RQ Basic Implementation Instructions

Introduction

This guide is intended to walk an installer through the basic setup and verification steps upon initial RQ system installation in order to configure the controllers for basic operation. It is assumed the controllers are wired to functional motors which have had mechanical limits set or that are successfully "stalling" off at one or both ends of their intended travel. All mechanical adjustments to products travel lengths should be completed before performing these steps.

It is also assumed the installer has a working Serial Communications port connection to the RQ Bridge and a running application program such as *Hyperterminal*. The bridge should be connected to the RQ motor controllers (RQ6ØAUMHG and/or RQ6ØDUM) and the data link should be functioning. For more advanced setup and operating instructions please refer to the ***RQ6ØAUMHG Command Summary*** or ***RQ6ØDUM Command Summary.***

Unsolicited responses from motor controllers will occur from time to time, based on motor movement. These will be described in Step 5 below. Each RQ command starts with a "!" and ends with a ";". Refer to ***RQ6ØAUMHG Command Summary*** or ***RQ6ØDUM Command Summary*** for details of RQ commands.

Step 1 – Query the controllers for available "Node Addresses"

Send the following query: **!ØØØv?;**
This requests all connected controllers to report their current node address, node type, and version number.

A typical response with 1 bridge and 2 RQ motor controllers might look like this:

!BR1B1Ø;!XA1A1Ø;S8RA1Ø;

These responses represent the following reports:

!BR1B1Ø; Node Address = BR1 (default for ALL bridges)
Node Type = B = Bridge
Node Version = 1Ø = Firmware version 1.Ø

!XA1A1Ø; Node Address = XA1 (randomized at factory)
Node Type = A = RQ AC motor Controller
Node Version = 1Ø = Firmware version 1.Ø

!S8RD1Ø; Node Address = S8R (randomized at factory)
Node Type = D = RQ DC motor Controller
Node Version = 1Ø = Firmware version 1.Ø

Step 2 – Verify the controllers/products associated with specific "Nodes"

Option 1 – Identify controllers.
Send this command to each controller (XXX = specific node address): **!XXXi;**
The targeted controller will blink its local led RED for approximately 2Ø seconds.

Option 2 – Identify products physically connected to the controllers.
Send this command to each controller (XXX = specific node address): **!XXXo;** or **!XXXc;**
The targeted product should operate in either the open (o) or closed (c) direction.

Step 3 – Re-Address controllers for more intuitive identification

In the following examples assume:
The Bridge will be connected to an AMX system and we might want to identify it accordingly.

1355 Horizon Avenue, Lafayette, CO 80026-9304 USA
voice: +1.303.469.9322 fax: +1.303.469.5129 www.elec-solutions.com

Send this command: **!BR1@AM1;** (readdress node BR1 to AM1)
Response from controller: **!AM1A;** (new node address is **A**cknowledged as AM1)

The AC Controller connected to the node addressed as XA1 is connected to a projection screen which you wish to reference with the node address PS1.

Send this command: **!XA1@PS1;** (readdress node XA1 to PS1)
Response from controller: **!PS1A;** (new node address is **A**cknowledged as PS1)

The DC Controller connected to the node addressed as S8R is connected to a cellular shade which you wish to reference with the node address CS1.

Send this command: **!S8R@CS1;** (readdress node S8R to CS1)
Response from controller**: !CS1A;** (new node address is **A**cknowledged as CS1)

Step 4 – Perform a "Calibration Sequence"

In order to gain a higher level of control using "move to position" commands, it will be necessary to perform a calibration procedure which allows the controller to capture the specific travel time of the motor connected to it.

Option 1 – Calibrate a specific controller.

Send this command to calibrate the controller addressed as PS1: **!PS1pTC;**
The controller will run the motor and record its travel time from fully open to fully closed and back to open. The controller stores the travel time for use in future movement commands and Intermediate Positioning. The travel time may be queried for matching animation timing to the travel time of the controller using **!PS1pT?;**

Option 2 – Calibrate ALL controllers.

Send this command to calibrate all controllers on the RQ Bus: **!ØØØpTC;**
All motors will run the calibration sequence.

CAUTION: Do NOT perform this procedure if any products connected to controllers have not yet had their full travel limits set. Products operated without travel limits verified may operate too far in one direction or another, resulting in product jams, damage or roller shade fabrics coming off their rollers.

Step 5 – Test individual control and understand "unsolicited responses"

After Calibration, the RQ system is ready to allow full control of the connected products. Here are some sample commands to test and verify control of full open, full close, and "move to position" commands:

To "Open" a product, send (example uses PS1):
!PS1o;
Response 1: **!PS1<42;**
The controller will immediately send a response indicating the starting position (42) of the product, as well as the direction of travel ("<" = towards Ø or ">" = away from Ø).
Response 2: **!PS1rØØ;**
The controller now reports it has successfully moved to and stopped at the position requested.

To "Close" a product, send (example uses PS1):
!PS1c;
Response 1: **!PS1>ØØ;**

The controller will immediately send a response indicating the starting position (ØØ) of the product, as well as the direction of travel ("<" = towards Ø or ">" = away from Ø).

Response 2: **!PS1r99;**

The controller now reports it has successfully moved to the position requested.

To "Move" a product to a specific position (ØØ to 99) send (example uses PS1):

!PS1m38;

Response 1: **!PS1<99;**

The controller will immediately send a response indicating the starting position (99) of the product, as well as the direction of travel ("<" = towards Ø or ">" = away from Ø).

Response 2: **!PS1r38;**

The controller now reports it has successfully moved to and stopped at the position requested.

Step 6 – Define "Groups" for scene activation

The RQ system supports a feature that allows a pre-set "Scene" to be defined in each local controller. There are up to 62 scenes that can be defined in an RQ system. These can be used to operate multiple products in a room from a single command, or can move many products in a project to any desired preset position.

Available scenes can be defined using letters a-z, letters A-Z, and numbers Ø-9 (62 total).

To set a "scene" for PS1 to move to position 99 on scene "a", send:

!PS1da99;

PS1 responds: **!PS1da99;**

To set a "scene" for CS1 to move to position 37 on scene "a", send:

!CS1da37;

CS1 responds: **!CS1da37;**

To activate scene "a", send:

!ØØØga;

Result – PS1 will travel to position 99 and CS1 will travel to position 37. Appropriate unsolicited messages will be generated by the controllers as they begin to move and when they reach their "scene" destination.

Other Features

The RQ system supports many more features should you desire to utilize them, but these are the more meaningful and simple to implement features that will typically be used in a project. For more details on features such as storing a 16 character name in each control locally, and to set "parameters" such as momentary motor action to allow motors to be "jogged" for finer tilting control on products such as blinds, please refer to the ***RQ6ØAUMHG Command Summary*** or ***RQ6ØDUM Command Summary***.

