Somfy Connect
#1870210

Control SOMFY RTS and SDN Motors using Lutron's:

Radio RA2 (RA2)
Homeworks QS (HWQS)
Grafik Eye QS (GEQS)
Quantum

The Somfy Connect is configured using a software application which requires a USB to RS485 adapter such as Somfy Part Number 9015260 or equivalent.

Contents

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1 Somfy Connect - Connector Description

- ➢ DC Jack: 2.1 X 5.5 mm. DC input 9 – 24 VDC.
  - o Somfy Connect, 100ma
  - o Each URTSI attached to 485 network, 25 ma

- ➢ DB9, Male: RS232 input from Lutron Main Repeater or NWK integration Device.

- ➢ RJ45: RS485. Connects to the SDN or URTSI(s)

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2 General

- Please read this entire document prior to starting the programming of the Somfy Connect.

- This document assumes the reader is familiar with the programming of Somfy's RTS (Radio Technology Somfy) & SDN (Somfy Digital Network) Motors and Universal RTS Interface (URTSI).

- The Somfy Connect makes possible the control of Somfy's RTS & SDN motors using Lutron equipment including the iPhone and iPad apps.

- The Somfy Connect "maps" Lutron button presses to URTSI or SDN commands; it connects to the Main Repeater (RA2) or NWK (HWQS, GEQS, and Quantum) via RS232, straight-thru.

- The NWK must be set to Monitor Button Presses (9600 baud).

- There are three types of manual control using the Lutron equipment:

    o **Single:** Each PICO, Keypad, Grafik Eye QS or Table Top push-button press has a specific function such as UP, DOWN, STOP, etc.

    o **Sequence:** With each Lutron button press, commands are sequenced as follows: UP/STOP/DOWN/STOP/UP, etc. The STOP command is skipped if not activated within 60 seconds after an UP or DOWN command.

    o **Group:** Group is a 2-button operation and only works with Keypads, Grafik EYE QS and the Table-Top controls. The user chooses a channel (RTS) or SDN address (e.g. a motor or group of motors), and then selects RAISE or LOWER. A stop command is sent when the same or opposite direction command is pressed within 50 seconds of the first press.

- The Somfy Connect can store up to a total of 300 button presses ("maps"). How the 300 maps are allocated to the three manual control options is determined during installation and programming.

- The Somfy Connect can save 98 timed events, 99 Sunrise events and 99 Sunset events (**Single Functions Only**).

- When using **HomeWorks QS**:

    o The NWK interface must be included into the system using the HWQS Designer Software
    o The Ethernet port cannot used as this (as of this writing) disables the serial port.

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3 Control Options

- Pico, Keypad, Table Top or Grafik Eye QS **Single** or **Sequence** Control: Any push-button can be assigned a **Single** function or act as a **Sequence** control.

- Keypad, Table Top or Grafik Eye QS **Group** Control: Group Control is defined as a 2-button operation. The user must pick the RTS channel or SDN Group/Motor Address button (Large Buttons) and then Lower/Raise.
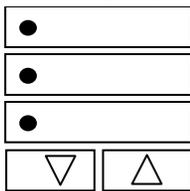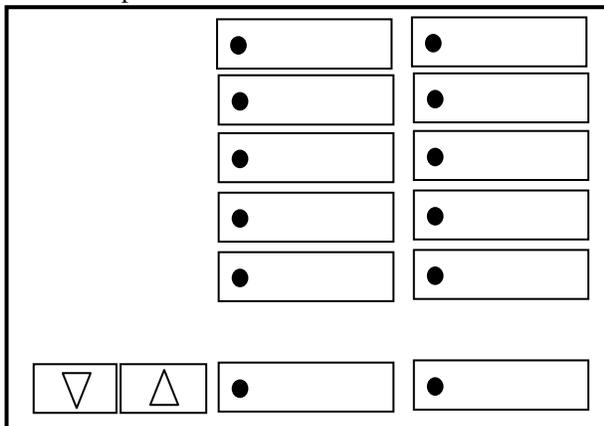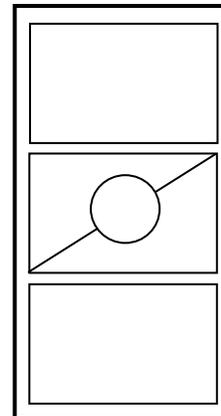
Keypad
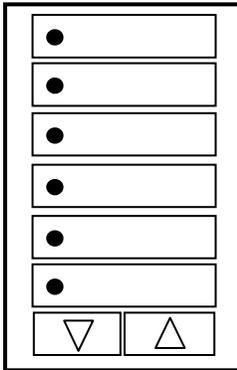
For Keypad, Grafik-Eye QS, Table-Top and PICO control:

- ➢ Single Control: Any push-button can be used and assigned a command.

- ➢ Sequence Control: Any push-button can be used.

Grafik Eye QS

- ➢ Group Function: Large buttons select RTS Channels or SDN Single Motor or Group Addresses. User must select a large button and then Lower/Raise. **PICO cannot be used as a Group Function Control.**

Table-Top

PICO

- Where supported by the Lutron equipment, both on-press and on-release actions of the Pico's, Keypads, Table-Tops and Grafik Eye QS can be assigned functions.

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4 Hardware Setup

- In addition to the Somfy Connect you will need:

    o A USB to RS485 adapter such as the B & B part: 485USBTB-2W-LW or equivalent.

    o A standard Cat 5 cable.

    o A straight-thru RS232 cable which must have one male DB9 and one female DB9 (included).

    o An URTSI for RTS installations.

- The Somfy Connect includes an RJ45 connector that is used to connect it to the URTSI or SDN Network. It also includes a DB9 connector used to connect to the Lutron Main Repeater or NWK.

- In RTS applications, the URTSI can provide power to the Somfy Connect or vice versa. There is a 2.5 mm DC power input jack on the Somfy Connect. Power is delivered over the Cat 5 cable. The power supply shipped with the URTSI can be used and can power the Somfy Connect and up to 4 URTSI's.

- In SDN applications, the Somfy Connect can get power from the SDN or from a power supply connected directly to the Somfy Connect.

- The Main Repeater or NWK must be configured for 9600 baud.

5 Typical Hardware Setup to Configure Somfy Connect.

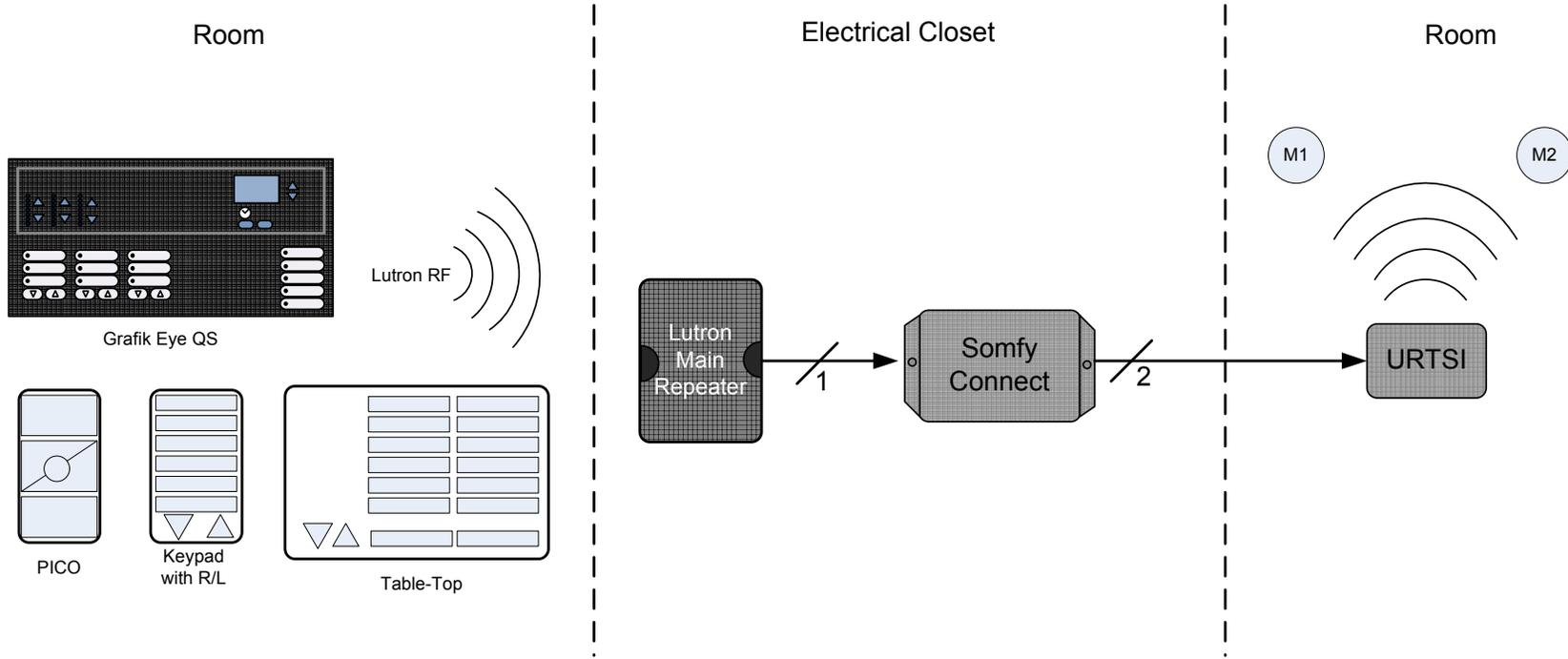Laptop running configuration program — 1 → USB to RS485 Adapter — 2 → Somfy Connect — 3 → Main Repeater or NWK
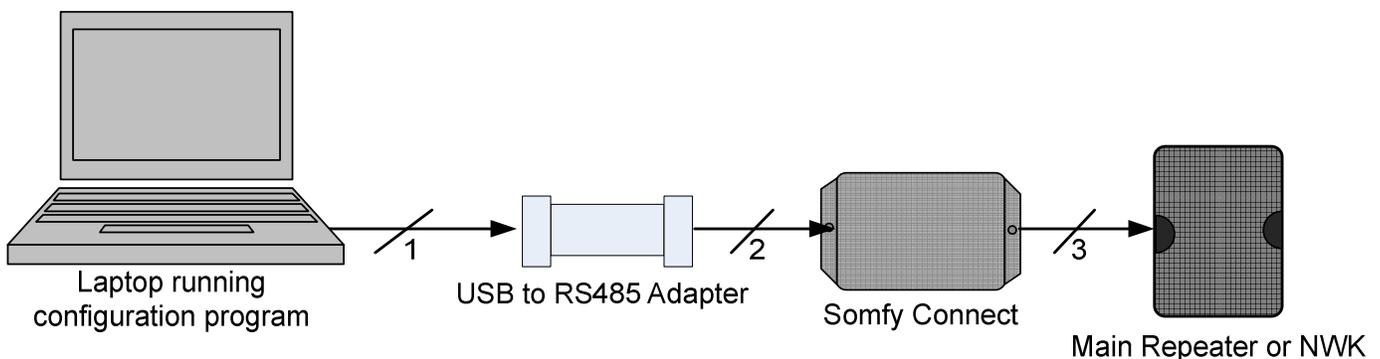
Notes:
1 – USB cable to adapter – included with adapter
2 – Cat 5 (RS485 half-duplex)
3 – RS232 straight thru – included with Somfy Connect

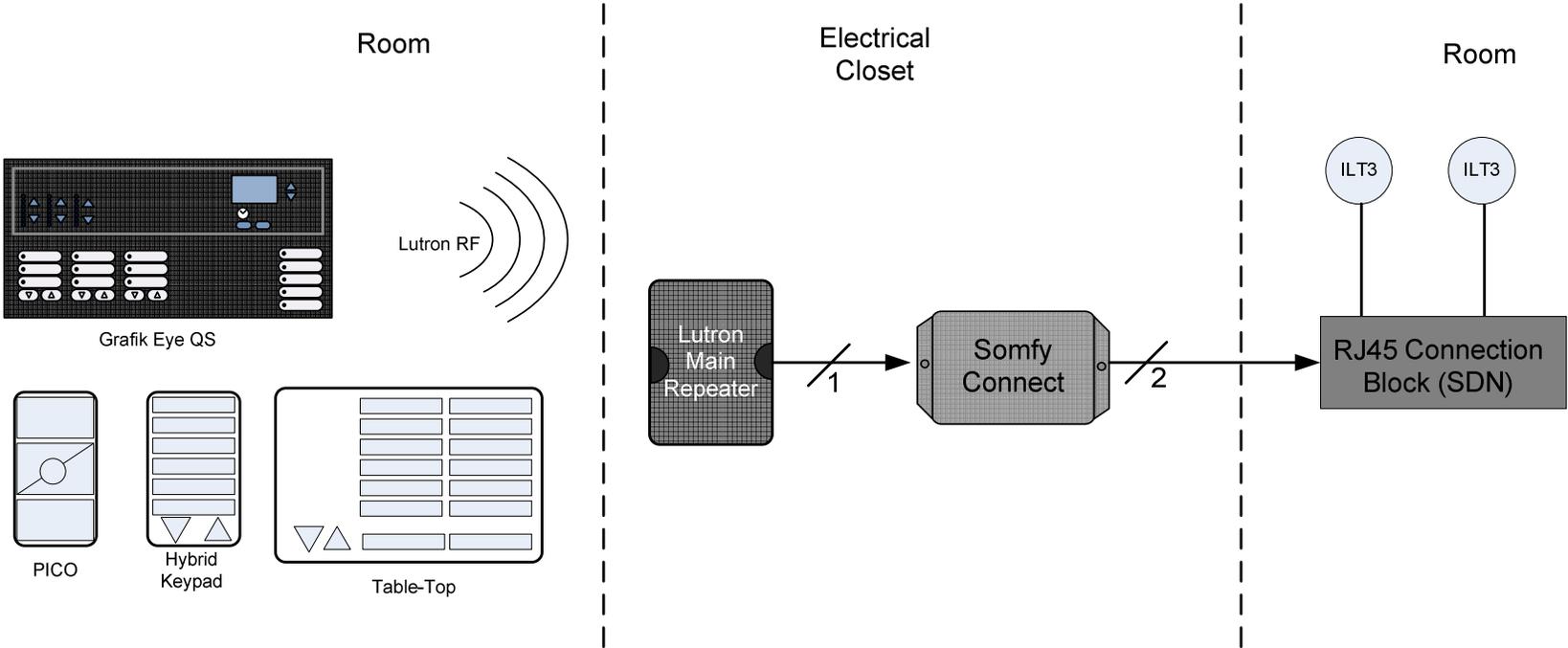- Main Repeater/NWK and Somfy Connect must be powered to configure the system

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6 Typical System Setups

Somfy Connect – Radio RA2 to RTS
Typical Hardware Setup

Room | Electrical Closet | Room

Grafik Eye QS

Lutron RF

PICO

Keypad with R/L

Table-Top

Lutron Main Repeater

Somfy Connect

1

2

URTSI

M1

M2

Notes:

- Main Repeater requires a 115 VAC outlet.
- Power for Somfy Connect:

       Option 1> Plug-in DC power to Somfy Connect. Power is carried over CAT5 to URTSI

       Option 2> Connect power to URTSI. Power is carried over CAT 5 to Somfy Connect.

- The Main Repeater and Somfy Connect must be mounted within 50' of each other.
- Low Voltage connection from:

       1 > Main Repeater to Somfy Connect: standard straight-thru RS232 cable

       2 > Somfy Connect to URTSI: Cat 5

- Somfy Connect includes configuration software used to map RA2 button presses to URTSI functions (e.g. UP/STOP/DOWN)
- M1 & M2 are RTS motors, they require 115 VAC via a standard outlet or can be hard-wired.

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Somfy Connect – Radio RA2 to Somfy Digital Network (SDN)
Typical Hardware Setup

Room

Electrical
Closet

Room

Grafik Eye QS

Lutron RF

ILT3   ILT3

Lutron
Main
Repeater

Somfy
Connect

RJ45 Connection
Block (SDN)

1

2

PICO

Hybrid
Keypad

Table-Top

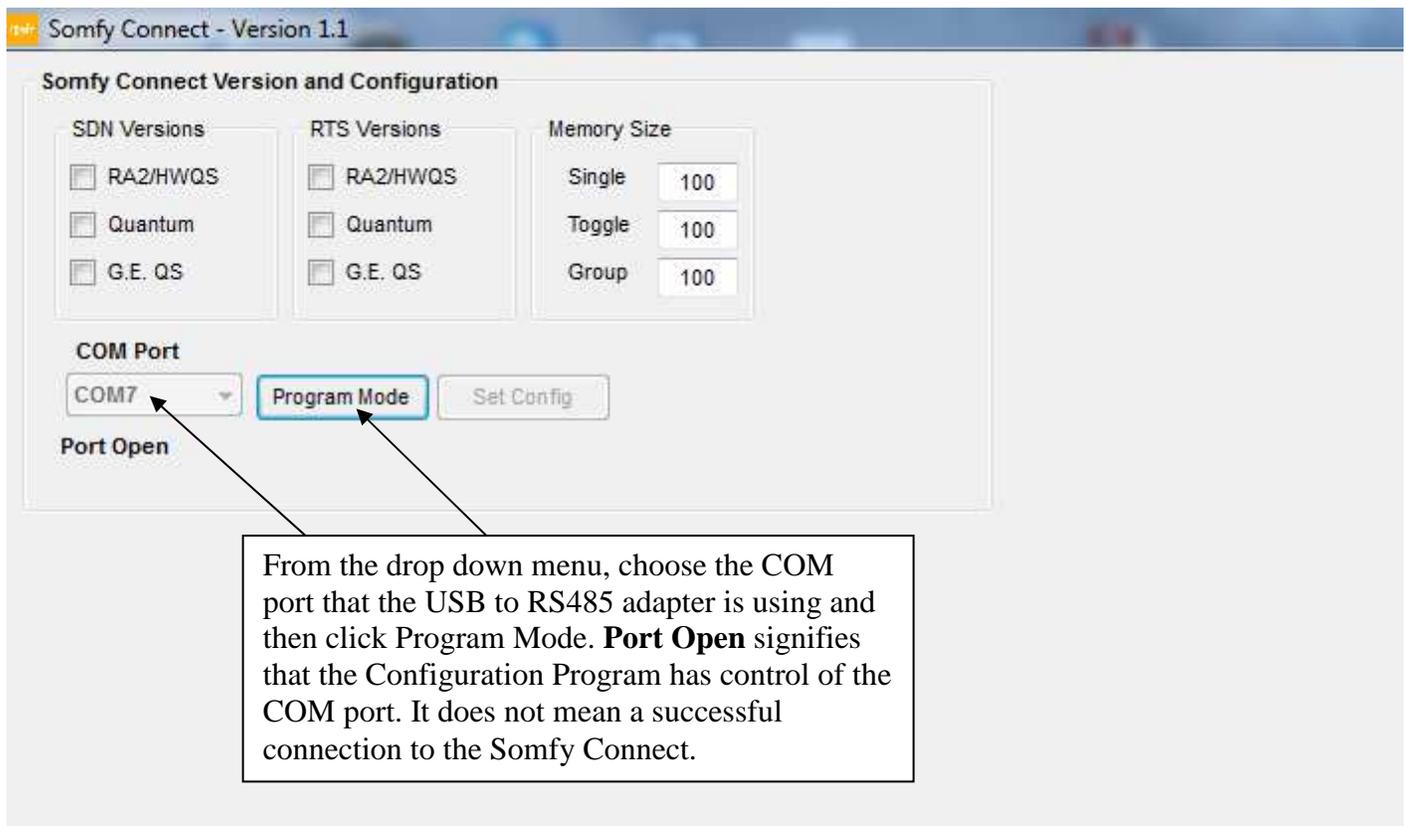Notes:

- Main Repeater requires a 115 VAC outlet.
- Power for Somfy Connect:
    Option 1> From SDN Network
    Option 2> Plug in power supply to Somfy Connect
- The Repeater and Somfy Connect must be mounted within 50' of each other.
- Low Voltage connection from:
    1 > Main Repeater to Somfy Connect: standard RS232 straight-thru cable
    2 > Somfy Connect to SDN (RJ45 Connection Block): Cat 5
- Somfy Connect includes configuration software used to map RA2 button presses to SDN functions (e.g. UP/STOP/DOWN)
- ILT3 motors require 115 VAC via a standard outlet or can be hard-wired. Each has a data cable that plugs into the SDN.

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7 Programming the Somfy Connect to RTS (URTSI).

- The first step is to load the drivers for the USB to RS485 adapter. When complete, verify that the adapter is listed under COM ports in Device Manager. Record the COM port that the adapter populates.

- Install the Somfy Connect Configuration software and start it. Uninstall any previous versions.

- The first screen will be:

Somfy Connect - Version 1.1

Somfy Connect Version and Configuration

SDN Versions	RTS Versions	Memory Size	
RA2/HWQS	RA2/HWQS	Single	100
Quantum	Quantum	Toggle	100
G.E. QS	G.E. QS	Group	100

COM Port

COM7   Program Mode   Set Config

Port Open

From the drop down menu, choose the COM port that the USB to RS485 adapter is using and then click Program Mode. **Port Open** signifies that the Configuration Program has control of the COM port. It does not mean a successful connection to the Somfy Connect.

- If you have a good communication link, the screen on the following page (RA2/HWQS to RTS) will appear. If not, you will get an error message stating there is no response – you must successfully link to the Somfy Connect before you can move on.

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Somfy Connect - Version 1.1

Somfy Connect Version and Configuration

SDN Versions	RTS Versions	Memory Size	
☐ RA2/HWQS	☑ RA2/HWQS	Single	100
☐ Quantum	☐ Quantum	Toggle	100
☐ G.E. QS	☐ G.E. QS	Group	100

These Frames indicates how the Somfy Connect is presently configured:
- Type of Somfy Connect (default: RA2/HWQS to RTS)
- Number of each command type (default: 100/ea)
- To change Configuration settings, see section #10

COM Port

COM7 [Run Mode] [Set Config]

Program Mode

Mapping Data

Map # [1] [Listen]

Input [   ]

URTSI Command [   ]

Save Single	Get Single	Clear Single	Clear Screen
Save Sequence	Get Sequence	Clear Sequence	Get Time/Date
Save Group	Get Group	Clear Group	Set Time/Date
Print	RTS Delay	Erase All Data	

Version # 2, RTS Delay = 1 Second(s)

Scheduled Events

Event #	Map #	Hour	Minute		
1	1	12	00	☑ Mon-Fri	☑ Sat-Sun

Save Timed Event	Save Sunrise Event	Save Sunset Event	Save Coordinates
Get Timed Events	Get Sunrise Events	Get Sunset Events	Get Coordinates
Erase Timed Events	Erase Sunrise Events	Erase Sunset Events	

5	40	43	74	1	
Time Zone	Deg Lat	Min Lat	Deg Long	Min Long	City

- To start programming the Somfy Connect, the command strings of the Lutron devices must be known. Once the Lutron system is installed and all devices are associated & activated, connect the Somfy Connect to the Main Repeater using the RS232 cable. The URTSI does not need to be connected at this time – although it can be.

- To program a map, click Listen and then press & release the Lutron push button you wish to map to a function. The screen on the following page will appear. Your Input will be slightly different based on the ID of your Lutron device.

- During the Listen Mode, the Frame Heading will flash "Listening" until the Lutron string is sent. If after one minute no input has arrived, the Somfy Connect will exit the Listing mode and return to RUN mode.

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Somfy Connect - Version 1.1

Somfy Connect Version and Configuration

SDN Versions
- [ ] RA2/HWQS
- [ ] Quantum
- [ ] G.E. QS

RTS Versions
- [x] RA2/HWQS
- [ ] Quantum
- [ ] G.E. QS

Memory Size
- Single: 100
- Toggle: 100
- Group: 100

COM Port
COM7 | Run Mode | Set Config

Program Mode

Mapping Data

Map #: 1 | Listen | Cancel Listen

Input: ~DEVICE,12,6,3

URTSI Command:

Save Single	Get Single	Clear Single	Clear Screen
Save Sequence	Get Sequence	Clear Sequence	Get Time/Date
Save Group	Get Group	Clear Group	Set Time/Date
Print	RTS Delay	Erase All Data	

If Lutron Input is Corrupted, Click Listen and Try Again or Canel Listen to Exit

For RA2, HWQS and Quantum:
~DEVICE, is common to all Lutron devices.

12 is the Device ID
6 is the push-button ID
3 is on press (Change to 4 for on-release commands)

For Grafik Eye QS, the input will be similar to:
3abb 38 3

3abb is the GEQS unique address
38 is the push-button ID
3 is on-press

Scheduled Events

| Event # | Map # | Hour | Minute | | |
| 1 | 1 | 12 | 00 | [x] Mon-Fri | [x] Sat-Sun |

Save Timed Event	Save Sunrise Event	Save Sunset Event	Save Coordinates
Get Timed Events	Get Sunrise Events	Get Sunset Events	Get Coordinates
Erase Timed Events	Erase Sunrise Events	Erase Sunset Events	

| 5 | 40 | 43 | 74 | 1 | |
| Time Zone | Deg Lat | Min Lat | Deg Long | Min Long | City |

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- The next step is to input the URTSI string. In this example 0101U (URTSI address 01, channel 01, U for up) has been entered.

- To save the Mapping Data, Click Save Single, Save Sequence or Save Group – depending on what command type you want - the following will be displayed:

Save Single was selected.
- -Data is sent to Somfy Connect and displayed
- -Type of data is also displayed
- -Note the map# is incremented by 1

- For Sequence and Group Commands, only the URTSI address and channel need to be entered. For example: 0101.

- The Somfy Connect will automatically determine what the proper Raise/Lower Lutron Strings are for each Group input.

- Repeat the Listen/Save process for every Pico, Keypad, Table-Top and Grafik Eye QS that is to be used.

- With the data saved, the Somfy Connect will send out saved commands (RS485) based on the Lutron serial strings received. To test, put the Somfy Connect in RUN mode and activate the Lutron push-buttons whose serial strings were captured.

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8   Programming the Somfy Connect for RA2 to SDN.

- Opening screen for RA2/HWQS to SDN:

- Select Single Motor Address (from motor label) or Group Address. Then enter the address in the text field and click **Calculate**. In the example above, Single Motor Address 064503 was entered.

- Choose Command: for Single Function, any command can be chosen. For Sequence and Group functions, the UP command must be chosen. Note that the SDN Command text box is auto populated with the SDN command.

- Click Listen and press the Lutron Push-Button that will be associated with this command. During the Listen mode, the Frame heading will change from Mapping Data to Listening and will flash until Lutron data is captured.

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Somfy Connect - Version 1.1

Somfy Connect Version and Configuration

SDN Versions
- ☑ RA2/HWQS
- ☐ Quantum
- ☐ G.E. QS

RTS Versions
- ☐ RA2/HWQS
- ☐ Quantum
- ☐ G.E. QS

Memory Size
- Single: 100
- Toggle: 100
- Group: 100

COM Port

COM7 | Run Mode | Set Config

Program Mode

Single Motor or Group Address
- ⦿ Single Motor Address: 064503 | Calculate
- ○ Group Address

Choose Command

Up

Up | AB F1 FF FF FF FF FC BA F9 FE FF FF 0B 43

Setting Single Function Data

Map# 1 > ~DEVICE,12,2,3 > AB F1 FF FF FF FF FC BA F9 FE FF FF 0B 43

In this example Single Function – UP was chosen and saved.

Mapping Data

- Map #: 2 | Listen
- Input: ~DEVICE,12,2,3
- SDN Command: AB F1 FF FF FF FF FC BA F9 FE FF FF 0B 43

Save Single | Get Single | Clear Single | Clear Screen
Save Sequence | Get Sequence | Clear Sequence | Get Time/Date
Save Group | Get Group | Clear Group | Set Time/Date
Print | RTS Delay | Erase All Data

Scheduled Events

Event #	Map #	Hour	Minute		
1	1	12	00	☑ Mon-Fri	☑ Sat-Sun

Save Timed Event | Save Sunrise Event | Save Sunset Event | Save Coordinates
Get Timed Events | Get Sunrise Events | Get Sunset Events | Get Coordinates
Erase Timed Events | Erase Sunrise Events | Erase Sunset Events

Time Zone	Deg Lat	Min Lat	Deg Long	Min Long	City
5	40	43	74	1	

- Repeat the above procedure for the remaining control devices.

- To test, put the Somfy Connect in RUN mode and activate the Lutron push-buttons whose serial strings were captured.

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9 Retrieve or Delete Data

Mapping Data

Map # `1` [Listen]

Input [   ]

SDN Command [   ]

[Save Single] [Get Single] [Clear Single] [Clear Screen]
[Save Sequence] [Get Sequence] [Clear Sequence] [Get Time/Date]
[Save Group] [Get Group] [Clear Group] [Set Time/Date]
[Print] [Erase All Data]

Save Commands save the data to the Somfy Connect. Specifically the map#, Lutron Input and Command (SDN or RTS).

Get Commands retrieve and display saved Data.

Clear Commands deletes the chosen data set from the Somfy Connect. **Erase ALL Data** deletes all data except time/date and coordinates.

Clear Screen clears the retrieved data text box. No data is deleted from the Somfy Connect.

Get and **Set Time/Date** are used to retrieve and set the time of day and day of the year.

- **Print** is used to print the retrieved data displayed - useful for record keeping and future job reference. Printing to a PDF file using PDF Writer wil be more practical as an actual printer will most likely not be on site.

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- To delete a save map or scheduled event:

> Retrieve the Data set that you wish to remove a map from using the Get Command Buttons. Shown here is the Single Function Data set.
> Enter the map # to Delete
> Enter D in the Input Text box
> Note that the SAVE command buttons become Delete command buttons.
> Choose the correct Delete Button. In this case Delete Single
> For Events. Get the Event data set, enter the event # to delete and enter D in Map # then choose the correct Delete button.

10 Changing the Default Configuration

- If the Configuration of the Somfy Connect needs to change:
    1. Start the Configuration program
    2. Choose the Somfy Connect Version (Quantum to SDN picked in screen below)
    3. Set the Memory Size for each Function (Limited to a combination of 300)
    4. Select the **COM port**
    5. Click **Set Config**
    6. A "Configuration Sent" message will be displayed indicating the configuration has been accepted.
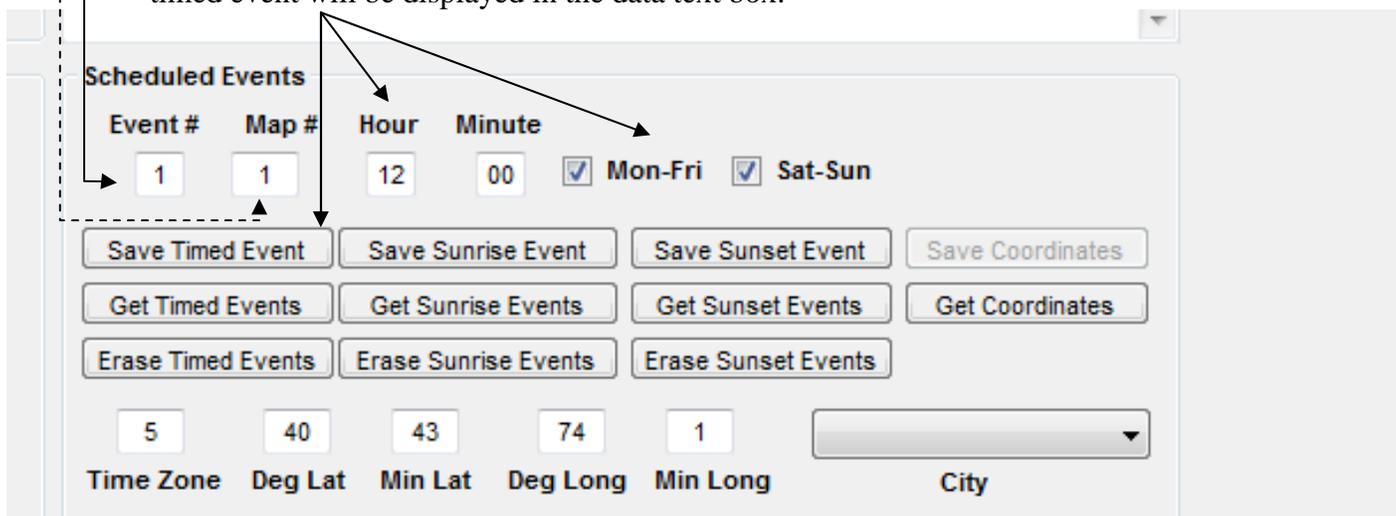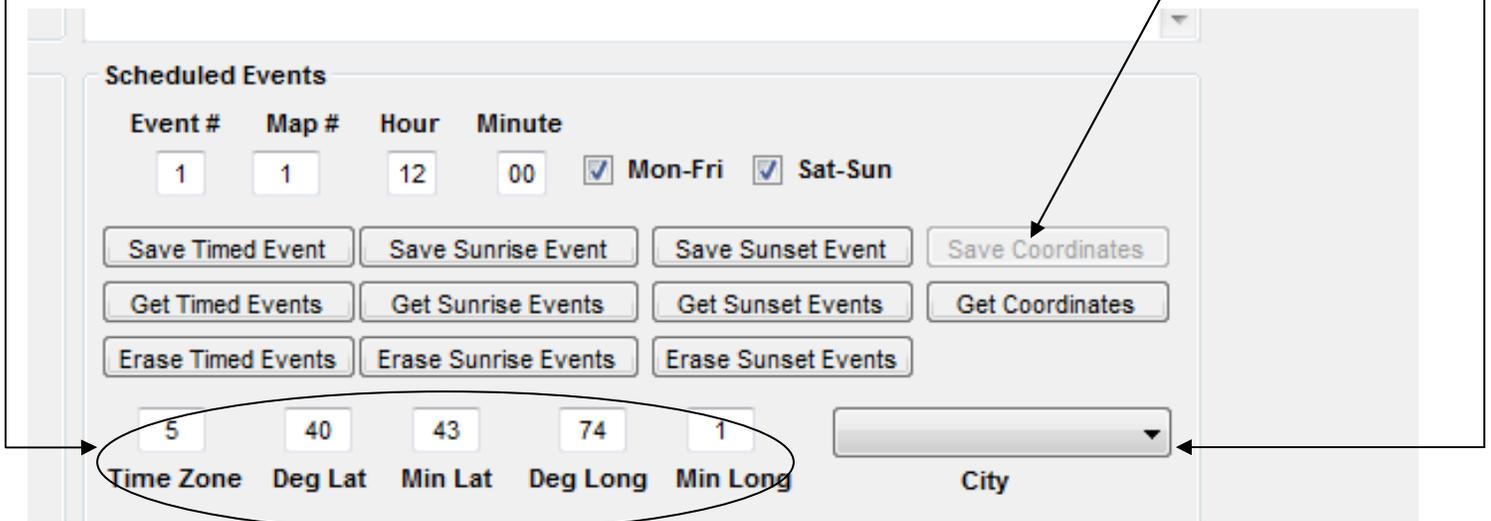
11 Creating Timed, Sunrise, and Sunset Events

- **Timed Event:** The first step is to set the correct time of day, day of the year and whether or not Daylight Savings Time is in effect. To check the present time/date, click Get Time/Date.

Mapping Data

Map #	1	Listen

Input

SDN Command

| Save Single	Get Single	Clear Single	Clear Screen
Save Sequence	Get Sequence	Clear Sequence	Get Time/Date
Save Group	Get Group	Clear Group	Set Time/Date
Print		Erase All Data	

12:01:31   Friday 8/22/2014
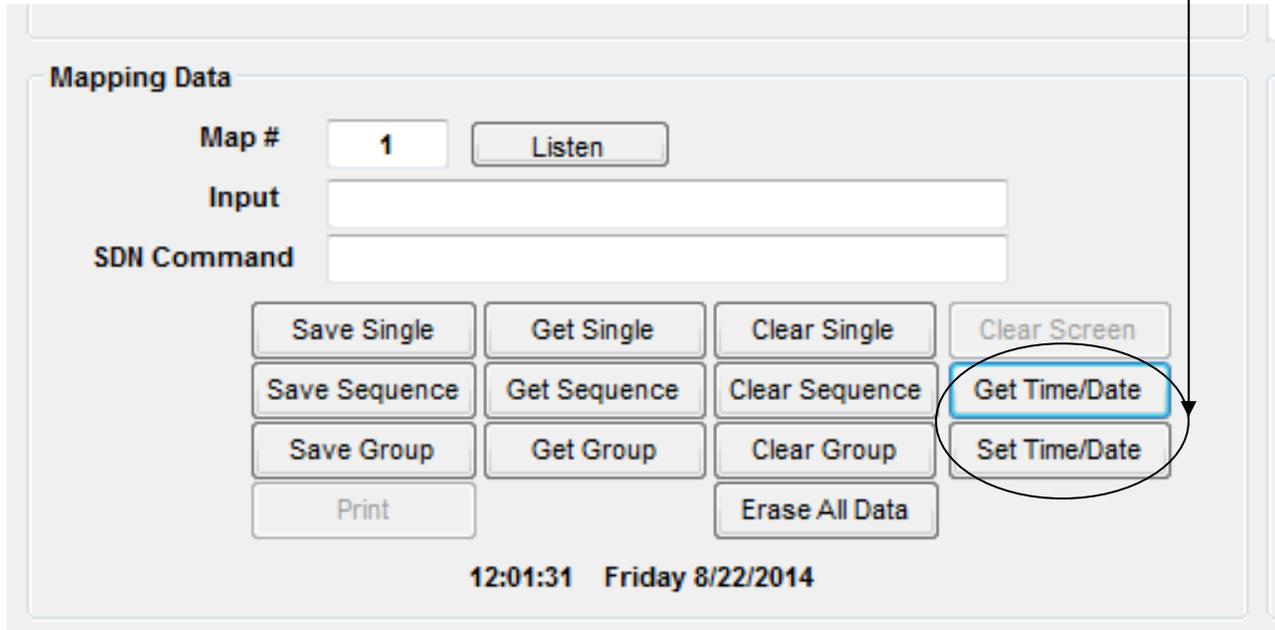
- Only single functions can be used for time events. To schedule an event click **Get Single** to retrieve saved data: **Note: Timed events must be separated by at least 2 minutes.**

1. Choose Event # or use the default # that appears in the Event # field. The first event will start at 1 and the configuration program will increment this number as events are saved.

2. Choose Map #. Each event has a single function (previously saved) associated with it.

3. Set the time and days that the event (saved map) is to occur and click Save Timed Event. The stored timed event will be displayed in the data text box.

Scheduled Events

Event #	Map #	Hour	Minute		
1	1	12	00	☑ Mon-Fri	☑ Sat-Sun

Save Timed Event	Save Sunrise Event	Save Sunset Event	Save Coordinates
Get Timed Events	Get Sunrise Events	Get Sunset Events	Get Coordinates
Erase Timed Events	Erase Sunrise Events	Erase Sunset Events	

| 5	40	43	74	1	
Time Zone	Deg Lat	Min Lat	Deg Long	Min Long	City

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- **Sunrise/Sunset Events:** The first step is to enter the geographic location of the Somfy Connect. The default is New York, NY. Location can be picked from the City drop-down menu or exact coordinates & time zone can be entered. Once a city is selected or coordinates entered, click Save Coordinates.

- Like Timed Events, Sunrise and Sunset events can only use previously saved Single Functions. To save a Sunrise/Sunset Event, click **Get Single** to retrieve saved data.

    1. Choose Event # or use the default # that appears in the Event # filed. The first event will start at #1 and the configuration program will increment this number as events are saved.

    2. Choose Map #. Each event has a single function (previously saved) associated with it.

    3. Sunrise & Sunset Events occur every day of the week. Click Save Sunrise Event or Save Sunset Event. The stored data will be displayed in the data text box.
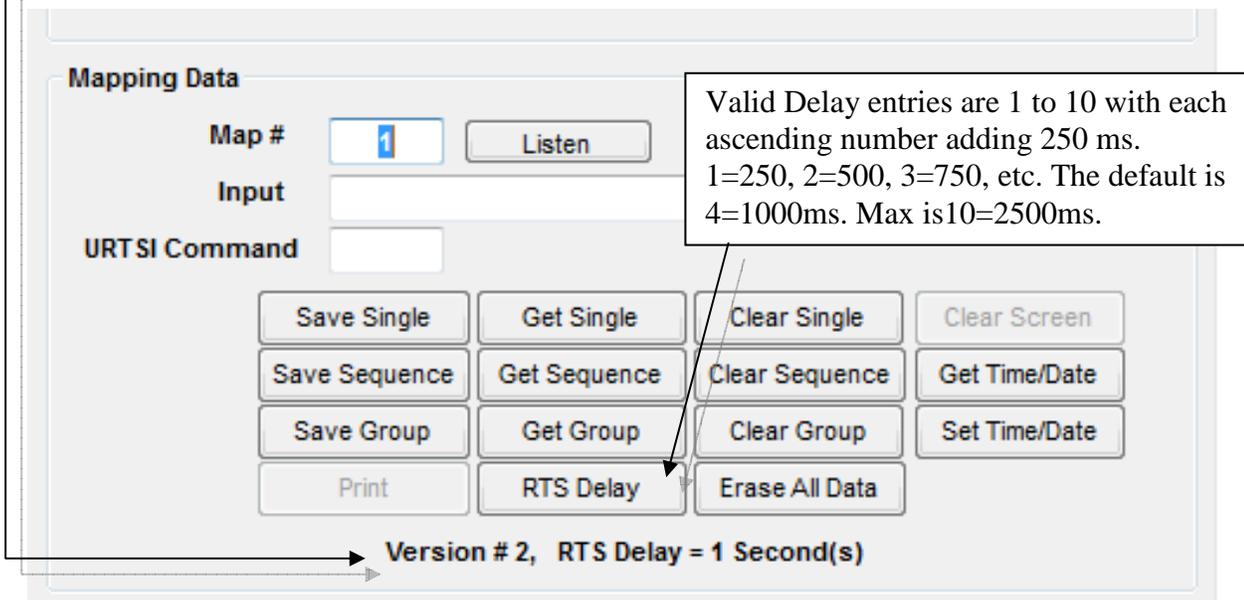
3/27/2015
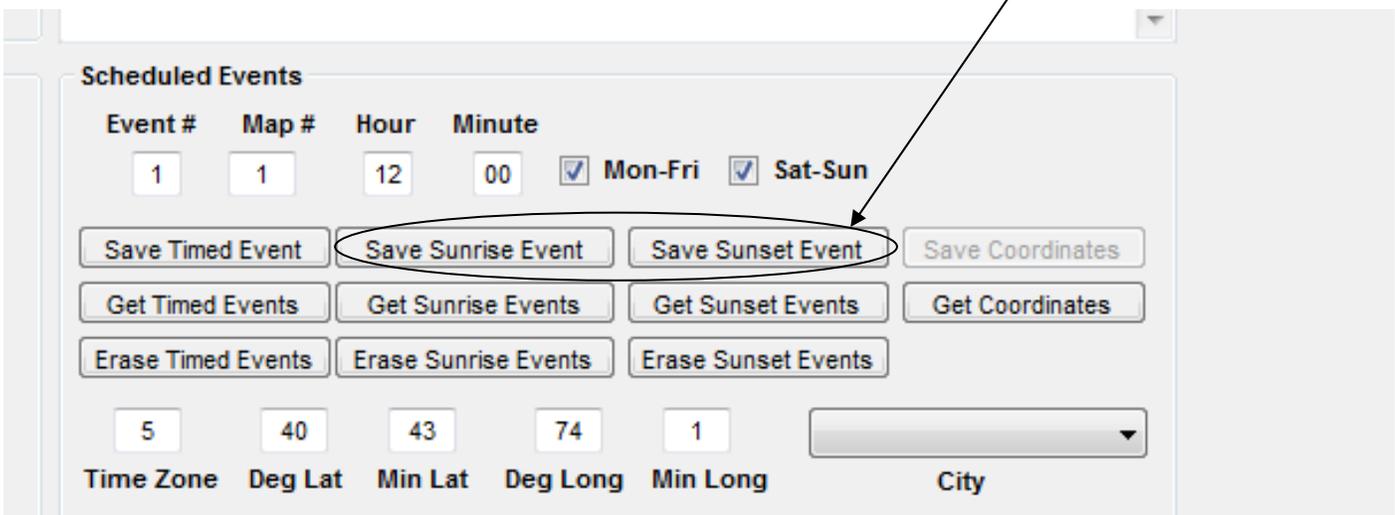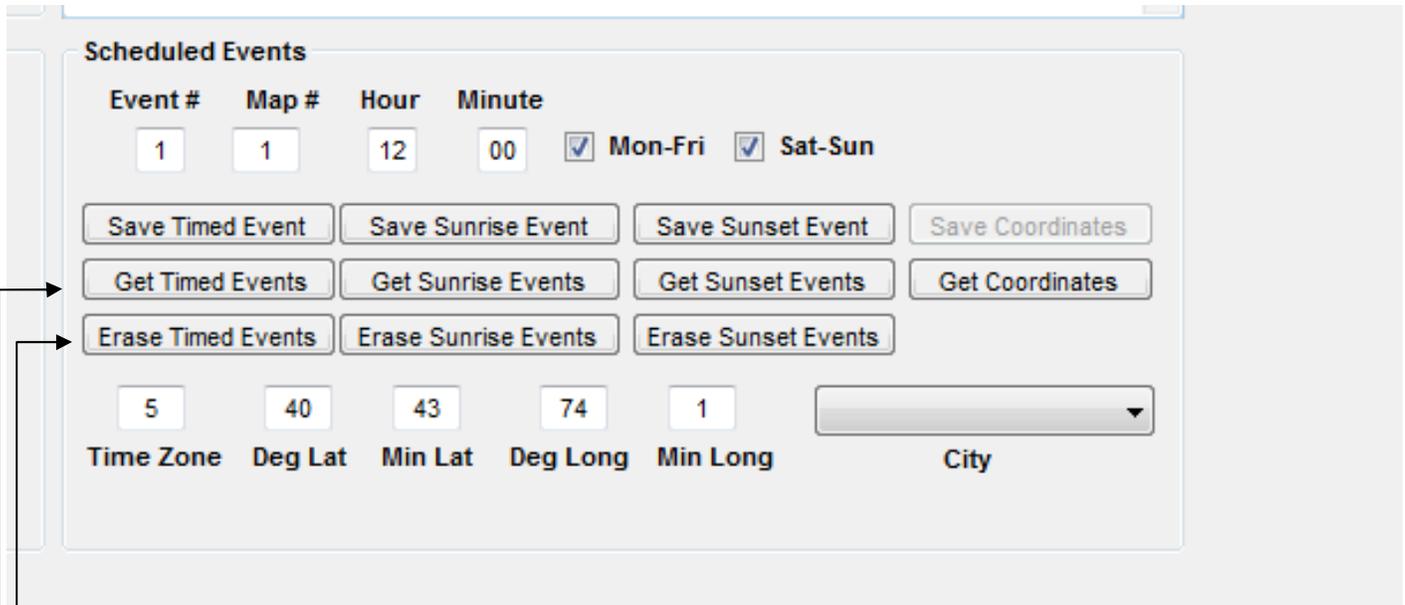
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- Get Command Buttons will retrieve and display the saved data.
- Erase Command Buttons will delete the data set from the Somfy Connect.
- **Get Coordinates** will retrieve and display the saved coordinates including Time Zone. The saved city (if there is one), Sunrise, and Sunset times for the present day will be displayed.

12 RTS Delay

For RTS systems, the URTSI must not transmit until the Lutron system is done transmitting. Otherwise the systems will interfere with each other. The default RTS Delay is one second. Upon entering the program mode, the present RTS Delay is displayed along with the Version of Firmware. To change the delay, select **RTS Delay**.

Valid Delay entries are 1 to 10 with each ascending number adding 250 ms. 1=250, 2=500, 3=750, etc. The default is 4=1000ms. Max is10=2500ms.

13 Entering Custom Coordinates

For Sunrise and Sunset Events, choosing a city or Canadian Province from the City drop down menu will give satisfactory operation with respect to sunrise and sunset commands. However, it is possible to enter exact coordinates as follows:

- Entering Time Zone
  - The Time Zone is based on the Greenwich meridian Time.
  - Valid Time Zone entries are 0 to 23 and 0 to -12

- Enter Latitude (North/South) and Longitude (East/West) in Degrees & Minutes
  - Valid Latitude -90 to 0 to 90
  - Valid Longitude -180 to 0 to 180
  - Seconds are not used

- There are numerous WEB sites where your coordinates can be found.

- The Somfy Connect must be in Run Mode for at least 30 seconds before the correct Sunrise/Sunset times are calculated.

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14 Notes:

1. **Group Commands and Light loads on the same Lutron Keypad or Table-Top control.** It is common to have both light load control and shade control on the same Lutron keypad or Table-Top control. One issue this causes is that the last light load adjusted remains the active light load and will be the next light load adjusted if just the raise or lower functions are activated. So, if you adjust a shade in Group Mode, the active light load will also be adjusted since the Lutron system "knows" there are no light loads on the shade button depressed. In other words, when the user wants to move just the shade, the lights are also adjusted. There are 2 solutions:

    a. Use sequence control instead of Group Control. Since sequence control does not use Raise/Lower, light loads are not affected

    b. Create virtual light loads for the shade push-buttons. This is done in the Lutron configuration software. This solution allows for the use of Group Control and still not affect any "real" light loads.

2. **RA2 iPhone/iPad App.** The Lutron apps can be used. There are 2 ways to use the app:

    a. In a system that has physical Keypads, Table-Tops and PICO's, the app will discover and display the same devices in the app. Shades are activated as if you were using the physical control point.

    b. If just the app is to be used (e.g. No Physical Devices), then Virtual control devices and loads will need to be created in the Lutron configuration program so they appear in the app. During Listen mode, you press the APP virtual push-button as you would with a physical push-button.

3. The Ethernet port of the NWK cannot be used; doing so disables the NWK serial port.

4. Each Lutron serial string can only be saved in a single map location. Saving the same string in 2 locations (i.e. one in SINGLE and one in SEQUENCE) will cause one of the saved entries to be ignored.

5. If two or more push-buttons in Sequence mode control the same motor or groups of motors, the sequence will get lost as the Somfy Connect does not keep track of multiple push-buttons controlling the same motor(s). In this case the user may have to activate the push-button up to 3-times before the motors move.

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