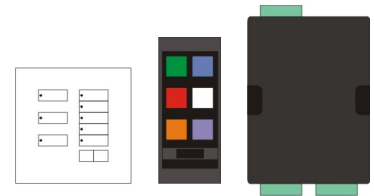




# The LutronQS Driver

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The LutronQS driver interfaces to a Lutron HomeWorks QS, Quantum, or QS Standalone lighting control system. Available for Commander and ObSys.

This document relates to LutronQS driver version 1.0

Please read the *Commander Manual* or *ObSys Manual* alongside this document, available from [www.northbt.com](http://www.northbt.com)

# Contents

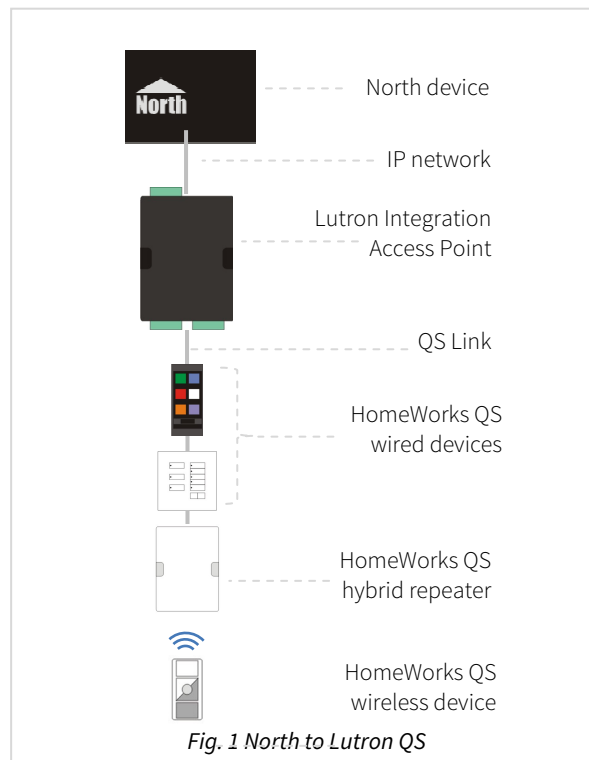
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# Compatibility with the Lutron System

The LutronQS driver allows North to interface with a Lutron HomeWorks QS, Quantum, or QS Standalone lighting control system.

The driver connects via an Ethernet network, to a single Lutron Integration Access Point (Fig. 1). Compatible access points include the HomeWorks QS Processor (HQP6-2) and QS Network Interface (QSE-CI-NWK-E).

Two alternative Lutron compatible drivers are also available: the LutronHW driver interfaces to the HomeWorks series processor, and the BACnetIP driver interfaces to the Lutron Quantum BACnet Integration module.



## Equipment

Lutron product ranges compatible with the driver include:

- HomeWorks QS home control system
- Quantum commercial lighting and shade control system
- QS Standalone lighting control system

## Values

Depending on the type of Lutron equipment connected to the Integration Access Point, the driver can typically access the following values:

- Device input LED state
- Device input button actions
- Device input light level
- Device input battery status
- Output device zone level
- HVAC controller temperature
- HVAC controller heat/cool setpoint
- HVAC controller mode
- Area occupancy state
- Area scene
- Time-clock event

## Prerequisites

Before a device, output, time clock, etc. can be accessed, it must be assigned a numeric Integration ID (less than 512, if possible). Lutron software can automatically assign Integration IDs for each component during system setup.

Set the IP address of the Lutron Integration Access Point to the same range assigned to the North device. With a QS Network Interface, the default IP address is 192.168.250.1. With a HomeWorks QS Processor, change the IP address from DHCP assigned to a static value.

If you are connecting to an Integration Access Point via a firewall, then the driver will require access to TCP port 23 on Lutron.

The Lutron system may begin to slow down if requests are sent too frequently to the Integration Access Point. If this problem is experienced, then increase the time between read and write requests from the North system. In particular, when using an ObVerse Processor, check the frequency between object read and write requests as these have the ability to make many requests in a short period.

# Using the Driver

On ObSys and Commander, the driver is pre-installed. On all of these North devices, you can use the driver to create an interface to Lutron. Once started, you will need to configure the driver before it can communicate with the Lutron system.

## Starting the Interface

- 📖 To start an interface using the LutronQS driver, follow these steps:
  - **Start Engineering** your North device using ObSys
  - Navigate to **Configuration, Interfaces**, and set an unused **Interface** to 'LutronQS' to start the interface
  - Navigate to the top-level of your North device and re-scan it

The driver setup object (Mc), labelled **LutronQS Setup**, should now be available. If this object is not available, check an interface licence is available and the driver is installed.

## Setting up the Driver

- 📖 To set up the driver, follow these steps:
  - Navigate to the **LutronQS Setup** object (Mc). For example, if you started interface 1 with the driver earlier, then the object reference will be 'M1'
  - Set the **Lutron IP Address** object (SIA) to the IP address of the Lutron Integration Access Point
  - Set the **Telnet User** (TU) and **Telnet Password** (TP) objects to match those configured in the Lutron Integration Access Point. The HomeworksQS requires both, the QS Standalone requires only the Telnet User.

## Checking Communications

You can check that the interface is communicating by reading the **Device Communicating** object (DS). A value of 'yes' indicates the driver has connected to, and is communicating with the LutronQS system.

# Object Specifications

Once an interface is started, one or more extra objects become available within the top-level object of the device. As with all North objects, each of these extra objects may contain sub-objects, (and each of these may contain sub-objects, and so on) – the whole object structure is a multi-layer hierarchy. It is possible to navigate around the objects using the ObSys Engineering Software.

Each object is specified below, along with its sub-objects.

## Example Object Reference

An example of a reference to an object in the same device: the LutronQS system object (S1) contains a keypad Device 20 (D20), which contains an LED at Component 9 (C9), with an LED state object (LS). Therefore the object reference will be 'S1.D20.C9.LS'.

An example of a reference to an object in a different device: the IP network object (IP) contains Default Commander object (CDIP), which contains the object above (S1.D20.C9.LS) – therefore the complete object reference is 'IP.CDIP.S1.D20.C9.LS'.

## Device Top-Level Objects

When an interface is started using the LutronQS driver, the objects below become available within the top-level object of the device. For example, if Interface 1 is started, then the object with references 'M1' and 'S1' become available.

Description	Reference	Type
<b>LutronQS Setup</b> Set up the LutronQS driver, started on interface <i>c</i> ( <i>c</i> is the interface number)	Mc	Fixed Container: On the Commander platform this will be <i>[CDM v20\LutronQS v10]</i> On the ObSys platform this will be <i>[OSM v20\LutronQS v10]</i>
<b>LutronQS System</b> Access LutronQS system connected to interface <i>c</i> ( <i>c</i> is the interface number)	Sc	Variable Container: <i>[LutronQS v10]</i>

# LutronQS Driver Setup

Object Type: [OSM v20\LutronQS v10]

Object Type: [CDM v20\LutronQS v10]

The Lutron driver contains the following objects:

Description	Reference	Type
<b>System Label</b> Label displayed when scanning the system object	DL	Obj\Text; Max. 20 chars; Adjustable
<b>Lutron IP Address</b> IP address of the Integration Access Point	SIA	Obj\IP; Adjustable
<b>Telnet User</b>	TU	Obj\Text; Max. 30 chars; Adjustable
<b>Telnet Password</b> Not required by QS Standalone	TP	Obj\Text; Max. 30 chars; Adjustable
<b>Device Communicating</b> Indicates the driver has connected to the Lutron Integration Access Point.	DS	Obj\NoYes

# LutronQS System

Object Type: *[LutronQS v10]*

The Lutron QS System includes objects to access device, output, HVAC, area, and timeclock components within the Lutron system. These objects can represent physical items attached to the system, or virtual modules configured in software.

Before a device, output, time clock, etc. can be accessed; it must be assigned an Integration ID. Lutron software automatically generates Integration IDs for each item.

Scan this variable container object to find the list of items available. Currently, only Integration IDs less than 512 are scanned. Include additional IDs by editing the object with Object Editor, and add information from the *Integration Report*. Generate the report for your installation using the Lutron software.

Description	Reference	Type
<b>Device x</b> Device inputs, such as button presses, releases and contact closure inputs. The integration ID, <i>x</i> , is in the range 1...65535	Dx	Fixed Container: <i>[LutronQS v10\Device]</i>
<b>Output x</b> Device outputs, such as dimmers, CCOs, etc. The integration ID, <i>x</i> , is in the range 1...65535	Ox	Fixed Container: <i>[LutronQS v10\Output]</i>
<b>HVAC x</b> HVAC controller. The integration ID, <i>x</i> , is in the range 1...65535	Hx	Fixed Container: <i>[LutronQS v10\HVAC]</i>
<b>Area x</b> Activate area scene or monitor occupancy. The integration ID, <i>x</i> , is in the range 1...65535	Ax	Fixed Container: <i>[LutronQS v10\Area]</i>
<b>TimeClock x</b> System time clock event. The integration ID, <i>x</i> , is in the range 1...65535	Tx	Fixed Container: <i>[LutronQS v10\TimeClock]</i>



# Device

Object Type: [LutronQS v10\Device]

The Device object allows control and monitoring of device inputs such as button presses, releases, and contact closure inputs.

Each Lutron device type has a published list of component numbers and their use. For example, a GRAFIK Eye QS device uses component number 70 for a Scene 1 Button.

Generate an *Integration Report* for your installation using Lutron software. This contains a list of component numbers and their usage for each device installed.

Description	Reference	Type
<b>Component x</b> The component number, x, is in the range 1...2100 and dependent on the type of device.	Cx	Fixed container: [LutronQS v10\Device\Comp]

## Device Component

Object Type: [LutronQS v10\Device\Comp]

A Device Component supports various actions depending on the type of input it is. Not all sub-objects are supported by all components.

For example, a GRAFIK Eye QS device has a Scene 1 Button. This only supports press and release actions.

The driver supports the following device component actions using these objects:

Description	Reference	Type
<b>LED State</b> State of LED. May be unavailable. (Action 9)	LS	Obj\OffOn; May be non-adjustable, adjustable, or adjustable-only
<b>Button Press</b> Set value to 'yes' to simulate a press/close/occupied action on the component. May be unavailable. (Action 3)	BP	Obj\NoYes; Adjustable-only
<b>Button Release</b> Set value to 'yes' to simulate a release/open/unoccupied action on the component. May be unavailable. (Action 4)	BR	Obj\NoYes; Adjustable-only
<b>Button Press Release</b> Set value to 'yes' to simulate pressing and releasing the button. May be unavailable. (Action 3 and 4)	BPR	Obj\NoYes; Adjustable-only
<b>Button Hold</b> Set value to 'yes' to simulate a hold action on the component. May be unavailable. (Action 5)	BH	Obj\NoYes; Adjustable-only
<b>Button Multi-tap</b> Set value to 'yes' to simulate a multi-tap action on the component. May be unavailable. (Action 6)	BM	Obj\NoYes; Adjustable-only
<b>Light Level %</b> Light level, as a percentage. May be unavailable. (Action 14)	LL	Obj\Float; May be non-adjustable, adjustable, or adjustable-only Range: 0...100.00

**Action x**

Ax

Obj\Text; Adjustable-only; Max. chars=127

Where  $x$  is in the action number in the range 1..65535

The value will be written as parameters to the Action number

# Output

Object Type: [LutronQS v10\Output]

The Output object allows control and monitoring of device outputs, such as dimmers, CCOs, or other devices in a system that have a controllable output.

Description	Reference	Type
<b>Zone Level (%)</b> (Action 1)	L	Obj\Float: 0...100.00; Adjustable
<b>Action x</b> Where x is in the action number in the range 1..65535 The value will be written as parameters to the Action number	Ax	Obj\Text; Adjustable-only; Max. chars=127

# HVAC

Object Type: [LutronQS v10\Hvac]

The HVAC object allows control and monitoring of HVAC controllers and temperature sensors.

Description	Reference	Type
<b>Temperature (°C)</b> (Action 2)	TC	Obj\Num; Adjustable Range: 4...38
<b>Temperature (°F)</b> (Action 15)	TF	Obj\Num; Adjustable Range: 40...100
<b>Cool Setpoint (°C)</b> (Action 16)	CSPC	Obj\Num; Adjustable Range: 10...45°C
<b>Heat Setpoint (°F)</b> (Action 2)	HSPF	Obj\Num; Adjustable Range: 40...103°F
<b>Cool Setpoint (°C)</b> (Action 16)	CSPC	Obj\Num; Adjustable Range: 10...45°C
<b>Heat Setpoint (°F)</b> (Action 2)	CSPF	Obj\Num; Adjustable Range: 40...103°F
<b>System Mode</b> (Action 11)	SM	Obj\Enum: 0...2 Values: 0=Normal, 1=Away, 2=Green
<b>Operating Mode</b> (Action 4)	OM	Obj\Enum: 0...7; Adjustable Values: 0=Off, 1=Heat, 2=Cool, 3=Auto, 4=EmHeat, 6=Fan, 7=Dry
<b>Sensor Status</b> Temperature sensor connection status (Action 8)	SS	Obj\Enum: 0...3 Values: 0=Ok, 1=Missing, 2=Wired only, 3=No sensor
<b>Schedule Status</b> (Action 7)	SCS	Obj\Enum; Adjustable Values: 0=n/a, 1=Schedule, 2=Permanent Hold, 3=Temporary Hold
<b>Eco Offset</b> (Action 6)	EO	Obj\Num; Adjustable Range: 1...11°
<b>Eco Mode</b> Enables setback mode (Action 7)	EM	Obj\OffOn; Adjustable
<b>Fan Mode</b> (Action 8)	FM	Obj\Enum: 0...7; Adjustable Values: 0=Auto, 1=On, 2=Cycle, 4=High, 5=Medium, 6=Low, 7=Top
<b>Action x</b> Where x is in the action number in the range 1..65535 The value will be written as parameters to the Action number	Ax	Obj\Text; Adjustable-only; Max. chars=127

# Area

Object Type: [LutronQS v10\Area]

The Area object allows control and monitoring of an area – such as activating area scenes, or monitoring occupancy.

Description	Reference	Type
<b>Area Occupied</b>	OS	Obj\NoYes
<b>Scene</b> Set the area to a pre-configured scene. Scene 0 is the Off scene.	S	Obj\Num; Adjustable Range: 0...32
<b>Daylighting Mode</b>	DM	Obj\OffOn; Adjustable
<b>Action x</b> Where x is in the action number in the range 1..65535 The value will be written as parameters to the Action number	Ax	Obj\Text; Adjustable-only; Max. chars=127

# TimeClock

Object Type: [LutronQS v10\TimeClock]

The TimeClock object allows control of a system time clock.

Description	Reference	Type
<b>Execute Event</b> Set the event number to trigger	X	Obj\Num; Adjustable-only Value: 1...1000
<b>Action x</b> Where <i>x</i> is in the action number in the range 1..65535 The value will be written as parameters to the Action number	Ax	Obj\Text; Adjustable-only; Max. chars=127

# Driver Versions

Version	Build Date	Details
1.0	03/03/2014	Driver released
1.0	17/05/2017	Updated log-in for QSE-CI-NWK-E Fix write to Dx.Cx.LL
1.0	06/07/2017	Modification for shades and blinds – added button pre-release object (BPR) Modifications for schedule on display – added object SCS
1.0	15/03/2018	Added separate heating setpoints HSPC and HSPF, Also added A# object to allow unsupported actions to be performed. IntegrationIDs now scanned to 512.Extra objects for HVAC integration. Documentation tidy up.

## Next Steps...

If you require help, contact support on 01273 694422 or visit [www.northbt.com/support](http://www.northbt.com/support)



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