Lutron Caseta Modules for Crestron r01
User Guide

1.0 Overview

The Lutron Caseta Modules for Crestron is a collection of modules built in Crestron's SIMPL and SIMPL+ languages to allow complete control and integration of a Lutron Caseta system with any Crestron 2-Series or 3-series system. Control is accomplished via TCP/IP only. Crestron 2-series Firmware (CUZ) v4.008.0008 was used for testing. Crestron 3-series firmware used for testing was v1.010.0060.

As the Lutron Caseta Smart Bridge supports multiple TCP/IP connections, each module uses its own TCP/IP client to communicate with the Lutron system. This was done for ease of implementation for systems developed using SystemBuilder.

In order to use the modules you will need to know the IP address of the Lutron Smart Bridge. You will also need a copy of the Integration Report from the Caseta system in order to determine which controls and Integration ID's to use for each device.

2.0 Components

A. Smart Bridge Module

The Smart Bridge allows for recall of any of the 50 user presets available on the Smart Bridge unit. The Smart Bridge will always be configured as ID 1 in the Caseta system.

Signal Name	Direction	Type	Description
Port Number	Parameter	Integer	The telnet port number for use with SystemBuilder. This value cannot be changed and is set to 23d by default.
ButtonX	Input	Digital	Button inputs used to recall presets on the Smart Bridge. Button inputs will transmit press and release functions. Preset recall will occur on the press.
{{TCP/IP_Client_>>_Connect-F}}	Input	Digital	Connects to the Connect-F output of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.
{{TCP/IP_Client_>>_status}}	Input	Analog	Connects to the status output of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.
{{TCP/IP_Client_>>_RX$}}	Input	String	Connects to the RX$ output of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.
IP_Comm_OK	Output	Digital	Indicator to show that the module is connected and logged into the device via IP.
IP_Connect_Fb	Output	Digital	Indicator used to pass status for the Connect-F output of the TCP/IP client in SystemBuilder.
IP_Status	Output	Analog	Indicator used to pass status for the status output of the TCP/IP client in SystemBuilder.
{{Connect_>>_TCP/IP_Client}}	Output	Digital	Connects to the Connect input of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.
{{TX$_>>_TCP/IP_Client}}	Output	String	Connects to the TX$ input of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.

B. Pico Emulation Module

The Pico Emulation module allows the Crestron system to emulate any Pico handheld remotes that are present in the system. Note that the integration protocol only allows for press and release functions at this time therefore any "press and hold" functions that are available on the actual Pico remotes cannot be performed using the module.

Each Integration ID contains control functions for each of the 2 different types of Pico handheld remotes that are available – the 3 Button Raise/Lower type and the 4 Button Type.

The easiest way to identify the type of Pico remote that you have for a particular Integration ID is to look at the Integration Report. If the integration report shows functions 2 through 6 for the Pico remote, the unit is a 3 Button Raise/Lower type. If the integration report shows functions 8 through 11 for the Pico remote, the unit is a 4 Button type.

Specific model numbers for each type are as follows:

3 Button Raise/Lower: Units beginning with part number PJ2-2B or PJ2-3B

4 Button: Units beginning with part number PJ2-4B

Signal Name	Direction	Type	Description
Port Number	Parameter	Integer	The telnet port number for use with SystemBuilder. This value cannot be changed and is set to 23d by default.
IDX_3Button_RL_Button1_On/Top	Input	Digital	Button inputs used to send the On/Top function for a 3 Button Raise/Lower Pico remote. Button inputs will transmit press and release functions.
IDX_3Button_RL_Button2_Favorite/Center	Input	Digital	Button inputs used to send the Favorite/Center function for a 3 Button Raise/Lower Pico remote. Button inputs will transmit press and release functions.
IDX_3Button_RL_Button3_Off/Bottom	Input	Digital	Button inputs used to send the Off/Bottom function for a 3 Button Raise/Lower Pico remote. Button inputs will transmit press and release functions.
IDX_3Button_RL_Button_Raise	Input	Digital	Button inputs used to send the Raise function for a 3 Button Raise/Lower Pico remote. Button inputs will transmit press and release functions.
IDX_3Button_RL_Button_Lower	Input	Digital	Button inputs used to send the Lower function for a 3 Button Raise/Lower Pico remote. Button inputs will transmit press and

				release functions.
IDX_4Button_Button1	Input	Digital	Button inputs used to send the Button 1 function for a 4 Button Pico remote. Button inputs will transmit press and release functions.
IDX_4Button_Button2	Input	Digital	Button inputs used to send the Button 2 function for a 4 Button Pico remote. Button inputs will transmit press and release functions.
IDX_4Button_Button3	Input	Digital	Button inputs used to send the Button 3 function for a 4 Button Pico remote. Button inputs will transmit press and release functions.
IDX_4Button_Button4	Input	Digital	Button inputs used to send the Button 4 function for a 4 Button Pico remote. Button inputs will transmit press and release functions.
{{TCP/IP_Client_>>_Connect-F}}	Input	Digital	Connects to the Connect-F output of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.
{{TCP/IP_Client_>>_status}}	Input	Analog	Connects to the status output of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.
{{TCP/IP_Client_>>_RX$}}	Input	String	Connects to the RX$ output of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.
IP_Comm_OK	Output	Digital	Indicator to show that the module is connected and logged into the device via IP.
IP_Connect_Fb	Output	Digital	Indicator used to pass status for the Connect-F output of the TCP/IP client in SystemBuilder.
IP_Status	Output	Analog	Indicator used to pass status for the status output of the TCP/IP client in SystemBuilder.
{{Connect_>>_TCP/IP_Client}}	Output	Digital	Connects to the Connect input of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.
{{TX$_>>_TCP/IP_Client}}	Output	String	Connects to the TX$ input of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.

C. Lights and Shades Control Module

The lights and shades control module allows direct control of dimmers and shades in the Caseta system.

Each Integration ID has an associated time parameter that is used to simulate movement of the bargraph while the up or down commands are in use. Dimming zones use the default setting of 5 seconds and this time cannot be changed in the Lutron system. Shade zone times will vary depending on the types of shades installed and times must be adjusted based on field testing.

Note that by design of the Caseta system, the "down" function for dimmers will lower the level to the lowest possible dim level (typically 0.01%) and not to full off (0.00%).

Signal Name	Direction	Type	Description
Port Number	Parameter	Integer	The telnet port number for use with SystemBuilder. This value cannot be changed and is set to 23d by default.
IDX UP_DOWN_FADE_TIME	Parameter	String	Time for Up/Down commands to ramp a complete half cycle (on->off,off->on)for Integration ID X. This is used to ramp Level_Bar while up/down are active since the dimmer/shade does not provide status until it stops moving. Format is in seconds. Default=5s
IDX_Up	Input	Digital	On rising edge begins to ramp up the dimmer or raise the shade for Integration ID X. Falling edge stops the ramp.
IDX_Down	Input	Digital	On rising edge begins to ramp down the dimmer or lower the shade for Integration ID X. Falling edge stops the ramp.
IDX_Full_On	Input	Digital	Sets the dimmer or shade for Integration ID X to a level of 100%.
IDX_Full_Off	Input	Digital	Sets the dimmer or shade for Integration ID X to a level of 0%.
IDX_Poll_Level	Input	Digital	Polls the dimmer or shade for its current output level. This poll should only need to take place once as changes will be automatically reported to the Crestron system.
IDX_Preset_Level_In	Input	Analog	On change sets the dimmer or shade to the level of Level_In.

{{TCP/IP_Client_>>_Connect-F}}	Input	Digital	Connects to the Connect-F output of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.
{{TCP/IP_Client_>>_status}}	Input	Analog	Connects to the status output of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.
{{TCP/IP_Client_>>_RX$}}	Input	String	Connects to the RX$ output of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.
IP_Comm_OK	Output	Digital	Indicator to show that the module is connected and logged into the device via IP.
IP_Connect_Fb	Output	Digital	Indicator used to pass status for the Connect-F output of the TCP/IP client in SystemBuilder.
IP_Status	Output	Analog	Indicator used to pass status for the status output of the TCP/IP client in SystemBuilder.
IDX_Level_Bar	Output	Analog	The current level of the dimmer or shade at Integration ID X as reported by the Caseta system. While raising or lowering the level will ramp (based on Up_Down_Fade_Time setting) towards the users commanded level to provide simulated feedback.
IDX_Level_Text$	Output	String	The current level of the dimmer or shade as reported by the Caseta system in string format. The value will update only on information from the Lutron system and therefore it will not change during a ramping operation.
{{Connect_>>_TCP/IP_Client}}	Output	Digital	Connects to the Connect input of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.
{{TX$_>>_TCP/IP_Client}}	Output	String	Connects to the TX$ input of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.

D. Serena 4-Group Remote Emulation Module

The Serena 4-Group Remote Emulation module allows direct emulation of a single 4-Group Serena remote in the Caseta system. Multiple modules can be used if multiple devices need to be emulated. Functions for each individual group as well as "All" are provided individually.

Signal Name	Direction	Type	Description
Port Number	Parameter	Integer	The telnet port number for use with SystemBuilder. This value cannot be changed and is set to 23d by default.
Integration_ID	Parameter	String	Integration ID of the dimming load as indicated in the Lutron software. Example: 5
GroupX_Open	Input	Digital	Button inputs used to send the Open function for Group X on the Serena remote. Button inputs will transmit press and release functions.
GroupX_Close	Input	Digital	Button inputs used to send the Close function for Group X on the Serena remote. Button inputs will transmit press and release functions.
GroupX_Raise	Input	Digital	Button inputs used to send the Raise function for Group X on the Serena remote. Button inputs will transmit press and release functions.
GroupX_Lower	Input	Digital	Button inputs used to send the Lower function for Group X on the Serena remote. Button inputs will transmit press and release functions.
GroupX_Preset	Input	Digital	Button inputs used to send the Preset function for Group X on the Serena remote. Button inputs will transmit press and release functions.
All_Open	Input	Digital	Button inputs used to send the Open function for all groups on the Serena remote. Button inputs will transmit press and release functions.
All _Close	Input	Digital	Button inputs used to send the Close function for all groups on the Serena remote. Button inputs will transmit press and release functions.

All _Raise	Input	Digital	Button inputs used to send the Raise function for all groups on the Serena remote. Button inputs will transmit press and release functions.
All _Lower	Input	Digital	Button inputs used to send the Lower function for all groups on the Serena remote. Button inputs will transmit press and release functions.
All _Preset	Input	Digital	Button inputs used to send the Preset function for all groups on the Serena remote. Button inputs will transmit press and release functions.
{{TCP/IP_Client_>>_Connect-F}}	Input	Digital	Connects to the Connect-F output of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.
{{TCP/IP_Client_>>_status}}	Input	Analog	Connects to the status output of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.
{{TCP/IP_Client_>>_RX$}}	Input	String	Connects to the RX$ output of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.
IP_Comm_OK	Output	Digital	Indicator to show that the module is connected and logged into the device via IP.
IP_Connect_Fb	Output	Digital	Indicator used to pass status for the Connect-F output of the TCP/IP client in SystemBuilder.
IP_Status	Output	Analog	Indicator used to pass status for the status output of the TCP/IP client in SystemBuilder.
{{Connect_>>_TCP/IP_Client}}	Output	Digital	Connects to the Connect input of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.
{{TX$_>>_TCP/IP_Client}}	Output	String	Connects to the TX$ input of a TCP/IP client object in the SIMPL program. See demo program for proper implementation.

3.0 Lutron Processor Configuration

A. Configuring The Caseta System

The method for interfacing with a Caseta system is via telnet over its Ethernet port. In order for this to work the Caseta system must be configured with either a fixed IP address or the network must have a DHCP/DNS server that keeps track of the processor's IP address and makes it available via DNS lookup. If your DHCP server supports reservations this would be the easiest method. Enter the Caseta processor's Ethernet MAC address into the reservation settings on the DHCP server and give the Lutron unit a fixed IP address. Network settings for the Smart Bridge device can be managed in the app by selecting "Settings>Advanced>Integration>Network Settings".

Telnet access on the Caseta system uses a fixed username and password which are hardcoded into the modules.

In order to view the configuration of your Caseta system you must look at the Integration Report from the device. To do this from the home screen of the app, select "Settings>Advanced>Integration>Send Integration Report". This will create a text based list that can be emailed or sent via text message. The text for the integration report of the sample system used in the demo is as follows:

```
{
 "LIPIdList" : {
  "Devices" : [ {
    "Name" : "Smart Bridge Pro",
    "ID" : 1,
    "Buttons" : [ {
     "Name" : "All On",
     "Number" : 1
    }, {
     "Name" : "All Off",
     "Number" : 2
    }, {
        "Name" : "Preset 3",
     "Number" : 3
    }, {
     "Name" : "Preset 4",
     "Number" : 4
    }, {
     "Name" : "Preset 5",
     "Number" : 5
    }, {
     "Name" : "Preset 6",
     "Number" : 6
```

The Smart Bridge is always defined at Integration ID 1.

```
}, {
  "Name" : "Preset 7",
  "Number" : 7
}, {
  "Name" : "Preset 8",
  "Number" : 8
}, {
  "Name" : "Preset 9",
  "Number" : 9
}, {
  "Name" : "Preset 10",
  "Number" : 10
}, {
  "Name" : "Button 11",
  "Number" : 11
}, {
  "Name" : "Button 12",
  "Number" : 12
}, {
  "Name" : "Button 13",
  "Number" : 13
}, {
  "Name" : "Button 14",
  "Number" : 14
}, {
  "Name" : "Button 15",
  "Number" : 15
}, {
  "Name" : "Button 16",
  "Number" : 16
}, {
  "Name" : "Button 17",
  "Number" : 17
}, {
  "Name" : "Button 18",
  "Number" : 18
}, {
  "Name" : "Button 19",
  "Number" : 19
}, {
  "Name" : "Button 20",
  "Number" : 20
```

```
  }, {
    "Name" : "Button 21",
    "Number" : 21
  }, {
    "Name" : "Button 22",
    "Number" : 22
  }, {
    "Name" : "Button 23",
    "Number" : 23
  }, {
    "Name" : "Button 24",
    "Number" : 24
  }, {
    "Name" : "Button 25",
    "Number" : 25
  }, {
    "Name" : "Button 26",
    "Number" : 26
  }, {
    "Name" : "Button 27",
    "Number" : 27
  }, {
    "Name" : "Button 28",
    "Number" : 28
  }, {
    "Name" : "Button 29",
    "Number" : 29
  }, {
    "Name" : "Button 30",
    "Number" : 30
  }, {
    "Name" : "Button 31",
    "Number" : 31
  }, {
    "Name" : "Button 32",
    "Number" : 32
  }, {
    "Name" : "Button 33",
    "Number" : 33
  }, {
    "Name" : "Button 34",
    "Number" : 34
```

```
  }, {
    "Name" : "Button 35",
    "Number" : 35
  }, {
    "Name" : "Button 36",
    "Number" : 36
  }, {
    "Name" : "Button 37",
    "Number" : 37
  }, {
    "Name" : "Button 38",
    "Number" : 38
  }, {
    "Name" : "Button 39",
    "Number" : 39
  }, {
    "Name" : "Button 40",
    "Number" : 40
  }, {
    "Name" : "Button 41",
    "Number" : 41
  }, {
    "Name" : "Button 42",
    "Number" : 42
  }, {
    "Name" : "Button 43",
    "Number" : 43
  }, {
    "Name" : "Button 44",
    "Number" : 44
  }, {
    "Name" : "Button 45",
    "Number" : 45
  }, {
    "Name" : "Button 46",
    "Number" : 46
  }, {
    "Name" : "Button 47",
    "Number" : 47
  }, {
    "Name" : "Button 48",
    "Number" : 48
```

```
}, {
  "Name" : "Button 49",
  "Number" : 49
}, {
  "Name" : "Button 50",
  "Number" : 50
} ]
}, {
  "Name" : "Pico Dimmer 1",
  "ID" : 4,
  "Buttons" : [ {
  "Number" : 2
}, {
  "Number" : 3
}, {
  "Number" : 4
}, {
  "Number" : 5
}, {
  "Number" : 6
} ]
}, {
  "Name" : "Pico Dimmer 2",
  "ID" : 5,
  "Buttons" : [ {
  "Number" : 2
}, {
  "Number" : 3
}, {
  "Number" : 4
}, {
  "Number" : 5
}, {
  "Number" : 6
} ]
}, {
  "Name" : "Shade Remote",
  "ID" : 6,
  "Buttons" : [ {
  "Number" : 2
}, {
  "Number" : 3
```

This Pico remote at Integration ID 4 uses the Pico 3 Button Raise/Lower controls on the module as the button numbers indicated are 2 through 6.

This Pico remote at Integration ID 5 uses the Pico 3 Button Raise/Lower controls on the module as the button numbers indicated are 2 through 6.

The Serena 4-Group remote is defined at Integration ID 6.

```json
}, {
  "Number" : 4
}, {
  "Number" : 5
}, {
  "Number" : 6
}, {
  "Number" : 10
}, {
  "Number" : 11
}, {
  "Number" : 12
}, {
  "Number" : 13
}, {
  "Number" : 14
}, {
  "Number" : 18
}, {
  "Number" : 19
}, {
  "Number" : 20
}, {
  "Number" : 21
}, {
  "Number" : 22
}, {
  "Number" : 26
}, {
  "Number" : 27
}, {
  "Number" : 28
}, {
  "Number" : 29
}, {
  "Number" : 30
}, {
  "Number" : 34
}, {
  "Number" : 35
}, {
  "Number" : 36
```

```
      }, {
        "Number" : 37
      }, {
        "Number" : 38
      } ]
    }, {
      "Name" : "4 Button Pico",
      "ID" : 7,
      "Buttons" : [ {
        "Number" : 8
      }, {
        "Number" : 9
      }, {
        "Number" : 10
      }, {
        "Number" : 11
      } ]
    } ],
    "Zones" : [ {
      "Name" : "Dimmer 1",
      "ID" : 2
    }, {
      "Name" : "Dimmer 2",
      "ID" : 3
    } ]
  }
}
```

This Pico remote at Integration ID 7 uses the Pico 4 Button controls on the module as the button numbers indicated are 8 through 11.

Dimmer 1 is defined at Integration ID 2.

Dimmer 2 is defined at Integration ID 3.

4.0 Change Log

r01 - Initial Release
- Tested with Lutron Caseta app version 1.3.