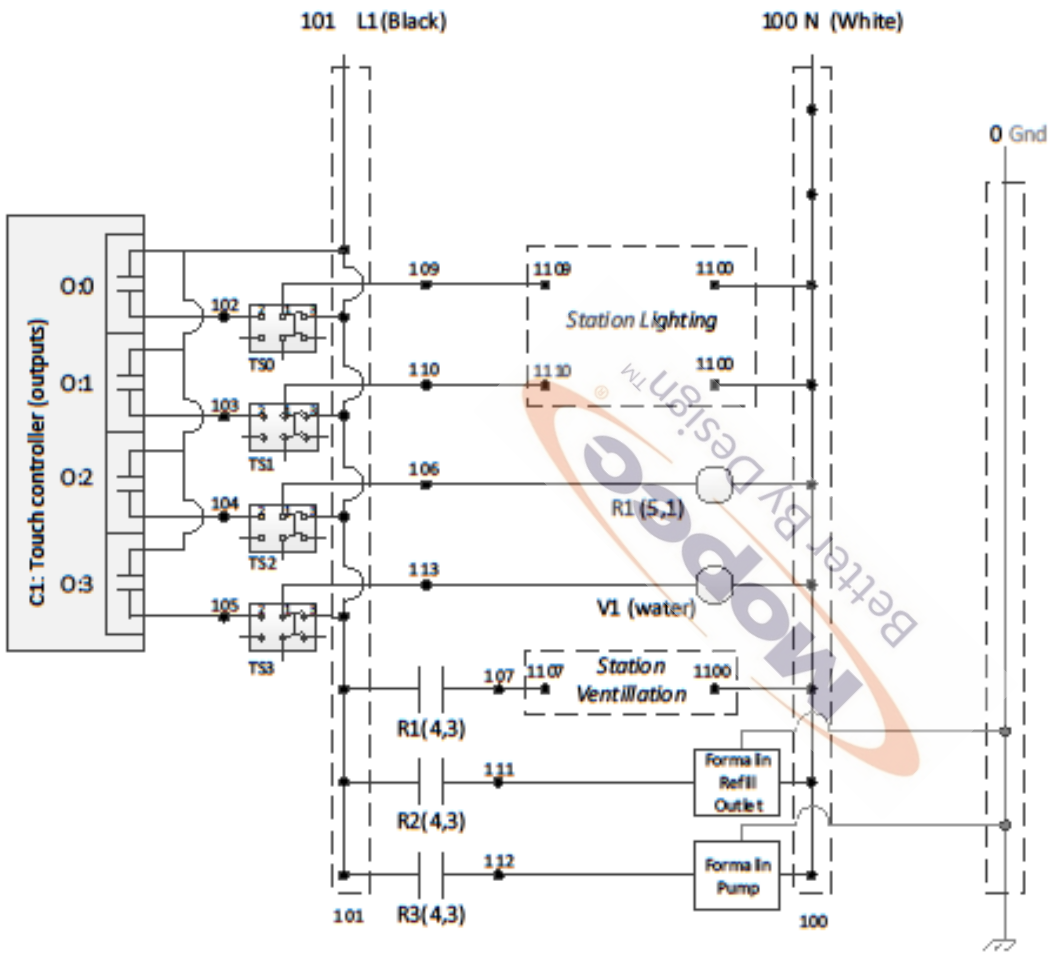
REV.	DESCRIPTION	DATE	BY
2	Minor changes	02/08/16	SM M

Component description:

PS1 - Power supply (110\220VAC to 24VDC)
CB0: 220VAC dual circuit breaker (15A)
CB1: 24VDC Circuit breaker (3A)
S0: Downlight hand motion sensor
S1: Spotlight hand motion sensor
S2: Blower hand motion sensor
S3: Presence sensor
S4: Water hand motion sensor
LS1: Formalin empty switch
LS2: Formalin full switch
LS3: Waste full
TS0: Downlight toggle switch
TS1: Spotlight toggle switch
TS2: Blower Toggle switch
R1: Blower motor relay
R2: Forma lin refill pump outlet relay
R3: Forma lin pump relay
R4: Motion sensor relay
DL0 : Downlight 1
DL1 : Downlight 2
DL3 : Downlight 3
DR1: Downlight driver 1
DR2: Downlight driver 2
DR3: Downlight driver 3
SL1: Spotlight
SR1: Spot light driver 1
M1: Blower 1
M2: Blower 2
V1: Water valve (solenoid)
ACC1: Disposal unit
ACC2: Work height adjustment system
ACC3: Camera system
ACC4: USA hub and charging ports and outlet
SW1: ACC1 ON/OFF switch
SW2: ACC2 ON/OFF switch
SW3: ACC3 ON/OFF switch
FM1: air flow monitor transmitter

GROSSING STATION

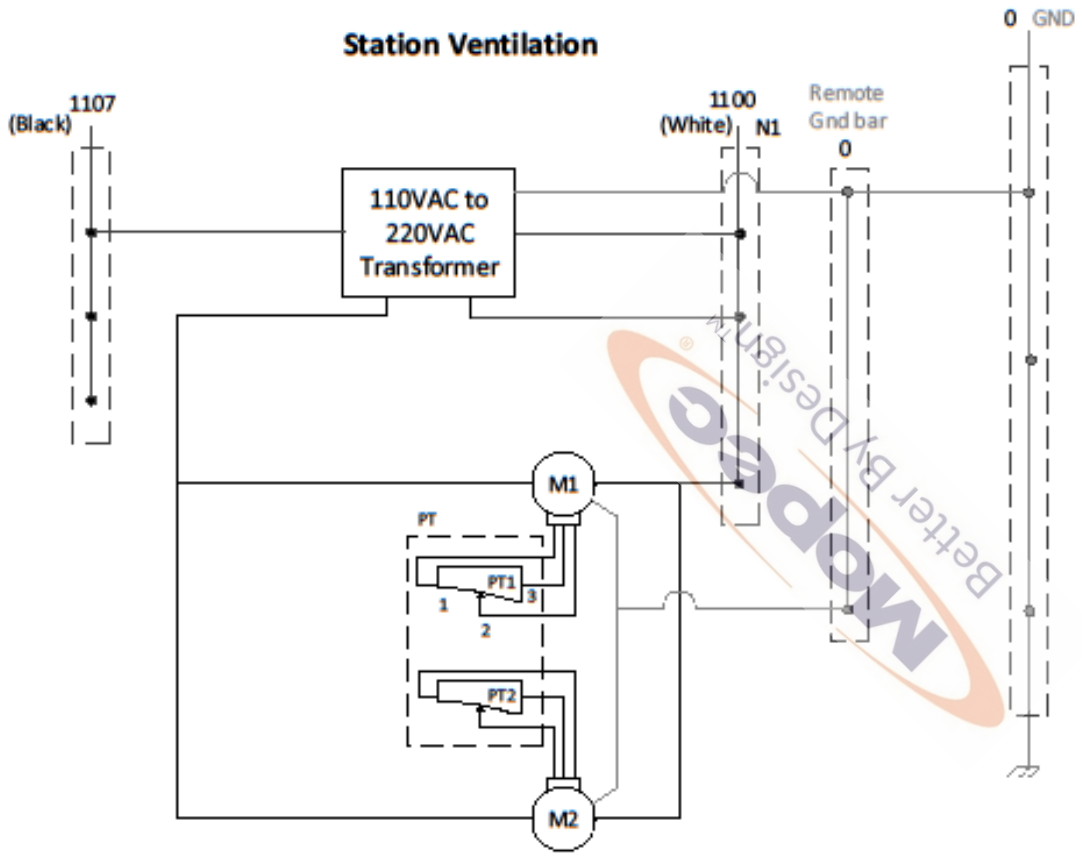
Company name here	Title: Inputs	Part #: M8000	
Drawn by: 08/12/2015	Engineer: S.M.M	Mfg #: GS1-1001	



REV.	DESCRIPTION	DATE	BY
1	Initial release	07/29/15	SMM

GROSSING STATION

	Title: Outputs	Part #: M8800
	Publication date: 08/12/2015	Engineer: S.M.M
		Sheet: GS1-1002



REV.	DESCRIPTION	DATE	BY
1	Initial release	07/29/15	SMM

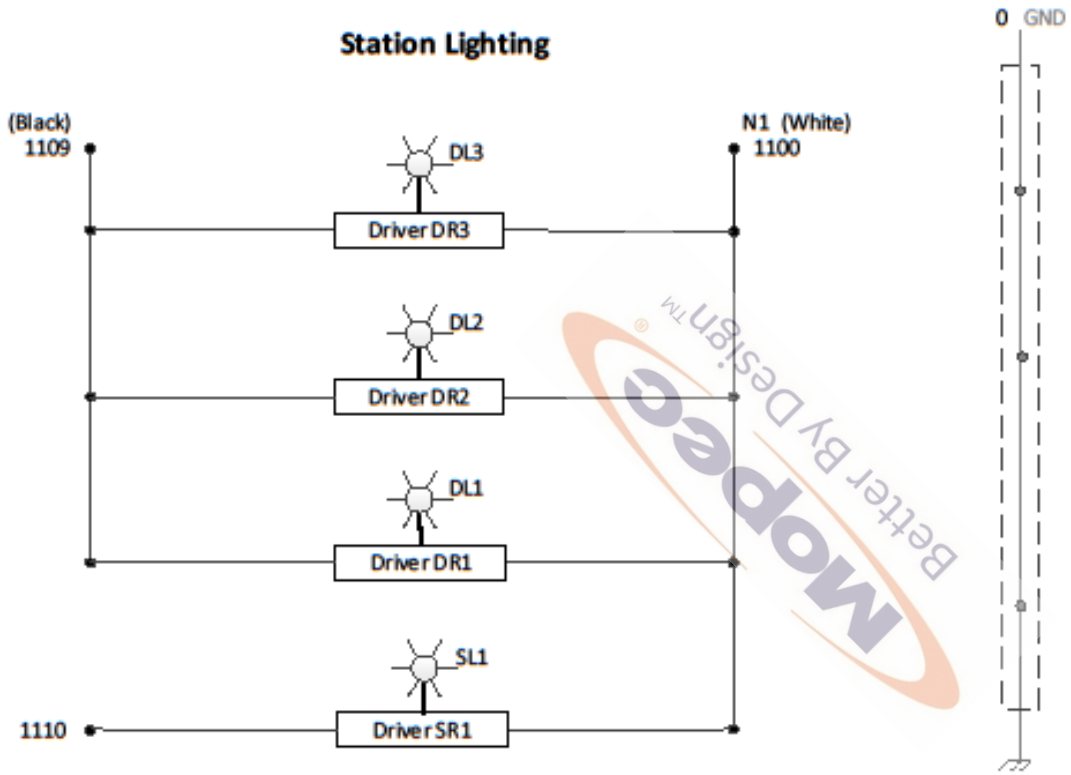
Component description:

TS1: 110VAC to 220VAC (for 110VAC installation only)
M1: Blower motor 1
M2: Blower motor 2
PT: Dual rheostat motor speed adjuster

GROSSING STATION

	Title: Ventillation	M8800
	08/12/2015	S.M.M GS1-1004

REV.	DESCRIPTION	DATE	BY
1	Initial release	07/29/15	SMM



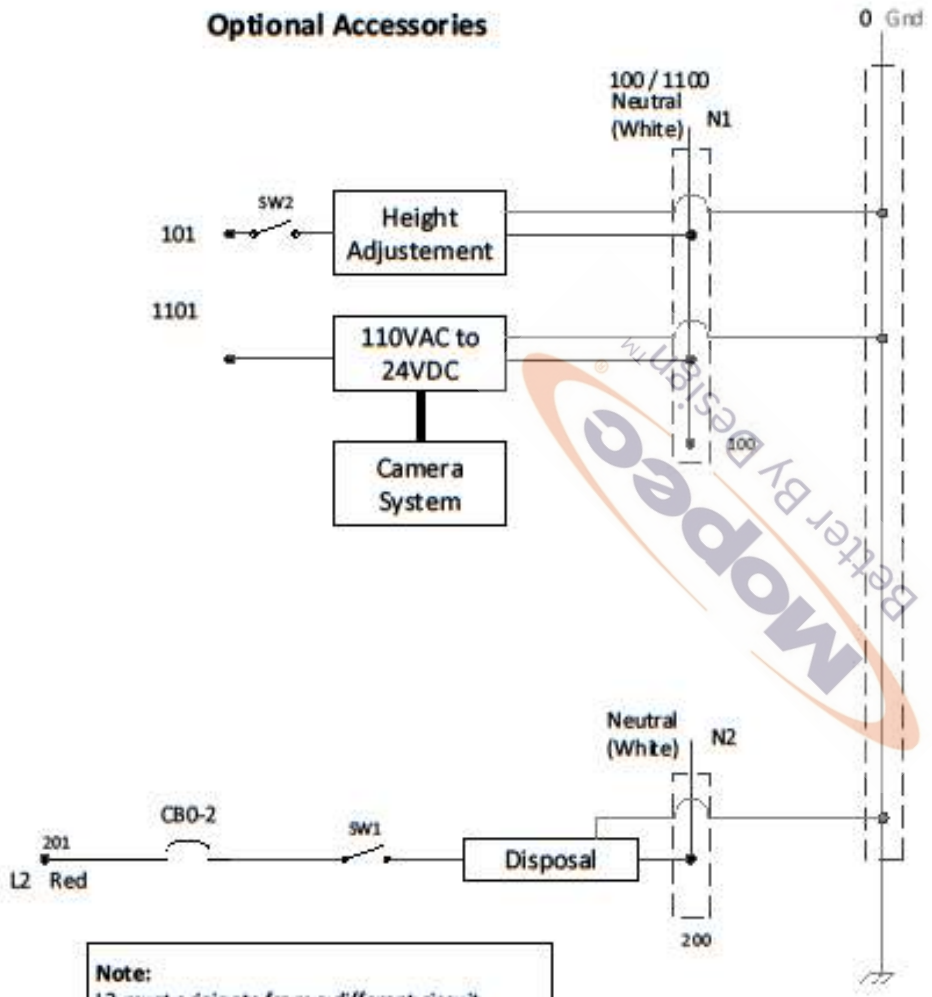
Component description:

GROSSING STATION

	Title: Blowers		Part #: MB800
	Publish date: 08/12/2015	Engineer: S.M.M	Ref #: GS1-1004

REV.	DESCRIPTION	DATE	BY
1	Initial release	07/29/15	SMM

Optional Accessories



Note:
L2 must originate from a different circuit breaker in the main panel
N2 must originate from the main panel with L2

Component description:
UBH: USB hub not shown
SW1: ACC1 ON/OFF switch
SW2: ACC3 ON/OFF switch

GROSSING STATION

	Title: Accessories		Part #: MB800
	Release date: 08/12/2015	Engineer: S.M.M	Size: GS1-1003

CERTIFICATE OF REGISTRATION

This is to certify that

MP Acquisition, LLC DBA Mopec

21750 Coolidge Highway, Oak Park, Michigan 48237 USA

operates a

Quality Management System

which complies with the requirements of

ISO 9001:2008

for the following scope of registration

The registration covers the quality management system for the design, engineering, manufacturing and installation of equipment and distribution of supplies for morgue, pathology, histology and necropsy applications.

Certificate No.:	CERT-0078089	Original Certification Date:	April 9, 2008
File No.:	1068177	Current Certification Date:	April 7, 2014
Issue Date:	March 11, 2014	Certificate Expiry Date:	April 6, 2017

Chris Jouppi
President,
QMI-SAI Canada Limited

Samer Chaouk
Head of Policy, Risk and Certification

ISO 9001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