



ROOM DECONTAMINATION SYSTEM OPERATOR MANUAL

Model(s): RDS 3110 & RDS 3110T



This document contains information which is proprietary to AeroClave, LLC. Accordingly, the information in this document shall not be disclosed outside the customer's organization and shall not be duplicated, used or disclosed – in whole or in part – for any purpose other than to evaluate this information. This restriction does not limit the customer's right to use information contained in this document if it is obtained from another source without restriction. The data subject to this restriction are contained in all sheets of this document.

This technical data is controlled under the Export Administration Regulations, and may not be exported to a Foreign Person, either in the U.S. or abroad, without the proper authorization of the U.S. Department of Commerce.



TABLE OF CONTENTS

1.0 INTRODUCTION 3
 1.1 Purpose3
 1.2 Terms/Definitions3
 1.3 Equipment and Media3

2.0 SAFETY GUIDELINES 4
 2.1 Operational Safety Guidelines4
 2.2 Operator Qualification5

3.0 PRODUCT DESCRIPTION 6
 3.1 Technical Specifications6

4.0 SET-UP/OPERATION..... 6
 4.1 Decontamination Set-up.....6
 4.2 Computer Controller Settings Logic7
 4.3 Ambulance Mode Operation (with ADP-PT or ADP-EX)12
 4.4 APA Mode Operation.....15
 4.5 Fixed Head Mode Operation.....16
 4.6 Remote Head Only Mode Operation (Tripod-Mounted APA).....20
 4.7 Fixed & Remote Head Mode Operation.....22

5.0 PREVENTATIVE MAINTENANCE.....25
 5.1 General Guidelines.....25
 5.2 Maintenance Steps.....25

6.0 APPENDICES.....26
 6.1 Appendix A—Vital-Oxide MSDS.....26
 6.2 Appendix B—Data Logging Retrieval29



1.0 INTRODUCTION

1.1 Purpose

The purpose of this manual, primarily, is to establish guidelines for the safe operation of the RDS 3110 system. Secondly, it establishes a method for proper hand-application using the optional APA.

1.2 Terms/Definitions

APA:	AeroClave Portable Applicator
ADP-PT:	AeroClave Distribution Port for Type I and Type III ambulances
ADP-EX:	AeroClave Distribution Port for Type II ambulance
ADP-AS:	Two-way connection hose for use with ADP-EX
Injection Phase:	In this phase, the solution is aerosolized and applied evenly to the treatment area. A typical injection phase can last anywhere from 5-30 minutes, depending on the size of the treatment area.
Dwell Phase:	Once an injection phase has completed, the treatment area is allowed to sit for a minimum of 10 minutes in a dwell period. The dwell period gives the aerosolized solution an opportunity to evenly distribute throughout the treatment area, ensuring complete coverage on all surfaces.
Aeration Phase:	The aeration phase is when the final stage when the treatment area is returned to its normal habitable state. Do not re-enter the area until the air is clear (minimum 20 minutes).

1.3 Equipment and Media

- RDS 3110 Unit
- 4-Liter AeroClave Solution Tank
- 4-Liter Distilled Water Maintenance Tank
- AeroClave Approved Disinfectant Solution
- Remote Control
- APA (optional)
- ADP-PT or ADP-EX (optional)
- ADP-AS (optional)



2.0 SAFETY GUIDELINES

READ AND UNDERSTAND THIS OPERATORS MANUAL PRIOR TO USE OF THE SYSTEM. STRICTLY FOLLOW ALL SAFETY INSTRUCTIONS IN THIS OPERATORS MANUAL PRIOR TO, DURING, AND AFTER USE OF THE SYSTEM. SYSTEM OPERATORS MUST COMPLY WITH ALL SAFETY PRECAUTIONS MENTIONED IN THIS SECTION.

Use only AeroClave-approved solutions when operating this equipment. Failure to do so, will result in voiding of warranty and may result in INJURY or DEATH. Follow all label instructions on approved solutions.

2.1 Operational Safety Guidelines

- 2.1.1 Only trained and qualified personnel should operate the RDS 3110 unit.
- 2.1.2 Levels of training:
 - a) Demonstration Training: individuals who will be operating the RDS 3110 unit for demonstration purposes only, using only de-ionized or distilled water as a surrogate solution, must read and understand this document.
 - b) RDS 3110 Operator Training: individuals who will be operating the RDS 3110 unit for facility or asset decontamination using AeroClave solution must be trained and qualified. See the requirements in Section 2.2 Operator Qualifications.
- 2.1.3 Only a authorized AeroClave service technician may repair or maintain this equipment.
- 2.1.4 The RDS 3110 unit is designed to operate on a standard 120V, 15-amp grounded power receptacle. To avoid electrical hazards or damage to the machine, this minimum power requirement must be met.
- 2.1.5 The fine aerosol generated by the RDS 3110 unit may activate smoke detectors. Optical based smoke sensor systems are typically the most susceptible to false alarms. The facility or asset being treated must be evaluated on a case-by-case basis for this. Appropriate measures must be taken prior to treatment.
- 2.1.6 Review and follow all labels and warnings marked on AeroClave products.
- 2.1.7 **Before plugging in power cord**, make sure the trigger on the APA, if the APA is connected, is not pressed down.
- 2.1.8 It is recommended, for comfort, that operator don a minimum level of PPE consisting of, at least, an N95 mask prior to APA operation.



- 2.1.9 **Do not** modify the power cord provided. This machine must be properly grounded to ensure safety of end users. Improper connection of the equipment can result in mechanical failure or electrical shock.
- 2.1.10 **Do not** put fingers, tools, or other foreign objects into spray area. Improper use may result in severe pain, injury or death.
- 2.1.11 Risk of injury including shock, death, or burn may occur if improperly handled.
- 2.1.12 Only use AeroClave-approved solutions for decontamination. Use of other solutions poses risk of injury, machine failure, and/or unintended results, and is prohibited.
- 2.1.13 Use only de-ionized or distilled water to flush, demonstrate, or practice with the system.
- 2.1.14 Prior to transport or storage of the machine, remove solution tank and transport or store separate from machine.
- 2.1.15 Read and understand the AeroClave disinfectant solution MSDS and retain the document in an employee accessible location.

2.2 Operator Qualification

- 2.2.1 The operator must be trained and qualified to this manual or equivalent preceding manual. Hands on training in the operation of the RDS 3110 unit is recommended.
- 2.2.2 The operator must review and understand the AeroClave product manual and complete the necessary training given by qualified AeroClave personnel.



3.0 PRODUCT DESCRIPTION

3.1 Technical Specifications

Table 3: Technical Specifications for RDS 3110

Model: RDS 3110	SPECIFICATIONS
Voltage	110VAC
Dimensions	19.7” L x 12” W x 18” D
Total Weight	48 lbs.
# of Static Heads	2
# of SmartPorts	1
Bottle/Reservoir	1.2 Gal, 4 Liter

4.0 SET-UP/OPERATION

4.1 Decontamination Set-up

4.1.1 Survey the area being decontaminated. Be sure to note the following:

- a) Dimensions: Length, width, and height.
- b) Location of supply and return vents and any other air entry or egress paths, door jambs, windows, bathroom vents, hoods etc.
- c) Locations of equipment and furniture.

4.1.2 Determine personnel exposure controls. Controls must be in place to prevent unintentional personnel exposures. Controls can be any or a combination of:

- a) Administrative, where non-decontamination personnel are removed from the area. Shutting down the HVAC system to the area (if possible) is the preferred isolation approach.
- b) Engineering, where mechanical isolation strategies are employed. Isolation may be achieved by sealing with tape and plastic.

- 4.1.3 Determine ventilation approach. Venting to atmosphere is the preferred method. Alternatively, ventilation may be performed using HVAC, exhaust, etc.
- 4.1.4 If efficacy testing is being performed, locations and type of biologic indicator should be noted.
- 4.1.5 Prior to treatment verify proper time for treatment using the provided treatment injection time chart.
- 4.1.6 The RDS 3110 unit uses a computer controller to operate. Use of this controller is covered in the following section, 4.2 Computer Controller Settings Logic.
- 4.1.7 Once injection time has been input, collect the required equipment and materials needed in Section 1.3.
- 4.1.8 The area is prepared. All drawers, cabinet doors, and bathroom doors will be opened.
- 4.1.9 The operator puts exposure controls and ventilation approach in place.

4.2 Computer Controller Settings Logic

- 4.2.1 The RDS 3110 unit settings are prepared using a computer controller interface. The interface is located on the underside of the lid of the RDS 3110 case.
- 4.2.2 The computer controller interface will activate when the RDS 3110 is connected to power. Once the interface has booted up, the main menu screen will appear. (Figure 1, left). Flip up the red arming switch located to the right of the computer controller to engage the unit.

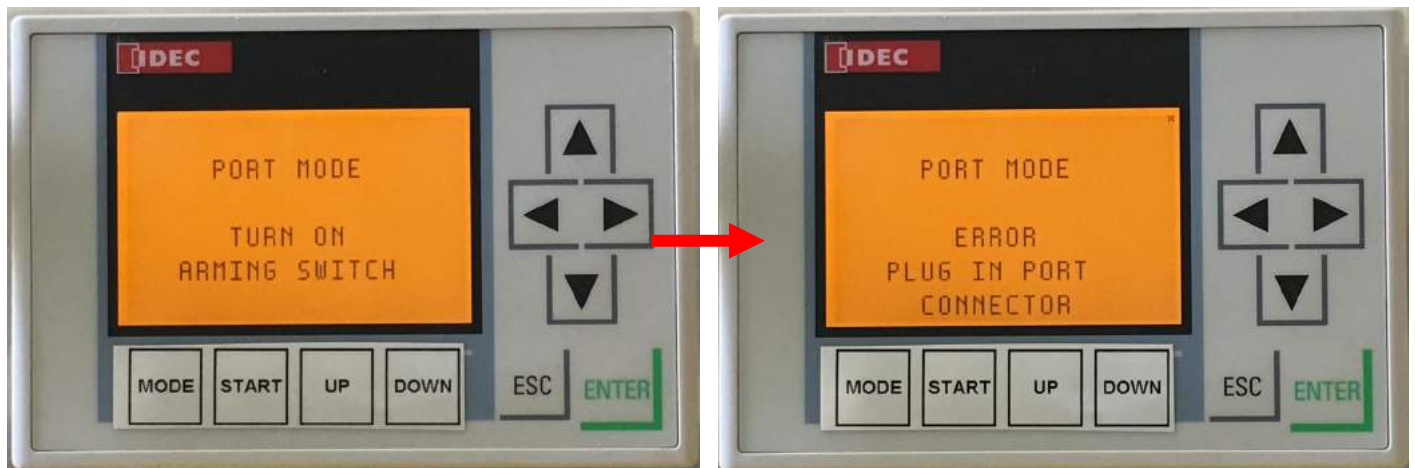


FIGURE 1

NOTE: The error code “PLUG IN PORT CONNECTOR” (Figure 1, right) will appear on the screen upon engaging the red arming switch. This error code is shown as a reminder to the operator that an ADP or APA (when in Port Mode, Section 4.3, or a Tripod Mode, Sections 4.6 & 4.7) must be connected prior to normal operation.

4.2.3 The RDS 3110 can be operated in seven modes. The MODE button cycles through them
1) Port Mode. (Figure 2)

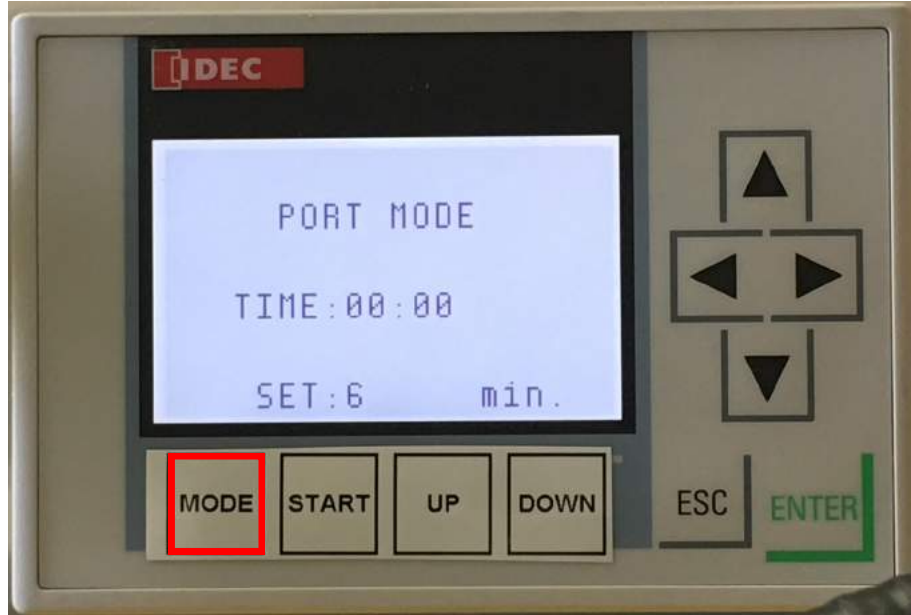


FIGURE 2

2) Hand Applicator Mode. (Figure 3)



FIGURE 3

3) 1 Fixed Head Mode. (Figure 4)



FIGURE 4

4) 2 Fixed Heads Mode. (Figure 5)



FIGURE 5

5) Tripod Only Mode. (Figure 6)



FIGURE 6

6) 1 Fixed Head and Tripod Mode. (Figure 7)



FIGURE 7

7) 2 Fixed Heads and Tripod Mode. (Figure 8)



FIGURE 8

4.3 Port Mode Operation (with ADP-PT or ADP-EX)

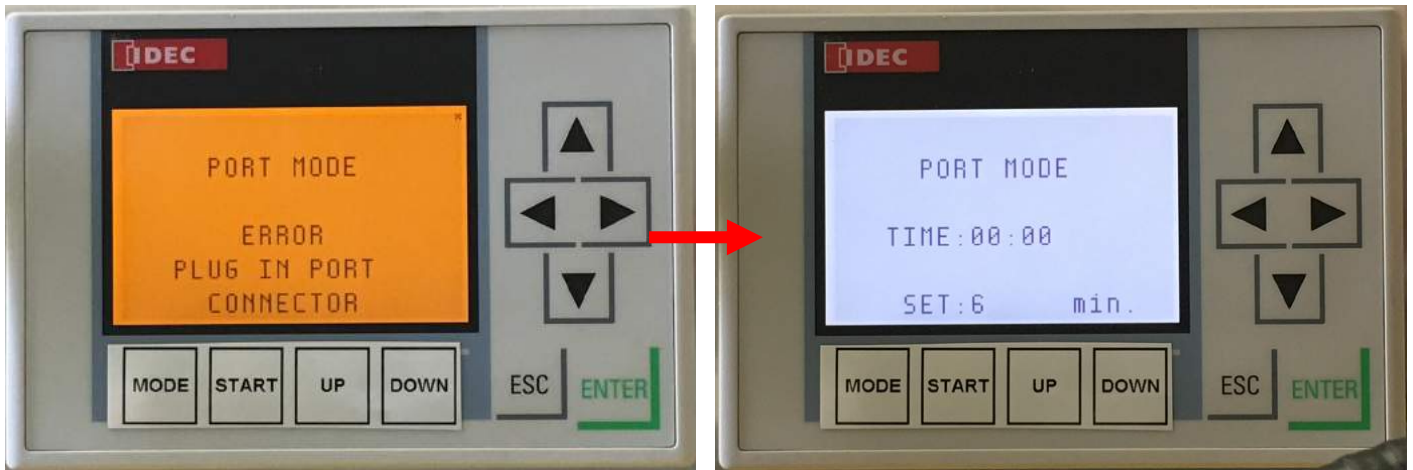


FIGURE 9

- 4.3.1 The Port Mode (Figure 9, right) allows the operator to treat the enclosed space of a vehicle or a room using either an ADP-PT or ADP-EX.
- NOTE:** The ADP-PT and ADP-EX are optional components that must be purchased separately and installed in the by an authorized AeroClave installer. An ADP-AS two-way connection hose is necessary when using an ADP-EX.
- 4.3.2 Turn off the HVAC and ventilation in the treatment area.
- 4.3.3 Open all interior compartments and close any exterior doors and pass-throughs.
- 4.3.4 **When using an ADP-PT:** Plug the attached ADP-PT connection hose to the SmartPort located on top of the RDS 3110 unit.
- When using an ADP-EX:** Plug one end of the included ADP-AS two-way connection hose into the ADP-EX port on the exterior of the ambulance and then plug the other end into the SmartPort located on top of the RDS 3110 unit.
- NOTE:** The error code “PLUG IN PORT CONNECTOR” (Figure 9, left) will appear on the screen upon engaging the red arming switch. This error code is shown as a reminder to the operator that an ADP Port must be connected prior to normal operation.



ADP-PT



ADP-EX (left) and ADP-AS (right)

- 4.3.5 After the unit has been connected to an ADP Port, flip the red arming switch that is located to the right of the computer controller from the OFF position (Figure 10) to the ON position (Figure 11). This engages the unit into normal operation mode.



FIGURE 10



FIGURE 11

- 4.3.6 Input the desired dosage time for the decontamination cycle. The required dosage time for a typical ambulance is 6 minutes.

NOTE: 6 minutes is the preset default dosage time on the RDS 3110 unit.

- 4.3.7 Using the included handheld remote (Figure 12), press the button to start the decontamination cycle, OR press the Start button on the Computer Controller (Figure 13)

NOTE: If the unit needs to be turned off prior to the end of the cycle, press the button again or flip down the red arming switch, to terminate the cycle.



FIGURE 12

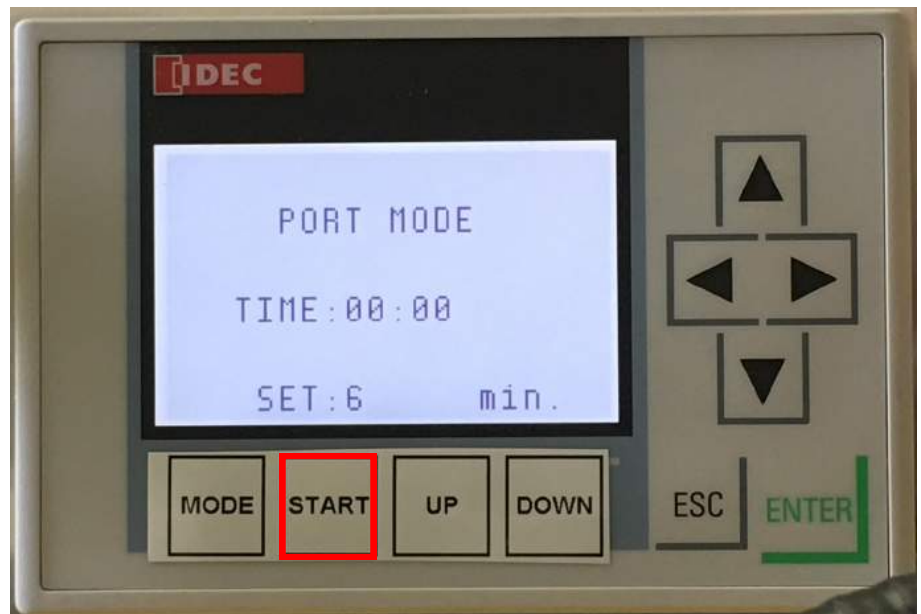


FIGURE 13



- 4.3.8 Once cycle starts, the unit will dispense the prescribed amount of solution associated with the time that was input. When the injection cycle is complete, the unit will cease dispensing fluid.
- NOTE:** Even though injection cycle is complete, until the red arming switch has been switched back to the OFF position, the unit will remain engaged and will restart a decontamination cycle if the start button on either the unit or remote control is pushed.
- 4.3.9 After the injection cycle, allow solution to dwell in the enclosed area for a minimum of 10 minutes. The red indicator lights will continue to blink during this time period.
- 4.3.10 Once dwell time has been reached, the red indicator lights on the unit will go dark. If possible, ventilate the treatment area. Do not reenter area until air is clear (minimum 20 minutes to reentry).
- 4.3.11 Upon reentering the treatment area, take note of any excess fluid on surfaces. Excess fluid may remain in the air and on some surfaces in treatment areas with high humidity. If there is any fluid remaining on surfaces, you may wipe it up or allow it to dry naturally.
- NOTE:** Floors may be slick immediately follow a decontamination cycle, be careful when reentering the treatment area.
- 4.3.12 After completion of the decontamination cycle, flip the red arming switch down to the OFF position to disengage the unit. Doing this will prevent the unit from accidentally activating.
- 4.3.13 Disconnect the ADP Port hose from the unit.
- 4.3.13 Disconnect the unit from its power source.
- 4.3.14 Disconnect and remove the disinfectant reservoir from the unit.
- 4.3.15 Prior to closing the lid on the unit, coil up the power cord and store it in the empty space where the disinfectant reservoir was housed.

4.4 Hand Applicator Mode Operation



FIGURE 14

4.4.1 The AeroClave Portable Applicator (APA) in Hand Applicator Mode (Figure 14, right) may be used effectively on exteriors, individual equipment, and interiors. Interiors can be decontaminated with HVAC and other ventilation systems left on. If ventilation systems are to be left on, controls must be put in place to prevent unintentional personnel exposure as described in section 4.1.2.



AeroClave Portable Applicator (APA)

- 4.4.2 It is recommended, for comfort, that operator don a minimum level of PPE consisting of, at least, an N95 mask prior to APA operation.
- 4.4.3 Plug the APA into the quick connect SmartPort located on the RDS 3110 unit. To do this, align the white dot on the APA connector with the white dot on the RDS 3110 SmartPort, insert the APA connector, and turn the connector clockwise until it locks into position.
- 4.4.4 Hand Applicator Mode does NOT require the red arming switch to be flipped up in the ON position to engage the system (Figure 14, left). Flip the switch down into the OFF position to engage the unit in normal operation for Hand Applicator Mode (Figure 14, right).
- 4.4.5 Once the unit is engaged, to activate the APA, “pull and hold” the trigger on the APA handle. The device will cycle on in the following order: 1) Air flow THEN 2) Liquid flow.
NOTE: If liquid line is empty, priming may require around one minute to fill. Decontamination activity can begin once a consistent steady aerosol is observed.
- 4.4.6 To deactivate the APA, “release” the trigger on the APA handle. The device will cycle off in the following order: 1) Liquid flow THEN 2) Air flow.



- 4.4.7 Always keep the nozzle of the APA pointed away from you or anyone else, even when the unit is not activated.
- 4.4.8 Application of the solution is left to the discretion of the operator. It should be adjusted appropriately for the situation at hand. A distance of approximately 24"-36" should be kept from the area being decontaminated to avoid excessive wetting.
- 4.4.9 Similar to spray painting, broad even strokes, applied directly to the surface should be used.
- 4.4.10 The objective to spraying is to deposit a thin, even layer of material on the surface being decontaminated. However, the APA affords the ability to concentrate the solution on known, highly contaminated surfaces such as door handles, keyboards, toilet seats etc.
- 4.4.11 It is recommended that operators practice with distilled or deionized water to become familiar with the operation of the device and the characteristics of the aerosol spray prior to performing actual field decontamination activities.
- 4.4.12 If there is any excess fluid remaining on surfaces, you may wipe it up or allow it to dry naturally.
- 4.4.13 After completion of the decontamination cycle, flip the red arming switch up to the ON position to disengage the unit in Hand Applicator Mode. Doing this will prevent the unit from accidentally activating.
- 4.4.14 Disconnect the APA hose from the unit.
- 4.3.15 Disconnect the unit from its power source.
- 4.3.16 Disconnect and remove the disinfectant reservoir from the unit.
- 4.3.17 Prior to closing the lid on the unit, coil up the power cord and store it in the empty space where the disinfectant reservoir was housed.
- 4.4.18 After application, continue to ventilate the area.

4.5 Fixed Head Mode Operation

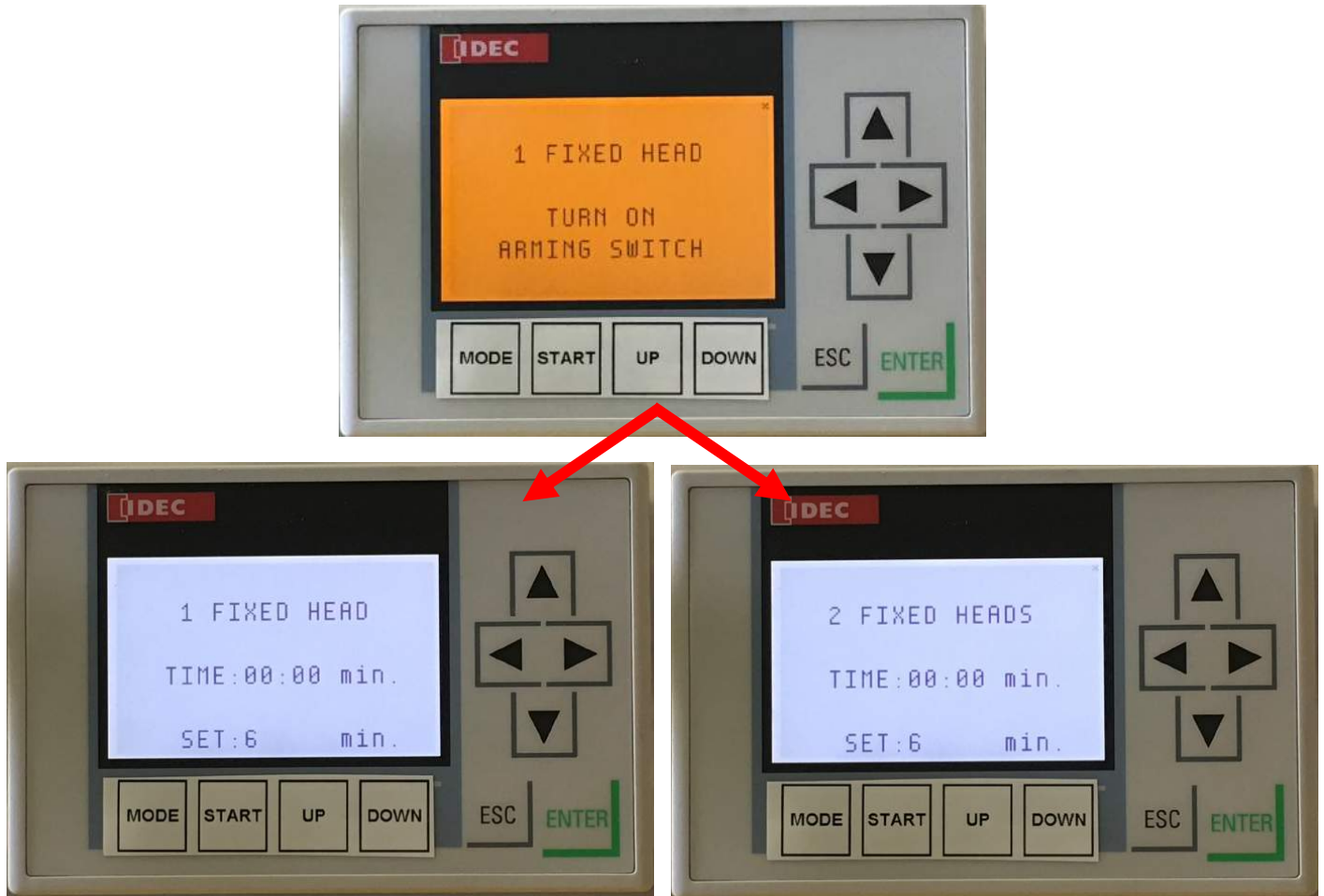


FIGURE 15

- 4.5.1 The Fixed Head Modes (Figure 15) allow the operator to treat an enclosed area using one or both the two fixed heads located on top of the 3110 unit. This mode works best when HVAC and ventilation have been isolated.
- 4.5.2 Prior to activating the fixed head mode, position the 3110 unit in the treatment area. When using 1 Fixed Head Mode, the ideal unit location is where the end of the aerosol spray generated from the unit is in the center of the treatment area. When using 2 Fixed Heads Mode, the ideal unit location is where the unit is placed in the center of the treatment area.
- 4.5.3 Once the unit has been placed in the treatment area, plug the unit into power.
- 4.5.4 Next, Flip the red arming switch that is located to the right of the computer controller from the OFF position (Figure 10) to the ON position (Figure 11). This engages the unit into normal operation mode.

4.5.5 All fogging modes (Fixed Head, Tripod modes) use an internal timer to determine how much solution will dispensed. Determine the size of the treatment area then reference the chart located on the RDS 3110 unit for required injection times. (Figure 16)

Treatment Area Volume in cubic feet	Injection Time (Minutes)		
	1 Fixed or Remote	2 Fixed Heads	2 Fixed + Remote
500	6	3	2
1000	12	6	4
1500	18	9	6
2000	24	12	8
2500	30	15	10
3000		18	12
3500		21	14
4000		24	16
4500		27	18
5000		30	20

FIGURE 16

4.5.6 Injection time must be input prior to starting a Fixed Head Mode cycle. To increase the amount of time injected, press UP (Figure 17)

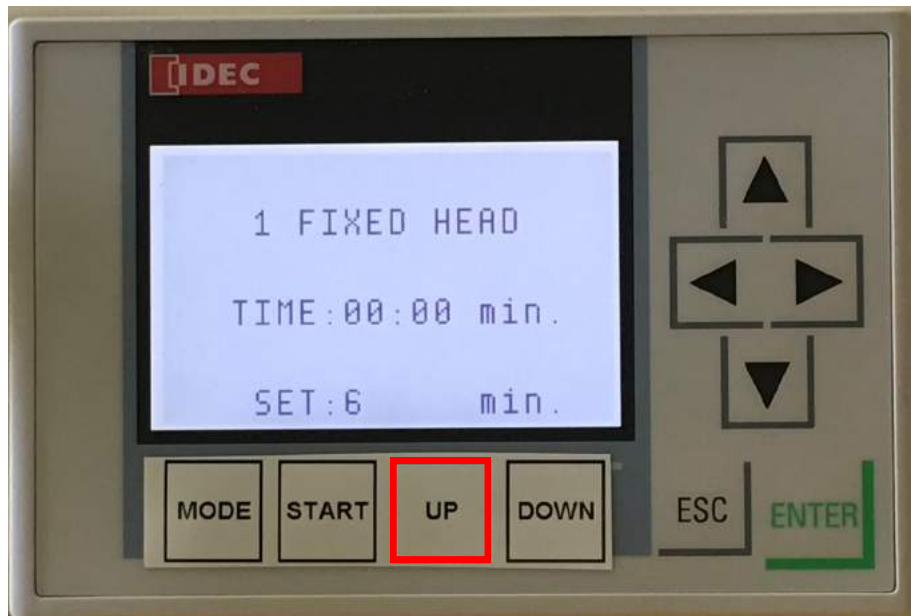


FIGURE 17

4.5.7 To decrease the amount of time, press DOWN. (Figure 18)



FIGURE 18

4.5.8 Once time injected has been input, the cycle is ready to begin. (Figure 19)



FIGURE 19

4.5.9 Using the included handheld remote (Figure 20), press the button to start the decontamination cycle, OR press the Start button on the Computer Controller (Figure 21)

NOTE: If the unit needs to be turned off prior to the end of the cycle, press either button again to terminate the cycle.



FIGURE 20



FIGURE 21

- 4.5.10 Once cycle starts, the unit will dispense the prescribed amount of solution associated with the time that was input. When the injection cycle is complete, the unit will cease dispensing fluid.
NOTE: Even though injection cycle is complete, until the red arming switch has been switched back to the OFF position, the unit will remain engaged and will restart a decontamination cycle if the start button on either the unit or remote control is pushed.
- 4.5.11 After the injection cycle, allow solution to dwell in the enclosed area for a minimum of 10 minutes. The red indicator lights will continue to blink during this time period.
- 4.5.12 Once dwell time has been reached, the red indicator lights on the unit will go dark. If possible, ventilate the treatment area. Do not reenter area until air is clear (minimum 20 minutes to reentry).
- 4.5.13 Upon reentering the treatment area, take note of any excess fluid on surfaces. Excess fluid may remain in the air and on some surfaces in treatment areas with high humidity. If there is any fluid remaining on surfaces, you may wipe it up or allow it to dry naturally.
NOTE: Floors may be slick immediately follow a decontamination cycle, be careful when reentering the treatment area.
- 4.5.14 After completion of the decontamination cycle, flip the red arming switch down to the OFF position to disengage the unit. Doing this will prevent the unit from accidentally activating.
- 4.5.15 Disconnect the unit from its power source.
- 4.5.16 Disconnect and remove the disinfectant reservoir from the unit.
- 4.5.17 Prior to closing the lid on the unit, coil up the power cord and store it in the empty space where the disinfectant reservoir was housed.

4.6 Tripod Only Mode Operation (Tripod-Mounted APA)

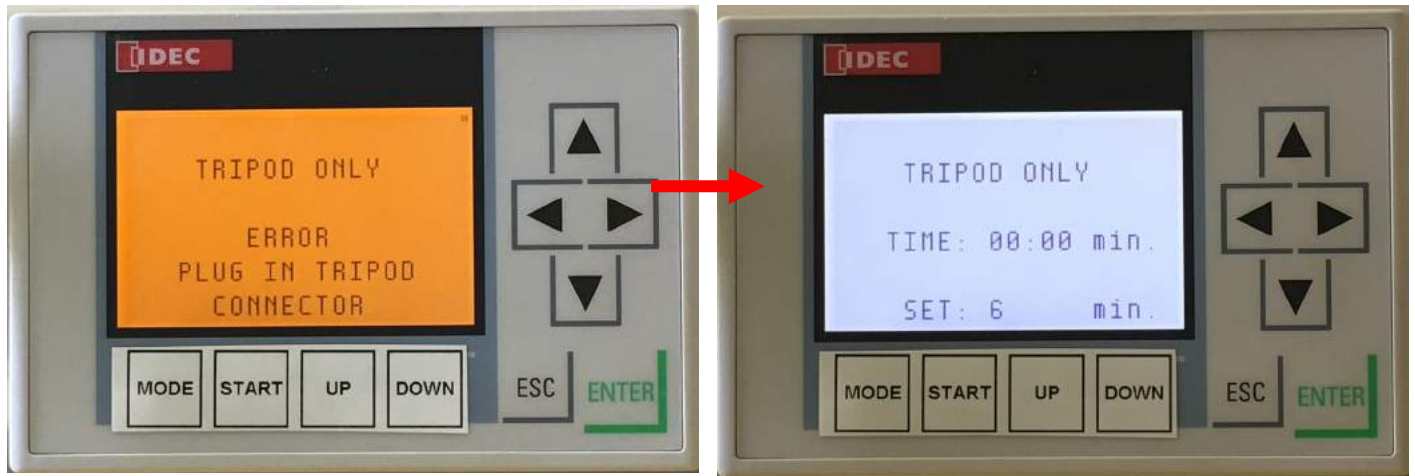


FIGURE 22

- 4.6.1 The Tripod Only Mode (Figure 22) allow the operator to treat an enclosed area using the APA, when it is mounted on a tripod, as a remote aerosol head. This mode works best when HVAC and ventilation have been isolated.
- 4.6.2 Plug APA into quick connect SmartPort located on the RDS 3110 unit.
- 4.6.3 Next, flip the red arming switch that is located to the right of the computer controller from the OFF position (Figure 10) to the ON position (Figure 11). This engages the unit into normal operation mode.
- NOTE:** The error code “PLUG IN TRIPOD CONNECTOR” (Figure 24, left) will appear on the screen upon engaging the red arming switch. This error code will clear once the APA is mounted onto the tripod.
- 4.6.4 Mount APA onto tripod.
- 4.6.5 Position unit and/or the tripod in the enclosed area.
- NOTE:** When decontaminating a small space, there may not be enough room for both the RDS 3110 unit and the tripod. If the RDS 3110 unit is in another area, ensure that the APA hose is not kinked or pinched when placing it in the treatment area.
- 4.6.6 Be sure not to direct the flow of the solution coming from the remote head spray nozzle, directly onto any surface. The goal should be for the fog to circulate from the center of the treatment area
- 4.6.7 Calculate the required dosage time as described in Sections 4.5.5 - 4.5.8.
- 4.6.8 Using the included handheld remote (Figure 23), press the button to start the decontamination cycle, OR press the Start button on the Computer Controller (Figure 24)
- NOTE:** If the unit needs to be turned off prior to the end of the cycle, press either button again to terminate the cycle.



FIGURE 23



FIGURE 24

- 4.6.9 Once cycle starts, the unit will dispense the prescribed amount of solution associated with the time that was input. When the injection cycle is complete, the unit will cease dispensing fluid.
NOTE: Even though injection cycle is complete, until the red arming switch has been switched back to the OFF position, the unit will remain engaged and will restart a decontamination cycle if the start button on either the unit or remote control is pushed.
- 4.6.10 After the injection cycle, allow solution to dwell in the enclosed area for a minimum of 10 minutes. The red indicator lights will continue to blink during this time period.
- 4.6.11 Once dwell time has been reached, the red indicator lights on the unit will go dark. If possible, ventilate the treatment area. Do not reenter area until air is clear (minimum 20 minutes to reentry).
- 4.6.12 Upon reentering the treatment area, take note of any excess fluid on surfaces. Excess fluid may remain in the air and on some surfaces in treatment areas with high humidity. If there is any fluid remaining on surfaces, you may wipe it up or allow it to dry naturally.
NOTE: Floors may be slick immediately follow a decontamination cycle, be careful when reentering the treatment area.
- 4.6.13 After completion of the decontamination cycle, flip the red arming switch down to the OFF position to disengage the unit. Doing this will prevent the unit from accidentally activating.
- 4.6.14 Disconnect APA from the RDS 3110 unit.
- 4.6.15 Disconnect the unit from its power source.
- 4.6.16 Disconnect and remove the disinfectant reservoir from the unit.
- 4.6.17 Prior to closing the lid on the unit, coil up the power cord and store it in the empty space where the disinfectant reservoir was housed.

4.7 Fixed Head and Tripod Mode Operation (Tripod-Mounted APA)



FIGURE 25

- 4.7.1 The Fixed Head and Tripod Mode (Figure 25) allow the operator to treat an enclosed area using the APA, when it is mounted on a tripod, as a remote aerosol head. This mode works best when HVAC and ventilation have been isolated.
- 4.7.2 Plug APA into quick connect SmartPort located on the RDS 3110 unit.
- 4.7.3 Next, flip the red arming switch that is located to the right of the computer controller from the OFF position (Figure 10) to the ON position (Figure 11). This engages the unit into normal operation mode.
- NOTE:** The error code “PLUG IN TRIPOD CONNECTOR” (Figure 24, left) will appear on the screen upon engaging the red arming switch. This error code will clear once the APA is mounted onto the tripod.
- 4.7.4 Mount APA onto tripod.
- 4.7.5 Position unit and/or the tripod in the enclosed area.
- NOTE:** When decontaminating a small space, there may not be enough room for both the RDS 3110 unit and the tripod. If the RDS 3110 unit is in another area, ensure that the APA hose is not kinked or pinched when placing it in the treatment area.
- 4.7.6 Be sure not to direct the flow of the solution coming from the remote head spray nozzle, directly onto any surface. The goal should be for the fog to circulate from the center of the treatment area
- 4.7.7 Calculate the required dosage time as described in Sections 4.5.5 - 4.5.8.
- 4.7.8 Using the included handheld remote (Figure 26), press the button to start the decontamination cycle, OR press the Start button on the Computer Controller (Figure 27)
- NOTE:** If the unit needs to be turned off prior to the end of the cycle, press either button again to terminate the cycle.



FIGURE 26



FIGURE 27

- 4.7.9 Once cycle starts, the unit will dispense the prescribed amount of solution associated with the time that was input. When the injection cycle is complete, the unit will cease dispensing fluid.
- NOTE:** Even though injection cycle is complete, until the red arming switch has been switched back to the OFF position, the unit will remain engaged and will restart a decontamination cycle if the start button on either the unit or remote control is pushed.
- 4.7.10 After the injection cycle, allow solution to dwell in the enclosed area for a minimum of 10 minutes. The red indicator lights will continue to blink during this time period.
- 4.7.11 Once dwell time has been reached, the red indicator lights on the unit will go dark. If possible, ventilate the treatment area. Do not reenter area until air is clear (minimum 20 minutes to reentry).
- 4.7.12 Upon reentering the treatment area, take note of any excess fluid on surfaces. Excess fluid may remain in the air and on some surfaces in treatment areas with high humidity. If there is any fluid remaining on surfaces, you may wipe it up or allow it to dry naturally.
- NOTE:** Floors may be slick immediately follow a decontamination cycle, be careful when reentering the treatment area.
- 4.7.13 After completion of the decontamination cycle, flip the red arming switch down to the OFF position to disengage the unit. Doing this will prevent the unit from accidentally activating.
- 4.7.14 Disconnect APA from the RDS 3110 unit.
- 4.7.15 Disconnect the unit from its power source.
- 4.7.16 Disconnect and remove the disinfectant reservoir from the unit.
- 4.7.17 Prior to closing the lid on the unit, coil up the power cord and store it in the empty space where the disinfectant reservoir was housed.



5.0 PREVENTATIVE MAINTENANCE

The RDS 3110, APA, and ADP Vehicle Ports must be flushed with distilled water on a monthly basis to ensure proper operation and a long life. The length of time necessary to fully flush the system is dependent on the number of nozzles installed inside the treatment area. After flushing the system, you should re-prime the system by switching the reservoir back to Vital-Oxide and running for the prescribed time. Please refer to Table 1 for Flush and Re-Prime times. You must follow the following steps flush the system correctly.

5.1 General Guidelines

- 5.1.1 Flush RDS 3110 completely on a monthly basis.
- 5.1.2 Use **only** distilled or deionized water when flushing the RDS 3110.
- 5.1.3 After the maintenance flush, re-prime the RDS 3110 with disinfectant

5.2 Maintenance Steps

- 5.2.1 Replace on-board operating reservoir with the provided maintenance reservoir.
- 5.2.2 Ensure that the maintenance reservoir is filled with **distilled or deionized water only**.
- 5.2.3 Start the operation of the RDS 3110 unit like normal.
- 5.2.4 Use the remote control, or APA trigger, to stop the unit after it has run for the prescribed Flush Time (see Table 1).

NOTE: If this RDS 3110 will be used to flush an APA or ADP Vehicle Port, repeat steps 5.2.2 - 5.2.4 for those accessories prior to moving onto step 5.2.5.

- 5.2.5 Replace the on-board operating reservoir filled with Vital-Oxide
- 5.2.6 Start the operation of the RDS 3110 unit like normal.
- 5.2.7 Use the remote control, or APA trigger, to stop the unit after it has run for the prescribed Re-Prime Time (see Table 1).

NOTE: If this RDS 3110 will be used to re-prime an APA or ADP Vehicle Port, repeat steps 5.2.5 - 5.2.7 for those accessories

Table 1

# of Nozzles	Flush Time	Re-Prime Time
One (RDS 3110, APA, ADP Vehicle Port)	2 minutes	1 minute
Two or more (RDS 3110)	3 minutes	2 minutes



6.0 APPENDIX

6.1 Appendix-A: Vital-Oxide MSDS

Material Safety Data Sheet: Vital Oxide

MSDS No: VO020215

Section 1: Product and Company Identification

Product Name Vital Oxide

Aqueous Oxidant

Manufacturer/Distributor Vital Solutions, LLC.

PO Box 9932

West Palm Beach, FL 33419

Phone Numbers

Product Information: (561) 848-1717

Medical Emergency: (800) 222-1222

Section 2: Composition/ Information on Ingredients

Ingredients CAS Number Wt %

Oxychlorine Compounds Mixture 0.200

n-Alkyl Dimethyl Benzyl Ammonium Chloride 68391-01-5 0.125

n-Alkyl Dimethyl Ethyl benzyl Ammonium Chloride 85409-23-0 0.125

Inert Ingredients Mixture 99.55

At these concentrations none of the ingredients are known to pose any hazards to human health.

Section 3: Hazards Identification

Emergency Overview

Colorless liquid with mild fresh odor. Avoid contact with eyes. Keep out of reach of children.

HMIS Rating: Health: 0 Flammability: 0 Reactivity: 0 PPE: None

Potential Health Effects

Eye Contact: Eye contact may cause mild eye irritation with discomfort.

Skin Contact: Does NOT cause skin irritation and the product is NOT skin sensitizer.

Inhalation: Does NOT cause any respiratory irritation. If consumer product accidentally contacts strong acids in restricted ventilation area, avoid breathing the vapors and allow adequate time for the vapors to disperse before re-entering the restricted area.

Ingestion: Non-Toxic

Carcinogenicity Information None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA, and ACGIH as carcinogens.

Section 4: First Aid Measures

Inhalation

Does NOT cause any respiratory irritation. If consumer product accidentally contacts strong acids in restricted ventilation area, avoid breathing the vapors, and allow adequate time for the vapors to disperse before re-entering the restricted area.

Skin Contact

Does NOT cause skin irritation.

Eye Contact

In case of contact, flush eyes with plenty of water.

Ingestion

Non-toxic. Give a glass of water.



Section 5: Fire Fighting Measures

Flammable Properties: **Flash Point:** Not Available (Non Flammable)

Flammable Limits: **Lower Flammable Limit:** Not Established

Burn Rate: Unknown

Upper Flammable Limit: Not Established

Flammability Classification: Non-Flammable liquid **Autoignition Temperature:** Not Established

Hazardous Combustion Products: Thermal or other decomposition may yield chlorine dioxide or chlorine.

Extinguishing Media: N/A (Non-Flammable liquid) **Additional Considerations:** None

FIRE FIGHTING INSTRUCTIONS: Non-Flammable liquid

NFPA Rating: **Health:** 0 **Flammability:** 0 **Reactivity:** 0 **PPE:** NONE

Section 6: Accidental Release Measures

Spill Clean Up

No special cleanup measures are required for the consumer product. To avoid the possibility of “bleaching” the spill should be absorbed with paper towels, and the area rinsed with clean water.

Accidental Release Measures

Spills are slippery and should be cleaned up promptly.

Section 7: Handling and Storage

Handling: Keep away from heat and strong acids. Do not ingest. Keep container closed. Use only with adequate ventilation.

Storage: Keep container tightly closed and sealed until ready for use. Keep container in a well-ventilated place. Do not store above 120°F or near fire or open flame. Store large quantities in buildings to comply with OSHA 1910.106. Do not transfer contents to bottles or other unlabeled containers. Do not reuse empty containers. Keep out of reach of children.

Incompatible materials: Strong acids

Special Packaging Materials: None

Section 8: Exposure Control/ Personal Protection

Engineering Controls: Use in adequately ventilated areas.

Personal Protective Equipment:

Eye/Face Protection: Not required for consumer product.

Skin Protection: Not required for consumer product.

Respirators: None required for normal use. If consumer product accidentally contacts strong acids in restricted ventilation area, avoid breathing the vapors, and allow adequate time for the vapors to disperse before re-entering the restricted area.

Exposure Limits:

Oxychlorine Compounds: n-Alkyl Dimethyl Ethyl benzyl Ammonium Chloride:

PEL (OSHA): Not available PEL (OSHA): Not available

TLV (ACGIH): Not available TLV (ACGIH): Not available

n-Alkyl Dimethyl Benzyl Ammonium Chloride:

PEL (OSHA): Not available

TLV (ACGIH): Not available

Section 9: Physical and Chemical Properties

Appearance: Colorless liquid **Odor:** Mild-Fresh

Physical State: Liquid **pH:** 8 - 9

Boiling Point (°F): 212 **Solubility in Water:** 100%

Freezing Point (°F): 32 **Vapor Pressure (mm Hg):** Not Available

Volatile Organic Compounds (VOC): None **Evaporation Rate:** Less than Ether

Specific Gravity: 1.003 @ 68°F (20°C) **Density (lb./gal):** 8.40 @ 68°F (20°C)

Section 10: Stability and Reactivity

Chemical Stability: The product is stable. **Incompatibility with other Materials:** Strong acids

Conditions to avoid: Contact with strong acids **Hazardous Polymerization:** Will not occur.

Hazardous Decomposition Products: Thermal or other decomposition may yield chlorine dioxide or chlorine.



Section 11: Toxicological Information

TOXICITY TESTING – ACUTE Inhalation – Studies with Wistar Albino rats exposed to a respirable aerosol made from a solution of Vital Oxide at a level of 2.08 mg/l for four hours resulted in no deaths and no abnormal necropsy observations. **Eye Contact** – Studies with New Zealand white rabbits showed this product is a very mild ocular irritant; mild conjunctival irritation was observed, but cleared within 24 hours. **Skin Contact** – Study of dermal toxicity in New Zealand white rabbits showed the product to be non-toxic: Dermal LD₅₀ > 5,000 mg/kg of body weight; Study of dermal irritation in New Zealand white rabbits showed the product is not a dermal irritant. In Dermal Sensitization studies, Vital Oxide was determined not to be a sensitizer. **Swallowing** - Acute oral toxicity in albino rats: Nontoxic LD₅₀ > 5,000 mg/kg of body weight.

EPA TOXICITY RATING – IV This is the lowest category on the scale and is designed for substances that are the least hazardous.

Section 12: Ecological Information

Environmental Hazards: Not data available.

Environmental Fate: Not data available.

Section 13: Disposal Considerations

Waste Disposal: Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial and Local regulations.

Section 14: Transport Information

Shipping Information: Not regulated by DOT, IMO/IMDG and IATA/ICAO for ground, air or ocean shipments.

Section 15: Regulatory Information

U.S. Federal Regulations:

TSCA: All components appear in TSCA Inventory **OSHA:** Refer to Section 8 for exposure limits.

CERCLA SARA Hazard Category:

Section 311 and 312: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories: Information not available.

Section 313: This product contains following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372: None

State regulations:

State Right to Know information is not provided. **California prop. 65 (no significant risk level):** None

International Regulations:

Canadian WHMIS: Not controlled

Canadian Environmental Protection Act (CEPA): Additional information available upon request.

EU Regulations: Additional information available upon request.

Section 16: Other Information

The information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Vital Solutions, LLC. The Data on this sheet related only to the specific material designed herein. Vital Solutions, LLC assumes no legal responsibility for the use or reliance on this data.

6.2 Appendix-B: Data Logging Retrieval

Some RDS 3110T models come equipped with an internal data logging feature. The steps outlined in this section show how to access the RDS 3110T expandable memory card where the data logging information is stored.

NOTE: UNPLUG THE RDS 3110T UNIT FROM POWER BEFORE PROCEEDING!

- 6.2.1 Remove the four screws on the exterior corners of the RDS 3110T yellow case. There are two on the front of the case and two on the back of the case. (Figure B-1)



FIGURE B-1

- 6.2.2 Unscrew the two screws that secure the communication cable to the control panel. Once unscrewed, detach the communication cable from the control panel. (Figure B-2)



FIGURE B-2

- 6.2.3 Lift the RDS 3110T unit straight up out of the yellow case and place the unit on a flat surface. Identify that the stainless steel cover is visible. (Figure B-3)

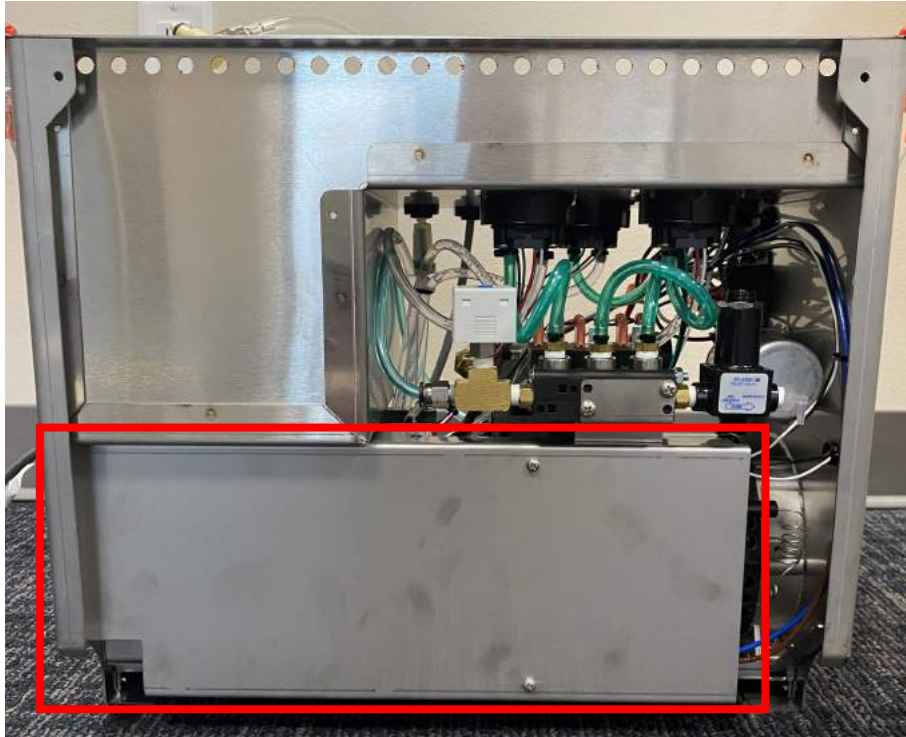


FIGURE B-3

- 6.2.4 Remove the two screws securing the stainless steel cover. (Figure B-4)

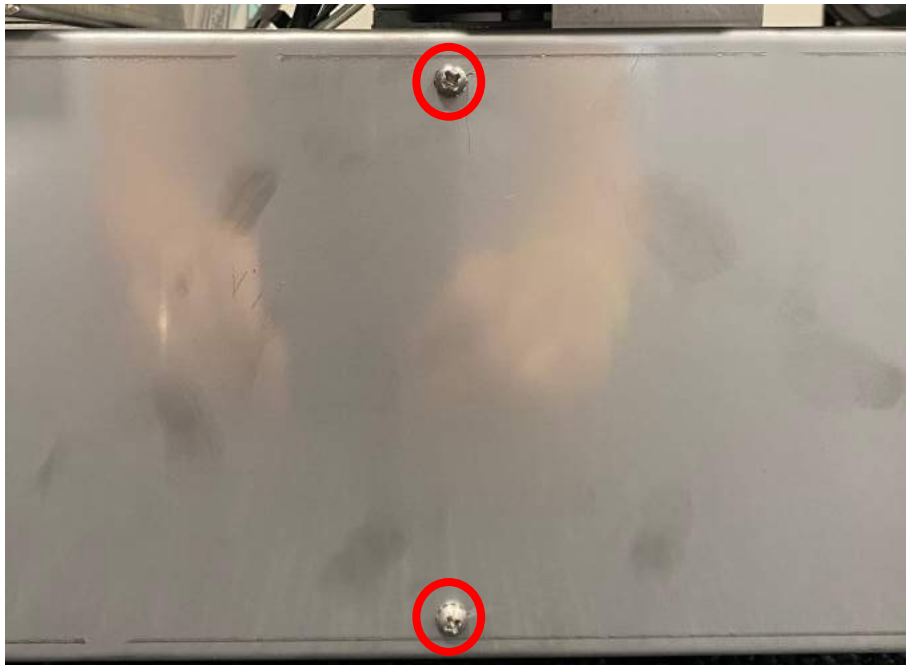


FIGURE B-4

6.2.5 Remove the cover, revealing the IDEC Smart Relay controller and the RDS 3110T system's electronics. (Figure B-5)

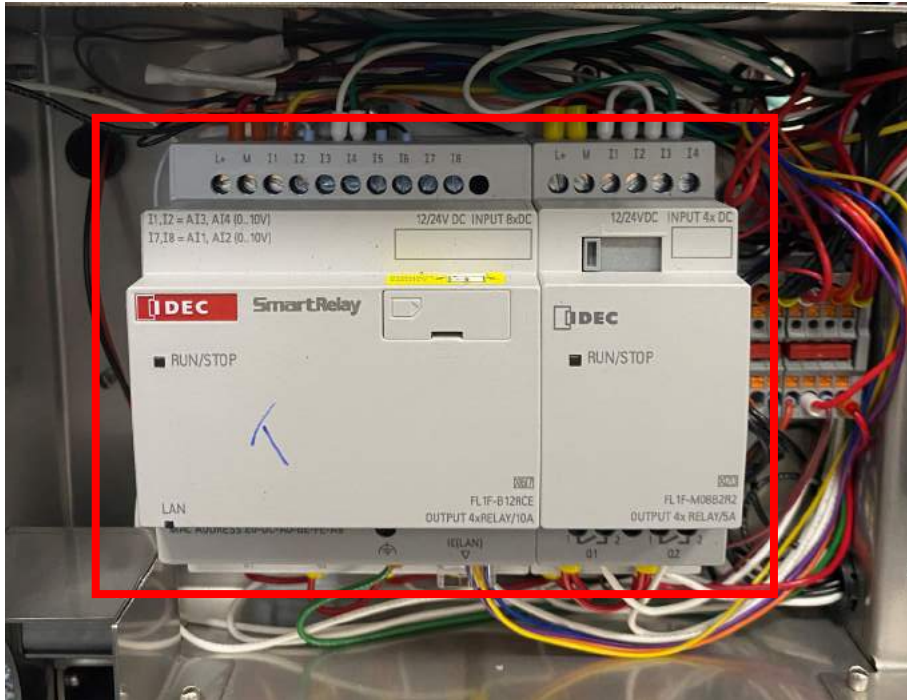


FIGURE B-5

6.2.6 On the front of the IDEC Smart Relay, lightly press in the front of the carriage housing where the microSD card is located. Upon release, the carriage will pop out, revealing the microSD card. (Figure B-6)

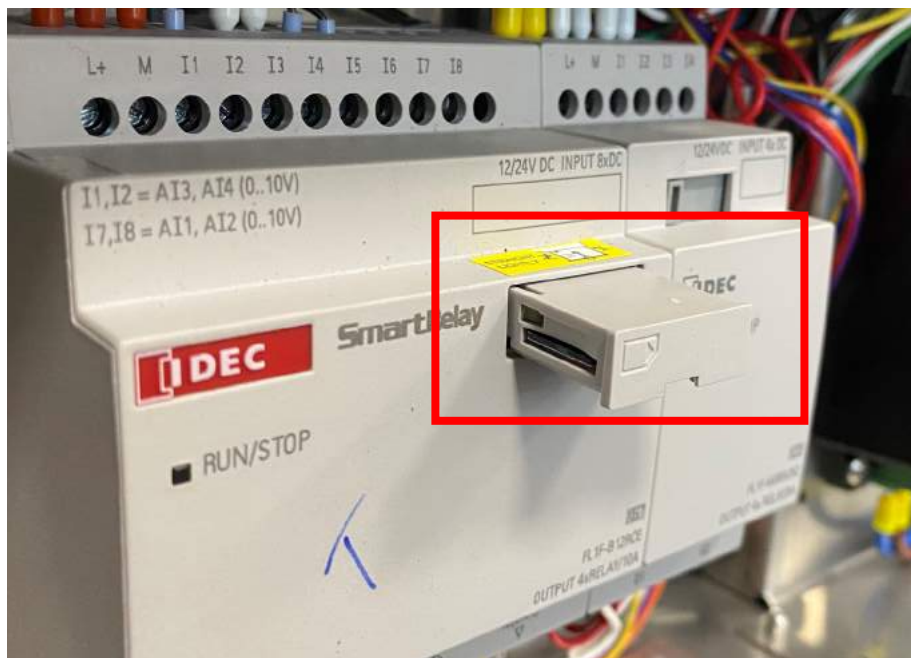


FIGURE B-6

6.2.7 Lightly press in the microSD card to release it from the carriage housing. (Figure B-7)



FIGURE B-7

6.2.8 Remove the microSD card by lightly pulling it straight out of the carriage housing (Figure B-8)

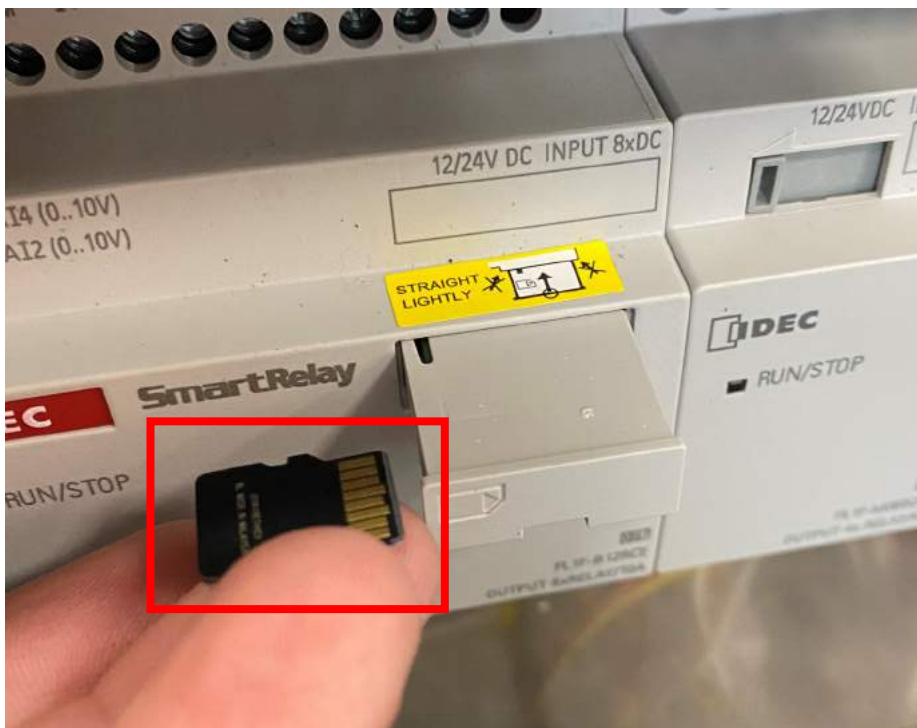


FIGURE B-8

- 6.2.9 Once removed, insert the microSD card in any microSD or SD card ready computer. Some computers may require the use of a microSD card adapter to fit into the standard-SD card slot.
- 6.2.10 Once inserted into the computer, the data log file will automatically download to the computer in a .CSV (comma-separated values) file format.
- 6.2.11 After the file has been downloaded, replace the microSD card into the IDEC Smart Relay carriage housing. Note that the gold contacts on the underside of the microSD card should be facing upwards. (Figure B-9)



FIGURE B-9

- 6.2.12 Lightly press the microSD card back into the carriage housing. It will “click” in when secured. (Figure B-10)



FIGURE B-10

- 6.2.13 Lightly press in the front of the carriage housing back into the IDEC Smart Relay. It will “click” when secured. (Figure B-11)

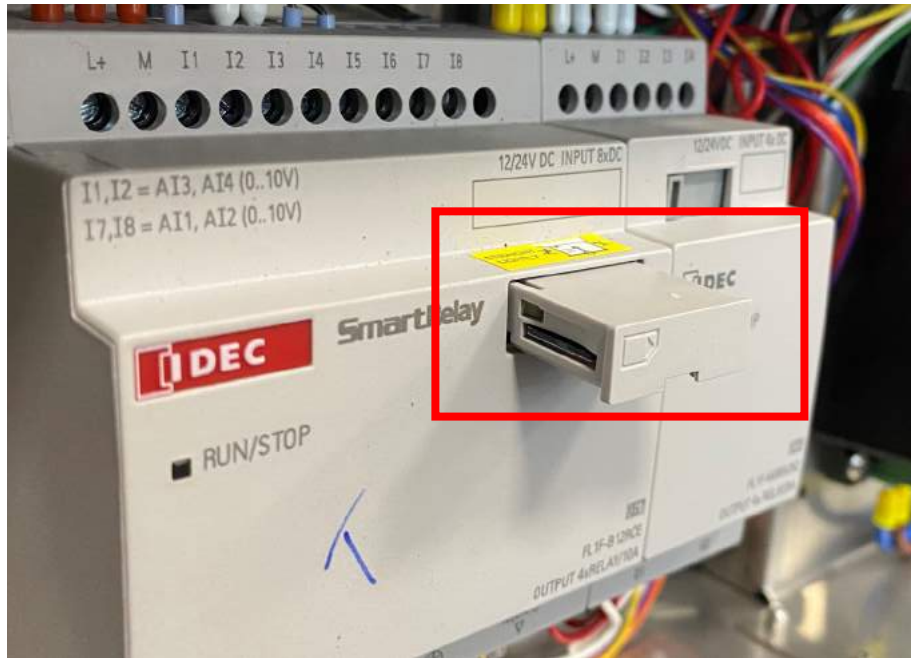


FIGURE B-11

- 6.2.14 Replace the stainless steel cover and re-secure it using the two screws that were removed in Step 6.2.4. (Figure B-12)

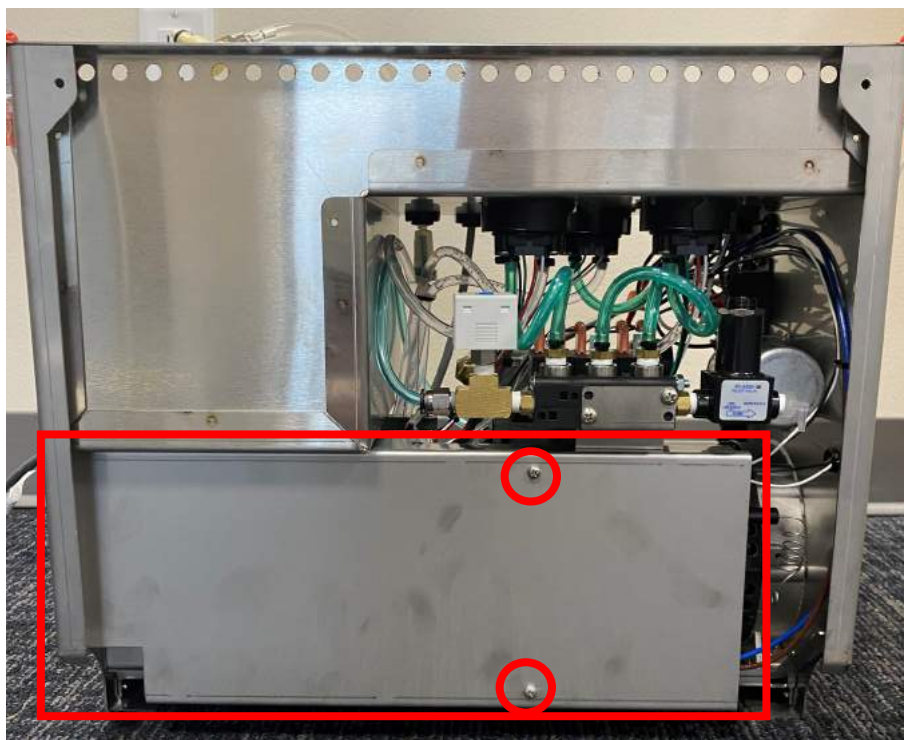


FIGURE B-12

- 6.2.15 Reinsert the RDS 3110T unit back into the yellow case and reconnect the communication cable onto the front of control panel, securing it with the two screws. (Figure B-13)



FIGURE B-13

- 6.2.16 Re-secure the RDS 3110T unit into the yellow case by replacing the four exterior screws removed in Step 6.2.1. Two on the front and two on the back. (Figure B-14)



FIGURE B-14