



Application Guide

Cheetah® Xi and SHP-Pro® Purge Operation

The National Fire Protection Association (NFPA) standards associated with gaseous fire suppression systems (e.g., carbon dioxide and clean agent) stipulate that suitable steps and safeguards shall be taken to prevent injury or death to personnel in areas whose atmospheres will be made hazardous by the discharge or thermal decomposition of the agent. One of the recommended safeguards includes providing a means for prompt ventilation (purge) of the fire zone after an event has occurred.

In the past, Fike offered a self-contained purge panel (P/N 10-045) that could be installed to meet this requirement; however, the purge panel has been discontinued and is no longer available from Fike. This does not mean that Fike's releasing systems are no longer able to comply with the purge requirement. It simply means that an alternate method must be used, as described in this application guide, to accomplish the purge requirement. There are two options that can be used to perform the purge function with Fike's suppression panels.

Option 1

The first option is to purchase and install the Purge Panel Controller, model TA-123PP, manufactured by Light Engineered Displays, Inc. (See Figure 1). One controller must be purchased for each suppression zone and external field relays must be installed to control the purge components. The L.E.D. purge controller has been tested by Fike for compatibility and correct operation with both the Cheetah Xi (including 50 point) and SHP-Pro panels. The purge controller must be purchased directly from L.E.D. and not from Fike.

Note: *This is the only option for performing purge with the SHP-Pro panel.*



Figure 1 - Model TA-123PP

Option 2

The second option is to utilize the following Cheetah Xi components to accomplish the purge functionality.

- 2 ea. 55-043 relay module,
- 1 ea. 55-045 mini-monitor module,
- 1 ea. 20 Zone annunciator 10-2667,
- 1 ea. Key-Switch (non-latching capable)*

*The 10-1642 Keyed Abort or 10-2705 Solenoid Disconnect switches can be used for this purpose but would need to re-label for purge functionality.

General Purge Sequence of Operation

Upon the suppression zone entering into the "Release State", the following shall occur:

1. A relay module configured for "Release" for the active suppression zone will activate. The relay shall be configured with a time delay (0 to 80 minutes) for "Purge Soak".
2. An LED on a twenty-zone annunciator will illuminate to indicate the start of the "Purge Soak" period for the suppression zone.
3. Upon completion of the "Purge Soak" timer, the relay module's contacts (item 1) will transfer sending a "Process" input to the panel via the modules feedback input. This input will be the first interlock required to initiate purge operation.
4. An LED on a twenty-zone annunciator will illuminate to indicate the completion of the "Purge Soak" period and the ready state of the purge system.
5. Upon activation of a purge key-switch (non-latching) configured for the suppression zone, a "Process" input will be sent to the panel. This input will be the second interlock required to initiate purge operation.

6. Relay modules assigned to purge operation for the suppression zone will activate and their relay contacts shall transfer causing the purge system components (i.e., fans, dampers, etc.) for the suppression zone to activate.
7. Upon activation of the relay modules assigned to purge operation (item 6), the relay module's contacts will transfer sending a "Process" input to the panel via the modules feedback input.
8. An LED on a twenty-zone annunciator will illuminate to indicate the active state of the purge system component.

Panel Programming

The following example shows how to program the Cheetah Xi components to accomplish purge operation. For this example, the purge operation shall be configured for Zone 1.

The first addressable relay module shall be utilized to initiate the "Purge Soak" period for Zone 1. For this example, the module shall be assigned to Loop 1, Address 8. The relay module shall be programmed as follows (See Figures 2 and 3).

1. With the **Common** configuration tab for the relay module selected, assign the device trouble assignment to Zone 1.
2. In the Miscellaneous Option section, select "Independent Dry Contact" option.
3. Set the State option for the independent dry contact to "Process".
4. Remaining configuration options, other than the custom message, should be left at default settings.

The screenshot shows a software window titled "Cheetah Xi Panel 001 - Relay Module". It has two tabs: "Common" (selected) and "Output Control".

- Output Control:** Loop , Address , and an "Output Enabled" button.
- Custom Message:** Three text input fields containing "1-008 RELAY MODULE", "LOOP 1", and "ADDRESS 008". Two radio buttons are present: "Default Custom Message" (unselected) and "User Defined Custom Message" (selected).
- Zone Assignments (Device Troubles):** Four zone selection buttons with values "1", "0", "0", and "0". An "AHU Shutdown Relay" checkbox is present and unchecked.
- Miscellaneous Options:** Three radio buttons: "Relay Not Monitored" (unselected), "Relay Monitored by Dry Contact" (unselected), and "Independent Dry Contact" (selected). A "State" dropdown menu is set to "Process". There are two buttons: "PAS Disabled" and "Normally Open".

At the bottom are "Ok" and "Cancel" buttons.

Figure 2 - Relay Module Configured for "Purge Soak" Period

5. Select the **Output Control** configuration tab (See Figure 3).
6. Set the Activation State option to “Release”.
7. Set the Relay State option to “Time Delay”. A Timeout (min) field will appear. This field will allow you to set the “Purge Soak” period accordingly. The time can be set in increments of 5 minutes and has a range of 0 to 80 minutes.
8. In the Activate on Any of these Zones fields, set the relay to activate for Zone 1.
9. Remaining configuration options should be left at default settings.

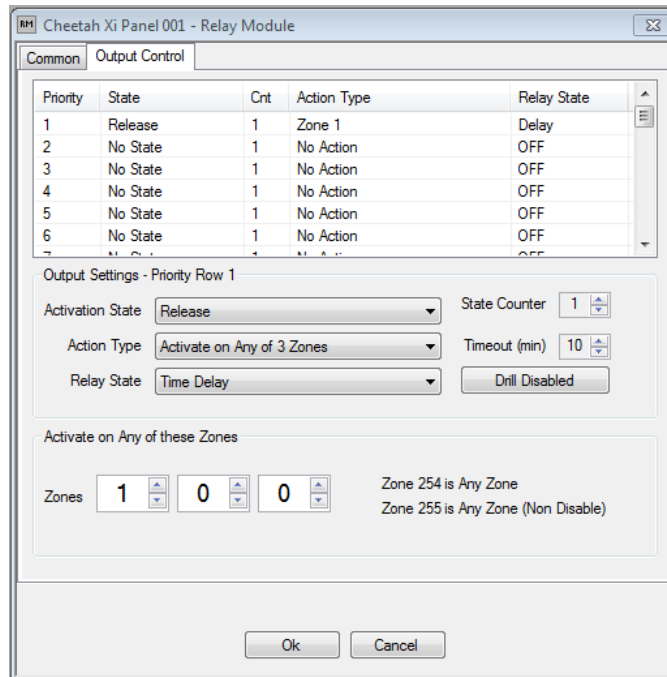


Figure 3 - Relay Module Configured for “Purge Soak” Period

One of the normally open relay contacts on the relay module must be wired to the feedback input on the module as shown in Figure 4 below. Upon expiration of the relay’s internal timer, the modules relay contacts will transfer causing activation of the modules feedback input. This will cause a process input for the module (Loop 1, Address 8) to be received by the Cheetah Xi. This will indicate that the purge system is ready for operation.

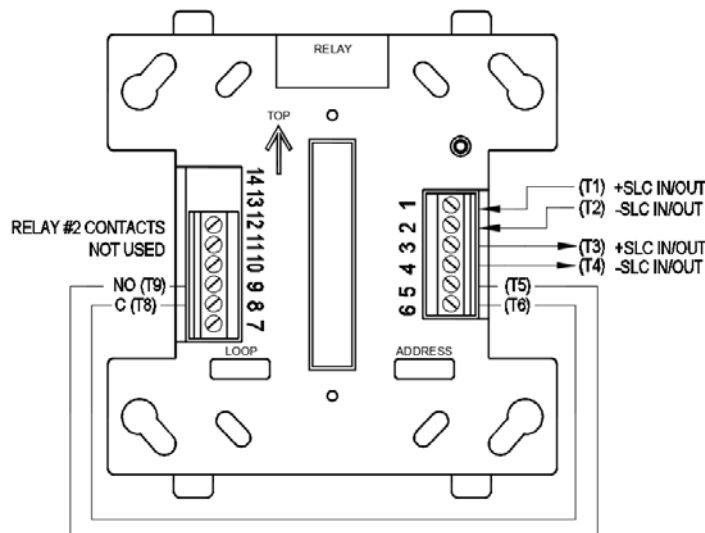


Figure 4 - “Purge Soak” Relay Module Wiring

Note: This wiring configuration must be used for each relay used for purge operation.

The key-switch (non-latching) and mini monitor module shall be utilized to activate the purge system for Zone 1, upon completion of the “Purge Soak” period. For this example, the module shall be assigned to Loop 1, Address 34. The monitor module shall be programmed as follows (See Figure 5).

1. In the Zone Assignments field assign the module to Zone 1.
2. In the Input Function field assign the input to “Process”.
3. Change the relay operation to “Non Latching”.

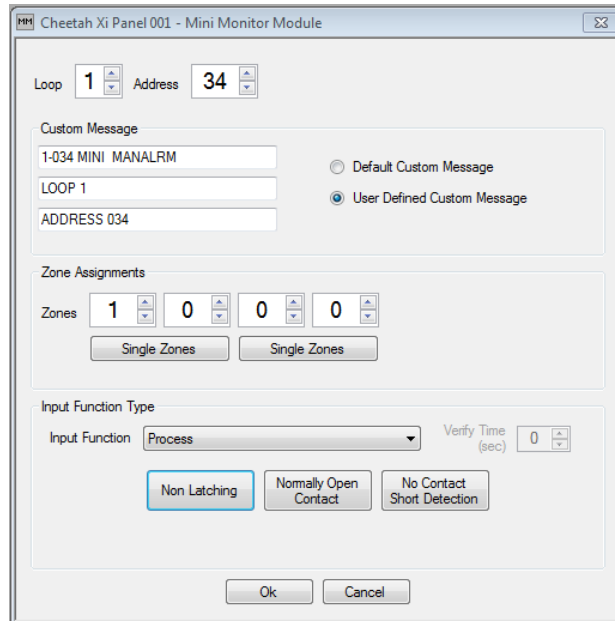


Figure 5 - Monitor Module Configured for “Purge” Activation

Note: Activation of the key-switch by itself cannot initiate the purge function. In order to activate the purge function, the “Purge Soak” timer must expire which allows the purge key-switch to start the purge function. Activation of the purge key-switch prior to expiration of the “Purge Soak” timer will only initiate a process input to the panel.

The second addressable relay module shall be utilized to activate the mechanical components associated with Zone 1 purge operation (i.e., fans, dampers, etc.). Activation of this relay shall be triggered by the expiration of the “Purge Soak” relay timer and the activation of the “Purge” key-switch. For this example, the module shall be assigned to Loop 1, Address 14. The relay module shall be programmed as follows (See Figures 6 and 7).

1. With the **Common** configuration tab for the relay module selected, assign the device trouble assignment to Zone 1.
2. In the Miscellaneous Option section, select “Independent Dry Contact” option.
3. Set the State option for the independent dry contact to “Process”.
4. Remaining configuration options, other than the custom message, should be left at default settings.

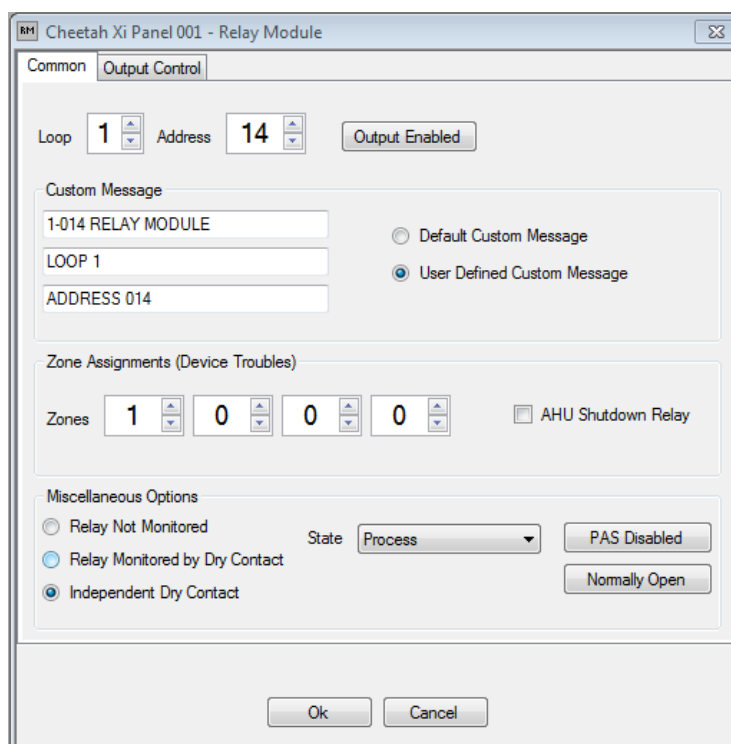


Figure 6 - Relay Module Configured for “Purge” Operation

5. Select the **Output Control** configuration tab (See Figure 7).
6. Select priority Row 1 and set the Activation State option to “No State”; Action Type option to “No Action”; and Relay State option to “OFF”. This priority row is unused and a placeholder for future use, if desired. The programmer can move all rows up one row and program the change accordingly.
7. Select priority Row 2 and set the Activation State option to “No State; Action Type option to “Activate on Multiple Priority Rows Active”; and Relay State option to “ON”.
8. Upon setting the relay action type to “Activate on Multiple Priority Rows Active”, priority row selection fields will appear at the bottom of the configuration screen. Set Priority Row A to 3 and Priority Row B to 4. Row two of the Output Control table should indicate Group P3, P4.
9. Select priority Row 3 and set the Activation State option to “Process”; Action Type option to “Activate on Specific Device”; and Relay State option to “OFF”.
10. Upon setting the relay action type to “Activate on Specific Device”, loop and address selection fields will appear at the bottom of the configuration screen. Set these fields to match the loop and address of the relay module used for the “Agent Soak” timer (i.e., loop 1, address 8).
11. Select priority row 4 and set the Activation State option to “Process”; Activation Type option to “Activate on Specific Device”; and Relay State option to “OFF”.
12. Upon setting the relay action type to “Activate on Specific Device”, loop and address selection fields will appear at the bottom of the configuration screen. Set these fields to match the loop and address of the monitor module used for the “PURGE” key-switch (i.e., loop 1, address 34).
13. Remaining configuration options should be left at default settings.

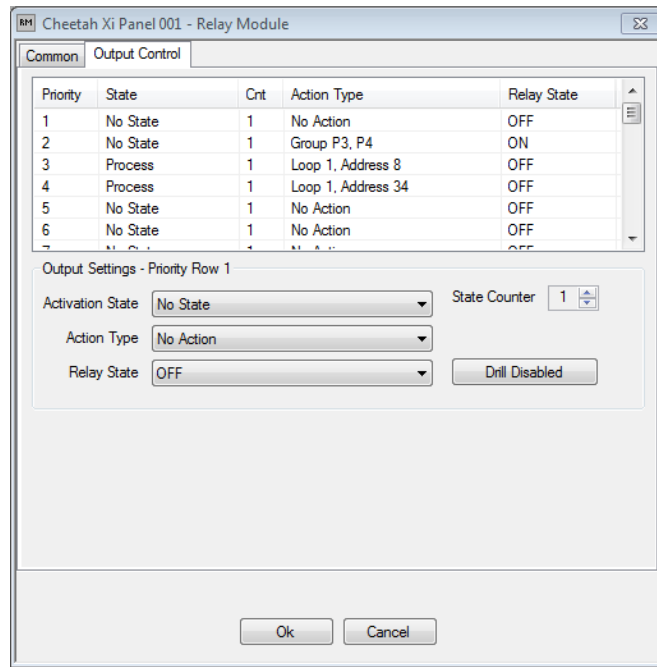


Figure 7 - Relay Module Configured for “Purge” Operation

Upon activation of the relay module, its contacts will transfer causing activation of the modules feedback input (See Figure 4). This will cause a process input for address 1-014 to be received by the Cheetah Xi panel to provide indication of the purge system being active.

Note: Where the suppression zone has more than one purge component (i.e., fan or damper), additional relay modules can be added to the system to perform purge functions utilizing the same programming process.

Purge System Status Indication

In order to provide visual indication of the status of the purge system operation, Fike’s 20-Zone remote LED annunciator can be used (See Figure 8). For this example, the annunciator shall be programmed as follows (See Figures 9 and 10).

1. Configure LED 01 for “ON-Zone Release” for Zone 1. The yellow LED will turn on upon Zone 1 entering the release state.
2. Configure LED 03 for “ON-Device Activation” for Loop 1, Address 8. The red LED will turn on once the “Purge Soak” timer associated with relay module has expired.
3. Configure LED 05 for “ON-Device Activation” for Loop 1, Address 14. The red LED will turn on once the relay is activated for purge operation.



Figure 8 - 20-Zone Remote LED Annunciator

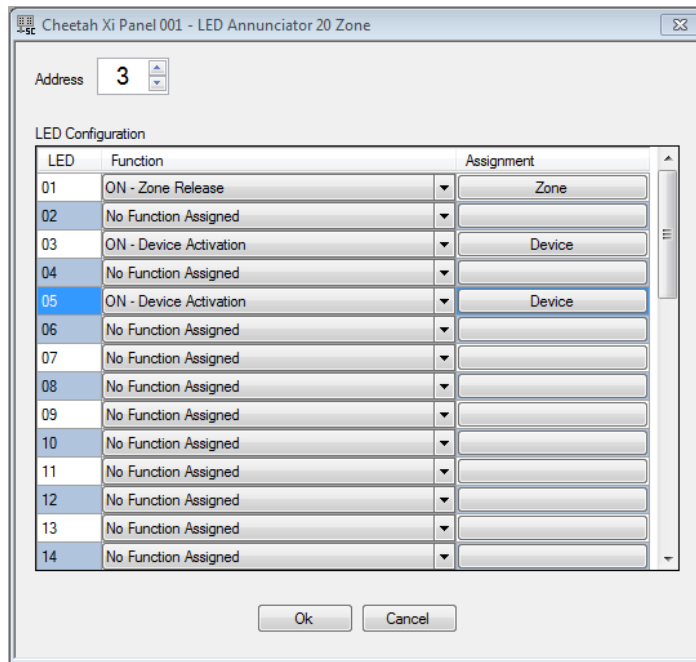


Figure 9 - 20-Zone Remote LED Annunciator Programming

The 20-Zone remote LED annunciator shall be labeled as shown in Figure 10 to indicate the meaning of each LED. If more than one suppression zone is involved, zone information should be added to the LED labels for clarification.

Design Note: Where the system incorporates more than one suppression zone, additional relay modules, monitor modules, and key-switches must be added for each additional suppression zone. The programming should follow the same general convention shown in this application guide.

Please feel free to contact Fike's electrical support at 1-800-979-3453, option 2,1 if you have any questions regarding purge operation with Fike's Cheetah Xi or SHP-Pro control panels.

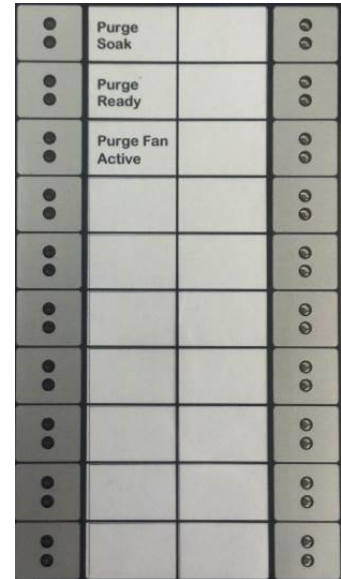


Figure 10 - LED Annunciator Labeling

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