



700-ORM Installation QRG (Output Module)

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1.0 Install a 635-DSI Board on the I2C Data Bus (ribbon cable)

This section describes installing a 635-DSI Board on the I2C Data Bus (ribbon cable) to support ORMs on RS485 Section.



DO NOT INTERRUPT FLASHING. Do not interrupt the power source, I2C Bus, or SW1 Reset on the CPU or DSI board during flashing process. Interrupting flash will damage board memory and require factory repair.

1. System Galaxy Software SG 10.4 (or higher) required. All existing & new panels must be flashed to current flash.
2. 635-CPU supports the 635-DSI with 700-ORM Output Module on the RS485 Section (i.e. not supported on a 600 CPU).
3. 700-ORM (Output Relay Module) supports 8 Output Relays per board.
4. 635-DSI Board supports up to 3 ORMs for General Purpose Output; up to 4000 ft. total line distance.
635-DSI Board supports up to 15 ERMs for Elevator Relay Output; up to 4000 ft. total line distance.

NOTE: a 635-CPU supports up to 64 devices per CPU Board. Each 700-ORM Board counts as 1 (DSI Board not counted).

5. SET THE DSI BOARD ID using dipswitch positions 4 thru 8. (factory default 16 = only position 4 ON)
 - a) Turn OFF/DOWN all Switch Positions 4 thru 8.
 - b) Then only turn ON/UP the DIP Switch positions that are needed to set the desired Board ID – use table below.
The Board ID must be unique on the I2C data bus (ribbon cable), and Valid IDs are 1 thru 16.

TABLE FOR SETTING BINARY DIPSWITCH (BOARD NUMBERS)

ID	Actual DIP Switch Position	ID	Actual DIP Switch Position
1	8 = ON	9	5, 8 = ON
2	7 = ON	10	5, 7 = ON
3	7, 8 = ON	11	5, 7, 8 = ON
4	6 = ON	12	5, 6 = ON
5	6, 8 = ON	13	5, 6, 8 = ON
6	6, 7 = ON	14	5, 6, 7 = ON
7	6, 7, 8 = ON	15	5, 6, 7, 8 = ON
8	5 = ON	16	4 = ON (factory default)

- OPTION-C (Switch pos. 3) is OFF (9600 bps)
ON (19200 bps)
- OPTION-B (Switch pos. 2) is unused
- OPTION-A (Switch pos. 1) is unused

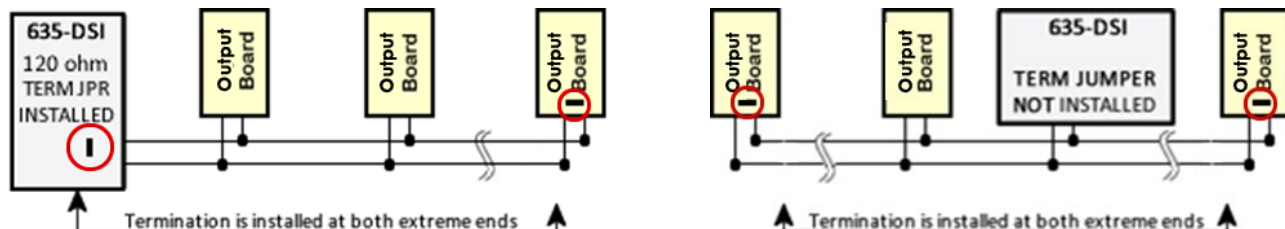
6. Correctly set the 120-ohm Termination Jumper on each RS485 Section (JP4/JP5) of the DSI Board.
NOTE: Consider the RS485 Sections separately when setting the termination jumpers. The RS485 Sections function independently; thus, one section could be at the *end-of-line*, while the other section is not.

Diag. A. Jumper shown in the TERM position when DSI Board is located at the end of a RS485 wire-run.

Diag. B. Jumper shown OPEN (NOT INSTALLED) on the DSI when the DSI is NOT at the end-of-line (120 Ω jumpers is installed only on the Output Board when it is at the 'extreme end' of the line).

Diagram A: 120 Ω TERM JUMPER INSTALLED ON DSI.

Diagram B: 120 Ω TERM JUMPER NOT INSTALLED ON DSI.



Use the BLACK 2-PIN JUMPERS (included with Boards). Installed ONLY at extreme ends of RS485 wire-run.

7. **Install the DSI Board into the controller cabinet and connect to the I2C Bus (ribbon cable) and power harness.**
 The DSI must be communicating on the I2C bus before connecting the ORMs. Verify DSI communication by entering the CPU's IP Address into a Web Browser* to confirm the connection status of the DSI Board. (*PC and CPU must be on same network segment. Board appears on **Panel Status page**. Board Status should = Normal. When using the Web Config Page diagnostics, you should uncheck/update the server 1 connection) Alternately, a DSI connection can be confirmed by retrieving/saving in the Controller Programming screen via the SG software.)

INSTALLING THE 700-ORM (Output Relay Module)

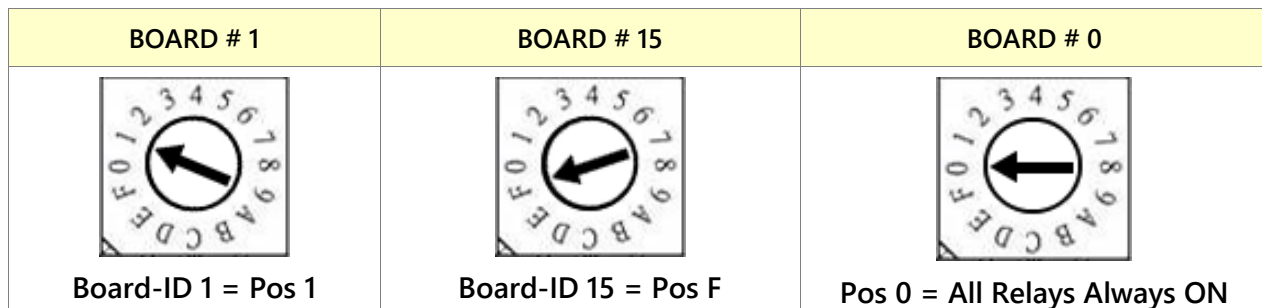
8. Before installing a 700-ORM Output Board, you must configure the Board-ID Rotary Switch:

- a) **ROTARY SWITCH (SW1):** Hexadecimal-coded, 16-Position, single-pole rotary switch.

Rotate the center contact pole using a small screwdriver.

Valid Board ID = 1 thru 15.

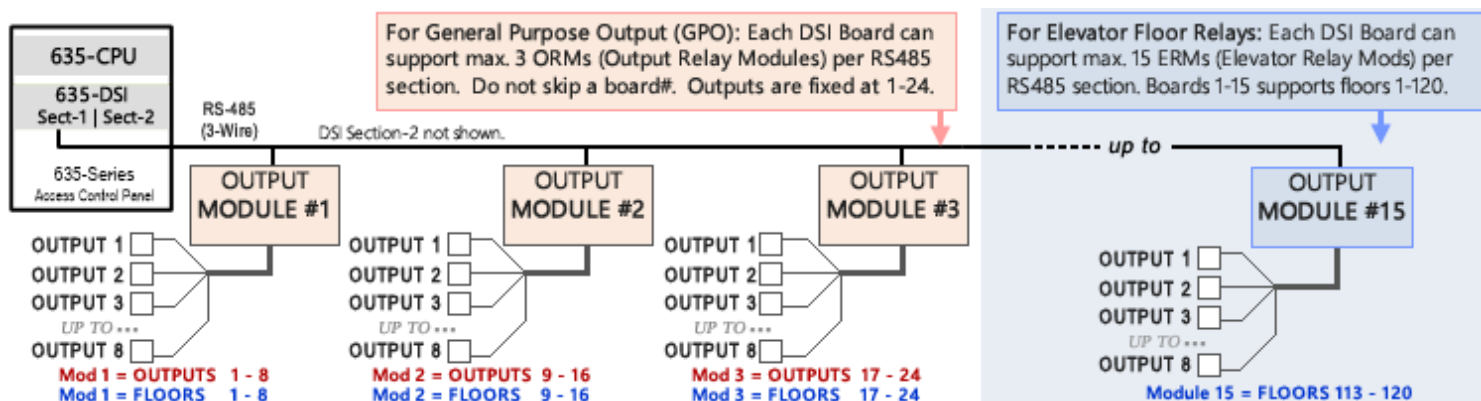
Each Board must have a unique ID on the DSI Section (RS485 bus).



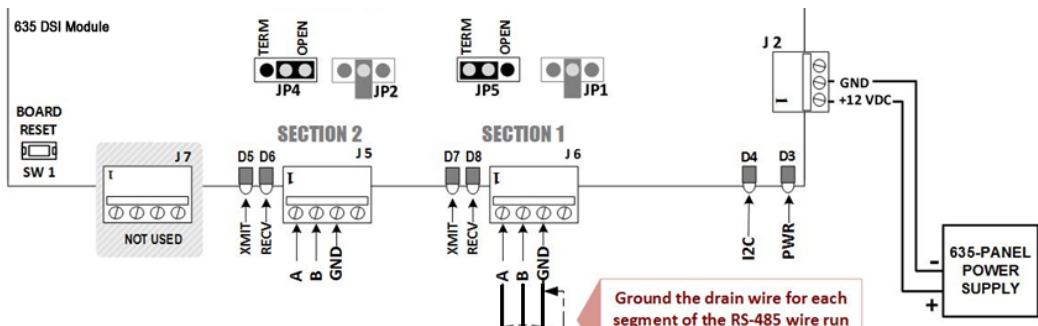
- b) This table shows the 'Rotary-Switch Positions' (hexadecimal markings represent numeric values).

Board ID	Rotary Sw.	supports Relay #/Floor #	Board ID	Rotary Sw.	supports Relay #/Floor #
1	1	Relay Output or Floor No. 1 - 8	9	9	Floor No. 65 - 72
2	2	Relay Output or Floor No. 9 - 16	10	A	Floor No. 73 - 80
3	3	Relay Output or Floor No. 17 - 24	11	B	Floor No. 81 - 88
4	4	Floor No. 25 - 32	12	C	Floor No. 89 - 96
5	5	Floor No. 33 - 40	13	D	Floor No. 97 - 104
6	6	Floor No. 41 - 48	14	E	Floor No. 105 - 112
7	7	Floor No. 49 - 56	15	F	Floor No. 113 - 120
8	8	Floor No. 57 - 64	0	0 (zero)	Relays = All ON / Always

- c) Diagram of the 635-DSI RS485 Section-1: showing Output Relay *Board IDs* and *Output/Floor Numbering*.



9. RS485 NETWORK WIRING: Land 3-Wire Cable from DSI Board RS485 Section → 700-ORM Output Boards.



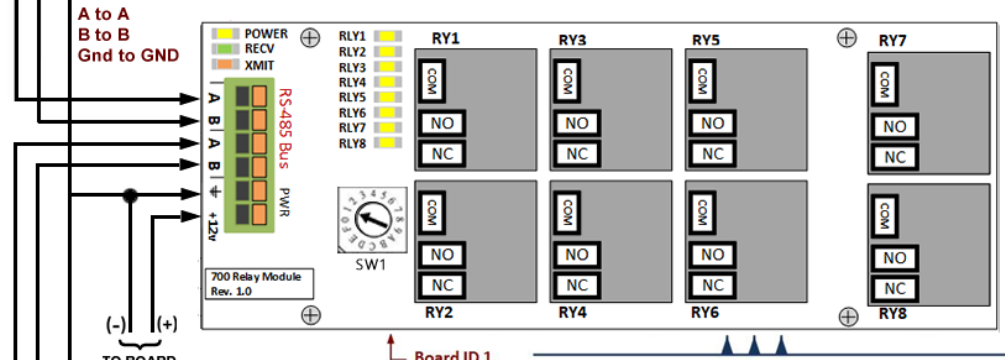
* RS-485 Wire Run up to 4000 ft. total line distance.

Ground the drain wire for each segment of the RS-485 wire run at one end only!

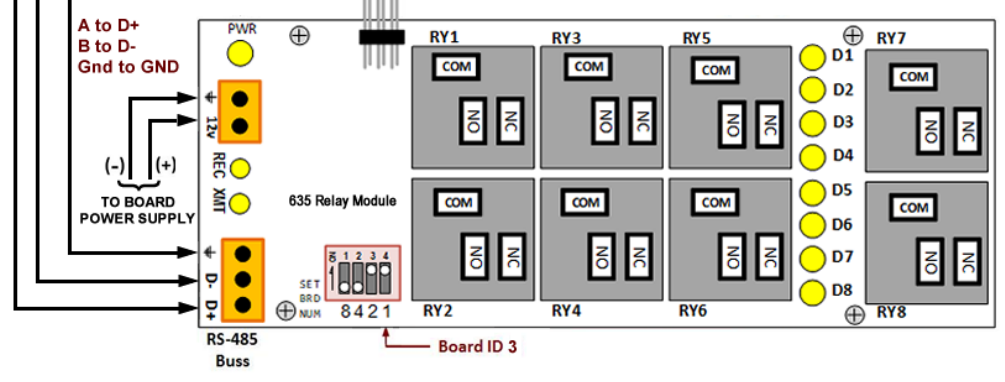
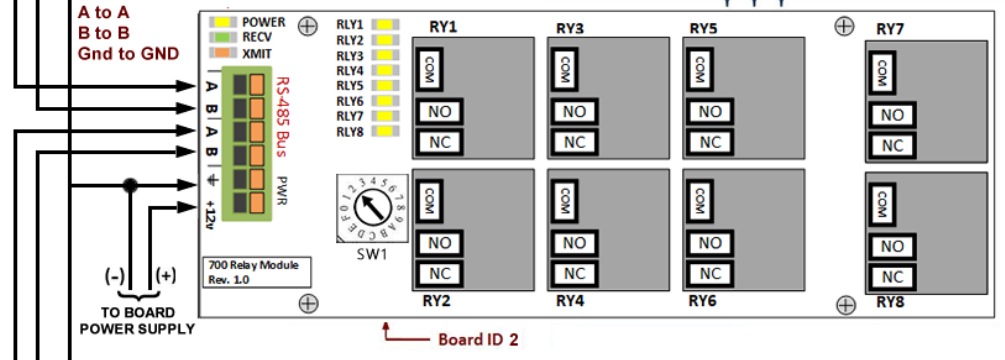
GENERAL OUTPUT:
Up to 3 Relay Boards per DSI Section

ELEVATOR OUTPUT:
Up to 15 Relay Boards per DSI Section

RS-485 TERMINATION: Install TERM JP on DSI and a 120 ohm resistor in parallel across A and B on the extreme end of line.

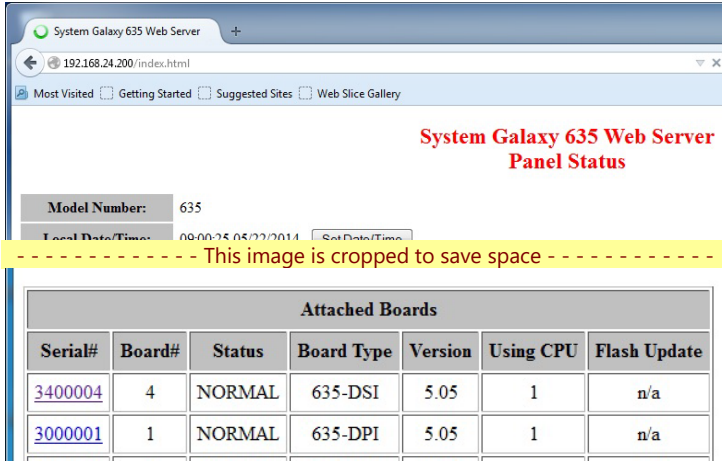


NOTE Up to 8 Outputs can be connected to an Output Relay Module. The Output Module counts as 1 device toward the "64- device maximum" on the CPU regardless of how many inputs are connected.



10. YOU CAN VIEW AND TEST OUTPUTS from the embedded web page as follows:

- a) Enter the panel’s IP Address into a web browser to open the *Panel Status* page (the PC/browser must be able to reach the same network segment that the panel is in).
- b) In the ‘Attached Boards’ table, click on the Serial # of the DSI Board that is connected to the Output Relay Modules. RESULT: This will open the *DSI Testing* page (see below).



- c) In the *DSI Test Screen* (below), choose the **Section# (one or two)** that the *Output Modules* are connected to.
- d) In the [Function] list, choose the option that describes the use of the ORMs:
 - choose “Galaxy Relay Boards” for General Purpose Output (3 boards max)
 - choose “Galaxy Elevator Relays” for Elevator Relay Output (15 boards max, use the scrollbar to see all relays)
- e) Click the [APPLY] button to retrieve the list of connected Relay Modules. RESULT: the **Found** column will display “yes” for each ORM that is physically connected and powered on.
- f) Click (check) the ‘Automatically Ripple Relays’ option to test all the relays on every connected ORM. RESULT: Every connected board will run the *Relay Ripple Test*, and each of the 8 Relays will momentarily engage in sequence of 1 thru 8. Each relay has a corresponding LED that will momentarily light-up in sequence as the ripple test runs. The *Relay Ripple* will continue cycling ON and OFF until you uncheck the Ripple option.

600/635-DSI Configure and Test

600/635-DSI Configure and Test

Configuration Options	
Local Date/Time:	20:01:06 01/27/2023
Serial Number:	3404132
Software Version:	11.0.9

Selection Testing	
Section	Two
Function	Galaxy Relay Boards
Apply	

DSI Section 2 set to drive Relay Boards
 Automatically Ripple Relays

rBrd #	Found	R1	R2	R3	R4	R5	R6	R7	R8
1	yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	no	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	no	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Configuration Options	
Local Date/Time:	18:15:10 01/27/2023
Serial Number:	3404132
Software Version:	11.0.9

Selection Testing	
Section	Two
Function	Galaxy Elevator Relays
Apply	

DSI Section 2 set to drive Elevator Relay Boards
 Automatically Ripple Relays

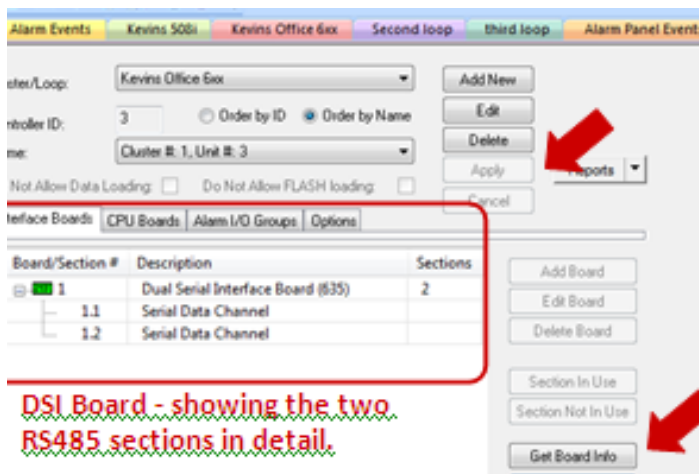
Pusher Timeout, use REFRESH or APPLY to resume

rBrd #	Found	R1	R2	R3	R4	R5	R6	R7	R8
1	yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	no	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	no	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	no	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	no	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	no	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	no	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	no	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	no	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	no	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. In the System Galaxy Software, you must program the Loop/Cluster, Controller, and DSI Board.

- ▶ In the *Controller Properties* screen, click [Edit] then click [Get Board Info]. The attached boards will be retrieved and can be saved/added to the system programming for the controller.
- ▶ Set unused board sections to [Not in Use].
- ▶ Remember to click **APPLY** to save settings.

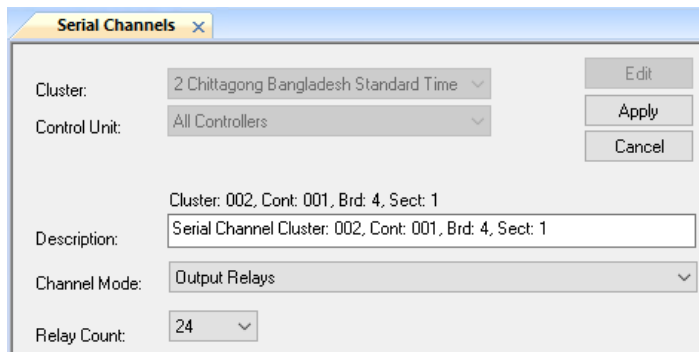
NOTE: The CPU must be configured with a valid IP Address, powered ON, and connected to the LAN. All daughter boards must be addressed, connected to the I2C ribbon cable, and powered ON. The GCS Services must be running, and the CPUs must be connected to the Event Service.



DSI Board - showing the two RS485 sections in detail.

12. Select **Configure > Hardware > Serial Channels** from the SG menu to configure the DSI boards.

- ▶ Set the **Channel Mode** to "Output Relays" (or "Elevator Control Relays") as needed.
- ▶ In the **Relay Count** droplist, pick the total number of Relays you have on all boards installed.
- ▶ Click **APPLY** to save settings. These relays will be added to the system. (General Output Relays appear in the Output Properties screen.)

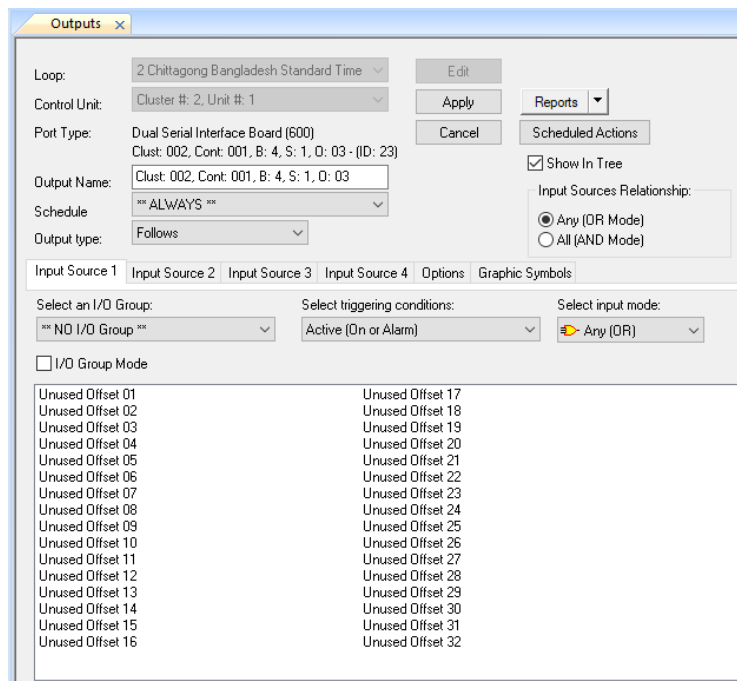


13. Select **Configure > Hardware > Outputs** from the SG menu to configure the individual output relays.

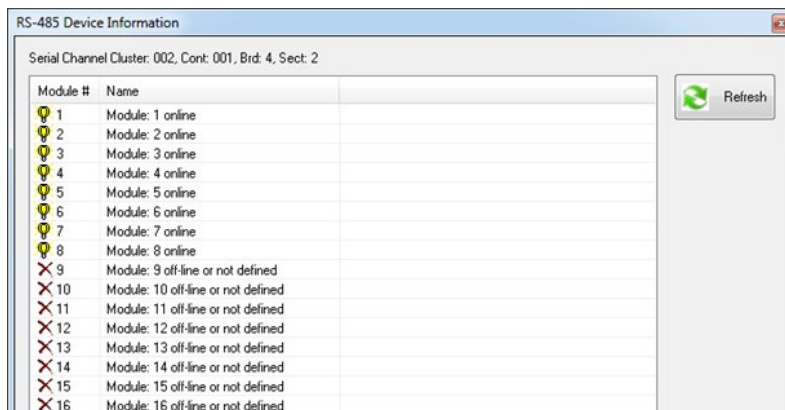
- ▶ Select the correct *Loop name* and *Controller name*.
- ▶ Select the desired output from the [Output Name] list.
- ▶ Click **EDIT** button. **You can change the Output Name to a logical name** (the physical coordinates will continue to display above the name field for reference (cluster, unit, DSI board and section, output module ID and output position number).
- ▶ Select the **Schedule** (always, never, or a custom sched)
- ▶ Select the **Output Type** (follows, timeout, latching, etc.).
- ▶ You can check the [Show in Tree] option to allow the output to display in the SG Hardware Tree.
- ▶ In the **Input Source 1** tab (shown), configure the output as needed (*you must have already created any custom I/O Group name if needed*).

14. You must set the [Input Sources Relationship] option to the appropriate choice - i.e., Any(or); All(and).

NOTE: See the *Software User Guide Chapter-9* for more Output Programming steps – also available through the Help Menu.



15. **IMPORTANT:** You must **Load Data** to the controller from the **GCS Loader screen**. You can open the **GCS Loader Utility** from the **Hardware Tree**. Locate the appropriate **Loop Name** that the controller belongs to. Then right-click on the Loop Name and select the 'Load' option from the command menu.
- When the **initial Data Load** is completed, the system will calibrate the outputs.
 - Any future changes to the **Output programming**, will be sent to the panel when the operator clicks the **[Apply]** button to save changes in the **Output Properties** screen. However, if you are in doubt, or the panel doesn't seem to pick up the changes, you can always perform a **manual data load** to ensure that your outputs are correctly calibrated. **Follow the instructions in Step 16.**
 - In the **GCS Loader's Load Data tab**, you should check all available options, because **system programming is interdependent**. To speed up the loading process, you can safely uncheck loading 'all cards' if the cardholder database is large. You can load all cards on a separate pass after you finish loading the system programming.
16. You can also verify the output device status of the RS485 Output Modules from the **Controller Properties screen**. ([Configure > Hardware > 635 Controller](#)).
- In the **Controller Properties screen**, expand the DSI Board and select the appropriate Section number (not pictured).
 - Click the **[RS-485 Device Info]** button to retrieve a list of all the Output Modules connected to the DSI Board. *Individual relays are not shown in this screen.*
 - 'online' = an Output Module is detected and is enabled in System Galaxy for the Module number shown. The Module number is the Output Board's binary ID which was configured in **Step-8** of this document. Above the list of modules, you can see the DSI Board info: Cluster ID, Controller ID, DSI Board ID, Sect No.
 - 'off-line / not defined' = either the system did not detect a module – OR – the module has not been configured into the **Serial Channel programming screen** (see **Step-13** of this document).



RS-485 Device Information

Serial Channel Cluster: 002, Cont: 001, Brd: 4, Sect: 2

Module #	Name
1	Module: 1 online
2	Module: 2 online
3	Module: 3 online
4	Module: 4 online
5	Module: 5 online
6	Module: 6 online
7	Module: 7 online
8	Module: 8 online
9	Module: 9 off-line or not defined
10	Module: 10 off-line or not defined
11	Module: 11 off-line or not defined
12	Module: 12 off-line or not defined
13	Module: 13 off-line or not defined
14	Module: 14 off-line or not defined
15	Module: 15 off-line or not defined
16	Module: 16 off-line or not defined

Refresh

List of Modules connected to DSI#4 Section-2 located in Controller#1 of Cluster#2

NOTE – The screen above shows **8 Modules** connected on Section-2 of the DSI Board. *The numbers 1-8 are the Board IDs of each Output Module, not the individual output relays.*

NOTE: The status of Individual relays can be seen in the **Device Status screen** ([View > Device Status](#)).

NOTE – **Individual Relay Numbering is rigidly imposed in the system for Output Relay Modules**, meaning Relays 1 thru 8 are always on ORM#1; Relays 9 thru 16 are always on ORM#2; etc. This is true for all Output Relay Modules, regardless of whether they are used for *General Purpose Outputs* and *Elevator Relay Outputs*.