ELKHART BRASS

FIRE FIGHTING EQUIPMENT A SAFE FLEET BRAND

Generation II HMI User Manual

Installation, Monitor Operation, System Status, Monitor / System Configuration, Monitor / System Troubleshooting, and Managerial Security

For use with Wall Mount, Freestanding (Console), and Desk Mount (Consolette) Enclosures

98559000 REV. REL

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PRODUCT SAFETY

IMPORTANT: Before installing and operating this equipment, read and study this manual thoroughly. Proper installation and system understanding is essential to safe operation. In addition, to ensure the safety of equipment and personnel, the following points should also be adhered to.

- These enclosures are suitable for indoor use, in a dry location. They are not intended for use in an outdoor, wet, or a hazardous location.
- All personnel who may be expected to operate this equipment must be thoroughly trained in its safe and proper use.
- Before flowing water from a monitor, check that all personnel (fire service and civilian) are clear of the stream path. Also confirm stream direction will not cause avoidable property damage.
- Become thoroughly familiar with the hydraulic characteristics of this equipment and the pumping system used to supply it. To produce effective fire streams, operating personnel must be properly trained.
- Whenever possible, monitors should be operated from a remote location to avoid exposing personnel to dangerous fire conditions.
- Disconnect power prior to servicing all controls enclosure components.
- Any modifications to the electrical enclosure will destroy the NEMA 12 rating. This will void any warranty coverage of the enclosure and all components within.
- All equipment must be installed in accordance with local codes (NFPA 70 or EN/IEC 60079-14) as appropriate and in areas where equipment classification is suitable.

WARNING: Do not attempt to disconnect or work on any electrical equipment in this system unless power is removed, or the area is known to be non-hazardous.

DETAILS:

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*For the most up-to-date documentation and specifications, please visit our website at www.elkhartbrass.com

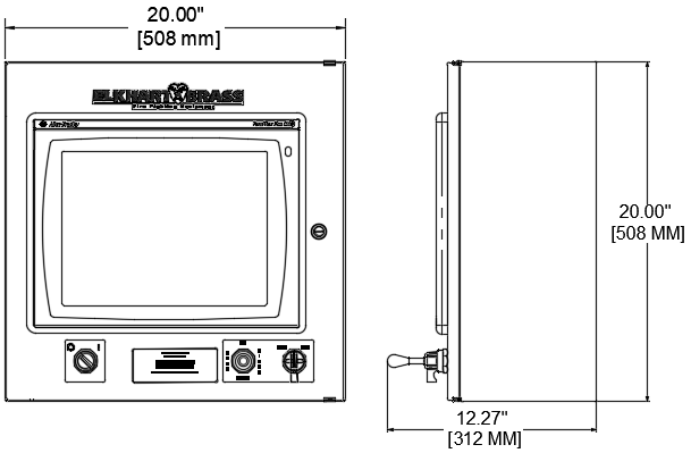
I. INSTALLATION

- Power Wiring
  - Incoming power must be 100 - 120VAC 1Ø (Single Phase) or 220 – 240VAC 1Ø (Single Phase). Additional networking devices can increase the size of the 24VDC Power Supply. Generally, the Max Current Draw is less than 5 Amps.
  - Ground wire (PE) should be at least 14 AWG or as large as local codes require. The Ground (PE) terminal block can accept a range of 10-22 AWG wires.
  - All Human Machine Interface (HMI) Enclosures have a standard IEC320-C20 Panel Interface Connector. A standard US power cord is provided with all enclosures, for Elkhart Brass testing and configuration. A country specific cord will be provided to the user, with each delivered panel.
  - 24VDC Power Supply Fuse

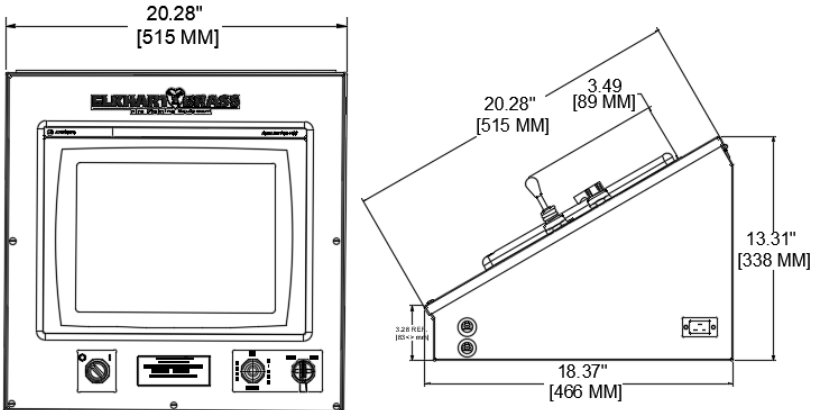
Description	Manufacturer	Manufacturer P/N	Elkhart Brass P/N
FUSE, CLASS CC, FAST ACTING, 600 VAC, 7 AMP	COOPER BUSSMAN	KTK-7	IN000170

- Physical HMI Enclosure Dimensions

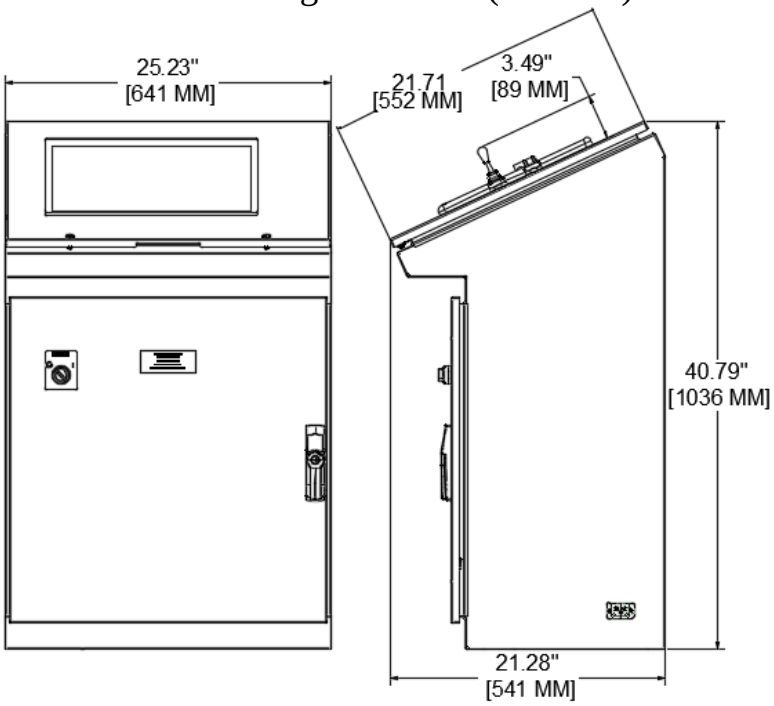
Wall Mount Enclosure



Desk Mount Enclosure (Consolette)



Free-standing Enclosure (Console)



- Installation Notes
  - **Wall Mount (24352099)** The enclosures have mounting holes provided on the back side. The enclosure weighs approximately 50 pounds. Be sure that the fasteners used to mount it are adequate and that the wall is strong enough to support it. Fastening to studs is preferable.

  - **Desk Mount (24352098)** The enclosure has rubber feet that are pressed into holes in the bottom of the enclosure. The enclosure can be fastened to a desk or tabletop using these holes by simply removing the rubber feet. Mounting the enclosure is recommended whenever there is a risk that it could fall off the table.

  Free Standing Mount (24352100) The enclosure has mounting holes provided on the bottom. The enclosure weighs approximately 100 pounds. Be sure that the fasteners used to mount it are adequate to prevent it from tipping over. Fastening to floor joists is preferable.

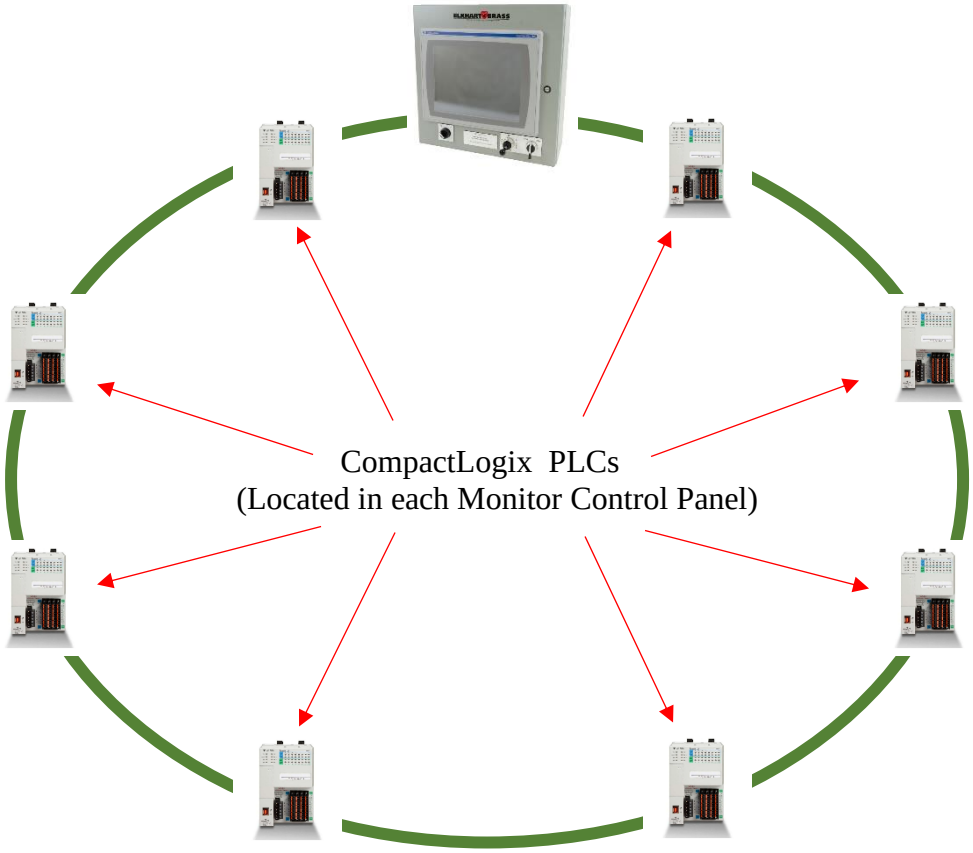
- Network Wiring

  - The Elkhart Brass standard system will use Cat-5E Communications Network Cabling with RJ-45 Connectors. For device distances longer than 100 meters (328 ft), or customer preference, Fiber Optic, Single or Multi-Mode Cabling with LC Connectors can be substituted. All enclosures will have two Panel Interface Connectors, RJ45, or Fiber Optic LC Connectors, to ease the network cabling installation.

  - The HMI is inserted as part of the Communications Network but cannot be part of a Device Level Ring (DLR) Network. This is due to the HMI only having one RJ-45 Ethernet Communication port. A DLR Network device will need two communications ports to be part of the DLR Network. The HMI communications are accomplished by utilizing an ETAP network adapter, for Ethernet or Multi-Mode Fiber Installations. An optional Stratix 5700 Network switch is provided for Single-Mode Fiber. Both of which are devices that support DLR Networking and add the HMI Enclosure to the DLR Network for monitoring and troubleshooting.

  - A System Layout, and where applicable, a Network Layout will be provided by Elkhart Brass to aid in installation.

- Device Level Ring (DLR)
    - The DLR (Device Level Ring) Network provides a means to detect, manage, and ride through single faults in a ring-based network. Each PLC in the DLR has two ethernet connections, which allows for a failure on one communication channel to not interrupt the data transmission to that PLC. The Network Diagnostics screen is a very powerful tool to locate network problems. It can be accessed from the “Network Diagnostics” button on the Elkhart Brass "Startup" screen, or by pressing the “Network Status” icon on the "Operate Monitors" screen.



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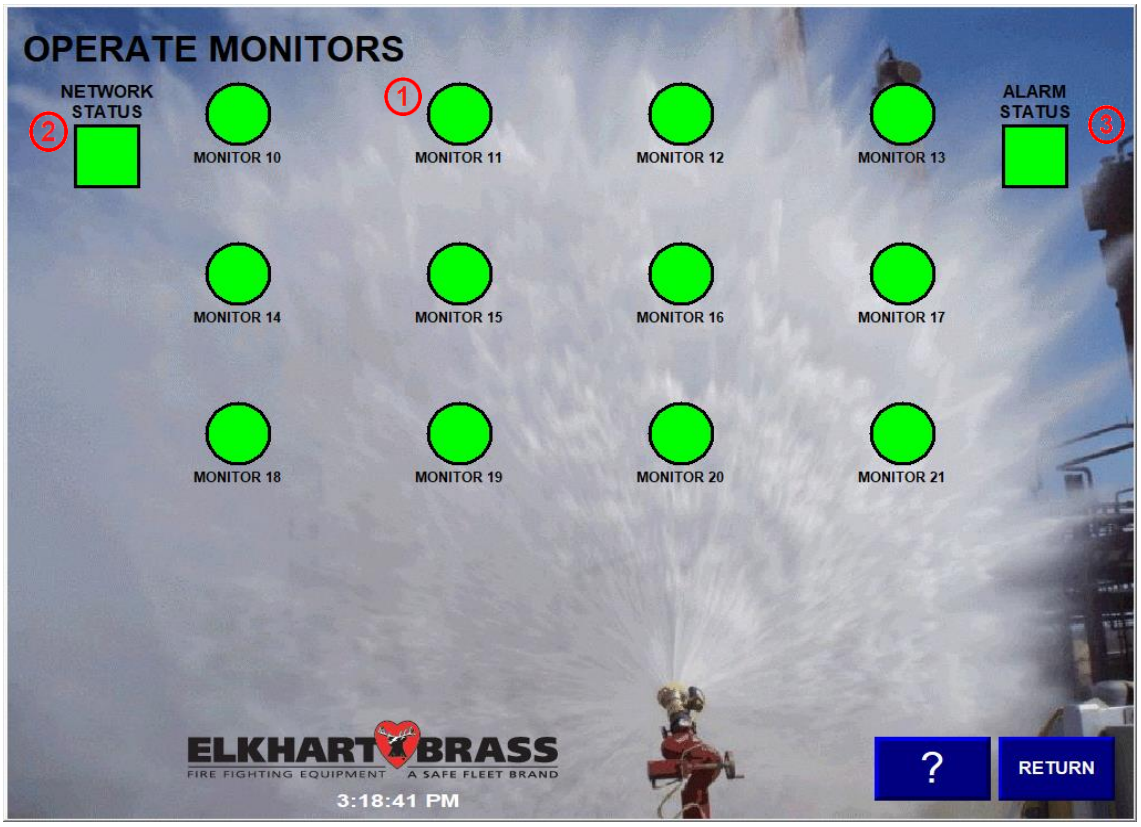
II. MONITOR OPERATION (FIGHTING A FIRE)

- Operate Monitors Screen



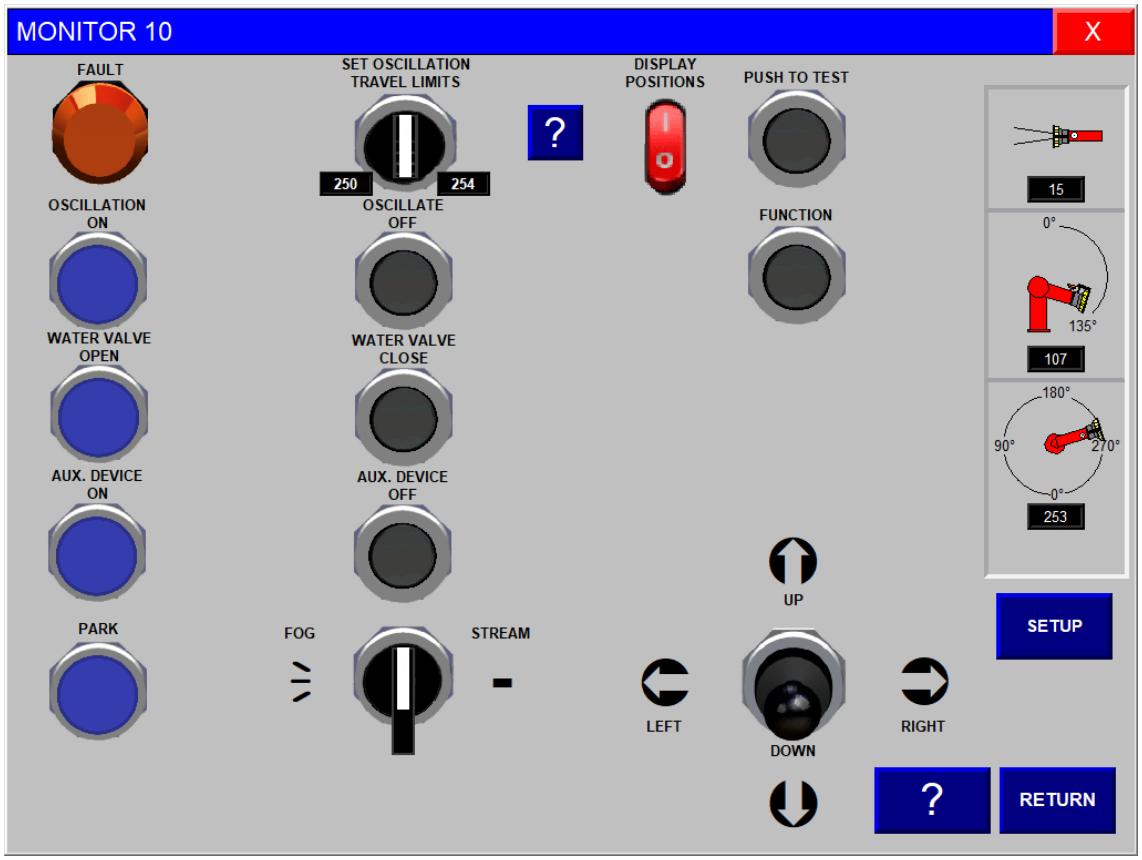
- Pressing the "OPERATE MONITORS" button on the home screen will display the above screen. From this screen, the user can see the status of each monitor, Network Status, and Alarm Status.

1. Pressing on any available monitor (green circles with custom labels) will take you to the Monitor Control Panel (MCP) screen of the selected monitor. The MCP screen will allow you to operate the monitor as well as other functionality is discussed in the next section on Pg. 8.
2. Pressing the Network Status multi-colored square will bring up the Network Diagnostics screen, discussed later, to view the Ethernet or Fiber Optic network communication paths.
3. Pressing the Alarm Status multi-colored square will bring up the System Alarm Diagnostics screen, discussed in System Alarm Diagnostics on Pg. 39, to view active alarms for all Monitors in the system.

Pressing the ? will access a help screen to provide more information about the active screen.
Pressing the RETURN will return the user to the previous screen.

⚠ IMPORTANT: Throughout the HMI Program, a Blue "?" Button will be used universally, in the bottom right location of most screens, to aid the user with pertinent operating information or Monitor / System troubleshooting help.

- Monitor Control Panel (MCP) Screen



  - Selecting a Monitor from the "OPERATE MONITORS" screen will display the above MCP screen. From this screen, the monitor can be operated with full functionality. The available functions on this screen are:

    - Virtual Joystick for Horizontal and Vertical motion control (Up, Down, Left, Right)
    - Virtual Selector Switch for Nozzle control (Straight and Fog)
      - Both Identical to the HMI Enclosure Physical Joystick and Selector Switch (if equipped)
    - Oscillation (start and stop) Illuminated Push Button Indicator
    - Based on Managerial Security Permission Settings, the user can set Oscillation Travel Limits (the range of the oscillation sweep), Vertical Deploy Position, Park Angles, and Function Actions
    - Water Valve Control (Open and Close) and Illuminated Push Button Indicator.
    - Auxiliary Valve Control (sometimes used for a Foam Valve) and Illuminated Push Button Indicator.
    - Oscillation Travel Limits, Vertical Deploy Position, and Park Position Angles display toggle button.
    - Fault Light with coded blinking indication for the Active Monitor.
    - Push-to-Test button to illuminate all individual MCP Indicator Pilot Lights from one screen.
    - Selected Monitor Alarm Text Indication.

MONITOR CONTROL PANEL (MCP) HELP SCREEN

This screen will explain the various Monitor Control Panel buttons the user will encounter. This will aid in further explaining each object on the MCP Screen.

- Monitor Control Panel (MCP) Screen (Continued)

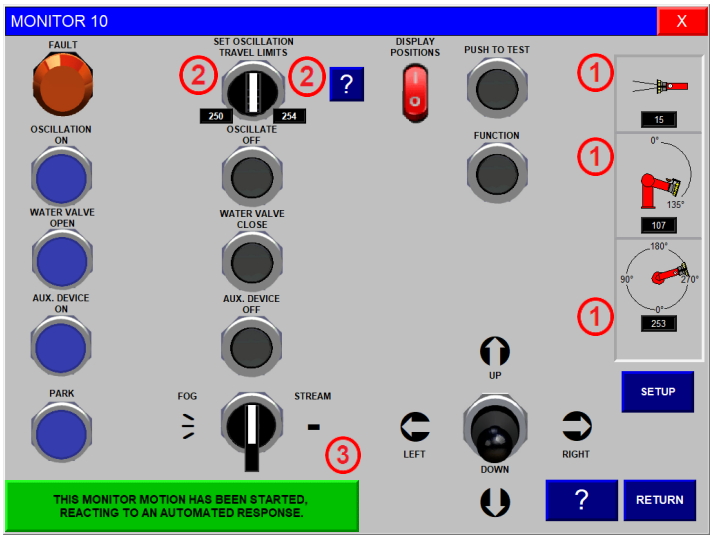


Figure 1.

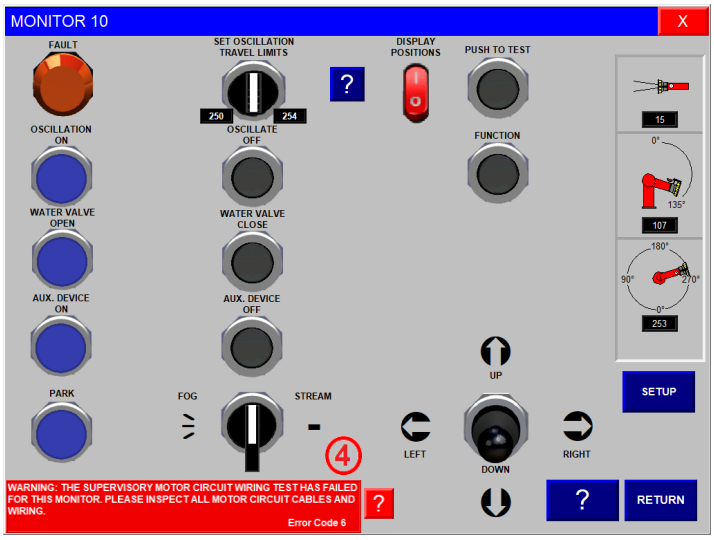


Figure 2.

- In addition to the operating controls, this screen displays alerts that keep the user informed of the status of the selected monitor. These alerts/statuses are:

  ① Monitor's Horizontal, Vertical, and Nozzle axis position (angle) diagram.

  ② Current left and right Oscillation Travel Limits.

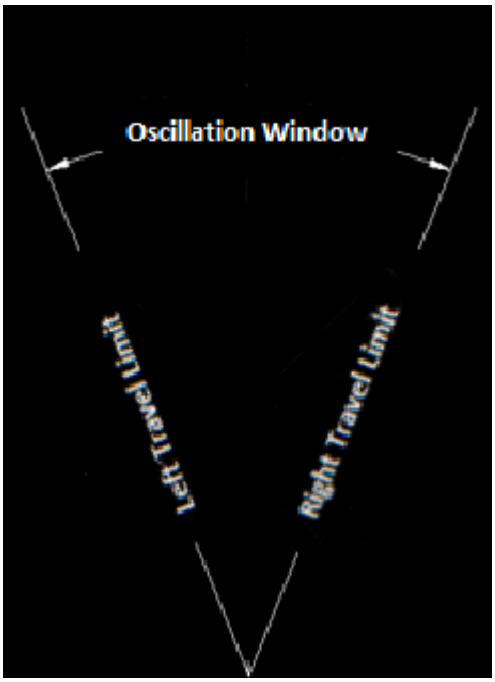
  ③ A green text box with Monitor Control Source Status (Monitor Control Panel MCP, Additional Control Panel ACP, Multiple Touchscreens, HMI Console Controls, RF Belly Pack) currently operating the selected monitor, displayed in the lower left corner as a "Monitor Controlled By" Indication. See Figure 1. above.

  ④ Current Monitor Alarm Status with Alarm Code and description. A ? popup will display to allow the user to access the corresponding Alarm Help Screen.
  Should there be more than one Alarm Active, the "Alarm Help" screen ? with all individual Alarm Code Help screens will popup.

Pressing the ? will access a help screen to provide more information about the active screen.
Pressing the RETURN will return the user to the previous screen.

- The Physical Monitor Control Panel (MCP) and HMI Monitor Control Panel (MCP) Screen have identical controls. This allows for anyone trained for one control device can easily use another.
- ALL users have access to fight a fire. They can move the monitor, open the water valve, and perform basic operations on the Monitor. To change System Parameters, a "Manager" password is required.
-

• Oscillation Mode Explained



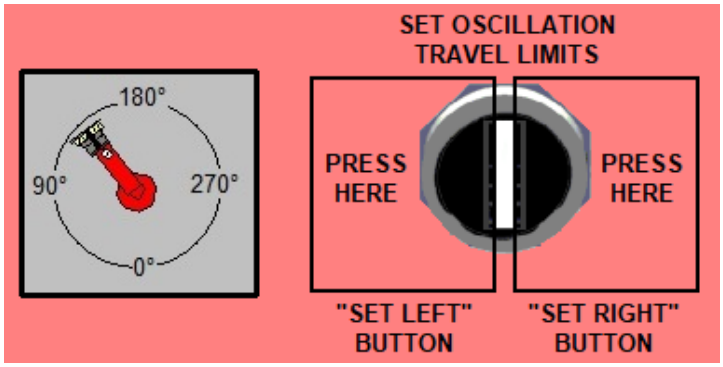
- Similar to a lawn sprinkler, in Oscillation Mode, the monitor repeats a pattern of left to right, then right to left rotation. Direction changes when it reaches the *left and right travel limits*. These are set by entering the two *oscillation window travel limit* values on the "Edit Oscillation Windows" screen, from the Main Sc, or by moving the monitor manually, to the desired left and right positions, then pressing "SET LEFT" and "SET RIGHT" selector switch respectively, on the Main Control Panel (MCP) screen.

- While in oscillation mode, the monitor may be moved up or down, the nozzle spray pattern may be changed, without affecting the left/right movement.

- To stop oscillation, either press the "OSCILLATION OFF" Push Button, or manually move the monitor left or right, from any control device.

- If oscillation is started while the monitor is in the parked position, the monitor will first travel to the *oscillation window,* then continue the left and right pattern.

Valid Oscillation Travel Limits are 7° - 354°



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- RF (Radio Frequency) Control, *if equipped*

Transmitter – Belly Pack
(Configuration may vary)

Transmitter – Handheld
(Configuration may vary)

  - The RF system consists of a transmitter (belly pack or handheld) and one or more receivers.
    - The transmitter can either be a handheld device, capable of controlling up to two Monitors, or a harness mounted Belly Pack that can control multiple Monitors. These are both remote devices that can move freely throughout industrial monitor system. Note that only one Monitor can be controlled by the RF system at a time.
    - The operator selects the desired Monitor using a selector switch (or Switches) and then proceeds to operate that Monitor with the controls on the transmitter.
    - The RF Receiver(s) are available in several configurations.
      - In non-hazardous location rated panels, a receiver is installed directly in each Monitor Control Panel (MCP).
      - In panels rated for operating in hazardous locations (Class 1 Div. 2), two options are available.
        - Option 1: A receiver board in an appropriately rated enclosure is attached to each MCP similarly to the non-hazardous location panel.
        - Option 2: A single receiver board in an appropriately rated enclosure is provided separately and connected via the system network to the MCPs.
    - Multiple transmitters can control the same monitors but only one transmitter can control a monitor at any given time. If multiple transmitters try to control the same monitor within a 10 second time frame both will be disabled until the units are released.
  - The receiver of the Monitor you wish to control must be within the operational range of the transmitter.
    - Handheld – 800 ft. (244 m) for standard equipment systems installed in the US.
    - Belly Pack – 800 ft. (244 m) for standard equipment systems installed in the US.
  - The transmitters only work with the receivers within the system they were purchased. Their frequencies are set by the manufacturer and are not interchangeable with other systems. The OCP or HMI, if in a system, will override the transmitter for operation of a monitor.
  - RF Configuration and Functionality Overview

    - **Receiver Operation:** The way the system operates is by the receiver obtaining commands from the transmitter. The transmitter uses the selector switch to select the desired Monitor and operate it accordingly.
    - **Antenna:** An external antenna is supplied, shipped loose in the MCP Enclosure. The antenna should be installed after the initial MCP Enclosure Installation, but before system commissioning and use. A TNC antenna connector is provided on the side of all MCPs equipped with a radio receiver.
    - **Transmitter Operation:** Each transmitter will include two 3.6V NiMH rechargeable batteries and one charging station. The "belly pack", has the following operations that can control the monitor. Those being nozzle straight/fog, monitor up/down, monitor left/right, water valve open/close, auxiliary on/off (if equipped), and oscillate on. *(Systems NOT equipped with Auxiliary Device control will have oscillate on/off)* Momentarily pressing the right or left function will disengage oscillation. A selector switch (or dial switch) is used to change back and forth between programmed monitors when applicable. On the right side of the transmitter is the power ON switch and the transmitter enable button.

***NOTE**: Custom functions are available upon request.*

- RF (Radio Frequency) Control, *if equipped* (Continued)
    - For the Belly Pack transmitter to function the following is required:
        - The battery must have a charge and be installed in the transmitter.
        - The Power On switch must be in the ▌(ON) position on the transmitter (rotate clockwise). A short tone will sound, when the Belly Pack is powered on, followed by a self-test routine.
        - Wait for the second busser signal (approximately 3 seconds) to confirm that the self-test was successful.
        - The green LED on the controller will flash, indicating that the transmitter is working and ready to use.
        - The green enable button must be pressed and released to pair the transmitter to the receivers.
        - The transmitter must be in range of the receiver.
        - There are two indicator LED's on the belly pack. The red LED gives an indication for the battery status. If the LED is on, the battery has a charge. If the LED is off, the battery needs to be charged.
    - The handheld transmitter has the following operations that can control the monitor. Those being nozzle straight/fog, monitor up/down, monitor left/right, water valve open/close, auxiliary on/off, and oscillate on. *(Systems NOT equipped with Auxiliary Device control will have oscillate on/off)* Momentarily pressing the right or left function will disengage oscillation. A toggle switch is located on the top left on the handheld for selection between monitors 1 and 2. On the top of the transmitter is the E-Stop button. When the E-Stop is fully depressed, this will deactivate the transmitter, disable the RF system, and turn the transmitter off. Pressing the E-Stop will not cause the monitor to stop any function currently being completed. On the right side of the transmitter is the green "Power On/ Enable" button.
    - For the Handheld transmitter to function, the following is required:
        - The battery must have a charge and be installed in the transmitter. Battery status can be seen in the lower right corner of the LCD screen.
        - The green "Power On/ Enable" button must be pressed. A short self-test routine will be performed, and communication will be established with the receiver. An LED will illuminate Red and Green on the front of the transmitter during this process.
        - Wait for the LED to change to flashing Green, (approximately 3 seconds) to confirm the self-test was successful and that the battery has sufficient charge.
        - The green "Power On/ Enable" button must be pressed a second time to pair the transmitter with the receiver(s).
        - The transmitter must be in range of the receiver.
    - It is generally advised to install a freshly charged battery into the transmitter immediately prior to use. This will ensure maximum performance life when the transmitter is in use. Alternatively, a local protocol can be established to ensure that a charged battery is in place as needed.

NOTE: IF THE TRANSMITTER IS OUT OF RANGE OF THE RECEIVER, THERE IS NO INDICATION ON THE TRANSMITTER OF THIS STATE. THE RECEIVER WILL HOWEVER, DISABLE ITSELF AND THE TRANSMITTER WILL NEED TO BE BROUGHT BACK INTO RANGE AND RE-ENABLED, BY PRESSING THE GREEN BUTTON ON THE RIGHT SIDE OF THE TRANSMITTER BEFORE IT WILL OPERATE A MONITOR AGAIN.

- RF (Radio Frequency) Control, *if equipped* (Continued)
  - RF Specifications
    - General Specs

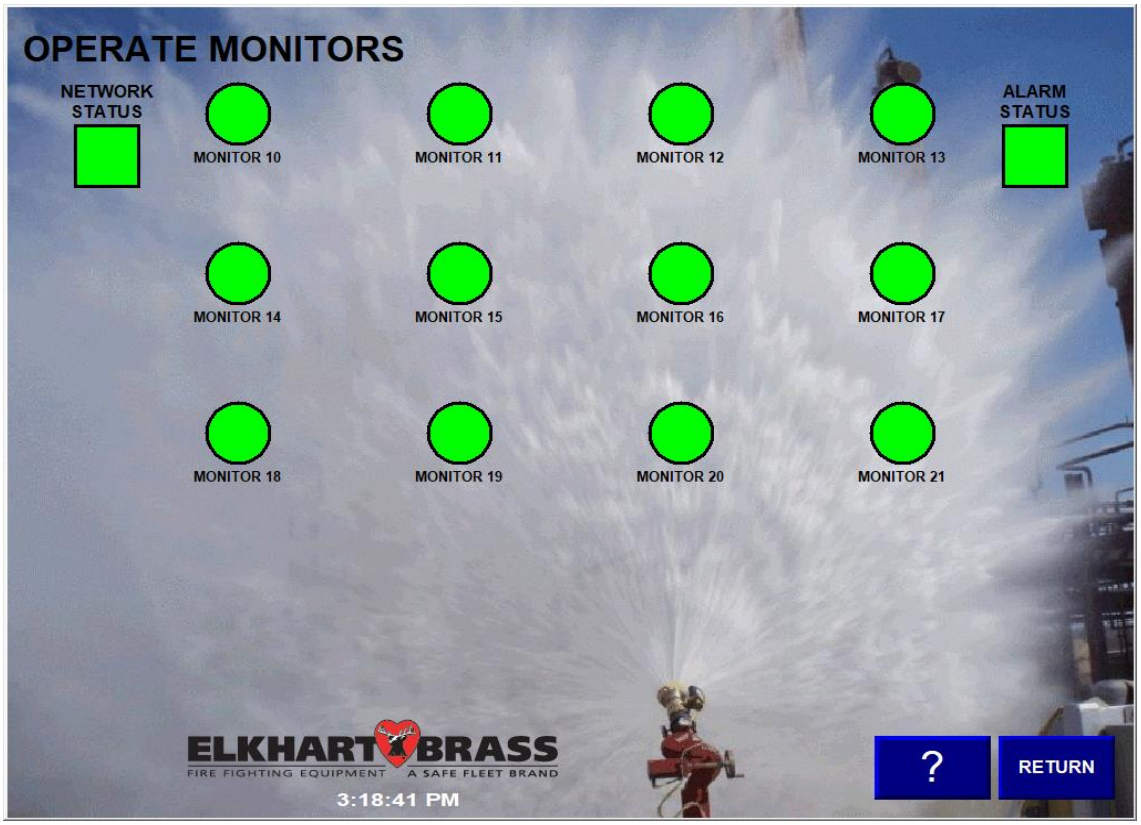
• Input Power	24 VDC
• Electrical Load	0.5 AMPS MAX
• Operation Time	20 hrs. continuous operation
• Typical operating range	100 meters (328 ft.) approximate
• Frequency	Varies by installation location requirements
• Temperature Range	-11°F to +158°F (-25°C to +70°C) Receiver & Belly pack -4°F to +158°F (-20°C to +70°C)Handheld
• Weight	6 LBS (Belly Pack) 2 LBS (Handheld)

  - RF Maintenance
    - Monthly Inspection and Maintenance
      - Check for proper operation of overall system. Please refer to the Troubleshooting section if you are experiencing problems.
  - RF Troubleshooting

RF SYSTEM	
Symptom	**Solution**
Transmitter not controlling any Monitor	• Verify that all MCPs have power • Verify that the transmitter Red battery power LED is on (Belly Pack) • Verify that the transmitter Green battery power LED is on (Handheld) • Verify that the transmitter Green status LED is flashing • Verify that the green button has been pressed after the green status LED is flashing
Transmitter Red power on LED is not on (Belly Pack)	• Check that a battery is installed in the transmitter and has a charge to it • Verify that the Power On switch is in fact in the ON position
Transmitter Green LED is flashing slowly	• Verify that the antenna is mounted correctly. • Verify that the transmitter is in range of the receiver • The Enable button has been pressed
Transmitter LED is flashing Red and will not start flashing green (Handheld)	• Check that a battery is installed in the transmitter and is charged. • Verify that the Power ON has in fact been pressed

III. SYSTEM STATUS (OPERATIONAL STATE OF ALL MONITORS)

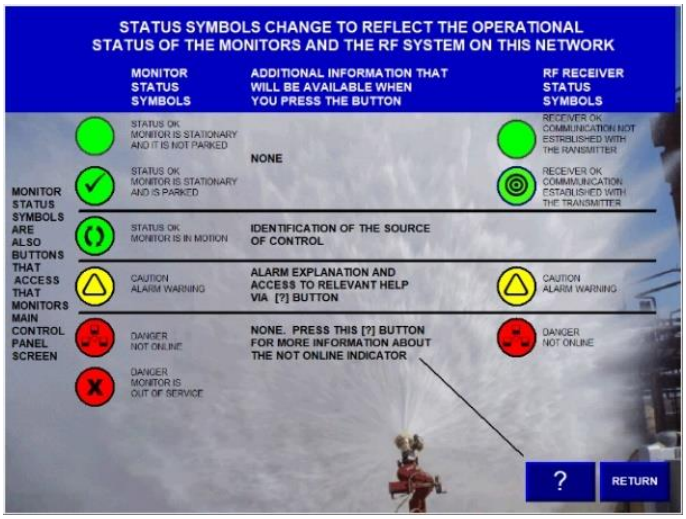
- Operate Monitors Screen



- Pressing the "OPERATE MONITORS" button on the home screen will display the above screen. From this screen, the user can see the status of each monitor, Network Status, and Alarm Status.

- The color-coded circles, with Custom Labels, indicate each Monitor's Operational State. This allows for the user to have a System Status at a glance.

Pressing the ? will access a help screen to provide more information about the active screen.
Pressing the RETURN will return the user to the previous screen.



OPERATE MONITORS HELP SCREEN

This screen will provide an explanation of the various Monitor Status Symbols the user will encounter.

Green = Monitor is Ok and ready to fight a fire.

Yellow = Monitor may be in an alarmed state or needing attention. The Monitor can still fight a fire, but functionality may be limited.

Red = Monitor communications are down, MCP power may be off, or the Monitor is out of service.

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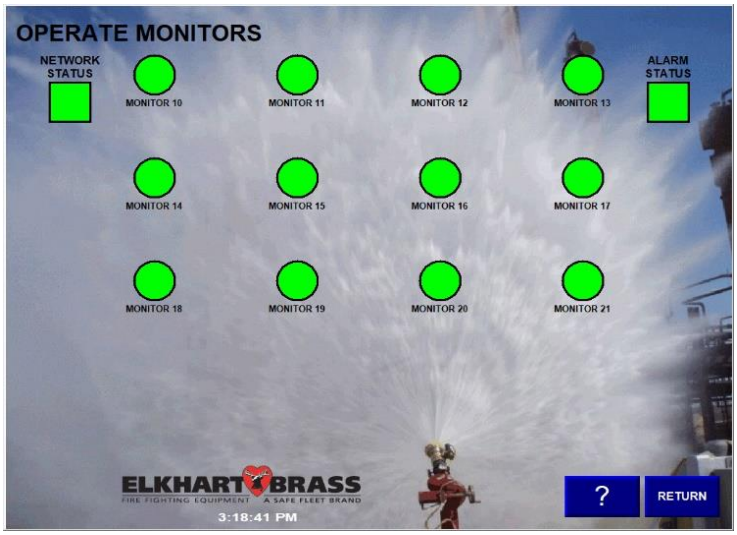
- System PLC Usage Note

  - Each HMI Enclosure consists of an HMI and PLC, that communicate with the PLCs in each MCP on the network. The HMI screen controls (virtual buttons and switches) communicate directly with each Monitor Control Panel PLC through its MCP Control Panel screen. The HMI Enclosure physical controls (Selector Switch and Joystick) communicate with the HMI PLC to "message" information to the selected Monitor Control Panel PLC to move the Monitor.

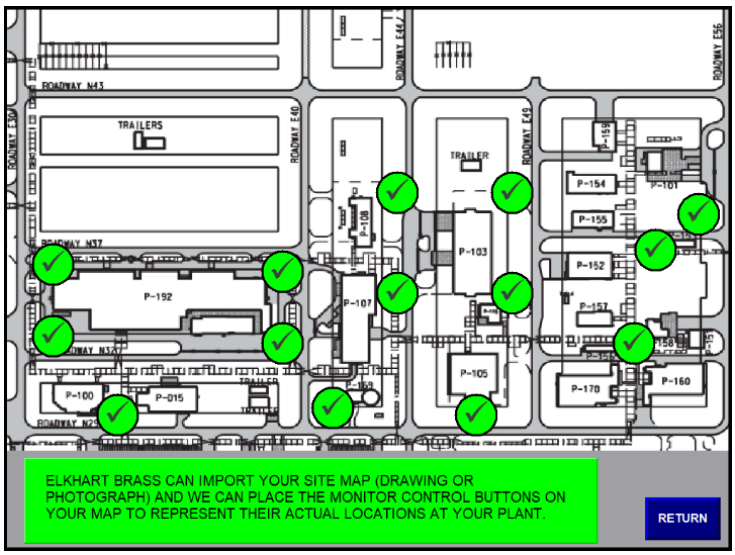
- Multiple HMI Note

  - When Multiple HMIs are utilized, only one HMI can control each Monitor axis. For example, if the user, at HMI #1 is moving the Monitor Horizontally, it takes ownership of that axis as long as the control device is pressed. No other HMI can override HMI #1's control. Once the control device is no longer pressed, any other HMI can take control and move the Monitor. However, the Nozzle, Vertical, and Horizontal Monitor Motors can be independently controlled. For Example, HMI #1 can move a Monitor Horizontally, at the same time, HMI #2 can move the same Monitor Vertically. Furthermore, HMI #3 could adjust the Nozzle spray pattern at the same time as well.

- Custom Plant / Facility Background with virtual Monitor locations



  - This screen is the Elkhart Brass standard layout for every Monitor System. The number of icons will be representative of the number of monitors in your system.



  - This screen is an example of a custom layout. It can be personalized to include a customer provided map of the site that would be laid under the icons. Icons can then be custom positioned on the map to provide a more realistic representation of the site. This will make the system more intuitive for the user. An Example is shown here.

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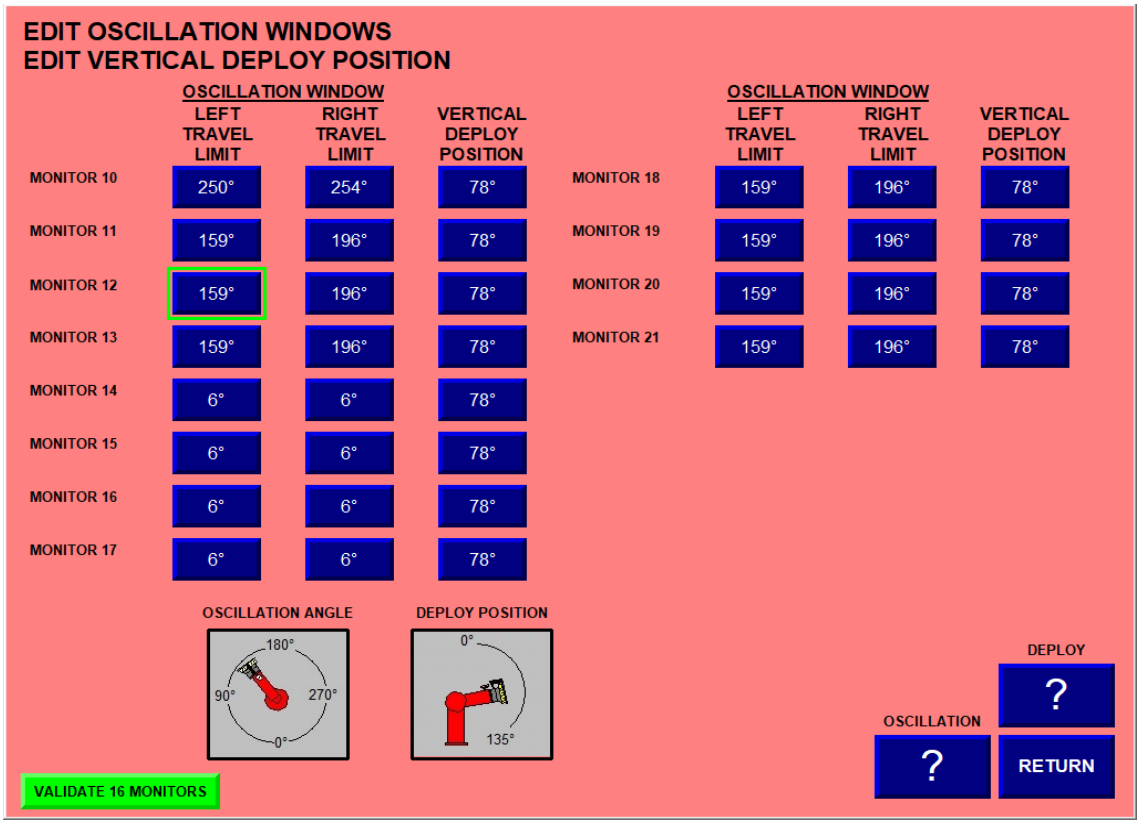
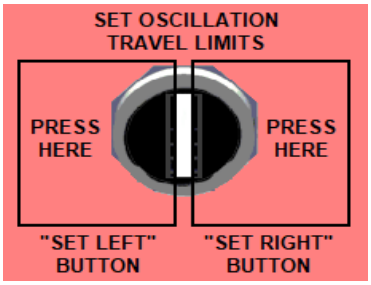
IV. MONITOR / SYSTEM CONFIGURATION

- Setting Oscillation Travel Limits



- Pressing the "EDIT OSCILLATION WINDOWS" button on the home screen will display the above screen. This screen allows the user to directly enter the Horizontal axis Oscillation Travel window limits and Vertical Deploy Positions, for all individual Monitors. The Oscillation Window is the span of motion that the Monitor will travel to during oscillation.
  - There are three ways to set the Oscillation Travel Limits.
    - HMI MCP Screen Entry (#1 below) Primary Method
    - Physical MCP or Radio Transmitter Entry (#1 below) Primary Method
    - Direct Angle Entry (#2 below) Alternate Method
      This can be used to enter the known travel limits for multiple monitors quickly.



1. Move the Monitor to the desired Left Oscillation Travel Limit, from any control device, then press the "SET LEFT" virtual screen selector switch button (on the MCP screen for that Monitor) or turn the Physical MCP selector switch to the "SET LEFT" position momentarily. Next move the Monitor to the desired Right Oscillation Travel Limit, then press the "SET RIGHT" virtual screen selector switch button (on the MCP screen) or turn the Physical MCP selector switch to the "SET RIGHT" position momentarily. These buttons are also available on the RF Transmitter, for Oscillation Travel Limit Modification from all control devices.
2. Press the blue numeric entry buttons for each Monitor. This will bring up a numeric entry keypad. Enter the desired Oscillation angles, then press the "Enter" arrow key ↵ to accept the value.

Pressing the ? will access a help screen to provide more information about the active screen.
Pressing the RETURN will return the user to the previous screen.

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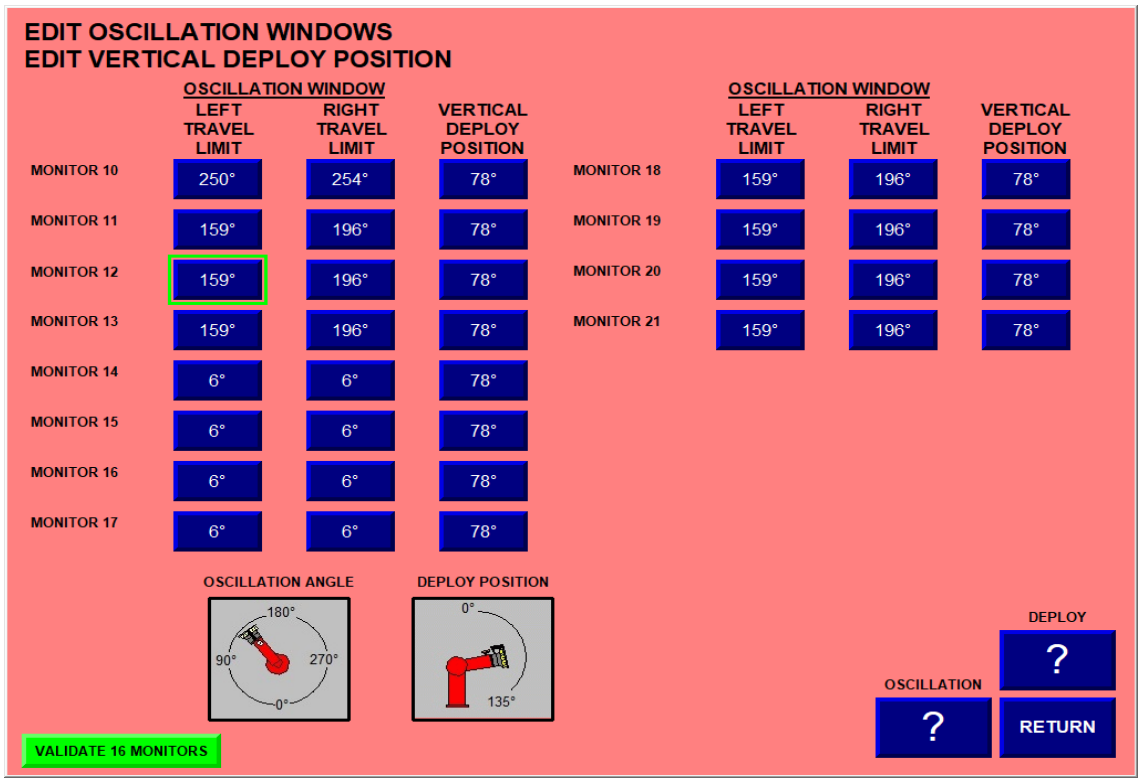
- Setting Vertical Deploy Position



- Pressing the "EDIT OSCILLATION WINDOWS" button on the home screen will display the above screen. Vertical Deploy Position is defined as the angle in which the monitor will travel to, up or down, during an alarmed response, before initiating the automatic opening of the Water Valve, and/or Auxiliary Valve or device, if equipped, and starting the Oscillation cycle. This can be utilized to restrict the monitor's water flow, or Auxiliary device reaction, if equipped, until it has reached a position to do so without causing damage or injury to property or personnel.

  - There are three ways to set the Vertical Deploy Position.
    - Physical MCP Entry (#1 below) Primary Method
    - HMI MCP Screen Entry (#2 below) Alternate Method
    - Direct Angle Entry (#3 below) Alternate Method

      This can be used to enter the known travel limits for multiple monitors quickly.

1. Move the Monitor to the desired Vertical Deploy Position, with any control device. From the Physical MCP Button Panel, **press and hold** the "FUNCTION" Button, then press the "OSCILLATE ON" blue Illuminated Push Button. This will move the current Vertical Angle into the Vertical Deploy Position register in the PLC as well.
2. Move the Monitor to the desired Vertical Deploy Position, from any control device. On the MCP Screen, press the "FUNCTION" button. This will toggle the additional Function actions that are available. Then press the "SET VERTICAL DEPLOY POSITION" Pink Button. This will move the current Vertical Angle into the Vertical Deploy Position register in the PLC.
3. Press the blue numeric entry buttons for each Monitor. This will bring up a numeric entry keypad. Enter the desired Vertical Deploy Position Angle, then press the "Enter" arrow key to accept the value.

Pressing the ? will access a help screen to provide more information about the active screen.
Pressing the RETURN will return the user to the previous screen.

- Park Routine Explained

  - The Monitor "Park Routine" is the sequence of "zeroing" the Monitor Positions, then returning the Monitor to the set Park Angles, once the Park Sequence has completed. All Monitor positions are time based, therefore, the Park Routine will need to be performed, periodically, to reset each Monitors position values and ensure the positional data is correct for each Monitor. The Park Routine is a two-part sequence that takes around 2 minutes to complete.

    - **Part One – Home**

When the Park Button is pressed the Park Pilot Light will start flashing, rapidly, for 15 seconds, as the Monitor prepares to execute the Park sequence. After this the Park Pilot Light will continue to flash, but slower. The Monitor will then move each Axis (Horizontal, Vertical, and Nozzle) as far as they can physically travel. (LEFT, UP, and STRAIGHT) The Monitor calibrates itself by intentionally running to the end of travel mechanical limits. The Monitor dwells at this point until enough time has passed to ensure that the Monitor could have made it to that limit from anywhere in its range of travel. When the motors stall, they will make a grinding noise. This IS normal and is NOT causing damage to the motors or Monitor. After the dwell time, the Monitor will complete a series of motion tasks to exercise and drain the Monitor nozzle.

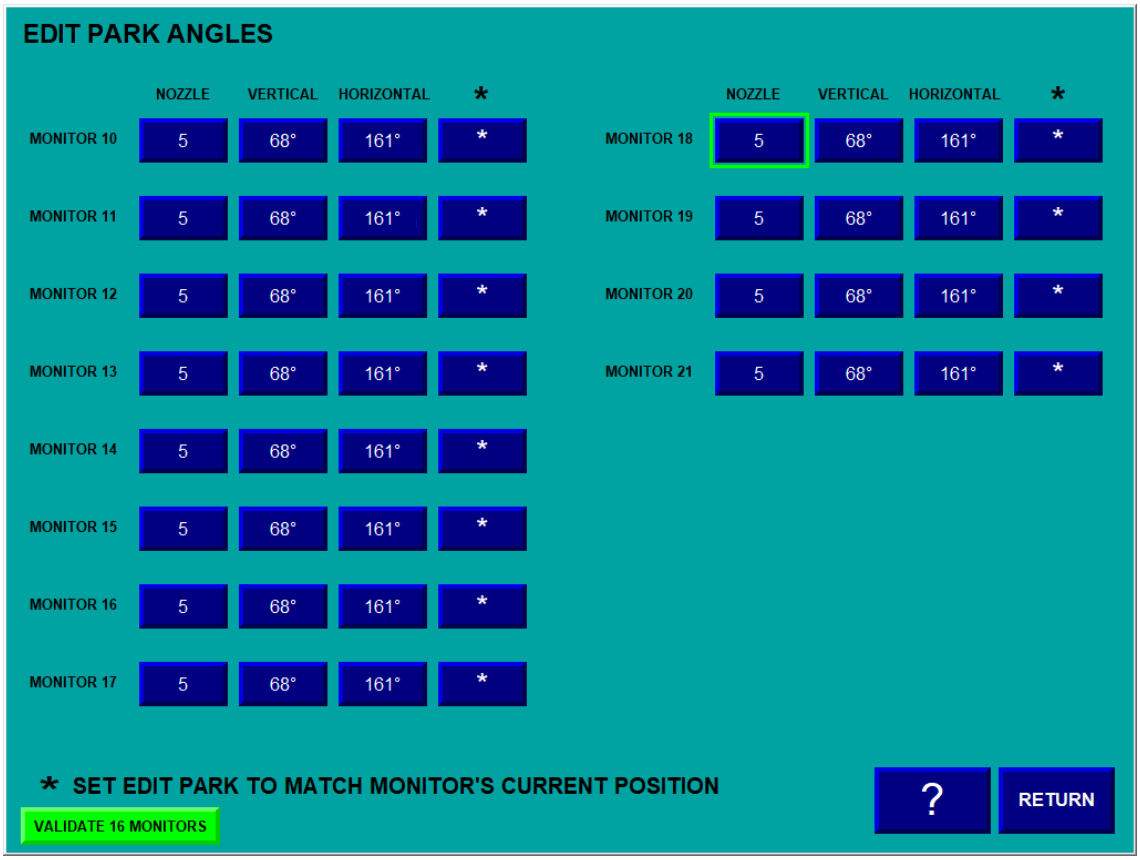
    - **Part Two - Go to Park Angles**

The Park Pilot Light will still be flashing. The Monitor will return to the park angles set in the program for each axis. Upon completion, the Park Pilot Light will turn solid. It will remain on and solid when the
Monitor is in the Park Position. The Park Routine can be cancelled by moving the directional joystick left or right, from any control device. The Monitor will not start the Park Routine if the Water Valve is presently open or the Monitor is Oscillating. This is a safety feature assuming that if the Water Valve is open, or the Monitor is Oscillating, the Monitor may be fighting a fire.

Valid Park Angles are as follows:

Horizontal (7° - 354°) | Vertical (0° - 135°) | Nozzle (0° - 90°)

- Setting Park Angles

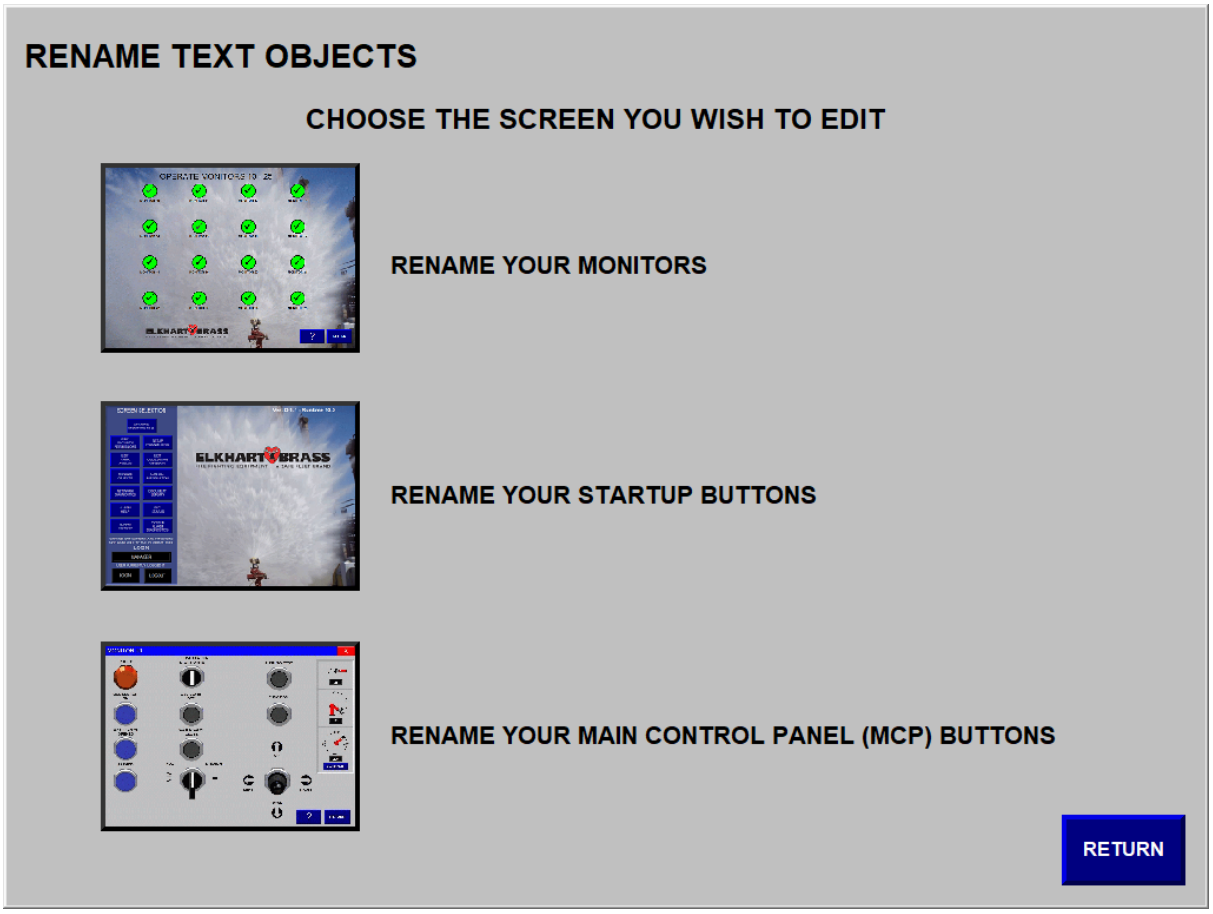


- Pressing the "EDIT PARK ANGLES" button on the home screen will display the above screen This screen allows the user to directly enter the Park angle, for each axis (Horizontal, Vertical, Nozzle) for all individual Monitors. The Monitor Park, or Stow as some call it, position is the resting point that the Monitor will go to once it is no longer in use and has the Park Routine Initiated. A certain Horizontal Park Angle could decrease the chance of injury due to walking into the Monitor or a low Vertical Park Angle will allow for the Nozzle to drain when the Monitor is not in use. Each Monitor, and each plant installation location will be custom, as all plant layouts are different, and always changing.
  - Pressing the blue numeric entry buttons, for each Monitor will bring up a numeric entry keypad. Enter the desired Park angle, then press the "Enter" arrow key ↵ to accept the value.
  - Pressing the blue "*" asterisk button, for each Individual Monitor, will enter all current positions (Nozzle, Vertical, and Horizontal) into the Park Angles register, in the PLC. During initial setup, the user can move all Monitors to the desired resting, or park positions, then press the "*" asterisk button for all Monitors.

Pressing the ? will access a help screen to provide more information about the active screen.
Pressing the RETURN will return the user to the previous screen.

ALL MONITORS SHOULD BE PARKED AFTER ANY MECHANICAL MAINTENANCE IS PERFORMED OR AFTER THE MANUAL HAND WHEEL HAS BEEN USED TO MOVE THE MONITOR.
BEST PRACTICE IS TO PARK THE MONITOR EVERY TIME, AFTER THE MONITOR IS TAKEN OUT OF SERVICE IN FIGHTING THE FIRE.

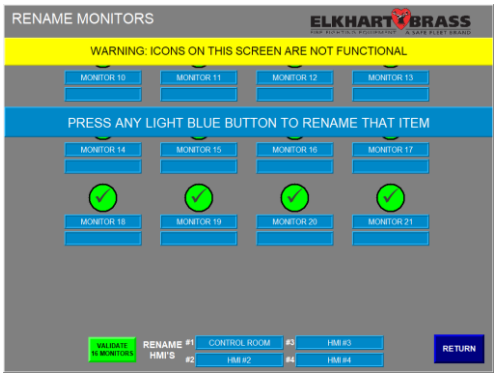
- Rename Text Objects



  - Pressing the "RENAME OBJECTS" button on the home screen will display the above screen. By pressing each picture, the user can enter each corresponding screen, allowing a Manager Enabled User to rename Monitors and Multiple HMI's (if equipped) in the system, Startup Screen buttons, and MCP Objects and Labels. These character strings are used throughout the program on numerous screens. When they are modified here, the changes will be displayed on all screens that call the specific label.

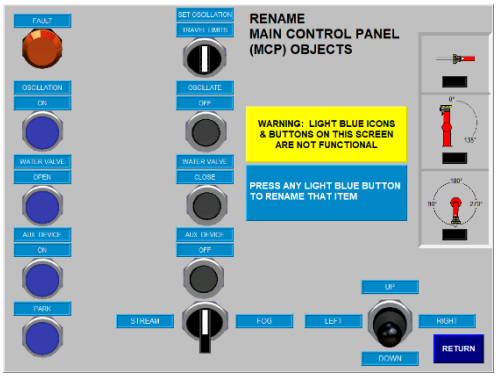
With these screens, the entire system can be customized to the user's personal nomenclature and preferences.

RENAME MONITORS

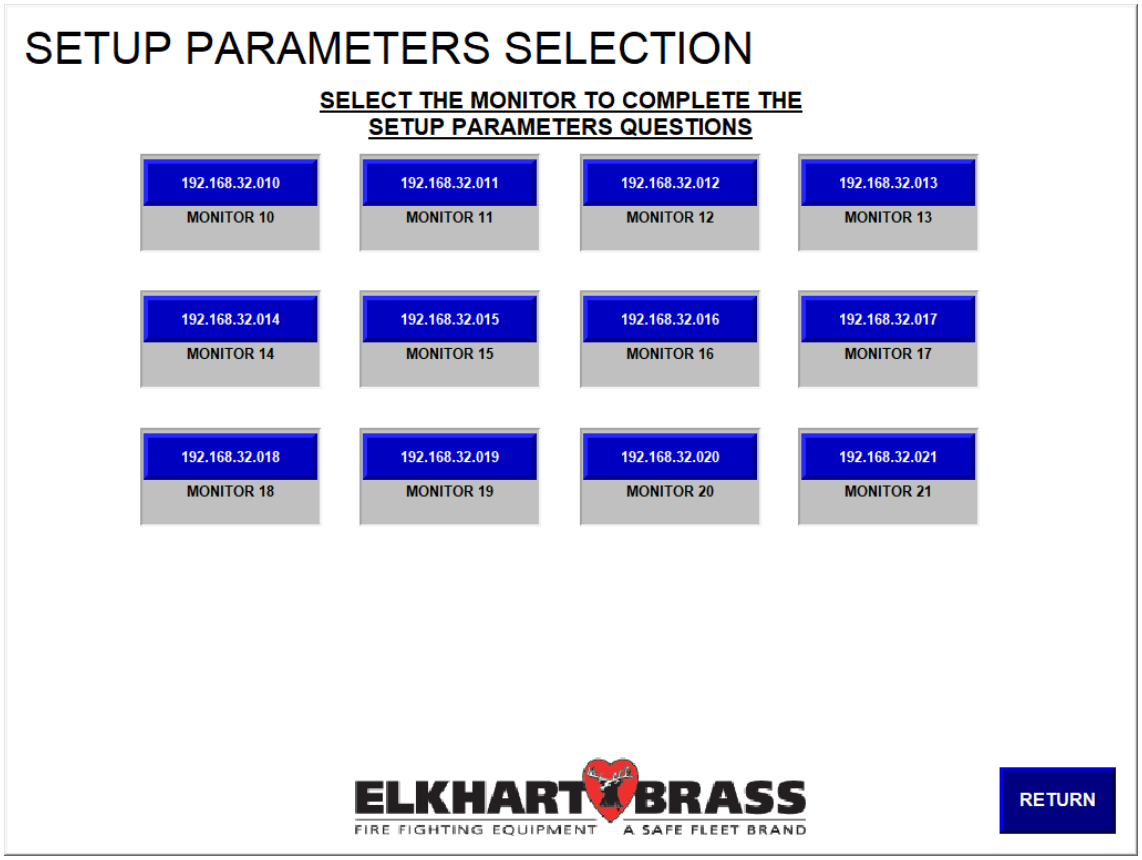


RENAME STARTUP BUTTONS

RENAME MONITOR CONTROL PANEL (MCP) BUTTONS



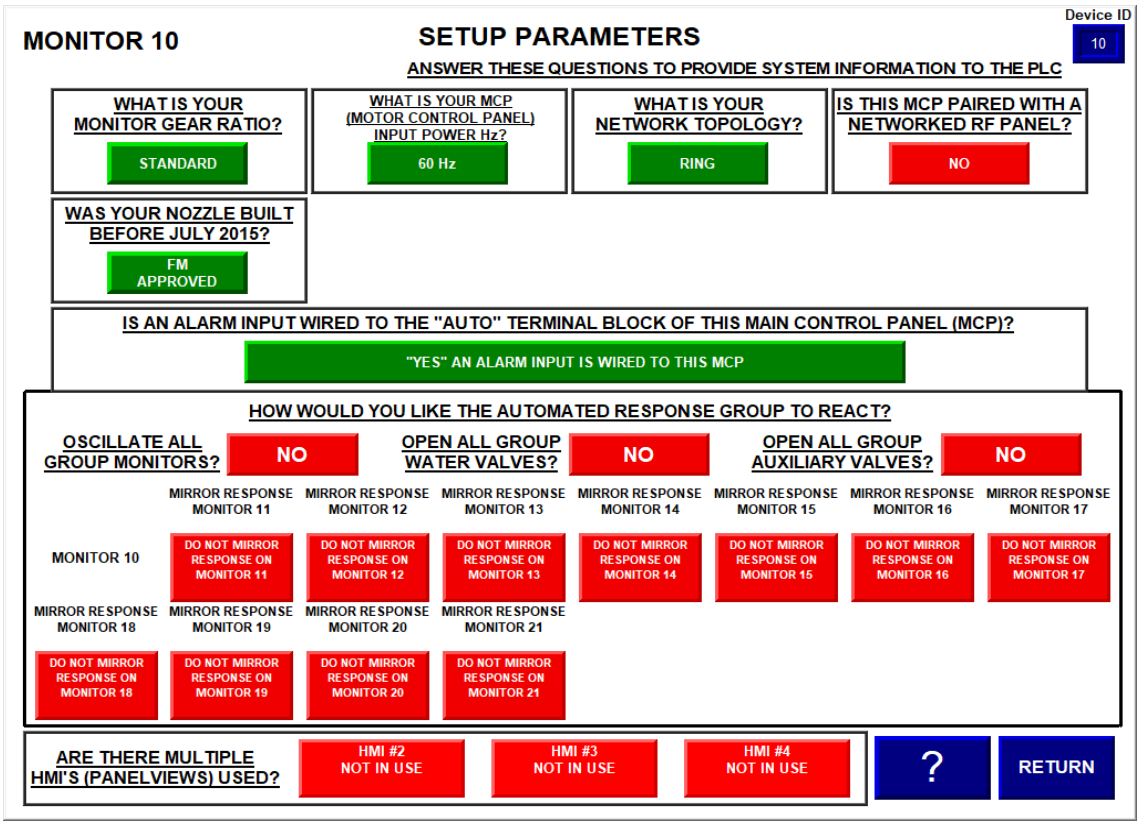
- Setup Parameters



- Pressing the "SETUP PARAMETERS" button on the home screen will display the above screen. This screen allows the user to select each Monitor in the system, to answer the Initial Setup questions.

    - This screen is not available to all users.
    - A Manager, by default, can access this screen, or allow other users to access this screen, to make system modifications. Any modifications should be done with Elkhart Brass guidance
    - The Monitor / System Setup is always factory configured at Elkhart Brass to the User's system specifications.
    - This screen allows for additional HMI's, different equipment, and Automated Response functionality, to be added with Elkhart Brass guidance in the field.
    - All Initial Setup Parameter Questions must be answered for all Monitors in the system.

- Setup Parameters (Continued)



- When you press one of the Monitor buttons on the “SETUP PARAMETERS SELECTION” screen, on the previous page, the above screen is displayed. This screen allows the user to select the Initial Setup answers for each Monitor in the system.

  Pressing the ? will access a help screen to provide more information about the active screen.
  Pressing the RETURN will return the user to the previous screen.

- The information below lists the User questions and answers/guidance available on this screen.

- **WHAT IS YOUR MONITOR GEAR RATIO?**

  - The factory default setting will be a STANDARD gear ratio. A COLD WEATHER Monitor is the other option we offer. The Cold Weather Monitor has a higher gear ratio, to add torque, in lower temperatures. An incorrect setting for this parameter will cause the Monitor angle to be displayed incorrectly on the MCP Screen.

- **WHAT IS YOUR MONTITOR CONTROL PANEL (MCP) INPUT POWER Hz?**

  - Each Monitor Position is based on time, therefore, if the improper setting is used, the position will be incorrect and could cause damage to plant equipment, facilities, or personnel. Because of this, it is necessary to account for the difference in AC Frequency. Elkhart Brass default will be 60Hz. If your country’s supplied power system is 50 Hz, toggle the "Input Power" Button to display "50Hz." If you are not aware of your supplied Hz, contact the proper electrical personnel in your facility.

This must be configured for EVERY MONITOR in your system, from the Setup Parameters Screen.

- Setup Parameters (Continued)

  - **WHAT IS YOUR NETWORK TOPOLOGY?**

    - Elkhart Brass uses a DLR (Device Level Ring) Topology Network to provide a means to detect, manage, and recover from single connection issues in a ring-based network. Each PLC in the DLR has two ethernet ports. This will allow for a failure on one communication channel to not interrupt the data transmission to that PLC. "RING" is the Elkhart Brass preferred topology. If your network topology differs from this layout, toggle the button to "LINEAR / STAR." This will disable the "RING" topology and the Network Connection Alarm.

This must be configured for EVERY MONITOR in your system, from the Setup Parameters Screen.

  - **IS THIS MCP PAIRED WITH AN RF PANEL?**

    - Answering "YES" to this question enables a watchdog timer to oversee communications between this PLC and a Networked RF Receiver. If a Networked RF is not part of the system, this will continuously error. Answering "NO" will disable the timer in the MCP.

This must be configured for EVERY MONITOR in your system, from the Setup Parameters Screen.

  - **WAS YOUR NOZZLE BUILT BEFORE JULY 2015?**

    - The factory default setting will be an FM APPROVED Nozzle. All Elkhart Brass Nozzles manufactured after July 2015 are FM approved and have a different gear ratio in their actuators. An incorrect setting will cause the nozzle angle to display incorrectly on the OCP Screen. Please contact Elkhart Brass if you are unsure of this setting.

This must be configured for EVERY MONITOR in your system, from the Setup Parameters Screen.

  - **ARE THERE MULTIPLE HMI'S (PANELVIEWS) USED?**

    - These will be set, by Elkhart Brass, from the factory for your Monitor System. If an additional HMI is added to the system, in the future, the answer can be revised to allow the system to recognize the additional HMIs.

This must be configured for EVERY MONITOR in your system, from the Setup Parameters Screen.

CHANGING THESE HMI SETTINGS, WITHOUT FIRST CONSULTING ELKHART BRASS FOR CONSENT, MAY RESULT IN IMPROPER OPERATION, FALSE FAILURE ALARMS, AND LOSS OF FUNCTIONALITY.

- Setup Parameters (Continued)

  - **IS THERE AN ALARM INPUT WIRED TO THE "AUTO" TERMINAL FOR THIS MONITOR?**

    - The system has an Automated / Group Response (Alarm Input) sequence, of which, the user can create Monitor Groups, to all react simultaneously to a single Alarm Input.

      - GROUP LEADER MONITOR = A Monitor with an Alarm Input wired to the "AUTO" Terminal block in its Monitor Control Panel and will send data to other GROUP MEMBERS.

      - GROUP MEMBER = A Monitor that will mirror response data from the GROUP LEADER and respond accordingly.

GROUP / AUTOMATED RESPONSE ACTIVATION PROCEDURE:

- Select the Monitor that will be the GROUP LEADER MONITOR. This will have an Alarm Input wired to the "AUTO" Terminal Block.

- From the Startup Screen, press the Setup Parameters Button. Then select the GROUP LEADER MONITOR, from the Setup Selection Screen.

- Answer the top five questions, explained on the previous page, then answer the "AUTO" question "YES, WIRED".
  Switching back to "NO, NOT WIRED" will reset all functions to "NO" and "DO NOT MIRROR."

- Select the function desired for the Monitor Group
  (OSCILLATE ALL, OPEN ALL WATER VALVES, OPEN ALL AUX. VALVES, if equipped.)

- Next, select each GROUP MEMBER by pressing the "MIRROR RESPONSE ON" button, thus turning it green.

- Once the Monitor Control Panel (MCP) "AUTO" Terminal Block receives a 24VDC signal, the GROUP LEADER will start the Automated Response Procedure, as well as send its response selections (OSCILLATE ALL, OPEN ALL WATER VALVES, OPEN ALL AUX. VALVES, if equipped.) to other group members.

- If the Park Sequence is active, and the "AUTO" Terminal Block Alarm Input is triggered, the Park Sequence (around 2 minutes to complete) will finish, then immediately initiate the Automated Response.

This must be configured for ALL GROUP LEADER MONITORS (with an Alarm Input wired to the "AUTO" terminal block) in your system. Any GROUP MEMBER, having the mirrored response sent to them, will need to have this question answered "NO, NOT WIRED" for proper operation.

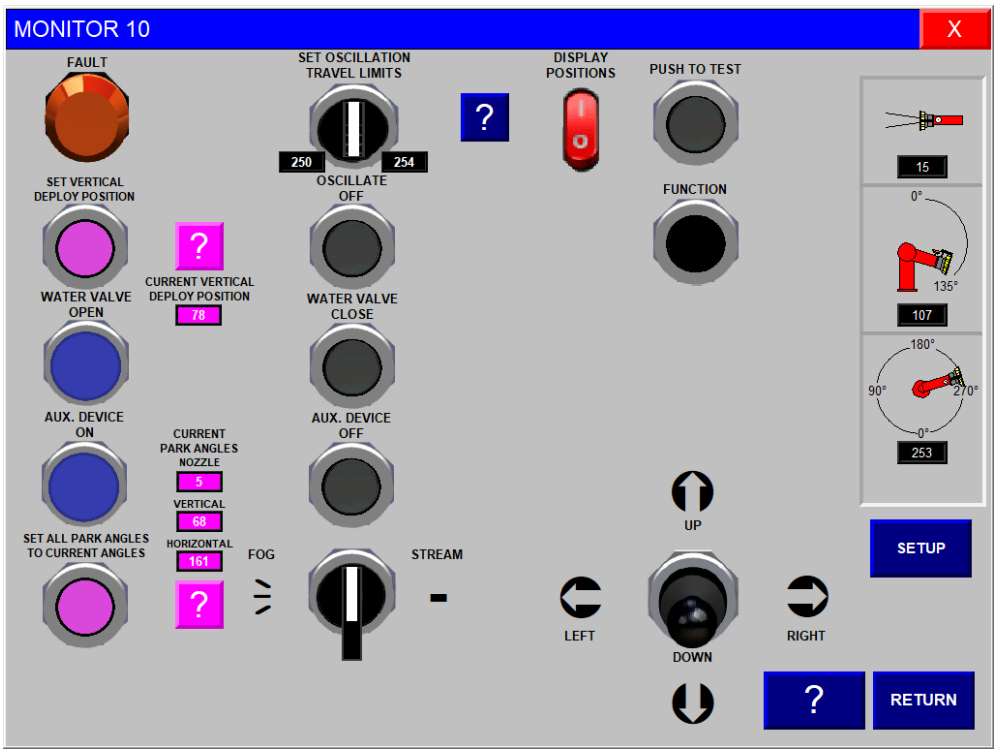
- System PLC Usage Note

  - Each HMI Enclosure consists of an HMI and PLC, that communicate with the PLCs in each MCP on the network. The HMI screen controls (virtual buttons and switches) communicate directly with each Monitor Control Panel PLC through its MCP Control Panel screen. The HMI Console physical controls (Selector Switch and Joystick) communicate with the HMI PLC to "message" information to the selected Monitor Control Panel PLC to move the Monitor.

- Multiple HMI Note

  - When Multiple HMIs are utilized, only one HMI can control each Monitor axis. For example, if the user, at HMI #1 is moving the Monitor Horizontally, it takes ownership of that axis as long as the control device is pressed. No other HMI can override HMI #1's control. Once the control device is no longer pressed, any other HMI can take control and move the Monitor. However, the Nozzle, Vertical, and Horizontal Monitor Motors can be independently controlled. For Example, HMI #1 can move a Monitor Horizontally, at the same time, HMI #2 can move the same Monitor Vertically. Furthermore, HMI #3 could adjust the Nozzle spray pattern at the same time as well.

- Monitor Control Panel (MCP) Screen "Function" Button Usage

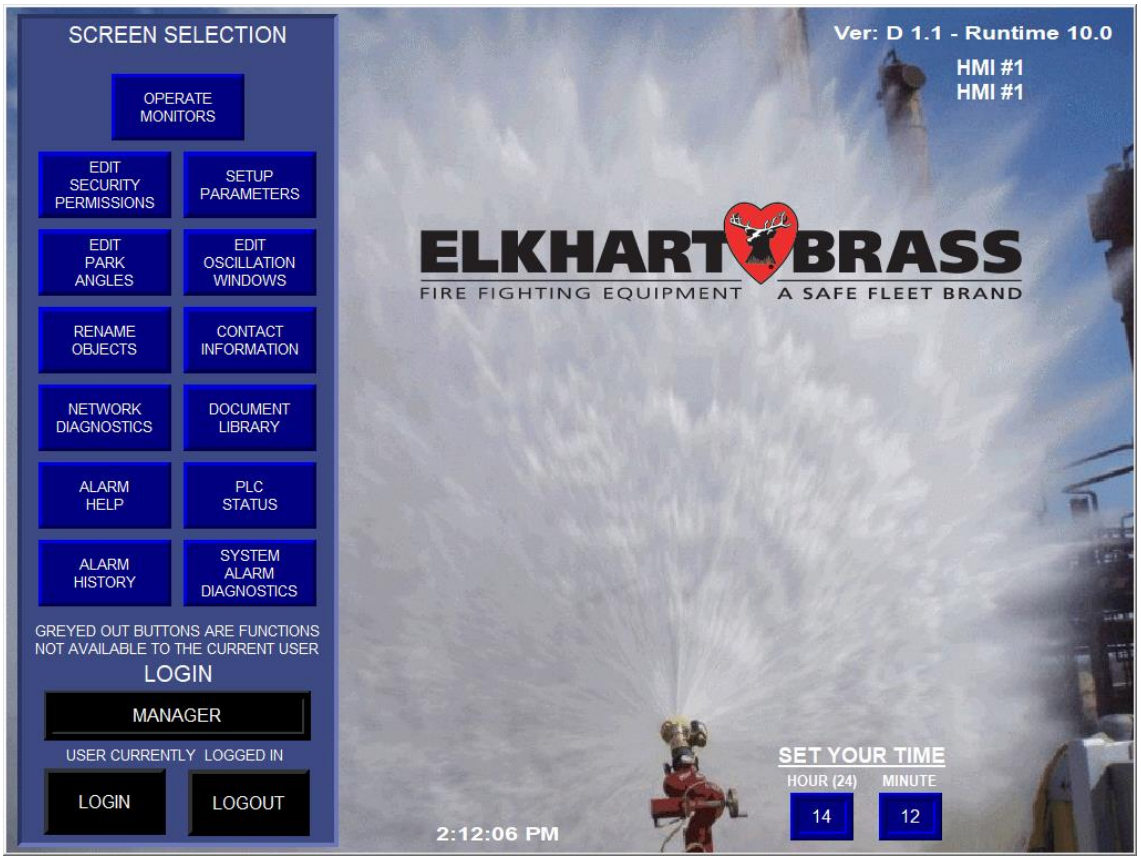


  - Pressing the function button, with Managerial Permission enabled, toggles this screen on and off, allowing the user to set Park Angles and Vertical Deploy Position, for that Monitor.

- Park Angles are the positions the Monitor will come to a rest at, after the Park Routine has been completed.
- Park Angles are discussed on Pg. 18. The Park Routine is further explained on Pg. 19.
- The Vertical Deploy Position is defined as the vertical angle or position, the Monitor will travel to (up or down) during an Automated Response, prior to automatically opening the Water Valve, or activating an Auxiliary Device, if equipped. This restricts the Monitors' water flow, or Auxiliary Device activation until it is aimed in a direction where it is safe to do so. The Vertical Deploy Position is discussed on Pg. 17.

V. MANAGERIAL SECURITY

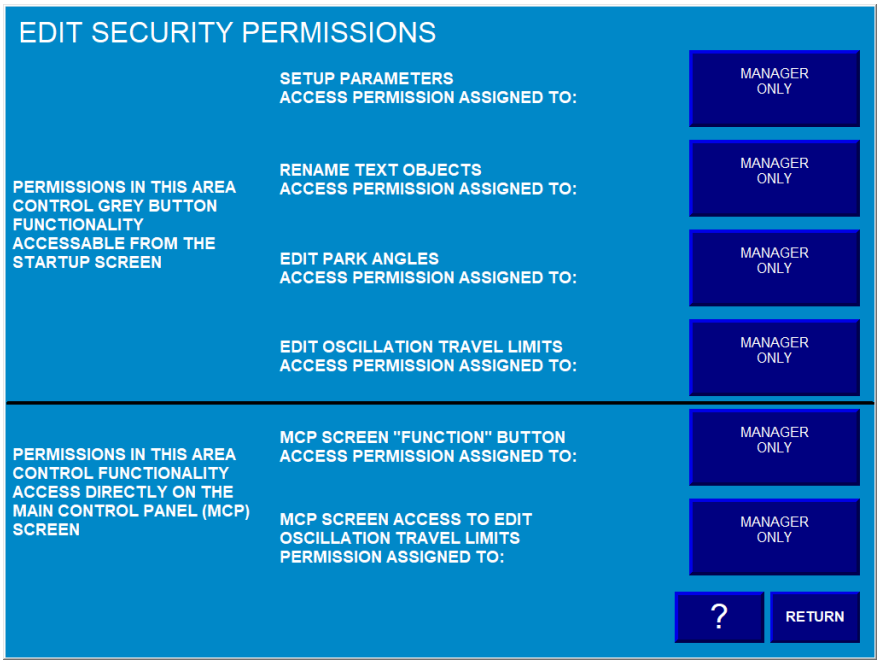
- User Login Levels



  - This HMI allows for certain User Groups, each group with their own Login information.
  - The User Groups are as follows:
    - MANAGER
    - SUPERVISOR
    - DEFAULT USER (ANYONE)
  - Pressing the “LOGIN” button from this screen will allow the user to enter credentials and attain access to certain functionality throughout the system.
  - Certain functions are not available to all users, but can be allowed by a Manager, from the “Edit Security Permissions” Screen.
  - Login Credentials (Username and Password) are not published in this manual. They will be provided to the proper personnel.

- Managerial User Access Control
  - A Manager can allow, or restrict, access to the following functions:
    - **Setup Parameters** – These are the original Monitor / System Setup Questions usually completed prior to shipping at Elkhart Brass.
    - **Rename Text Objects** – This allows access to rename Monitors, HMIs, MCP Operator Buttons, and Main Screen Buttons
    - **Edit Park Angles** – This allows access to edit the Park Angles on the "Edit Park Angles" Screen.
    - **Direct Numerical Entry of Oscillation Travel Limits** – This allows access to directly enter the numerical Oscillation Travel Limit values on the "Edit Oscillation Windows" Screen.
    - **MCP Screen "Function" Button Usage** – This allows the user to have "Function" Button access, to set all Park Angles to the current Monitor Position and set Vertical Deploy Position directly from the Monitor Control Panel (MCP) Screen.
    - **MCP Screen Current Position Entry of Oscillation Travel Limits** – This allows the user to set the Oscillation Travel Limits based on Current Monitor Position directly from the Monitor Control Panel (MCP) Screen.

- Edit Security Permissions



  - Pressing the "EDIT SECURITY PERMISSIONS" button on the home screen will display the above screen. This screen allows the manager to set the Security Permissions for the various system and Monitor functions.
  - Pressing any of the Blue Buttons on the right side will toggle between:
    - "MANAGER ONLY"

    (Highest Level – Can change anything in the HMI including granting access to restricted functions to lower security levels)
    - "MANAGER OR SUPERVISOR"

    (Mid-Level, has more access than a typical user, but not unlimited)
    - "ANYONE."

    (Lowest Level, has control limited to functions necessary to fight a fire unless further granted by a Manager)

Pressing the ? will access a help screen to provide more information about the active screen.
Pressing the RETURN will return the user to the previous screen.

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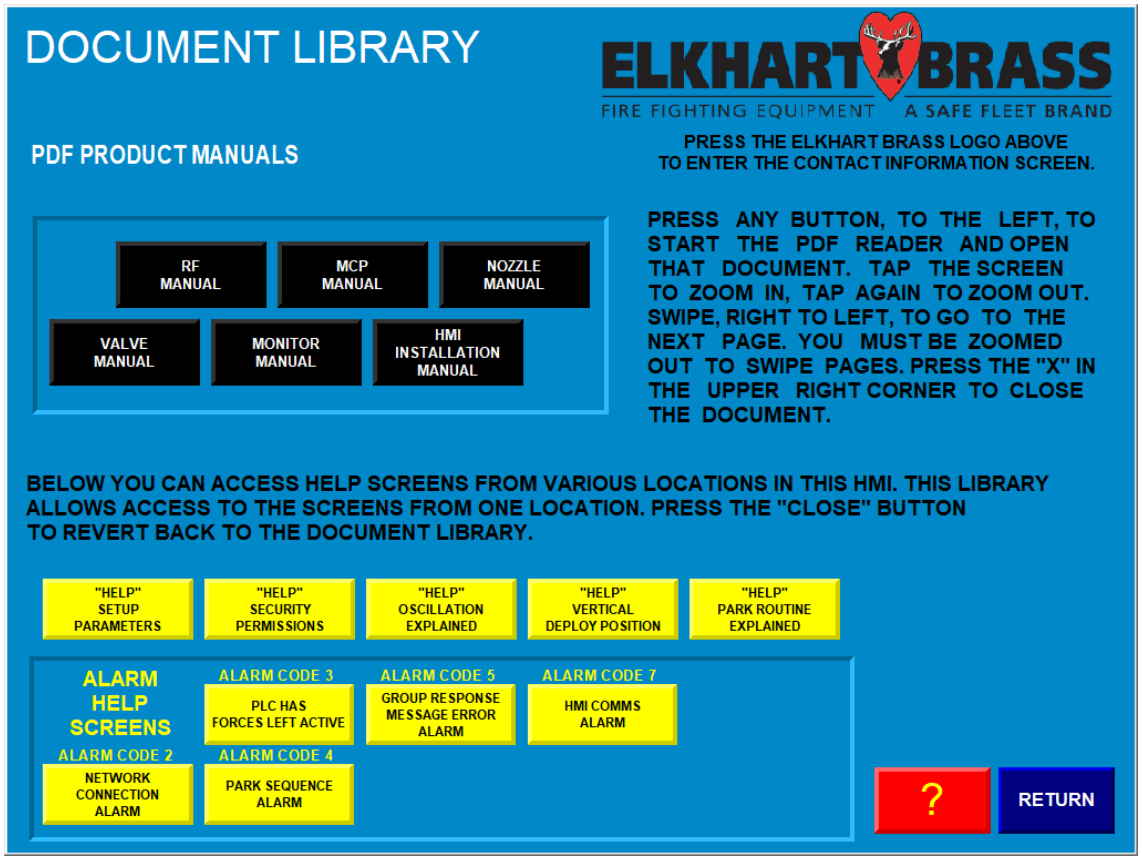
VI. MONITOR / SYSTEM TROUBLESHOOTING

- Document Library



- Pressing the "DOCUMENT LIBRARY" button on the home screen will display the above screen. This screen is a single location for all help screens and system manuals. Component Manual PDF's open directly on the HMI. The help screens walk the user through common questions and issues, as well as maintenance and installation procedures. Alarm Help screens aid the user in troubleshooting the system, should an Alarm occur.

Pressing the

will access a help screen to provide more information about the active screen.
Pressing the

will return the user to the previous screen.

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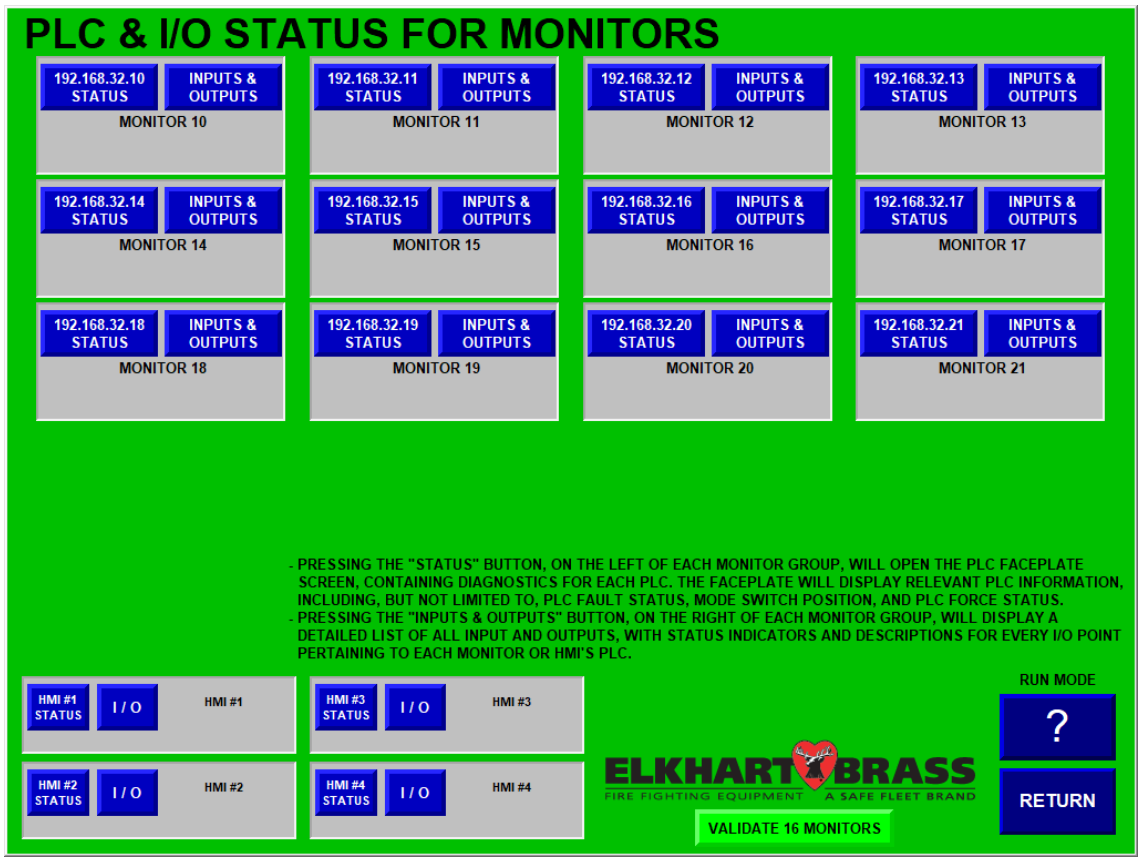
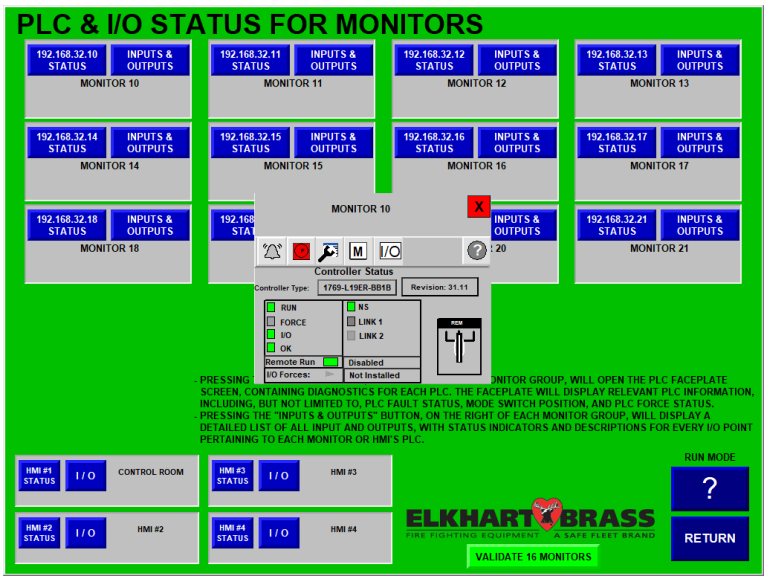
- PLC Status Selection



- Pressing the "PLC STATUS" button on the home screen will display the above screen. The purpose of this screen is to allow the user to monitor the status of the entire system of PLCs. From this screen the user can select any of the individual PLCs for a detailed status of the selected PLC.

  - PLC Faceplate

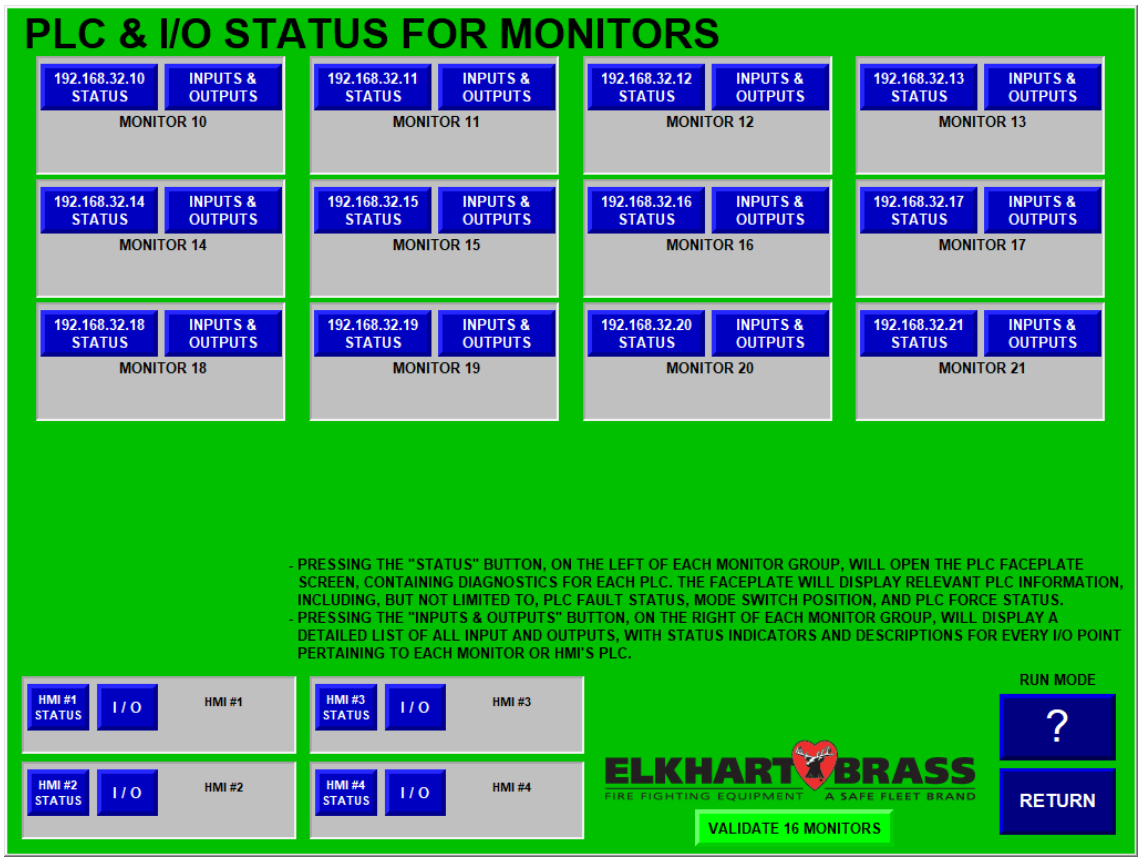
- When the user presses the left "STATUS" button on the "PLC STATUS" screen, shown on the previous page, this popup is displayed.



- This will display a PLC Faceplate with pertinent PLC information. This shows all the information a technician would see as if they were looking at the front of the physical PLC. This can be very useful as the user can see PLC information for all system PLCs in one place, without the need to go to all MCPs and open the enclosure doors.

- PLC Fault Code and Operating Mode can be accessed here and will aid in technician troubleshooting.

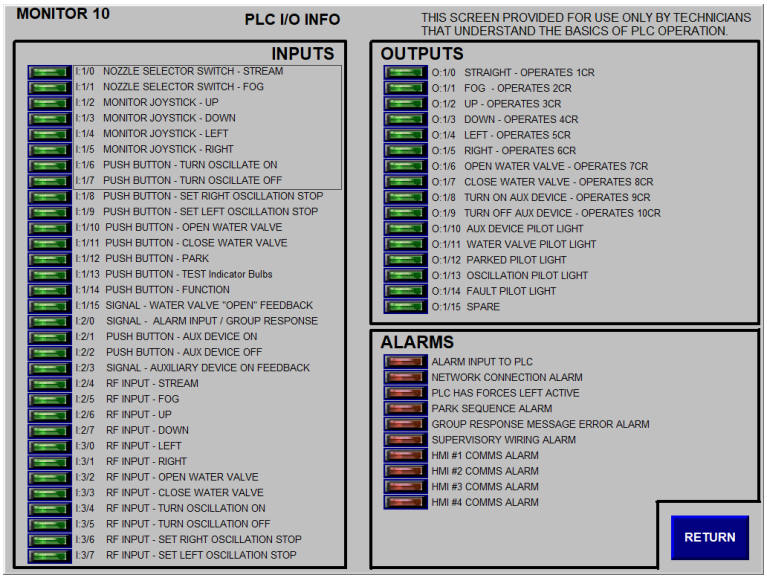
- PLC Status Selection (Continued)



- Pressing the "PLC STATUS" button on the home screen will display the above screen. The purpose of this screen is to allow the user to monitor the status of the entire system of PLCs. From this screen the user can select any of the individual PLCs for a detailed status of the selected PLC.

  - Input / Output Indicators and Descriptions

- When the user presses the right "STATUS" button on the "PLC STATUS" screen, shown on the previous page, this screen is displayed.



- This screen is a diagnostics screen with I/O and Alarm indicators for each Monitor's PLC. These screens serve as a troubleshooting aid for Technicians with basic knowledge of PLCs. It gives a detailed description of the selected PLC's I/O status. If an Input or Output is active, the indicator light to the left of each tag will illuminate green.

- Alarm warnings (Forces Active, Network Connection, Park Sequence, etc.) have a red indicator light that will illuminate when an alarm is active. Alarm Help can be found on Pgs. 33 - 37, as well as the Document Library and System Alarm Help screen.

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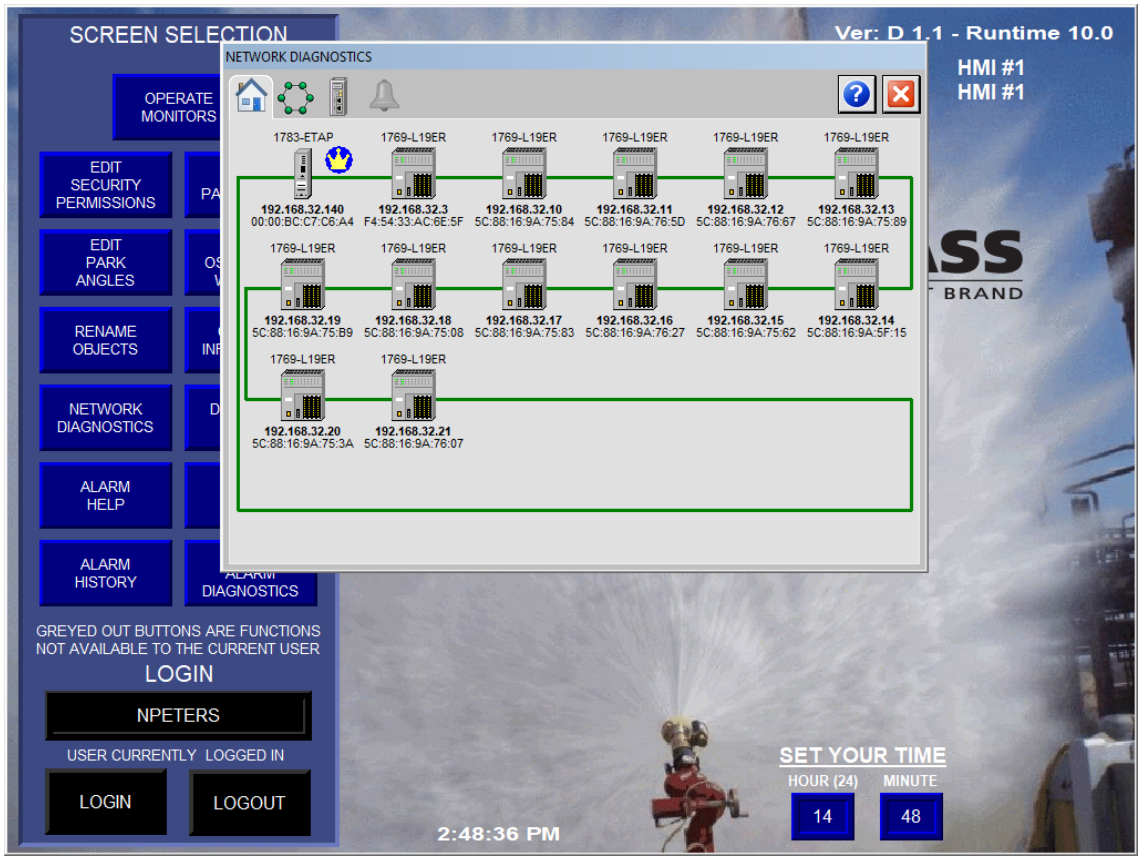
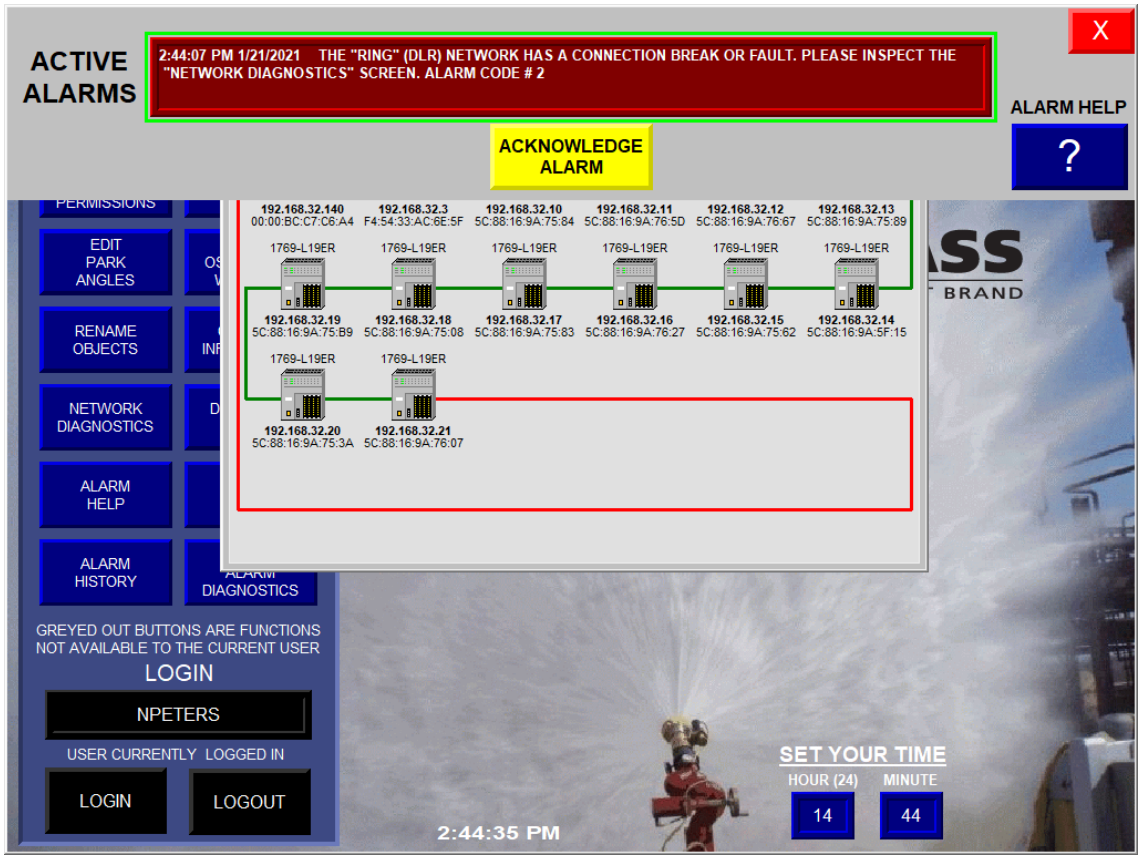
- Network Diagnostics (DLR)



- Pressing the “NETWORK DIAGNOSTICS” button on the home screen will display the above screen. This screen will show the system Network Connections and devices. This can aid in troubleshooting and network installation issues.

- The DLR (Device Level Ring) Network provides a means to detect, manage, and recover from single faults in a ring-based network. Each PLC in the DLR has two ethernet connections, which allows for a failure on one communication channel to not interrupt the data transmission to that PLC. The "Network Diagnostics" screen is a very powerful tool to locate network problems. It can be accessed from the “Network Diagnostics” button on the Elkhart Brass "Startup" screen, or by pressing the “Network Status” icon on the "Operate Monitors" screen.

- System Alarm Guidance
  - Active Alarm Banner

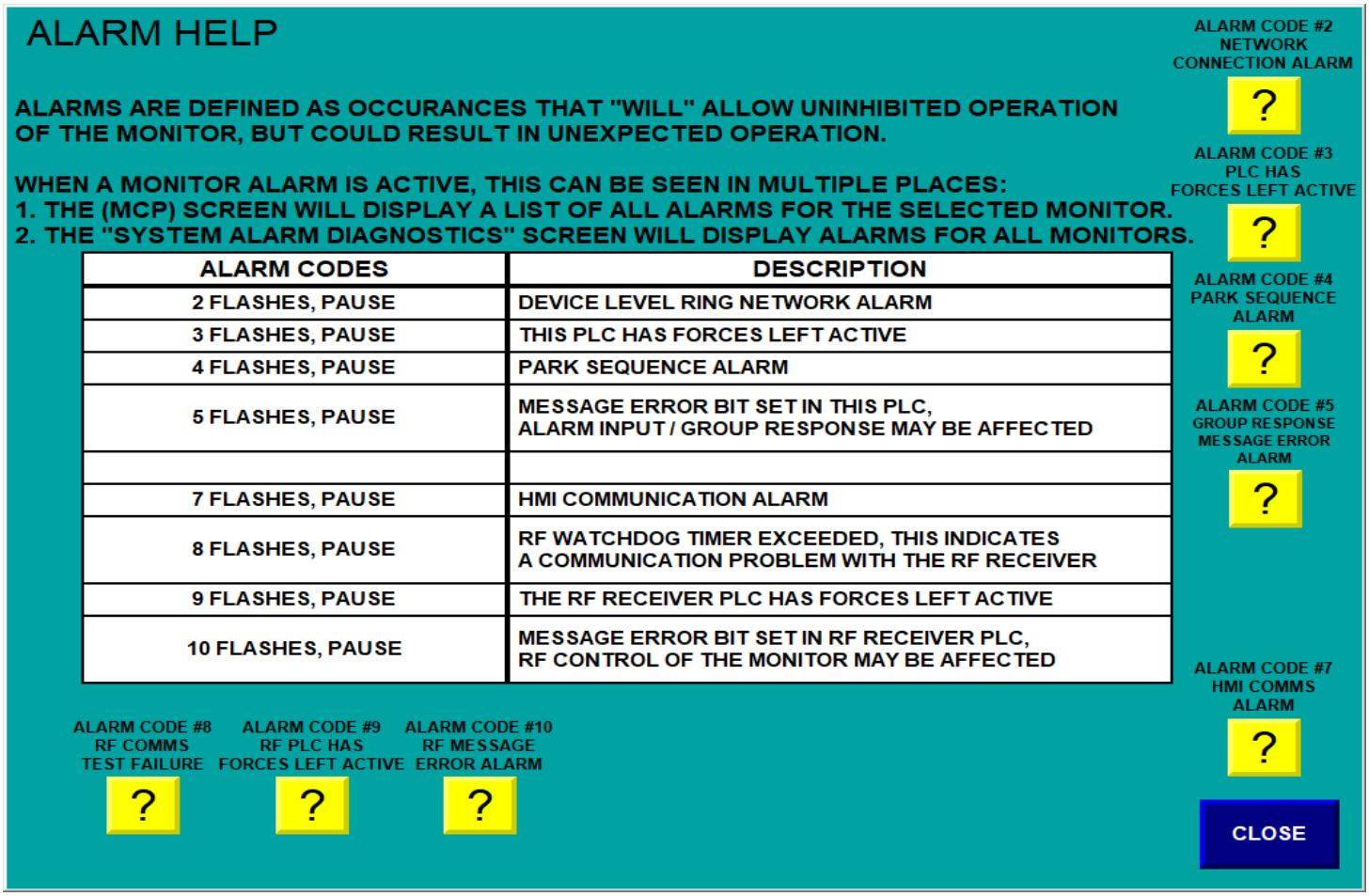


- This banner will display on top of all screens when an Alarm occurs. A time/date stamp is attached to each Alarm instance, as well as a description of the Alarm, and Alarm Code #. This number coincides with the flashing coded Alarm displayed with the Physical Fault Pilot Light, on each MCP and on each HMI MCP Screen.

- If multiple Alarms are active, they will be listed in the banner. Acknowledging the Alarm will not fix the problem, but it will clear the Alarm instance from the banner queue, to allow the user to see all active Alarms.

Pressing the ? will access a help screen to provide more information about the active screen.
Pressing the RETURN will return the user to the previous screen.

- System Alarm Guidance (Continued)
    - Alarm Help

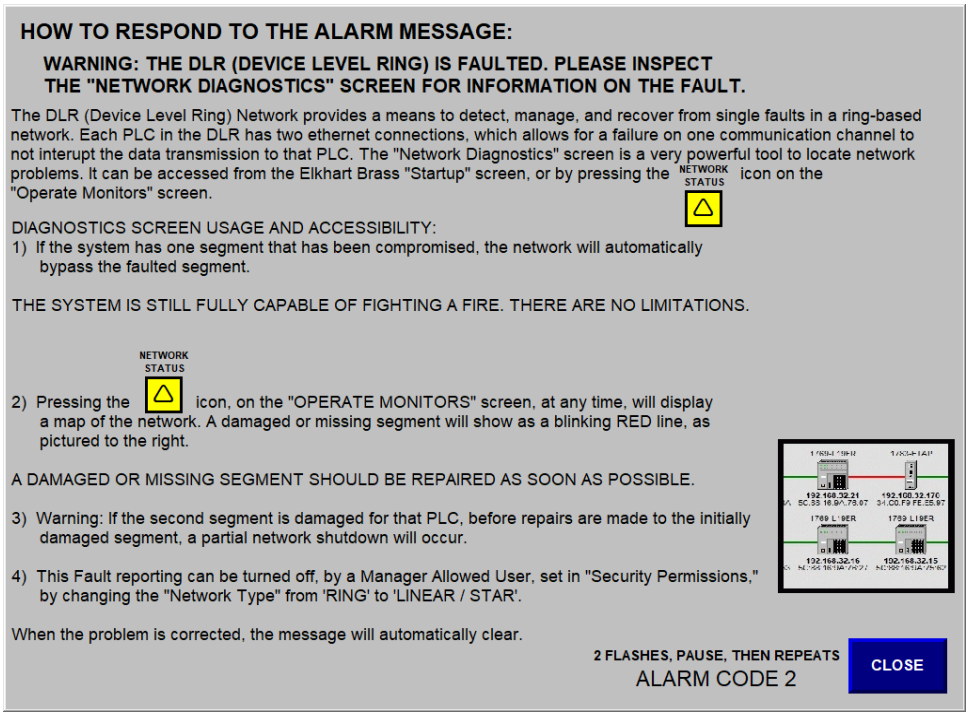


- Pressing the “ALARM HELP” button on the home screen will display the above screen. This screen will aid in troubleshooting if an Alarm occurs. It displays a table, listing the Alarms in flashes per code. The Amber “Fault” Light, on the MCP Enclosure and on the MCP Screen, will flash according to the Alarms each Monitor may have. The user can count the flashes, as they will give a code as to what Alarm is active. This can be useful for technicians, as the Physical Monitor Control Panel (MCP) Enclosure can signal personnel that an Alarm has occurred even without the HMI.

- Pressing any of the ? will take the user to a help screen that will provide more information about each Alarm.

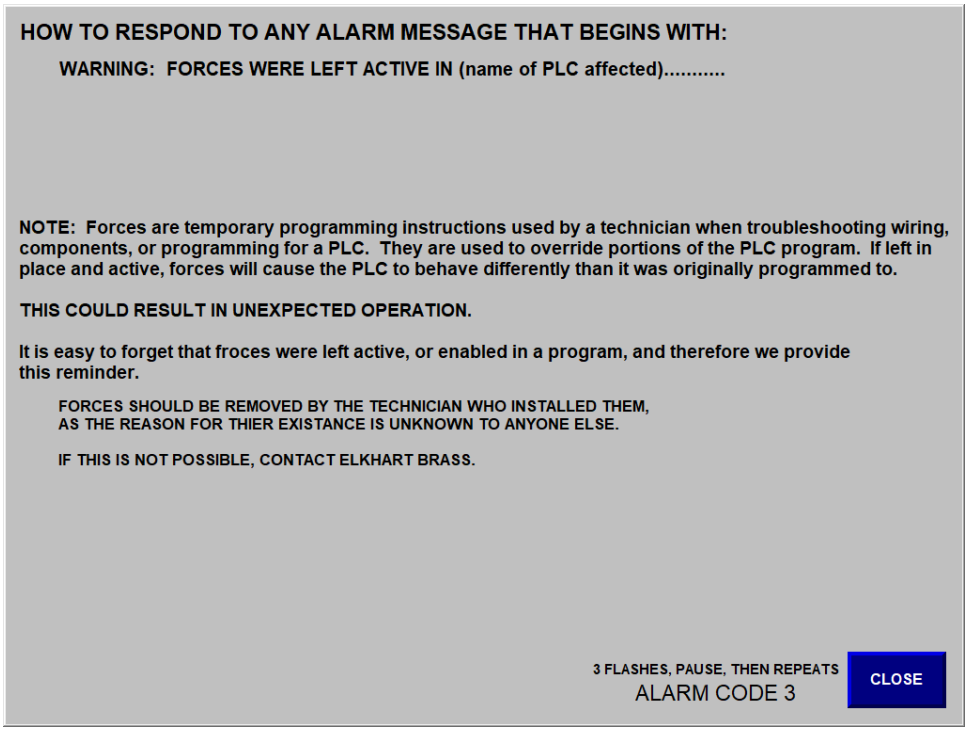
- System Alarm Guidance (Continued)
  - Alarm Help

The following help screens can be accessed from the Document Library and the System Alarm Help screen.



NETWORK CONNECTION ALARM
ALARM CODE #2

BACK TO ALARMS



PLC HAS FORCES LEFT ACTIVE
ALARM CODE #3

BACK TO ALARMS

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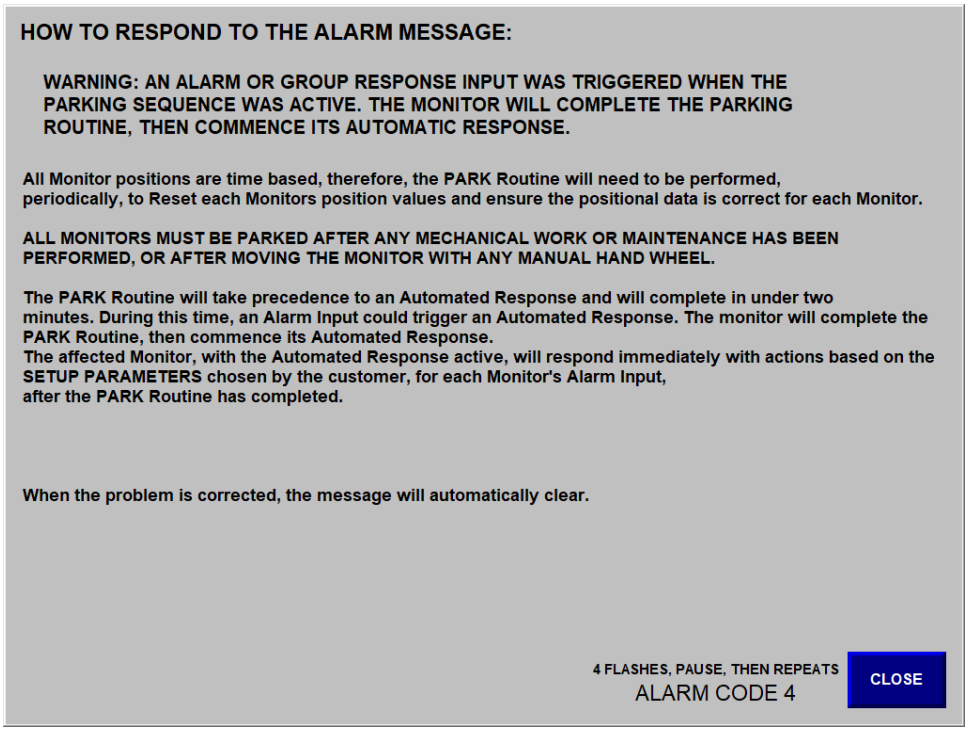
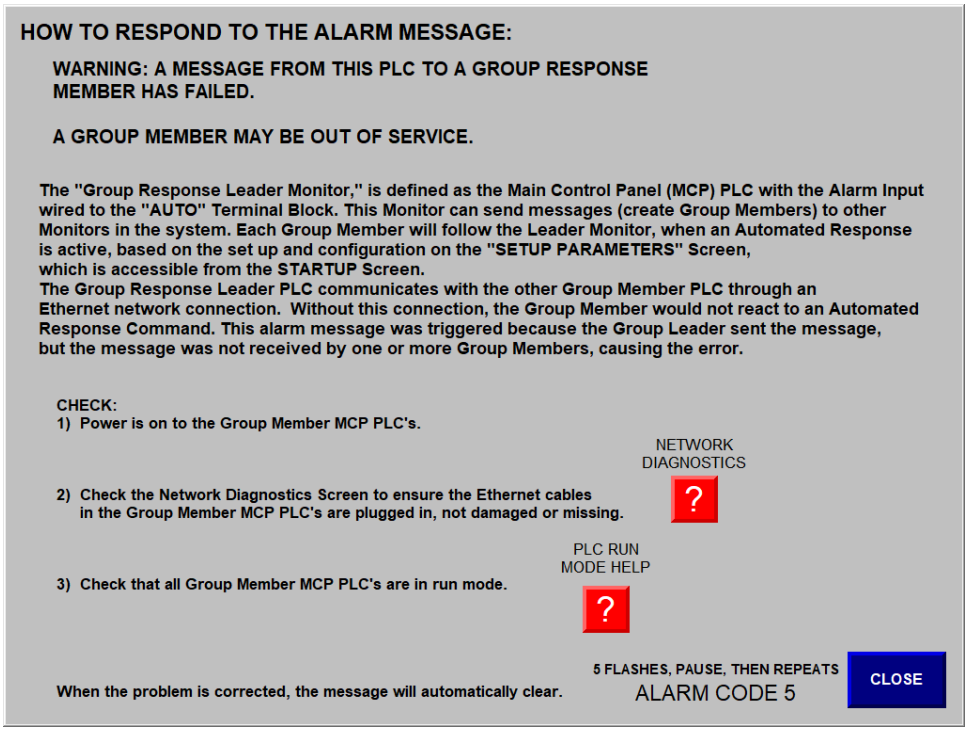
- System Alarm Guidance (Continued)
  - Alarm Help



PARK SEQUENCE ALARM
ALARM CODE #4

BACK TO ALARMS



GROUP RESPONSE ALARM
ALARM CODE #5

BACK TO ALARMS

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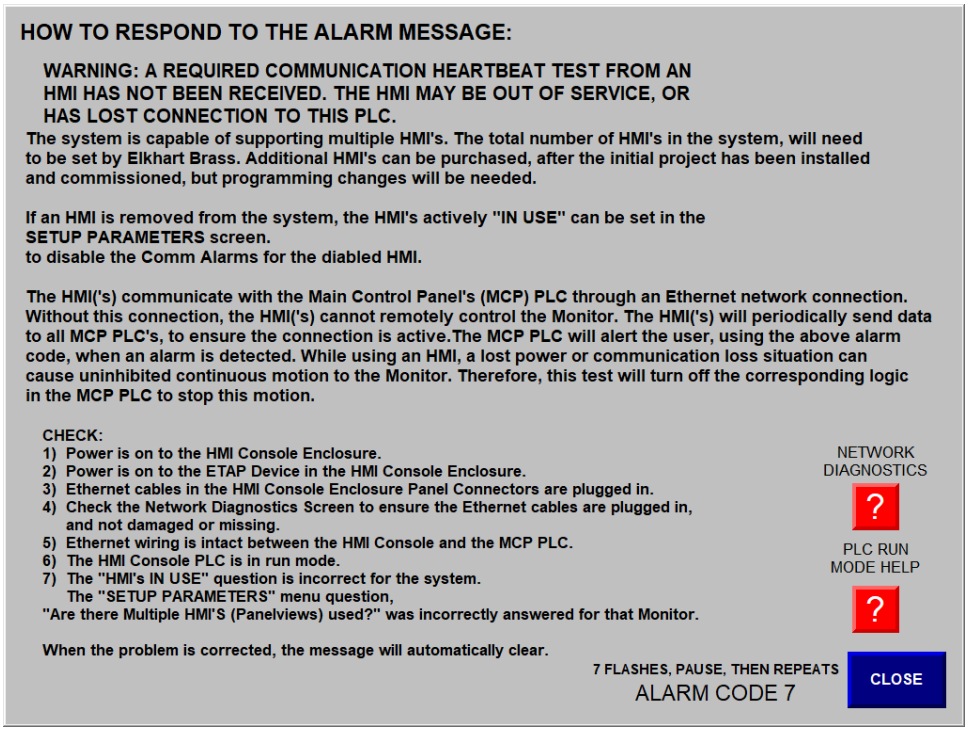
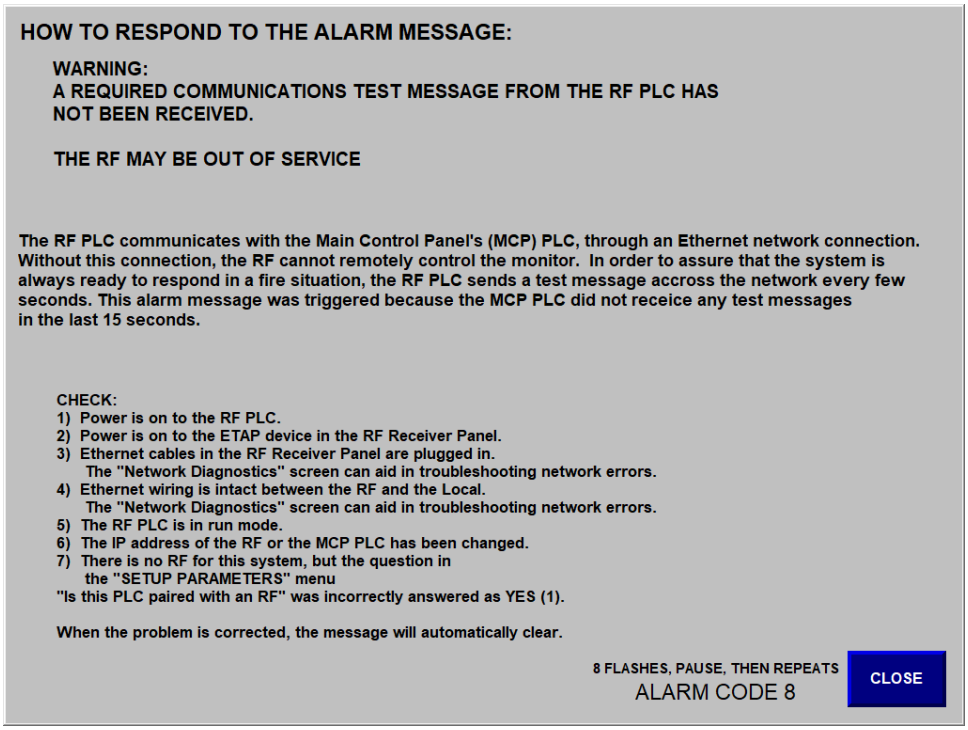
- System Alarm Guidance (Continued)
  - Alarm Help



HMI COMMUNICATIONS ALARM
ALARM CODE #7

BACK TO ALARMS

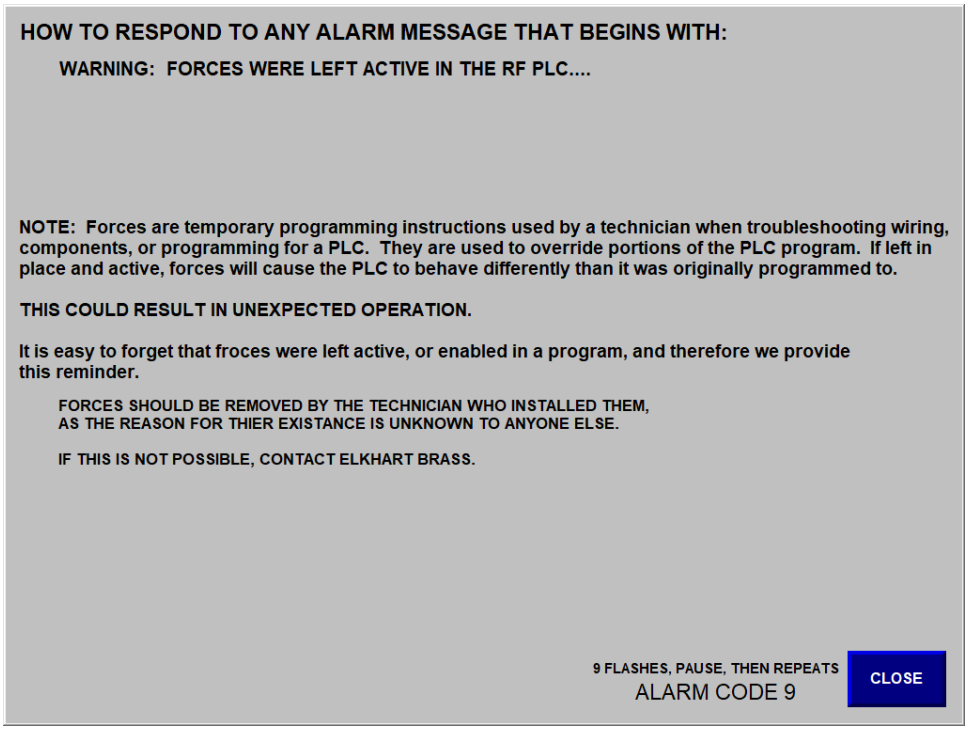


RF COMMS TEST FAILURE
ALARM CODE #8
(if equipped)

BACK TO ALARMS

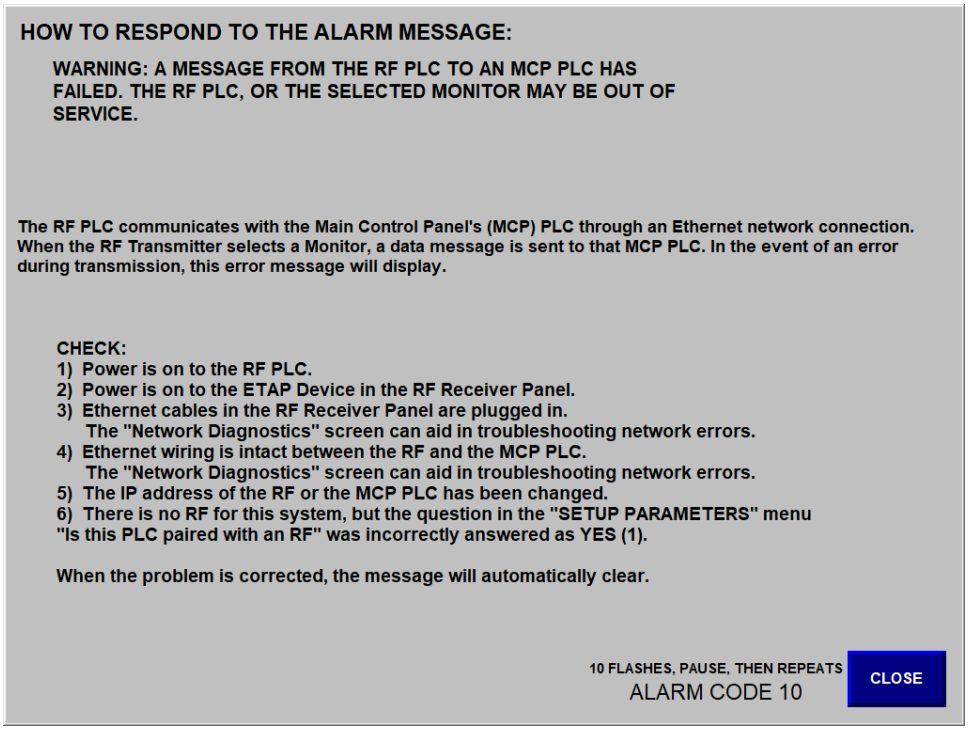
BACK TO TABLE OF CONTENTS

- System Alarm Guidance (Continued)
  - Alarm Help



RF PLC HAS FORCES LEFT ACTIVE
ALARM CODE #9
(if equipped)

BACK TO ALARMS



RF MESSAGE ERROR ALARM
ALARM CODE #10
(if equipped)

BACK TO ALARMS

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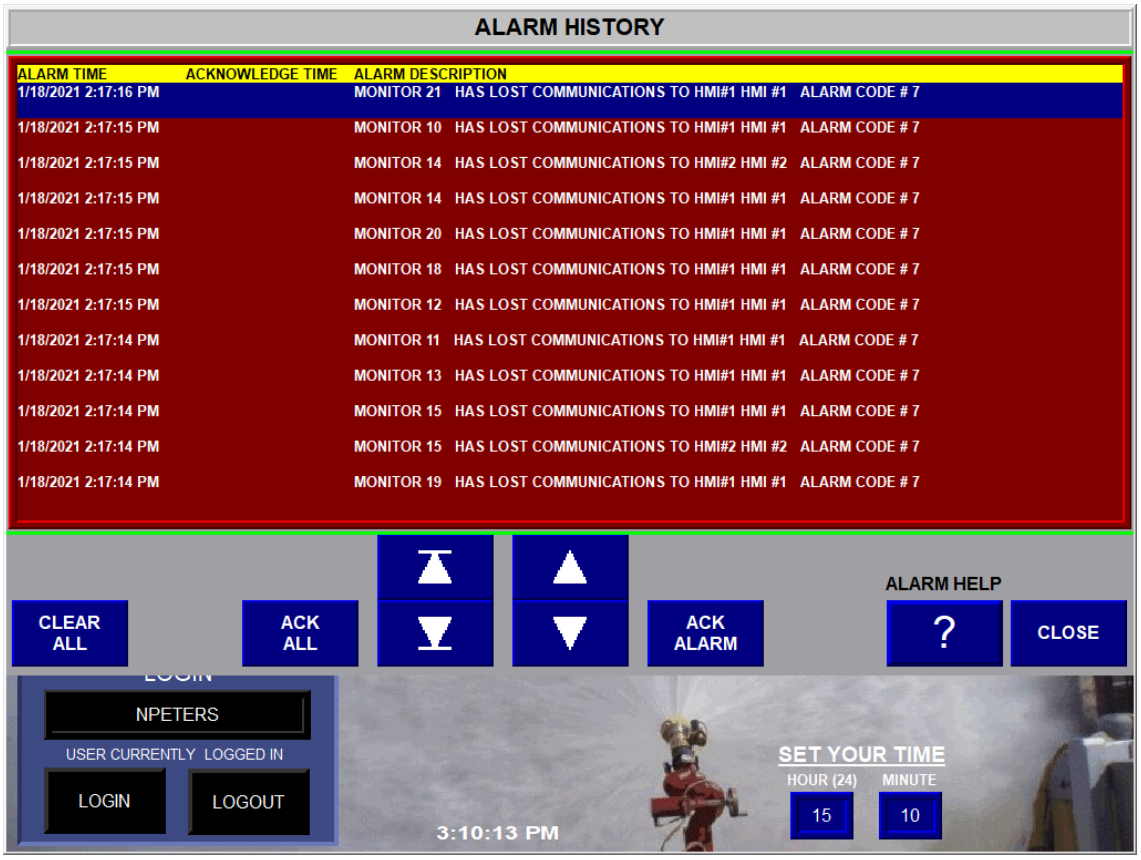
- System Alarm Guidance (Continued)
  - Alarm History



  - Pressing the "ALARM HISTORY" button on the home screen will display the above screen. This screen can be accessed from the Elkhart Brass Startup screen. The HMI has memory allocation for 100 Alarm messages to be listed. This screen will display the following:

- ALARM TIME: The timestamp of when the Alarm occurred.
- ALARM ACKNOWLEDGE TIME: The timestamp of when the Alarm was acknowledged.
- ALARM DESCRIPTION: The description of the Alarm, with flashing coded Alarm number.
- CLEAR ALL BUTTON: This will clear, or delete, all Alarms in the Alarm History buffer.
- ACK ALL: This will acknowledge all listed Alarms.
- ACK ALARM: This will acknowledge the selected Alarm only.
- NORMAL ARROWS: These buttons will move the blue line Alarm indicator, by one Alarm.
- LINED ARROWS: These will move the blue line Alarm indicator, by the entire listing on the screen.

Once the Alarm History function reaches its Alarm instance limit, of 100, the oldest Alarms will be deleted first.

Pressing the

will access a help screen to provide more information about the active screen.
Pressing the

will return the user to the previous screen.

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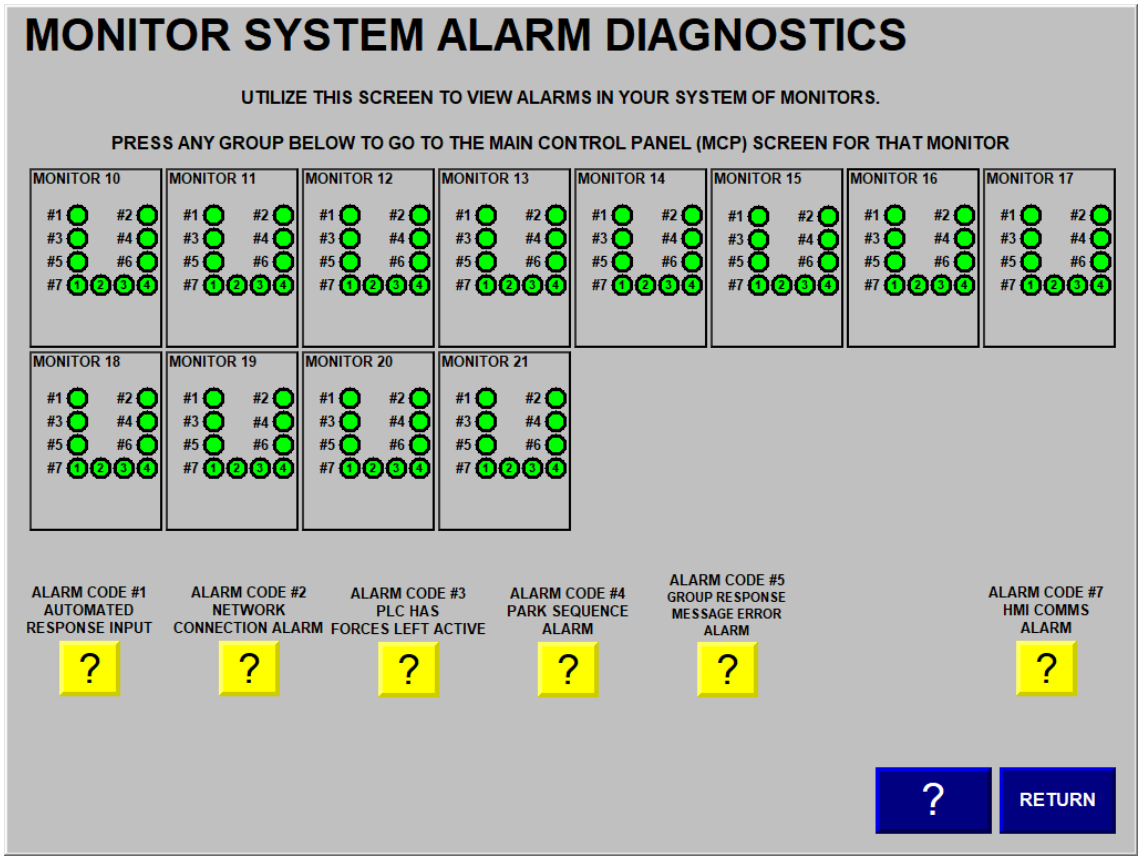
- System Alarm Guidance (Continued)
  - System Alarm Diagnostics



- Pressing the "SYSTEM ALARM DIAGNOSTICS" button on the home screen will display the above screen. This screen will give the user an Active Alarm display of the entire system. This also allows the user quick access to the Alarm Help screens.

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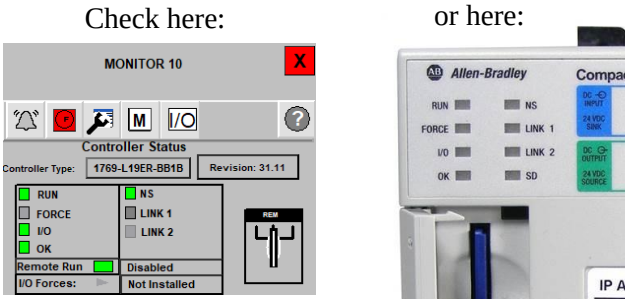
- Repairs and Screen Cleaning Instructions
  - Follow these steps to clean the display window.
    - Disconnect power from the terminal at the power source.
    - Use a clean sponge or soft cloth, moistened with a mild soap or detergent, to clean the display.
    - Dry the display with a chamois or moist cellulose sponge to avoid water spots.
  - Remove fresh paint splashes and grease before drying by rubbing lightly with isopropyl alcohol (70% concentration). Afterward, wash using a mild soap or detergent. Rinse with clean water.
    - DO NOT use tap water or mineral water. These could leave white marks on the screen because of the dissolved solids.
    - DO NOT spray liquid directly on the screen. Apply liquid to a cloth and then wipe the screen.
    - DO NOT use Windex or any other glass cleaner that contains ammonia.
    - DO NOT clean the display while it is on. When the display is dark, it is much easier to see dirt and fingerprints that need to be removed.
  - The HMI is not intended to be serviced by the end user. Please contact Elkhart Brass for repair service.

- Reference Documentation
  - The user's manual (hardware manual) for the Panel View terminal, and other technical documents related to the Panel View terminal, are published in several different languages at the following link.

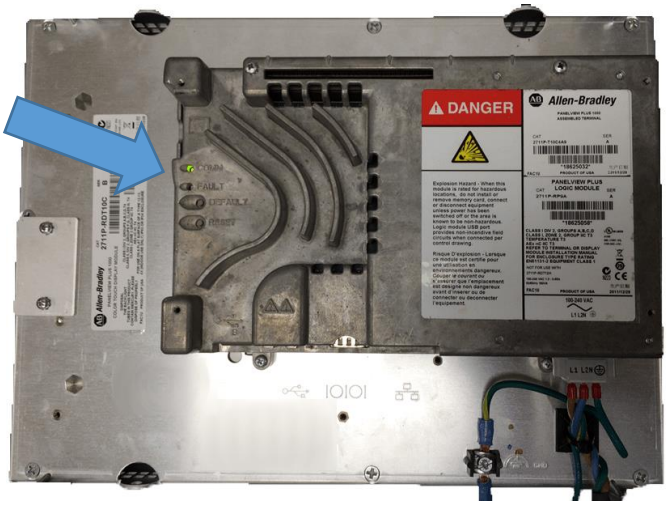
http://ab.rockwellautomation.com/Graphic-Terminals/2711P-PanelView-Plus-6-Terminals#documentation

Title	Number	Download
PanelView Plus 6 Product Profile	2711P-PP008	EN
PanelView Plus and FactoryTalk View Machine Edition and Product Profile	FTALK-PP012	DE| EN| ES| FR| IT| JA| KO| PT| ZC| ZH
Visualization Solutions Selection Guide	VIEW-SG001	DE| EN| ES| FR| IT| JA| KO| PT| ZH
PanelView Plus Specifications Technical Data	2711P-TD005	EN| JA| ZH
PanelView Plus 6 Terminals User Manual	2711P-UM006	DE| EN| ES| FR| IT| JA| PT| RU| TR| ZC| ZH
PanelView Plus 400/600 to PanelView Plus 6 400/600 Migration Chart	2711P-QR001	EN
More PanelView Plus 6 publications in Literature Library		All Languages

- Hardware Troubleshooting

HMI not illuminated	Make sure power switch is set to I (ON)
	Make sure that HMI is plugged in to a live receptacle
	Check for tripped circuit breaker CB1, Blown Fuse F1, ---Check for voltage, 24VDC, Red Multimeter Lead on Terminal 51 Black Multimeter Lead on Terminal 52
On screen error, Communication error message, or COMM light is not on; located on the back of the Panel View	Make sure all MCPs on the network are powered up
	Make sure Link Indicators on all PLCs are flashing Check here: or here: 
	Check network wiring
Fault Light is ON - located on the back of the HMI	At startup, it is normal for the fault light to flash briefly, but it should then stay off during normal operation. If it stays on or keeps flashing, refer to Chapter 9 "Troubleshooting the System" of the Panel View Plus User's Manual (see link below)
Startup Message Error	Record the error message, go to page 209 of the Panel View Plus User's Manual (see link below)

COMM & FAULT Lights



Follow the link below to access the Panel View Plus User's Manual. Go to chapter 9 for troubleshooting help.

http://literature.rockwellautomation.com/idc/groups/literature/documents/um/2711p-um006_-en-p.pdf

- Panelview Plus Specifications

A complete list of specifications, approvals, etc. can be found at www.rockwellautomation.com/

http://literature.rockwellautomation.com/idc/groups/literature/documents/td/2711p-td005_-en-p.pdf

- Elkhart Brass Contact Information

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- Engineering Change Revision Notes

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