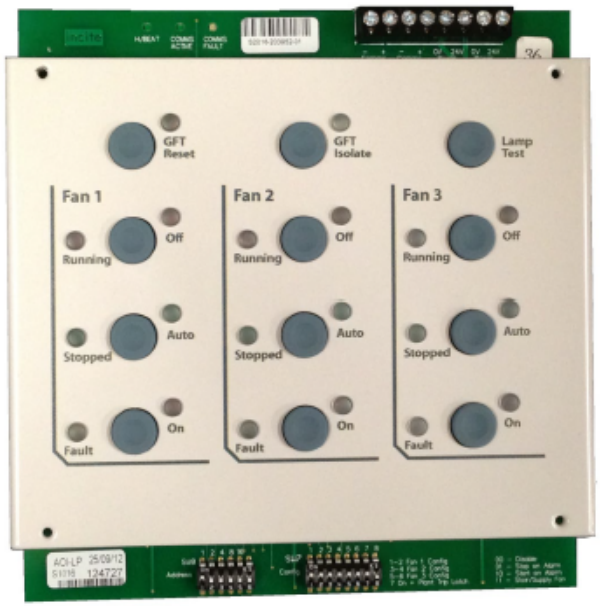
incite fire

# SYNCRO
# SYNCRO-KAU2016
# Fan Control Module
# Configuration Manual

Australia Version - Rev 2.0 – April 2016

## Index





# 1 General

The Incite Syncro fan control module (SFCM) has been designed to enable ease of interface to building services providing smoke control in an installation.

The SFCM contains 3 off 1668 control and status indicators, a general fire trip and isolate, and a lamp test button. The unit connects to the Syncro panel by 4 wires; 2 for power and 2 for RS485 communications.

# 2 Operation:

The SFCM manual controls will only operate when the enable keyswitch on the Syncro AS panel is in the enable position.

## 2.1 FAN AUTO Mode:

This mode is entered by pressing the AUTO button.

When an alarm is processed by the SFCM (Channel 3), the associated fan outputs are activated. Depending on the state of the configuration switches, this can either be a start or stop signal. A special case is when used to control a Supply Air or Stair Pressurisation Fan. This fan contains a self-resetting duct detector module. When this configuration is selected, the fan will start in order to blow fresh air into the system, and if smoke is detected in the duct, the fan will shut down. Once smoke clears from the duct and the duct detector resets, the fan will start again after a 65 second delay. See Section 4.2 - Duct Detectors

## 2.2 FAN ON Mode:

This mode is entered by pressing the ON button.

The Fan ON output is activated and the OFF output is deactivated.

## 2.3 FAN OFF Mode:

This mode is entered by pressing the OFF button.

The Fan OFF output is activated and the ON output is deactivated.

# 3 Configuration:

## 3.1 SW8 Unit address

This is addressed in binary, with each switch representing a number as follows

| Switch | Value |
|---|---|
| SW8.1 | 1 |
| SW8.2 | 2 |
| SW8.3 | 4 |
| SW8.4 | 8 |
| SW8.5 | 16 |
| SW8.6 | Not used |

For example: to specify address 14, switches 2, 3, and 4 would be turned on (2+4+8 = 14)

If all addresses switches are turned off, the unit will not respond to any communications from the syncro panel.

## 3.2 SW7 Fan Type

Each fan control can be configured to be:

- Stop on Alarm: The fan will stop on an alarm. E.g. a toilet exhaust fan
- Start on Alarm: The fan will start on alarm. E.g. a smoke spill fan
- Start on Alarm, and Stop on a duct probe input. E.g. a supply air fan or stair pressurisation fan

Switch 7 provides this distinction with

- Switches 7.1 and 7.2 - Fan 1 configuration
- Switches 7.3 and 7.4 - Fan 2 configuration
- Switches 7.5 and 7.6 - Fan 3 configuration

Switch 7.7 will provide a latching plant trip when turned on.

| Switch Pair | Function |
|---|---|
| 00 | Disabled |
| 01 | Stop on alarm |
| 10 | Start on alarm |
| 11 | Start on alarm/stop on duct probe |

# 4 Syncro Configuration

## 4.1 General

The SFCM appears to the Syncro panel as a standard I/O module, but with predefined input and output functions. The Syncro panel must be programmed with the predefined I/O in order for the SFCM to process the incoming events and respond accordingly to allow the activation of the field I/O devices.

The I/O functions are shown below.

| I/O Channel | Function | Syncro Input or Output | Description |
|---|---|---|---|
| 1 | Plant Trip Disable (feedback to Syncro) | Input | Alerts the Syncro that the plant trip is disabled |
| 2 | Access Level 2 | Output | Enables the buttons when the Syncro keyswitch is enabled. |
| 3 | General Alarm | Output | General alarm from the Syncro |
| 4 | Intake Smoke Detector 1 | Output | Duct probe active for fan (when required) |
| 5 | Fan 1 Running | Output | Duct air-flow switch activation for fan |
| 6 | Fan 1 ON | Input | Input to the Syncro to turn on the fan run field device |
| 7 | Fan 1 OFF | Input | Input to the Syncro to turn on the fan stop field device |
| 8 | Intake Smoke Detector 2 | Output | Duct probe active for fan (when required) |
| 9 | Fan 2 Running | Output | Duct air-flow switch activation for fan |
| 10 | Fan 2 ON | Input | Input to the Syncro to turn on the fan run field device |
| 11 | Fan 2 OFF | Input | Input to the Syncro to turn on the fan stop field device |
| 12 | Intake Smoke Detector 3 | Output | Duct probe active for fan (when required) |
| 13 | Fan 3 Running | Output | Duct air-flow switch activation for fan |
| 14 | Fan 3 ON | Input | Input to the Syncro to turn on the fan run field device |
| 15 | Fan 3 OFF | Input | Input to the Syncro to turn on the fan stop field device |
| 16 | Plant Trip | Input | Input to the Syncro to turn on the plant trip field device |

While the Input and Output column may seem reversed in its function, it must be remembered that we are programming this from the perspective of the Syncro panel, not the SFCM.

For example: Channel 4: Intake smoke detector 1 is an INPUT from the smoke detector duct probe, processed by the Syncro panel and then OUTPUT to the SFCM for processing. Thus it is listed on the Syncro I/O module as an OUTPUT.

Each channel will be dealt with in the next section in detail.

## 4.2 Duct Detectors

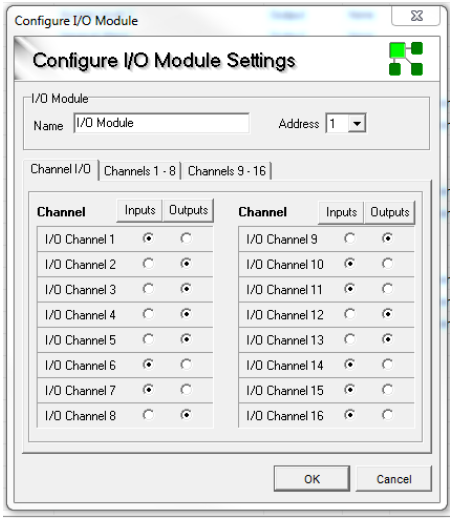
**NOTE:** On Syncro Code Version 6.47 and above, smoke detectors can be set to non-latching and may be used with standard DH-98-ASA duct probes without the use of interface cards. The number of the DH-98-ASA is limited by loop capacity.

Should Fan Controls be used on earlier versions of code, the DH-98-Syncro duct probes must be used. Only 3 self-resetting duct probes (DH-98-Syncro) should be used on any single loop. Should more than 3 duct probes be required, please contact Incite Fire for advice and loop calculations.

## 4.3 I/O Module Configuration Settings

After adding the I/O Module to the system, select the I/O module in the left hand window and click the Edit icon from the toolbar on top.

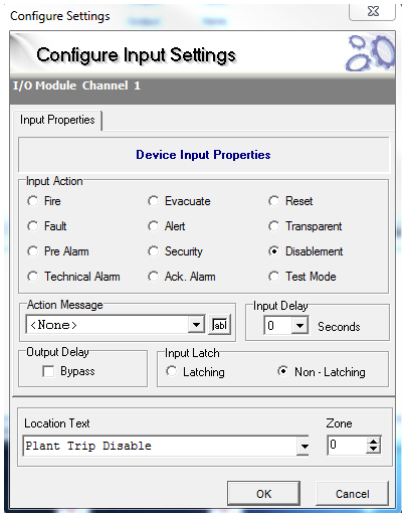
Set the I/O channels as follows:




Click OK

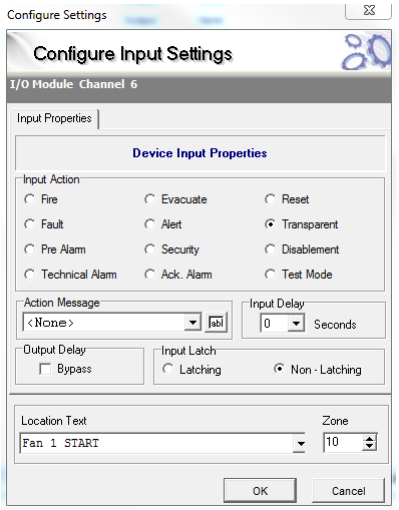
Double click on each I/O Channel in the centre window and set their properties.

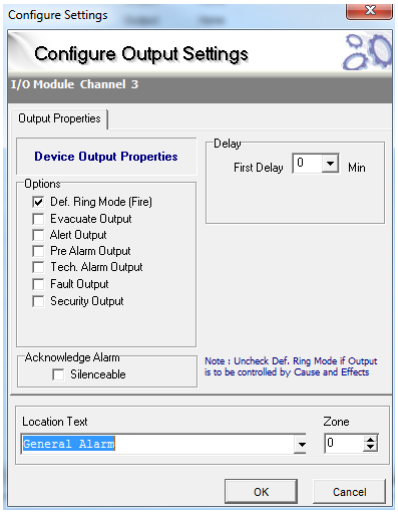
Note: All input channels are set to Non-Latching



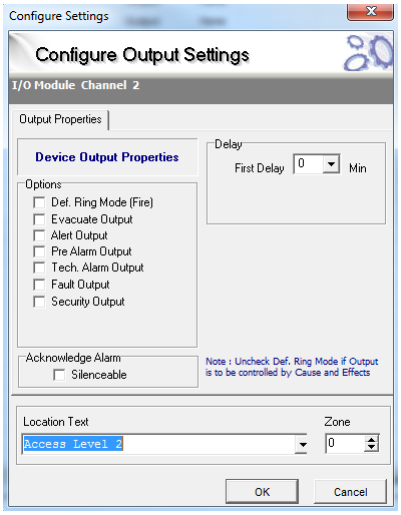

Channel 1 input is set to DISABLEMENT.

All other input channels are set to Transparent.




Channel 3 output is set to Def Ring (Default Ring)




All other output channels have clear output settings and are non-silenceable.

| Item | Name | Type | Zone | Action | Action Msg | Input Delay | Latch | Evac | Def. Ring | Silenceable | Delay Stage 1 | Delay Stage 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 - Channel | Plant Trip Disable | Input | None | Disablement | <None> | 0 Seconds | No | | | | | |
| 02 - Channel | Access Level 2 | Output | None | | | | | No | No | No | 0.0 Minute(s) | 0.0 Minute(s) |
| 03 - Channel | General Alarm | Output | None | | | | | No | Yes | No | 0.0 Minute(s) | 0.0 Minute(s) |
| 04 - Channel | Intake 1 | Output | None | | | | | No | No | No | 0.0 Minute(s) | 0.0 Minute(s) |
| 05 - Channel | Fan 1 Running | Output | None | | | | | No | No | No | 0.0 Minute(s) | 0.0 Minute(s) |
| 06 - Channel | Fan 1 START | Input | 10 | Transparent | <None> | 0 Seconds | No | | | | | |
| 07 - Channel | Fan 1 STOP | Input | 10 | Transparent | <None> | 0 Seconds | No | | | | | |
| 08 - Channel | Intake 2 | Output | None | | | | | No | No | No | 0.0 Minute(s) | 0.0 Minute(s) |
| 09 - Channel | Fan 2 Running | Output | None | | | | | No | No | No | 0.0 Minute(s) | 0.0 Minute(s) |
| 10 - Channel | Fan 2 START | Input | None | Transparent | <None> | 0 Seconds | No | | | | | |
| 11 - Channel | Fan 2 STOP | Input | None | Transparent | <None> | 0 Seconds | No | | | | | |
| 12 - Channel | Intake 3 | Output | None | | | | | No | No | No | 0.0 Minute(s) | 0.0 Minute(s) |
| 13 - Channel | Fan 3 Running | Output | None | | | | | No | No | No | 0.0 Minute(s) | 0.0 Minute(s) |
| 14 - Channel | Fan 3 START | Input | None | Transparent | <None> | 0 Seconds | No | | | | | |
| 15 - Channel | Fan 3 STOP | Input | None | Transparent | <None> | 0 Seconds | No | | | | | |
| 16 - Channel | GFA OUTPUT | Input | None | Transparent | <None> | 0 Seconds | No | | | | | |

Fan Control Summary Screen

## 4.4 Channel Setup.

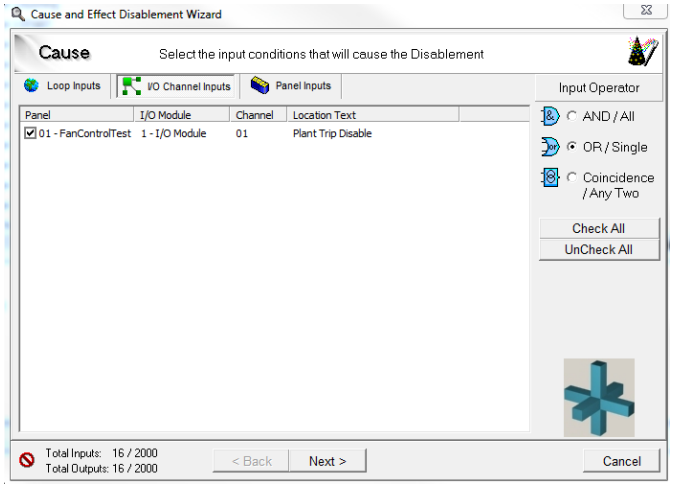
| | |
|---|---|
| Channel 1 | Plant Trip Disable. |
| Description | This point is utilized to feed back to the Syncro the disablement of the GFA on the SFCM so that it can be displayed on the Syncro LCD and the Syncro General Disablement LED will be lit. |
| Type | Input |
| Action | Disablement |
| | |
| Cause | I/O Channel 1 (Plant Trip Disable) |
| Operation | OR |
| Effect | I/O Channel 3 (General Alarm) |

Programming in Loop Explorer:

Click on the Cause & Effect in the Left hand Window

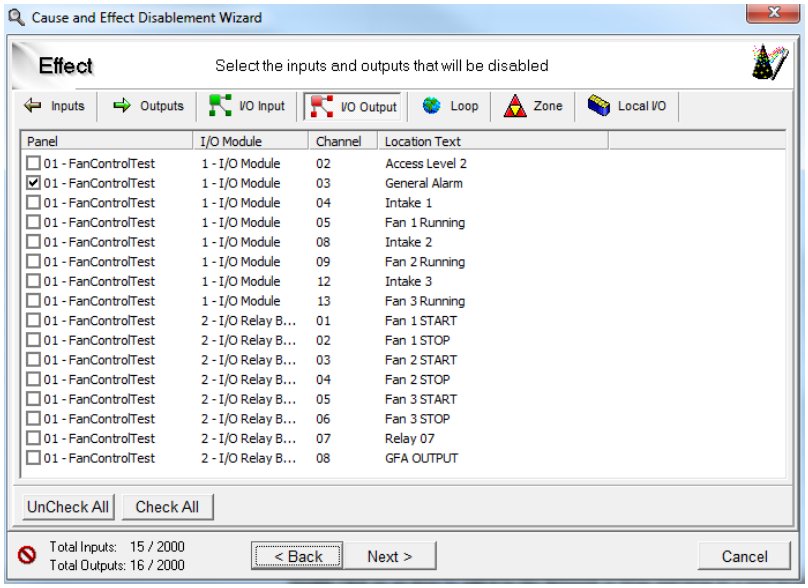
Drag the Disablement 

Icon up into the C&E Window




Select I/O Channel Inputs, Select Input 1, and Operator “OR”, and Click Next

Note: If the I/O module input is not shown, then the input has not been set to disablement as shown above.




Select the General Alarm Output to the Fan Controller and Click Next.

Give the C&E Equation a name, and click Finish.

| | |
|---|---|
| Channel 2 | Access Level 2. |
| Description | This point automatically goes active whenever the Syncro enable keyswitch is turned to the enable position, and is used internally in the SFCM. |
| Type | **OUTPUT** |
| Action | **NONE** |
| | |
| Cause | **DO NOT PLACE ANY C&E AGAINST THIS CHANNEL** |
| Operation | |
| Effect | |

| | |
|---|---|
| Channel 3 | General Alarm. |
| Description | This point signals that a Fire Alarm has occurred. If necessary, the activation of this point may be changed as per site requirements by C&E, and the action may be changed. |
| Type | Output |
| Action | Default Ring, non-silenceable. (default) |
| | |
| Cause | |
| Operation | |
| Effect | |

Program the remaining points on the Fan Controller so that the fan controller points are mapped to their field devices as follows.

| | |
|---|---|
| Channel 4 | Fan 1 Intake |
| Description | This point signals that smoke is being drawn in by a duct probe. |
| Type | Output |
| Action | Transparent |
| | |
| Cause | Fan 1 Duct Probe Address (field device) |
| Operation | OR |
| Effect | I/O Channel 4 |

| | |
|---|---|
| Channel 5 | Fan 1 Running. |
| Description | This point signals that the fan is running and is activated by the flow switch associated with the fan. |
| Type | Output |
| Action | Transparent |
| | |
| Cause | Fan 1 running field device. |
| Operation | OR |
| Effect | I/O Channel 5 |

| | |
|---|---|
| Channel 6 | Fan 1 Start. |
| Description | This point signals the fan that it is required to start. |
| Type | Input |
| Action | Transparent |
| | |
| Cause | I/O Channel 6 |
| Operation | OR |
| Effect | Fan 1 start field device |

| | |
|---|---|
| Channel 7 | Fan 1 Stop. |
| Description | This point signals the fan that it is required to stop. |
| Type | Input |
| Action | Transparent |
| | |
| Cause | I/O Channel 7 |
| Operation | OR |
| Effect | Fan 1 stop field device |

| | |
|---|---|
| Channel 8 | Fan 2 Intake |
| Description | This point signals that smoke is being drawn in by a duct probe. |
| Type | Output |
| Action | Transparent |
| | |
| Cause | Fan 2 Duct Probe Address (field device) |
| Operation | OR |
| Effect | I/O Channel 8 |

| | |
|---|---|
| Channel 9 | Fan 2 Running. |
| Description | This point signals that the fan is running and is activated by the flow switch associated with the fan. |
| Type | Output |
| Action | Transparent |
| | |
| Cause | Fan 2 running field device. |
| Operation | OR |
| Effect | I/O Channel 9 |

| | |
|---|---|
| Channel 10 | Fan 2 Start. |
| Description | This point signals the fan that it is required to start. |
| Type | Input |
| Action | Transparent |
| | |
| Cause | I/O Channel 10 |
| Operation | OR |
| Effect | Fan 2 start field device |

| | |
|---|---|
| Channel 11 | Fan 2 Stop. |
| Description | This point signals the fan that it is required to stop. |
| Type | Input |
| Action | Transparent |
| | |
| Cause | I/O Channel 11 |
| Operation | OR |
| Effect | Fan 2 stop field device |

| | |
|---|---|
| Channel 12 | Fan 3 Intake |
| Description | This point signals that smoke is being drawn in by a duct probe. |
| Type | Output |
| Action | Transparent |
| | |
| Cause | Fan 3 Duct Probe Address (field device) |
| Operation | OR |
| Effect | I/O Channel 12 |

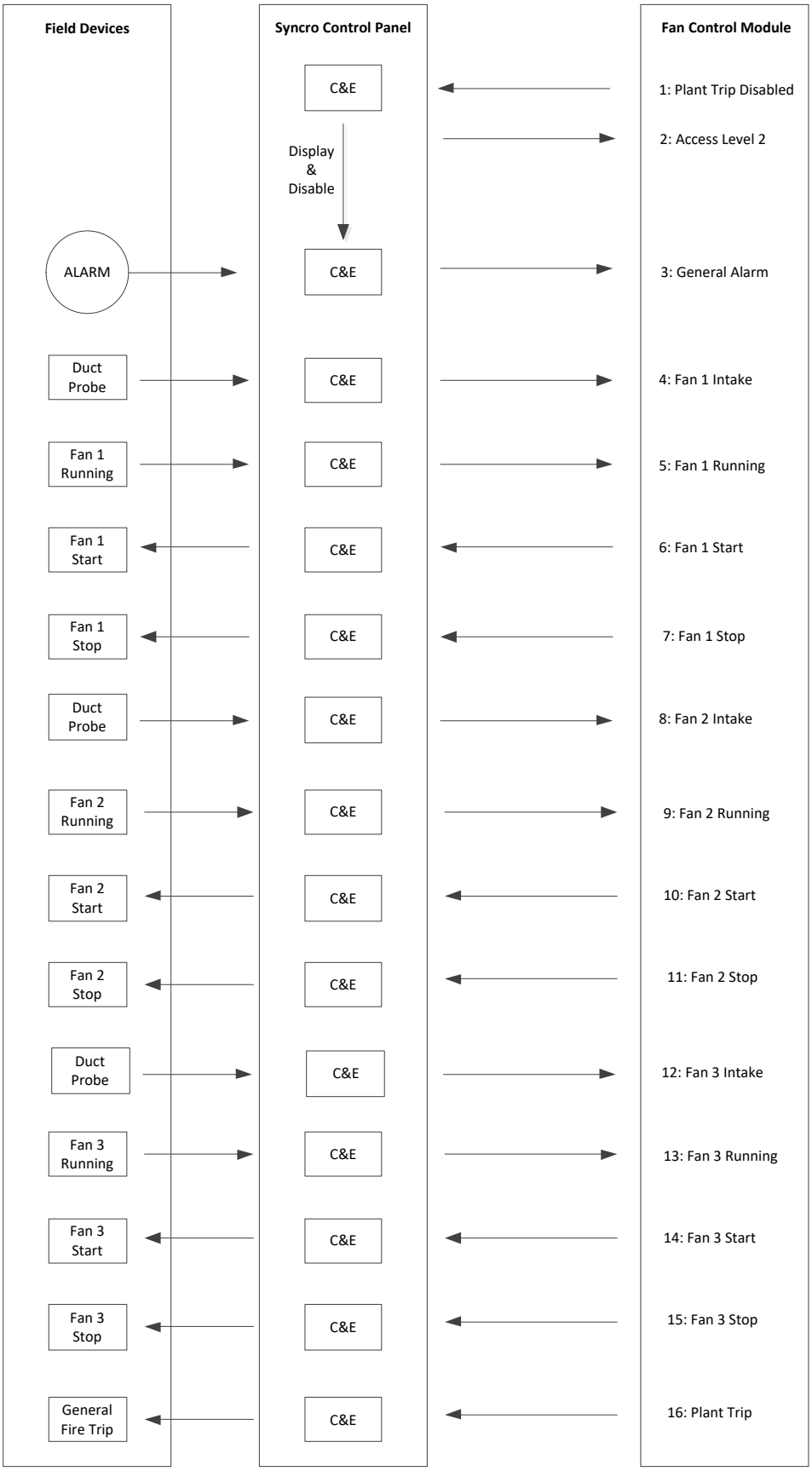
| | |
|---|---|
| Channel 13 | Fan 3 Running. |
| Description | This point signals that the fan is running and is activated by the flow switch associated with the fan. |
| Type | Output |
| Action | Transparent |
| | |
| Cause | Fan 3 running field device. |
| Operation | OR |
| Effect | I/O Channel 9 |

| | |
|---|---|
| Channel 14 | Fan 3 Start. |
| Description | This point signals the fan that it is required to start. |
| Type | Input |
| Action | Transparent |
| | |
| Cause | I/O Channel 10 |
| Operation | OR |
| Effect | Fan 3 start field device |

| | |
|---|---|
| Channel 15 | Fan 3 Stop. |
| Description | This point signals the fan that it is required to stop. |
| Type | Input |
| Action | Transparent |
| | |
| Cause | I/O Channel 11 |
| Operation | OR |
| Effect | Fan 3 stop field device |

| | |
|---|---|
| Channel 16 | Plant Trip. |
| Description | This point signals a GFA to the MSSB. |
| Type | Input |
| Action | Transparent |
| | |
| Cause | I/O Channel 16 |
| Operation | OR |
| Effect | GFS field device |

# 5 Configuration Diagram:




C&E = Cause and effect script.

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