



RQ Bridge V1.0 & RQ Bridge U V.10 Command Summary

RQ devices from Electronic Solutions, Inc. provide two-way communications over a 6-wire phone cable that connects each device together into an RQ Bus. Typically, an RQ Bridge unit will be connected into the RQ Bus which provides a Serial Interface (RS-232 or RS-422) to a Controller/PC. Among the devices on the RQ Bus, will normally be a number of RQ motor controllers. The RQ Bus actually uses three wires of the 6-wire cable, leaving the other three wires for the legacy RP Bus. The RQ Bus and the RP Bus operate independently from each other. The RQ Bridge utilizes the RP Bus to communicate legacy RP commands to RQ Devices as well as to legacy RP Devices.

This Command Summary covers the RQ level commands associated with the RQ Bridge and assumes a PC is connected to the serial interface on the RQ Bridge. This Command Summary also assumes that a number of RQ devices are attached with the RQ Bridge to form an RQ Bus. *Hyperterminal*, or other terminal emulator program, is utilized to enter RQ commands and to display responses from RQ devices.

The RQ communication protocol was developed to provide a powerful interface for Home Automation developers to build broad networks of RQ devices. For more information on the RQ Protocol, including coding examples, see *RQ Protocol Summary*. For more information on particular RQ devices, such as motor controllers, see the appropriate device's *Command Summary* document. The request-response nature of RQ Devices allows an application program running on the PC to continually direct the network and monitor RQ device status.

RQ Message Formatting

An RQ message always begins with a "!" (a.k.a. Bang) and ends with an "end character". There will always be an Address (3 ASCII characters) and a Command (1 ASCII character) as shown in the table below. In some cases, the Data field is a variable number of characters or no Data. A Question Mark ("?") in the Data field signifies a request message. For downlink messages, the "end character" is ";" or <CR> (both are treated the same). Uplink message "end character" is set with Bridge parameter to be ";" or <CR>.

RQ Addressing is always three ASCII characters composed of only 0-9 and A-Z. For the case where an address is 000 (global command), all nodes are being addressed and for that reason, no node can have 000 as its address. RQ Bridges are factory addressed at BR1 and RQ devices are randomly addresses from the factory (first character will be between "C" and "Z").

The following is an example of a downlink message from the Controller/PC to the RQ Bridge requesting the Bridge version. The literal command string is "!BR1v?;"

Start Character	Address	Command	Data	End Character
!	BR1	v	?	;

Uplink refers to messages from RQ Bridge to Controller/PC, while *Downlink* messages flow from Controller/PC to the RQ Bridge. Improperly formatted Downlink messages or message content that is out of range will cause the message to be discarded by the RQ Bridge and an appropriate Uplink error message generated.

RQ Bridge Example Messages

Downlink Message	Uplink Message	Comments
!BR1v?;	!BR1vB10;	Version request, Bridge responds with 10 (version 1.0)
!BR1N?;	!BR1N_;	Returns default name (underscore character)
!BR1@XYZ;	!XYZA;	Change Bridge address, new address used in acknowledgement
!M01@xyz;	!BR1U;	Complain – bad address. Bridge filters this for all nodes

RQ Bridge V1.0

Command Summary

The RQ Bridge forwards all RQ Bus messages to the Controller/PC unless specifically addressed to a different Bridge.

RQ Bridge returns a response to only some messages from the Controller/PC (see Table of Commands). At power up, the RQ Bridge sends a version message ("!BR1vB10;") and <X-on>.

RQ Bridges are invisible to each other on the RQ Bus and a Bridge will only respond to commands from a Controller/PC directly connected to its serial port.

Table of Commands

Command Character and Description		Direction	# Characters and Description of Data	
p	Set parameter (lowercase "p")	To Bridge	1	One character of parameter "N" = Verbose OFF (no unsolicited message or power up msg) <i>Warning: Only turn Verbose OFF in special situations (see RQ Protocol Summary for further information)</i> "V" = Verbose ON (unsolicited messages and pwr up version msg) "C" = Use <CR> as end message character (uplink only)** "S" = Use ";" as end message character (uplink only) [responds by echoing msg]
@	Re-address	To Bridge	3	characters (0-9 or A-Z) [responds with Acknowledge address change message]
N	Assign a name	To Bridge	v*	1-16 characters (not "?" for first character) [responds by echoing message]
N	Request the name	To Bridge	1	question mark [responds with Report name message]
N	Report name	From Bridge	v*	1-16 characters
v	Request version	To Bridge	1	question mark [responds with Report version message]
v	Report version	From Bridge	3	"B" + 2 characters of version (10 = version 1.0)
U	Undefined / bad message	From Bridge	0	None
A	Acknowledge address change	From Bridge	0	None
E	Error	From Bridge	2	Characters describing error "do" = downlink buffer overflow, at least 1 message lost "ml" = uplink message(s) lost due to buffer overflow

* v = variable length message

** <CR> = Carriage Return

Factory Defaults

Parameter	Default
Verbose	On (recommended to be left "on")
End of message character (uplink)	";" (semicolon)
Address	BR1
Name	"_" (underscore character)

Global Command Example

Version request is the only Global Command that Bridge responds to. Downlink "!000v?;" message will cause the Bridge to respond with "!BR1vB10" uplink message and pass the version request message on to the RQ Bus. All other downlink messages are passed directly to the RQ Bus.