Lutron RadioRA 2 / HomeWorks QS

This driver was designed and tested with 2 Lutron HomeWorks QS Processors (HQP6-2-120) via Ethernet and a Lutron Radio RA2 System using the RA2 Main Repeater interface module. Version 2.14 has additionally been tested with QS Standalone (QSE-CI-NWK-E) and a Grafik Eye QS (QSGRJ-3P). It has **not** been tested with Quantum Integration Access Points.

DRIVER UPDATING NOTES -

The Full and Lite versions of the HomeWorksQS driver are no longer needed and have been discontinued.

The Update Driver feature in Integration Designer will work for updating systems already using any version of the Lutron HomeWorksQS.rtidriver (versions 1.0,1.1,2.0,etc).

The Update Driver feature WILL NOT work with systems using the Lutron RadioRA2.rtidriver.

Revision History

1.0 Initial Release of the Driver.

1.1 Added HVAC capability with controller and sensor mapping.
Added Visor Control Receiver capability.
Added Serial capabilities and settings for RS232 compatibility.
Added Phantom Keypad capability.
Added Shade Group commands.
Adjusted debugging variable acquisition.
Added RAW command capability.
Added QS_RA2.rti sample file.

2.0 Created Full and Lite versions of the driver.
Added button pressed events for buttons 1-15.
Updated variable titles for Dimmer Level to Dimmer/Shade Level.
Updated variable titles for Dimmer/Switch Status to Dimmer/Shade/Switch Status.
Added Initialize Device Variables section to the driver configuration.
Added QS_RA2_Lite.rti sample file.

2.01 Fixed issue where button press events may not get written properly.

2.02 Fixed typo where All On and All Off in the seeTouch Tabletop Keypad driver commands were reversed.

2.1 Added instrumentation for XPDiagnostics.
Added Dynamic Naming and Reconfiguration.
Fixed event triggering for button press and release on IDs above 200.
Added HVAC Controller and Wireless HVAC Sensor count fields to driver configuration.
Changed driver configuration category and header descriptions.
Renamed the driver to Lutron RA2_QS.rtidriver
Updated sample file.

2.11 Fixed HVAC Controller Count field and Wireless HVAC Sensor Count field visibility issue when HVAC Active field is disabled.

2.12 Fixed issue if Lutron processor stops sending responses to driver but doesn't logout and prompt driver for login to re-establish connectivity.
Added re-initialization routine on every 4th driver disconnection state.
Added IP Login capabilities for QS Standalone (QSE-CI-NWK-E) via Username field only.
Adjusted prompt disable routine for QS Standalone (QSE-CI-NWK-E) prompt suppression.

2.13 Disabled Network Message Monitoring feedback (undocumented monitoring command in Homeworks QS version 5.1.0).

2.14 Added ability for Recalling Grafik Eye QS Scenes (Scenes 1-16 and Scene Off) along with

acquiring feedback and triggering events when a scene is recalled.
2.15 Adjusted driver for RA2 version 7.5 update.
2.16 Added button release events for buttons 1-15.
2.17 Adjusted monitoring command routine at driver initialization.
Adjusted Setpoint variable authoring when going in and out of Eco Mode.
2.18 Adjusted naming of Dimmer/Shade/Switch/Scene Off variables and events to Dimmer/Scene Off/Shade/Switch.
2.19 Fixed Visor input event execution for press and release events.
Added All Off and All On descriptions to Top Raise/Lower events for Table-Top seeTouch Keypads.
2.2 Added pushed/released events for ID 1 buttons 1-100.
Optimized XPDiagnostics print routines.
Moved general Lutron error responses to XPDiagnostics High log level.
Recoded connectivity and initialization routines.
Adjusted Button Event naming to reflect more accurate Pico information.
2.21 Fixed connectivity issue when using serial communications.
Fixed issue with Connected/Disconnected variables.
2.22 Adjusted monitoring routines for additions to Lutron protocol.
2.23 Adjusted driver parsing to better suppress unwanted responses from Lutron processor.
2.24 Added additional undocumented monitoring calls to driver for better filtering of unwanted responses.
2.25 Maintenance Update.

Connection Settings

Network (TCP)

The Ethernet connection on the Lutron interface should be connected to the Network.

The TCP Address should match the address of the QS Processor considered as the master or RadioRA2 Main Repeater. Port 23 is used for the telnet session between the driver and QS Processor/RA2 Main Repeater.

TCP Username and Password are required for initializing a telnet session with the driver. The default username/password is lutron/integration. It is required that a separate telnet username/password account be created for driver use if other devices are to communicate with the Lutron system such as the Lutron Home+ iPad/iPhone app.

- Note - QS Standalone (QSE-CI-NWK-E) systems use only the Username Field for telnet session login.

Serial Port

The RS-232 connection on the Lutron interface should be connected directly to the processor serial adapter; a null modem is **not** required.

The baud rate must match the baud rate programmed for the Lutron interface. The default baud rate setting is 9600, but has additional selections for 19200, 38400, and 115200.

Device Configuration Settings

Last Device ID Used

Enter the last device ID programmed in the Lutron HomeWorks QS or RadioRA2 system. The driver supports a maximum of 400 IDs but should be configured to use the least number of IDs as needed in the system. This excludes HVAC Controller and Wireless Sensor IDs. When starting a new system file the driver defaults to 100 IDs used. If the driver update feature is used to update from the HomeWorks QS Lite driver the default is 200 IDs. If the driver update feature is used to update from

the HomeWorks QS full driver the default is 400 IDs.

Device Variable Initialization Enabled
Enable if device variable initialization is preferred. If enabled, a polling routine is enabled in the driver to retrieve device level/status and device LED status for all IDs configured in the system. The duration in which the driver runs the polling routine is dependent on the value of the Last Device ID Used configuration field. It can take anywhere from under a minute to over 20 minutes for all variables to receive their initial values. The driver may be used during the polling process as each poll is performed every few seconds, giving time for control commands to execute. Commands such as set level commands on slider objects may have a slight interruption if performed while the polling routine is running but should not render the driver unusable.

Phantom Keypad Enabled at ID 1
Enables phantom keypad use at ID1. Support for 100 buttons with 100 LED states is included for a phantom keypad at ID1 (HomeWorks QS and RA2). Phantom keypads may be programmed to other IDs in HomeWorks QS without enabling but are limited to 15 buttons and 15 LED states per phantom keypad. For programming Phantom keypads on the Lutron RadioRa2 or HomeWorks QS system, please refer to Lutron Training materials or contact the Lutron Integrator responsible for the system.

ID Names 1-400

ID (1-400) Name
Enter the name to be used for the Lutron Device ID. When an ID is named its corresponding variables will be displayed in Integration Designer and will be available as selection in the Driver Commands Integration ID field and System Events. If an ID is not given a name it will not be available in Integration Designer. All ID names fields default to a generic name but may be changed or deleted as needed. **DO NOT name HVAC ID locations in this section. For IDs that are used with HVAC Controllers or Wireless Sensors, please make sure to clear the respective ID name field.**

HVAC Configuration Settings

HVAC Active
If HVAC control is to be used, make sure this selection is enabled.

HVAC Setpoint Set Time
Sets the time delay between adjusting the setpoint temps and when the driver actually sends the setpoint temp adjustment to the Lutron system. This helps speed up the apparent setpoint adjustment capabilities.

HVAC Controller Count
Enter the number of HVAC Controllers setup in the lutron system. This field will determine the number of HVAC Controller Name and ID fields exposed in the driver.

HVAC Sensor Count
Enter the number of HVAC Sensors setup in the lutron system. This field will determine the number of HVAC Sensor Name and ID fields exposed in the driver.

HVAC Controller Names and IDs

HVAC Controller (1-30) Name
Enter the name to be used for the Lutron HVAC Controller ID.

HVAC Controller ID

Enter the Lutron HVAC Controller ID corresponding to the HVAC Controller Name field.

- Once an HVAC Controller Name and ID is entered the corresponding variables will be displayed in Integration Designer and will be available as selection in the Driver Commands HVAC Controller field and System Events.

HVAC Sensors

HVAC Sensor (1-50) Name
Enter the name to be used for the Lutron HVAC Wireless Battery Sensor ID.

HVAC Sensor ID
Enter the Lutron HVAC Sensor ID corresponding to the HVAC Sensor Name field.

- Once the Wireless HVAC Sensor Name and ID is entered the corresponding variables will be displayed in Integration Designer and will be available in System Events.

Driver Notes

- For QS Standalone Users - Dimmer level variables may appear to lag behind control while using the Set Level commands on Slider objects. This is due to the latency of responses from the Lutron system. It was also noticed that during the driver initialization process, initial variable acquisition will take longer than the HomeWorks QS and Radio RA2 systems. Grafik Eye QS scene variables are not acquired during driver initialization as their status is only provided when the scene recall commands are executed. All Grafik Eye QS zones need to be given an Integration ID. See Lutron Documentation on how to address Grafik Eye QS zones.

- The Main HomeWorks QS Processor, QS Standalone NWK, or RadioRA2 Main Repeater must be addressed to ID 1.

- By default, the driver only initializes HVAC variables (if applicable) and sets appropriate system monitoring during initialization. All other device variables are filled in when the specified device state changes unless the Device Variable Initialization Enabled field is checked.

- Driver initialization will happen upon a system reboot or when the driver cannot re-establish a connection to the Lutron system for approximately one minute.

- The driver will report as disconnected when the Lutron system actually closes the connection. It should however reconnect and login as soon as the disconnect is triggered by the Lutron system. If the driver fails to reconnect within approximately one minute of the disconnect, the driver will be required to re-initialize once it can re-establish a connection.

- It is recommended that only one instance of the driver be incorporated in an entire RTI system file.

- Driver events for Top/Bottom Raise & Lower Pressed/Released are available.

- Driver events for button presses 1-15 are available.

- The Flash feature is supported in HomeWorks QS but is currently **not** available for Radio RA2.

- The Shade Group commands do not provide feedback for the specified group, but for all devices adjusted in the group individually. When using gauges or sliders, feedback should be tracked off of one of the device ID levels in the group.

- The RAW command is intended for sending strings to the Lutron processor that are not included in

the driver. Depending on what response the command will trigger, feedback **may** be available as long as it falls into one of the predefined variables written in the driver. The use of the RAW command requires the command be a valid command in the Lutron protocol, otherwise the Lutron system may stop responding properly and require a reboot. Refer to the Lutron Integration Protocol which can be obtained from Lutron.

- Visor Control Receiver Outputs are controllable with open/close and toggle commands. Use CAUTION with the toggle command as the first toggle issued after a reboot or download will send the close command.

- Visor Control Receiver Input trigger responses only issue driver events. They are mapped to the events in the following manner:

Full/Security (30)	= ID xx, LED 7 Status
Security Flash (31)	= ID xx, LED 8 Status
Input 1 (32)	= ID xx, LED 9 Status
Input 2 (33)	= ID xx, LED 10 Status

- Some device LED responses are internally mapped in the driver. Refer to the Lutron Documentation and listing below for definitions.

Component Number	Driver LED Map
6	1
7	2
8	3
10	4
11	5
30	6
31	7
32	8
33	9
81	1
82	2
83	3
84	4
85	5
86	6
87	7
88	8
89	9
90	10
91	11
92	12
93	13
94	14
95	15
201	1
210	2
219	3
228	4
237	5
174	6
175	7
211	8
183	9
184	10
220	11
192	12
193	13
229	14
2001-2100	1-100

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