Optional (Global) I/O & Time Zones

Setup Guide

AURORA

A Member of the Kaba Group

KEYSCAN ACCESS CONTROL SYSTEMS FROM KEYSCAN INC

Contents

Global Functionality

This document reviews Aurora global functionality:

- Global Inputs/Outputs (I/O) – maximum 16 input/output triggers per ACU
- Global Schedules – limited to maximum # of schedules in Client software

Please refer to the appropriate section for instructions. In the Aurora software the term "schedule" is used in place of the term "time zone" which was used in previous Keyscan access control software applications.

Important

Do not use the same inputs and outputs for global inputs/outputs and global schedules. Global functions do not operate with CB-485s, CPB-10s, or CPB-10-2s.

Global I/O

The purpose of using the global I/O function is to save on cable hardware costs when configuring alarm inputs to fire alarm outputs across multiple panels. Refer to Global I/O Requirements for supported control boards.

Global I/O Function

Aurora's Global I/O function allows you to program alarm inputs to trip outputs in a multiple access control unit environment where the following communication modes exist:

- single communication loop on CAN Bus 2 with CIM modules
- multiple communication loops on CAN Bus 2 with CIM & CIM-LINK modules

Figure 1 - Global I/Os on a Single CAN Bus Communication Loop

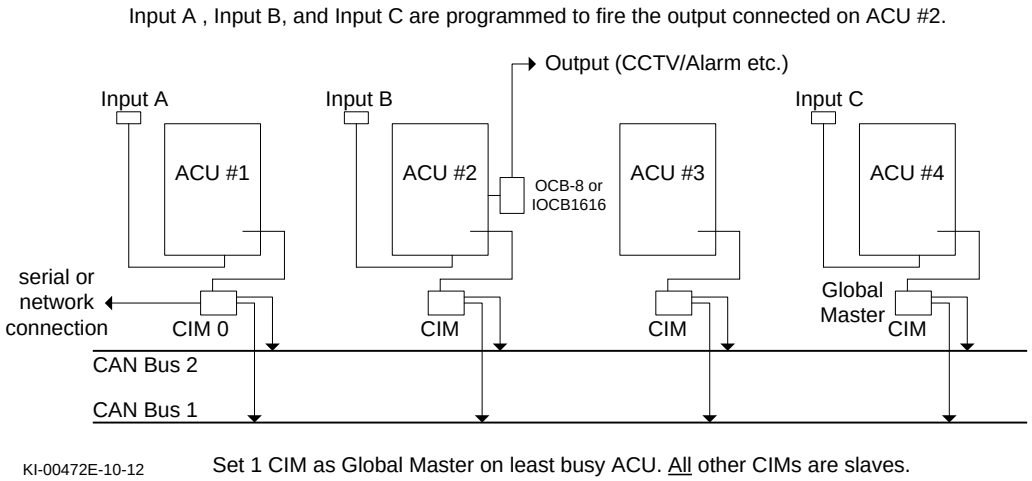
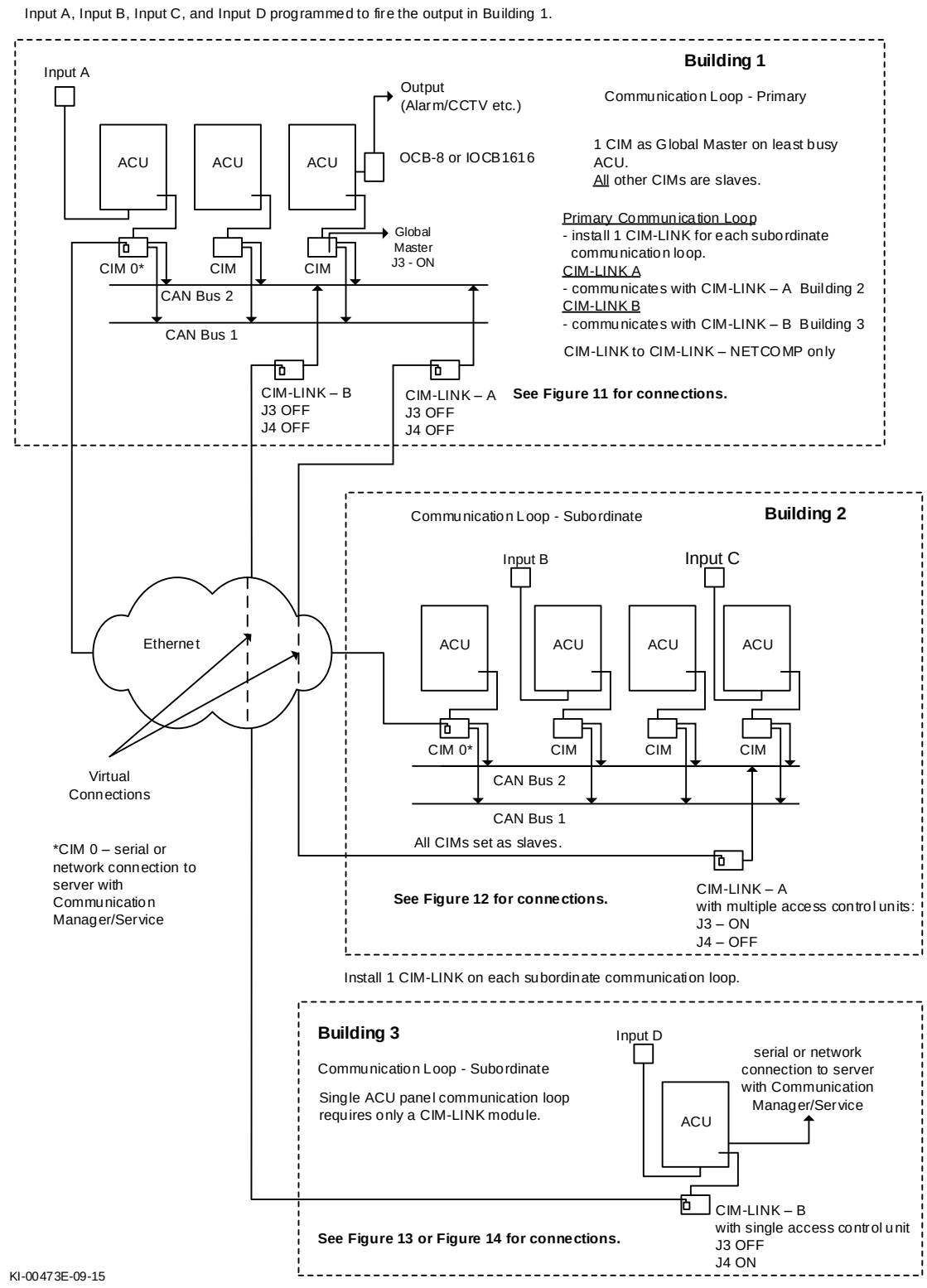


Figure 2 - Global I/Os on Multiple Communication Loops Connected with CIM-LINK Modules



Global I/O Requirements

Before configuring and programming Global I/O, please be aware of the following requirements or conditions:

- Outputs supported on CA4500 or CA8500 PC109x controllers
- Requires Aurora software version 1.0.1 or higher
- Requires CIM firmware 2.10 or higher
- Requires CIM configured for ACU to ACU communication – CAN Bus 2
- Requires optional OCB-8 or IOCB1616

Elevator control boards and CA250 & CA150 door control boards are not supported for global inputs and outputs.

Reference Documents

For more information on either the CIM or IOCB1616 modules, refer to the following documents:

- CIM Install Guide
- CIM-LINK Setup Guide
- Keyscan IOCB1616 Input/Output Board if using an IOCB1616

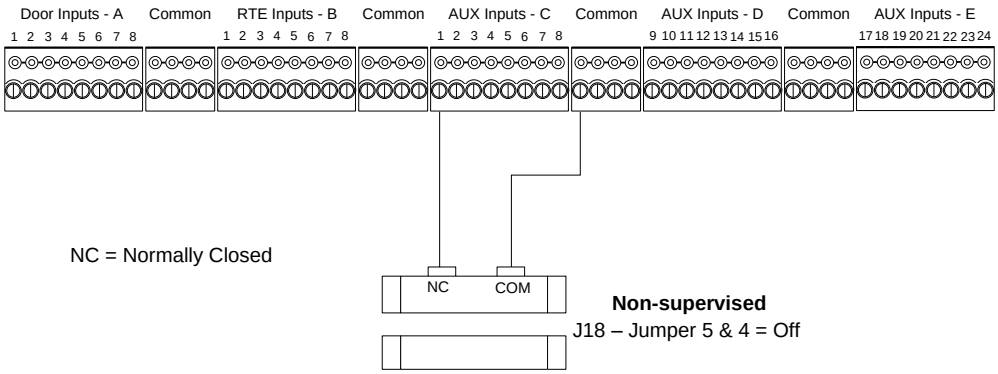
These documents were enclosed with the respective CIM or IOCB1616 Input/Output modules and are included as PDF files on the Aurora Software Installation DVD in the Aurora Documents folder.

Inputs

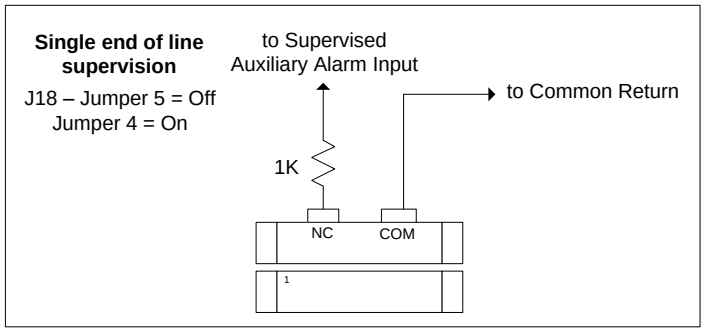
Use any of the available auxiliary inputs on the control board. If using inputs on an IOCB1616, refer to the IOCB1616 section on page 8.

Figure 3 - Input Connections – PC1094 & PC1095 Control Boards

Cut View of CA8500B



Notes
Diagram illustrates CA8500B.
Connections also apply to CA4500B.
- CA4500B – up to 16 Supervised Auxiliary Alarm Inputs
- CA8500B – up to 16 Supervised Auxiliary Inputs



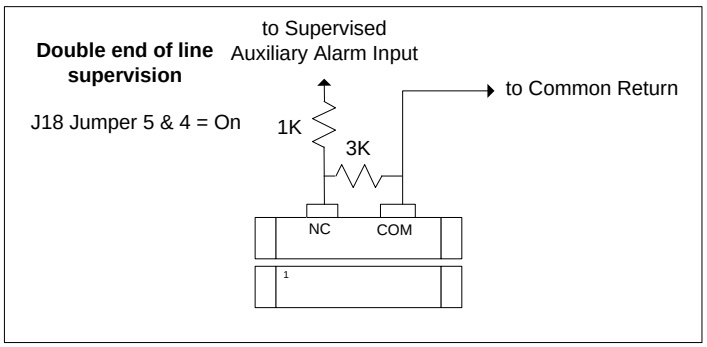


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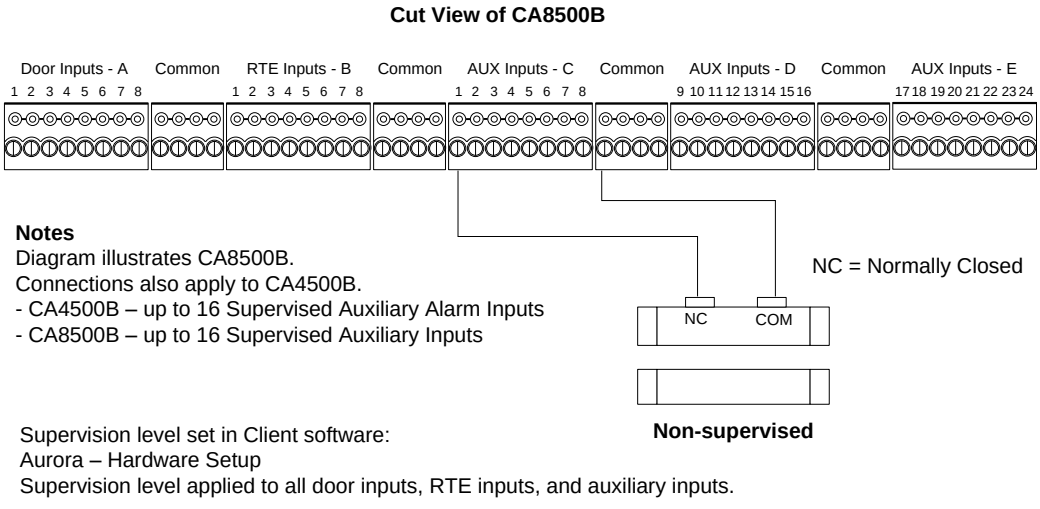
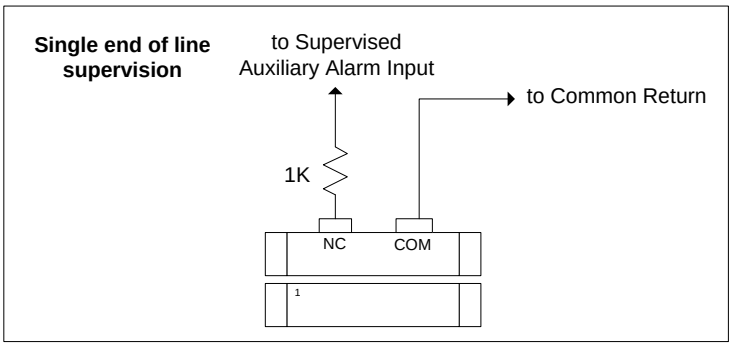
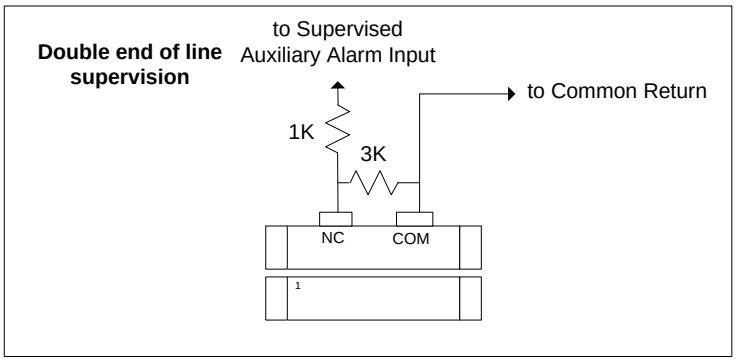
Figure 4 - Input Connections – PC1097 or Higher Control Boards







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Outputs

When using the Global IO function, an OCB-8 or IOCB1616 can be used for outputs. When using OCB-8 outputs, refer to the table below for corresponding auxiliary output (AO) #s in the Client software.

If using IOCB1616 outputs, refer to the IOCB1616 section on page 8.

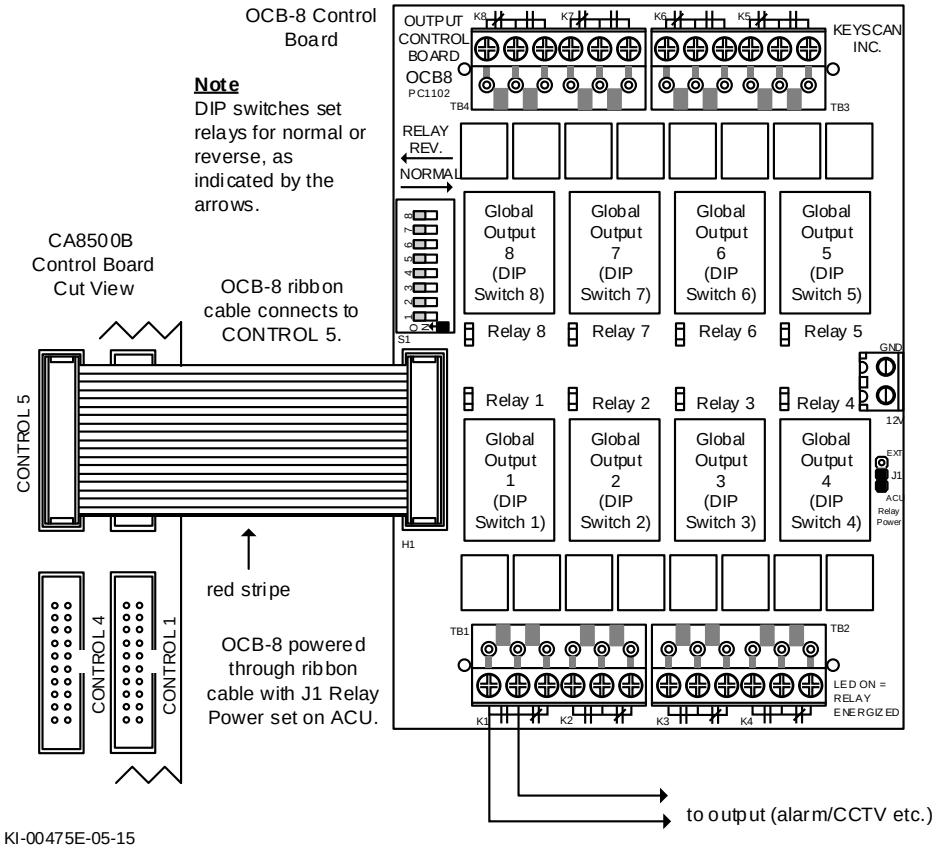
OCB-8/Global IO Assignments

The following table outlines global output relay assignments on the OCB-8 and Client software. Please note the CA250B and the CA150 do not support global outputs.

OCB-8 Global Output Relay #/ Client Relay	Ribbon Cable Connection to Main Circuit Board
Global IO Relay 1 = 09 – AO # 09 in Client software Global IO Relay 2 = 10 – AO # 10 in Client software Global IO Relay 3 = 11 – AO # 11 in Client software Global IO Relay 4 = 12 – AO # 12 in Client software Global IO Relay 5 = 13 – AO # 13 in Client software Global IO Relay 6 = 14 – AO # 14 in Client software Global IO Relay 7 = 15 – AO # 15 in Client software Global IO Relay 8 = 16 – AO #16 in Client software	Connect ribbon cable on OCB-8 to Control 5 on CA4500B or CA8500B – PC109x.

The table above only applies to OCB-8 relay boards for corresponding AO #s in the Client software. The table does not apply to IOCB1616 boards.

Figure 5 - OCB-8 Connections



IOCB1616

If you are using IOCB1616 for inputs or outputs with the Global I/O function, refer to the Keyscan IOCB1616 document for board configurations, connections and software setup. The IOCB1616 output modes – delayed, timed, and pulsed – only apply when assigned to an IOCB1616 input. After completing the IOCB1616 Parameters screens in the Client software, review and complete the instructions under Global I/O Software Setup, which is the next section in this document.

IOCB1616 Global I/O Operating Modes

The Set IOCB1616 Parameters screen has 3 specific settings for Global I/O as listed in the following table:

IOCB1616 Mode	Output Mode/Function	Input Mode/Function
08 – Optional I/O Delayed Output*	If the IOCB1616 input remains in alarm past the specified output time, the output is triggered. The output remains triggered until the input is secured or closed.	Alarm immediately
09 – Optional I/O Timed Output*	If the IOCB1616 input goes into alarm, the output is triggered. The output remains on for the duration of the specified output time. The output remains triggered until the input is secured or closed.	Alarm immediately
10 – Optional I/O Pulsed Output*	If the IOCB1616 input goes into alarm, the output is triggered. The output pulses off and on for the specified output time. The output remains triggered until the input is secured or closed.	Alarm immediately
00 – Not Used	Select this option if you do not wish to use one of the modes above.	

* Delayed, timed, or pulsed IOCB1616 output modes only apply if triggered by an IOCB1616 input. Delayed, timed, or pulsed output modes do not apply if triggered by a door contact on the access control board.

Figure 6 – Set IOCB1616 Parameters Screen

Important

When an IOCB1616 output is assigned as a global output, its corresponding input no longer functions. As

an example using the screen capture above, because IOCB1616 Output # 01, #02, and #03 are being assigned for Global I/O functionality, the corresponding IOCB1616 Inputs #01, #02, and #03 will no longer function.

Global I/O Software Setup

The Global I/O function has 2 screens:

- Hardware Setup – Global I/O – assigns an input trigger point on a designated panel to an output at a designated panel
- Schedule Assignments - Auxiliary Outputs – assigns an auxiliary output to a schedule (optional)

Global I/O Parameters

The following table outlines field definitions on the Set Optional I/O Parameters screen:

Field Description	Definition/Function
Site	Indicates the applicable site.
ACU	Specifies the access control unit for assigning the Global Input Trigger field.
Door Alarms – Applies to All	Allows enabling or disabling the 2 types of door alarms if using door contacts as inputs. These switches apply to all door inputs on the panel specified under ACU.
Alarm Tripped	When enabled, Door Forced Open alarms will trip assigned outputs.
Door Held Open	When enabled, Door Held Open alarms will trip assigned outputs.
+	Adds a row to assign an input trigger to an output.
Input Trigger	Assigns a door input, auxiliary input or an IOCB1616 input connected to the panel specified under ACU.
Panel	Specifies the panel of the associated output assigned to the Global Input Trigger.
Output	Specifies the output associated with the Global Input Trigger. (Please note that IOCB1616 output modes – delayed, timed, or pulsed – only apply if assigned to an IOCB1616 input.)
Save	Saves settings.
Back/Navigation History	Back – Returns to the last previously viewed screen. Navigation History – allows selecting any of the previously viewed screens listed.

Steps to Set Global I/O Parameters

The steps to set up global inputs and outputs have been divided into 5 sub-sections. If you are using IOCB1616 boards, you must complete the Set IOCB1616 Parameters screens before you can begin the following procedures. Please refer to the IOCB1616 section in this document and the Keyscan IOCB1616 document for setup instructions.

Modify System User Permission – Enable Global I/O

1. From the Client main screen, select the Settings menu > Manage System Users.
2. From the User Search directory screen, double click on the user account.
3. From the Manage System User screen below Permissions, click on the arrow opposite Hardware.
4. Click on the arrow opposite Door Related.
5. Click in the box to the left of Global IOs to enable this function. The box has a x when enabled.
6. Click on the Save button.
7. Click on the Back button until you have returned to the Client main screen.

Assign Global Input Triggers to Global Output Points

1. From the Client main screen, select the Site Setup button > Hardware Setup.

- If you have multiple sites, double click on the site in the Hardware Setup directory screen.

2. From the Hardware Setup screen, double click on any control unit listed in the All Hardware screen.
3. Click on the Global I/O tab.
4. Opposite ACU, click on the symbol to the right and select the access control unit that is connected to the device which will be designated as the input Trigger Device.
5. Click on the + button.
6. Below the Input Trigger heading, click on the row which was just added after you clicked on the + button.
7. Click on the symbol below Input Trigger, and select the designated triggering input from the drop down list.
8. Below the Access Control Unit heading, click on the same row as above.
9. Click on the symbol below Access Control Unit, and select the access control unit which is connected to the output device.
10. Below the Output heading, click on the same row.
11. Click on the symbol below Output, and select the output from the drop down list.
    - OCB-8 global outputs must be connected to Control 5 on the control board.
12. If applicable, to enable either Door Alarm Tripped or Door Held Open alarms, click in the box to the left. This only applies if you are assigning doors as Global Input Triggers and wish to engage either alarm as a triggering mechanism for the output.
    - When enabled the box has an x.
    - When disabled the box is blank.
13. Click on the Save button.
14. To add more input and output assignments, repeat the above steps.
15. You may configure multiple inputs to trip one output.
16. When you have completed assigning inputs and outputs, to return to the main screen, select the Back button or to return to a previously viewed screen, select the Navigation History symbol.

Assign Schedules to Auxiliary Outputs (optional)

If you are assigning a schedule to arm and disarm a global auxiliary output follow the procedures below, otherwise go to Upload Panels.

Please note the following when assigning a schedule to an optional auxiliary output.

- Schedule ON – Optional Auxiliary Output Disarmed
- Schedule OFF – Optional Auxiliary Output Armed

Important

Please note the following convention:

- An input change of state overrides a schedule change of state

When assigning a schedule to an output, typically it should not have any associated alarm inputs. Otherwise, if the input goes into alarm it trips the output regardless of the output's schedule state.

If the state of an output needs to be controlled, Keyscan recommends assigning a schedule to an input.

Steps

1. From the Client main screen, select the Site Management button > Schedule Assignments.
2. If you have multiple sites, double click on the site from the directory screen.
3. Ensure that the Auxiliary Outputs tab is selected.

Single Output

1. Select the output by clicking on the row so it is highlighted in blue.
2. With the output highlighted in blue, click over the Schedule column.
3. Click on the  symbol and select a schedule from the drop down list.
4. Click on the Save button.
5. Click on the Back button to return to the main screen or the navigation history  symbol for a previously viewed screen.

Multiple Outputs/Same Schedule Assignment

1. Select the boxes to the left of the access control units/outputs you are assigning to schedules. The box has an x and the row is highlighted in blue when the output is selected.
2. Click on the  symbol opposite Schedule near the bottom of the screen and from the drop down list, select the schedule.
3. Click on the Assign to Selected Auxiliary Outputs button.
4. Click on the Save button.
5. Click on the Back button to return to the main screen or the navigation history  symbol for a previously viewed screen.

Global Schedules

With Aurora, you can also institute global schedules across multiple access control units. Use a card/reader with Present 3 or use an auxiliary input to toggle a schedule to affect changes with any of the following system functions:

- Lock and unlock doors
- Trip outputs
- Shunt inputs
- Control groups

Instituting global schedules is a vast and multi-faceted subject and there are many variables at play. As such, this document does not provide specific step by step instructions on setting up global schedules. It does, however, include illustrations that depict examples of the system functions above when the schedule status is on and off.

Important

Global schedules require the same communication configuration illustrated at the beginning of this document.

CB-485s or CPB-10s do not support global schedules.

Global Schedule Requirements

Before instituting global schedules, please be aware of the following requirements and conditions:

- PC109x or higher door controllers
- Requires Aurora software version 1.0.1 or higher
- Requires controller firmware 7.31/8.11 or higher
- Requires CIM firmware 2.10 or higher
- Requires CIMs configured for ACU to ACU communication – CAN Bus 2
- Elevator controllers – PC109x or later with CIM communication

Help References

The bullets below list topics in the Client help that provide assistance in setting up global schedules for an existing site. If this is a new site, follow all relevant procedures outlined in the Client help.

- Create Schedules – Schedule & Holiday Management > Schedules/Holidays > Schedules & Holiday Hours
- Outputs – Schedule & Holiday Management > Assign Schedules > Assign Schedules to Auxiliary Outputs
- Inputs – Schedule & Holiday Management > Assign Schedules > Assign Schedules & Inputs
- Automatically Lock/Unlock Doors – Schedule & Holiday Management > Assign Schedules > Assign Schedules to Doors
- Cardholder Control > Present 3 > Review all topics.

Assigning Global Schedules

Whenever you are going to use global schedules for any of the functions listed on the preceding page, Keyscan recommends creating specific schedules for global applications. This will help prevent potential conflicts with other schedule assignments.

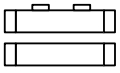
Figure 7 – Global Schedule - Default Status ON - Trips Output

Global Schedule - Default Status ON – Trips Output

Reader 1 at ACU #2
Present 3 - Card toggles schedule

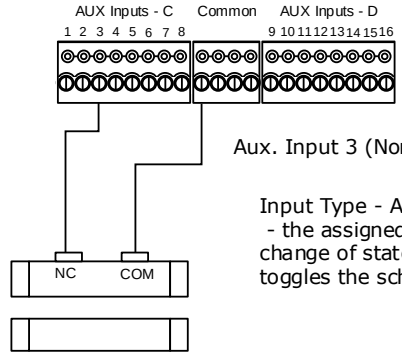
Important
Start of schedule can be set as desired, such as 06:00
End of schedule must be set on 00:00

OR



Input 3 on ACU #5
Input toggles schedule

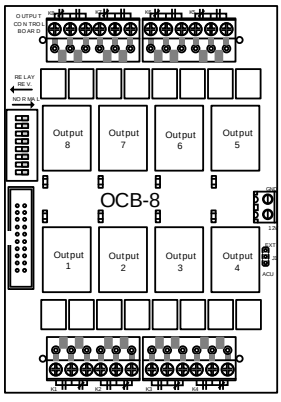
Cut View – PC109x Control Board



Aux. Input 3 (Normally Closed)

Input Type - AI > Schedule
- the assigned auxiliary input on a change of state automatically toggles the schedule.

Output 1 ACU #1



Output 1 connects to third party device such as CCTV or alarm panel.

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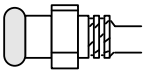
Figure 8 – Global Schedule – Default Status OFF - Trips Output

Global Schedule - Default Status OFF – Trips Output

Reader 6 at ACU # 2
Present 3 - Card toggles schedule

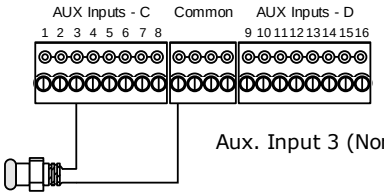
Important
Start of schedule must be set as 00:00
End of schedule can be set as desired, such as 17:00

OR



Input 3 on ACU #4
Input toggles schedule

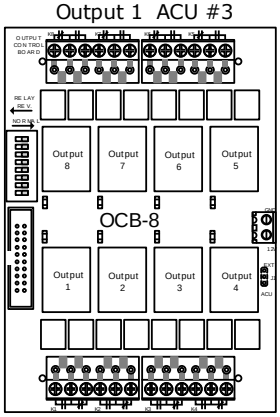
Cut View – PC109x Control Board



Input Type - AI > Schedule - the assigned auxiliary input on a change of state automatically toggles the schedule.

Aux. Input 3 (Normally Open)

Output 1 ACU #3



Output 1 connects to third party device such as CCTV or alarm panel.

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Figure 9 - Global Schedule – Default Status ON - Group Control

Global Schedule - Default Status ON – Cardholder Control

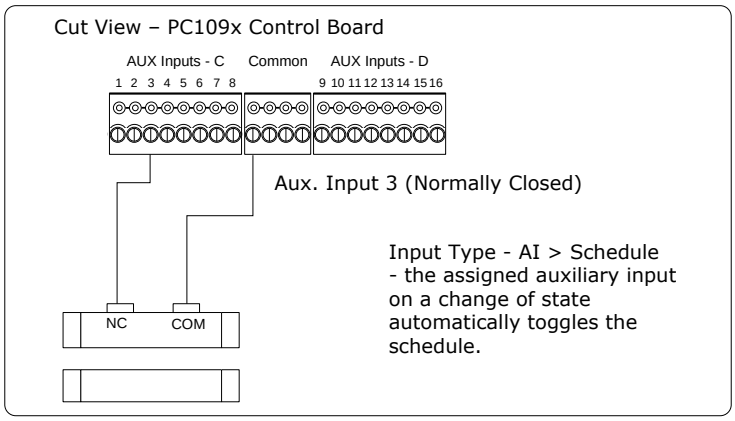
Reader 1 at ACU #2
Present 3 - Card toggles schedule

Card

Important
Start of schedule can be set as desired, such as 06:00
End of schedule must be 00:00

OR

Input 3 on ACU #5
Input toggles schedule



Input Type - AI > Schedule
- the assigned auxiliary input on a change of state automatically toggles the schedule.

Groups 1, 7, 22

Schedule ON = Access
Schedule OFF = No Access
Default state = Cards Enabled

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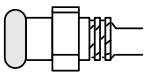
Figure 10 - Global Schedule – Default Status OFF - Group Control

Global Schedule - Default Status OFF – Cardholder Control

Reader 6 at ACU # 2
Present 3 - Card toggles schedule

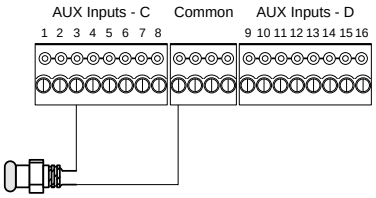
Important
Start of schedule must be set as 00:00
End of schedule can be set as desired, such as 17:00

OR



Input 3 on ACU #4
Input toggles schedule

Cut View – PC109x Control Board



Aux. Input 3 (Normally Open)

Input Type - AI > Schedule - the assigned auxiliary input on a change of state automatically toggles the schedule.

Groups 1, 7, 22

Schedule ON = Access
Schedule OFF = No Access
Default State = Cards Disabled

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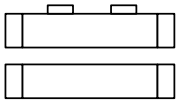
Figure 11 - Global Schedule – Default Status ON - Shunt Inputs & Door Contacts

Global Schedule - Default Status ON – Shunt Inputs & Door Contacts

Reader 1 at ACU #2
Present 3 - Card toggles schedule

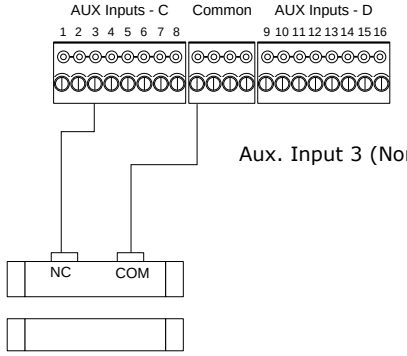
Important
Start of schedule can be set as desired, such as 06:00
End of schedule must be 00:00

OR



Input 3 on ACU #5
Input toggles schedule

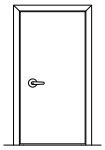
Cut View – PC109x Control Board



Input Type - AI > Schedule - the assigned auxiliary input on a change of state automatically toggles the schedule.

Aux. Input 3 (Normally Closed)

Door Contacts
5, 6, 7 on ACU 2



PIR inputs
1, 7, 22 on ACU 3

Schedule ON - shunts applied
Schedule OFF - shunts removed
Default state = inputs shunted

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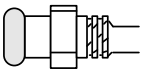
Figure 12 - Global Schedule – Default Status OFF - Shunt Inputs & Door Contacts

Global Schedule - Default Status OFF – Shunt Inputs & Door Contacts

Reader 6 at ACU # 2
Present 3 - Card toggles schedule

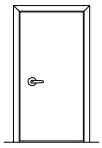
Important
Start of schedule must be set as 00:00
End of schedule can be set as desired, such as 17:00

OR



Input 3 on ACU #4
Input toggles schedule

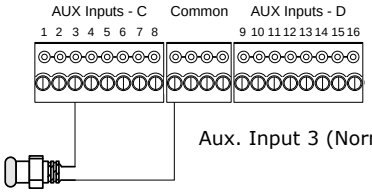
Door Contacts
5, 6, 7 on ACU 2



PIR inputs
1, 7, 22 on ACU 3

Schedule ON - shunts applied
Schedule OFF - shunts removed
Default state = inputs shunted

Cut View – PC109x Control Board



Input Type - AI > Schedule - the assigned auxiliary input on a change of state automatically toggles the schedue.

Aux. Input 3 (Normally Open)

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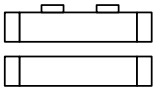
Figure 13 - Global Schedule – Default Status ON - Auto Unlock/Lock Door

Global Schedule - Default Status ON – Auto Unlock/Lock Door

Reader 1 at ACU #2
Present 3 - Card toggles schedule

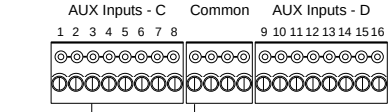
OR



Input 3 on ACU #5
Input toggles schedule

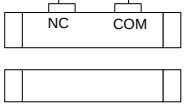
Important
Start of schedule can be set as desired, such as 06:00
End of schedule must be 00:00

Cut View – PC109x Control Board

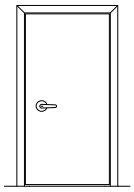


Input Type - AI > Schedule - the assigned auxiliary input on a change of state automatically toggles the schedule.

Aux. Input 3 (Normally Closed)



Doors 1, 7, 22
on ACU #6



Schedule ON – Unlocks doors
Schedule OFF – Locks doors
Default State = Door Unlocked

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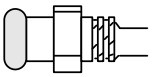
Figure 14 - Global Schedule – Default Status OFF - Auto Unlock/Lock Door

Global Schedule - Default Status OFF – Auto Unlock/Lock Doors

Reader 6 at ACU # 2
Present 3 - Card toggles schedule

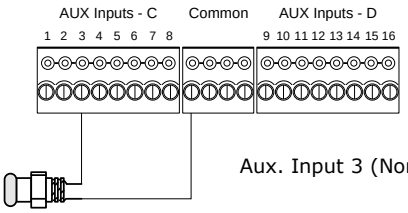
Important
Start of schedule must be set as 00:00
End of schedule can be set as desired, such as 17:00

OR



Input 3 on ACU #4
Input toggles schedule

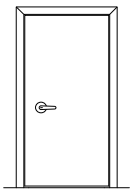
Cut View – PC109x Control Board



Input Type - AI > Schedule - the assigned auxiliary input on a change of state automatically toggles the schedule.

Aux. Input 3 (Normally Open)

Doors 1, 7, 22
on ACU #6



Schedule ON - Unlocks doors
Schedule OFF - Locks door
Default State = Door Locked

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