

**M40Q 115VAC and 230VAC Series Motor P5  
and M50Q 115VAC and 230VAC Series Motor P5  
RQ Command Summary**

RQ enabled motors from Electronic Solutions, Inc. provide two-way communications over a 6-conductor (phone) cable that connects each of the motors together into an RQ Bus. Typically an RQ Bridge component (see *RQ Bridge Command Summary*) will also be connected into the RQ Bus as a Serial Interface (RS-232 or RS-422) to an automation system (AMX, Crestron, Vantage, etc.) or computer (PC or Mac). The RQ Bus and the RP Bus operate independently from each other.

This Command Summary covers the RQ commands associated with the M40Q Series and M50Q Series motors with embedded controllers (see *RQ Bridge Command Summary* for commands relating to the RQ Bridge) and assumes a PC is connected to the serial interface on the RQ Bridge. *HyperTerminal*, or other terminal emulator program, is utilized to enter RQ commands and to display responses from RQ devices.

The RQ 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*. 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 the *header* "!" (a.k.a. Bang) and ends with a *terminator* ";" (semicolon) or carriage return <CR>. There will always be an RQ Address (3 alphanumeric characters) and a Command (1 alphanumeric character) as shown in the tables below. In some cases the Data field will contain a variable number of characters or even no Data. A question mark ("?") in the Data field signifies a request for status. The downlink "end character" can be either ";" or <CR> (both are treated the same). The uplink "end character" is set by an RQ Bridge parameter to be either ";" or <CR> — see *RQ Bridge Command Summary* for commands relating to the RQ Bridge.

RQ Addressing is always three alphanumeric characters composed of only 0-9 and A-Z uppercase. For the case of 000 (global command), all nodes are addressed and for that reason, no node can have 000 as its address. All RQ Bridges are factory addressed at BR1 and RQ devices are randomly addressed from the factory ("C00" – "ZZZ"). Command and Data fields are alphanumeric characters, but not "!" and not <control> characters (0-31)

**RQ downlink message format examples:**

Start Character	Address	Command	Data	End Character
!	K0B	N	Bob's Bedroom	;
!	M10	v	?	;

**RQ uplink message format examples:**

Start Character	Address	Command	Data	End Character
!	K0B	N	Bob's Bedroom	;
!	M10	v	Gp5	;

*Uplink* refers to messages from an RQ Bus, relayed via the RQ Bridge, to an automation system or computer, while *Downlink* messages flow from an automation system or computer to the RQ Bus, relayed via the RQ Bridge. Improperly formatted 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.

Upon power up, RQ embedded motors do not send out any RQ messages. RQ embedded motors respond to global commands, directly addressed commands, and also generate unsolicited responses in certain situations.

**M40Q 115VAC and 230VAC Series Motor P5  
and M50Q 115VAC and 230VAC Series Motor P5  
RQ Command Summary**

**Additional Terms or Abbreviations used in this document**

Addr = RQ Address; CAPS = all upper case letters; scene = a defined position for one or more motor controls; name = optional 16 character description of motor control; Parameter = a variable corresponding to motor control features; options = subsets of parameters

**Table of Downlink Commands**

Command Character and Description		Format (XXX=Addr)	Example Downlink Message	# Characters after Command Character [Description of Data]	
@	Re-address	!XXX@XXX;	!XYZ@123;	3	characters (001 ... ZZZ){0-9, A-Z CAPS only} [responds with Acknowledge address change]
~	Randomize address	!XXX~;	!XYZ~;	3	responds with randomized address in the range C00 ... ZZZ [responds with Acknowledge address change]
c	Close <sup>1</sup>	!XXXc;	!XYZc;	0	None [no response if limits are not set] [no response if all the way closed, otherwise responds with current position and direction, unsolicited msg] [later, unsolicited msg with final position]
d	Define a scene	!XXXdS%%; !XXXdSNS; !XXXd-;	!XYZdF56; !XYZdFNS; !XYZd-;	varies <sup>2</sup>	S = Scene <sup>3</sup> , %%=00-99 (%) S = Scene <sup>3</sup> , "NS" to not act on this scene - (minus sign) to clear all scenes [responds by reporting scene setting]
d	Request scene setting	!XXXdS?;	!XYZdF?; !000dF?;	2	S = Scene <sup>3</sup> , question mark [responds by reporting scene setting]
g	Execute scene	!XXXgS;	!000gF; or !XYZgF;	1	S = Scene <sup>3</sup> [no response, motor movement will cause unsolicited msg]
m	Move to position <sup>1</sup>	!XXXm%%;	!XYZm86;	2	%% = 00-99 (%) = destination position <sup>4</sup> [responds with current position and direction, unsolicited msg] [later, unsolicited msg with final position] [responds with E msg for errors]
N	Assign a name	!XXXNn;	!XYZNKitch1;	varies <sup>2</sup>	n=Up to 16 ASCII printable characters <sup>5</sup> (no ";", "!" or "?" throughout 'name') [responds with Report the name msg]
N	Request the name	!XXXN?;	!XYZN?;	1	question mark [responds with Report the name msg]
o	Open <sup>1</sup>	!XXXo;	!XYZo;	0	None [no response if limits are not set] [no response if all the way open, otherwise responds with current position and direction, unsolicited msg] [later, unsolicited msg with final position]
p	Set parameter (lowercase "p")	!XXXpPHH;	!XYZpM02; {Reverse motor direction}	varies <sup>2</sup>	P = parameter character (M, R or T), then parameter options data <sup>6</sup> HH = Parameter Options data [responds with Report Parameter msg]
p	Request parameter (lowercase "p")	!XXXpP?;	!XXXpT?;	2	P = parameter character, then question mark <sup>6</sup> [responds with Report parameter msg]
r	Request current position	!XXXr?;	!000r?; or !XYZr?;	1	question mark [responds with Report current position msg] [responds with E command if errors]
s	Stop <sup>1</sup>	!XXXs;	!000s; or !XYZs;	0	None [no response if limits are not set] [no response, motor movement will cause unsolicited msg]
v	Request version	!XXXv?;	!XYZv?;	1	question mark '?' to request [responds with Report version msg]

<sup>1</sup> may cause an unsolicited message

<sup>2</sup> means variable length message

M40Q 115VAC and 230VAC Series Motor P5  
and M50Q 115VAC and 230VAC Series Motor P5  
RQ Command Summary

<sup>3</sup> means scene character 0-9, A-Z, a-z

<sup>4</sup> 00 means at reference (default = open), 99 means at limit away from reference (closed)

<sup>5</sup> A-Z, a-z, 0-9, @, #, \$, %, ^, &, \*, ...et al: [http://en.wikipedia.org/wiki/Ascii#ASCII\\_printable\\_characters](http://en.wikipedia.org/wiki/Ascii#ASCII_printable_characters)

<sup>6</sup> see **Setting Parameters** for available options and appropriate data

**Table of Uplink Messages**

Command Character and Description		Format (XXX=Addr)	Example Uplink Message	# Characters after Command Character [Description of Data]	
<	Moving towards 00 <sup>1</sup>	!XXX<%%;	!XYZ<74;	2	%% = 00-99 as current position in %
>	Moving towards 99 <sup>1</sup>	!XXX>%%;	!XYZ>28;	2	%% = 00-99 as current position in %
A	Acknowledge address change	!XXXAXXX;	!XYZA123;	3	XXX= characters (001 ... ZZZ) {0-9, A-Z CAPS only}
d	Report scene setting	!XXXdS%%; !XXXdSNS;	!XYZdF56; !XYZdFNS;	3	S = Scene <sup>2</sup> , %%=00-99 (%) S = Scene <sup>2</sup> , "NS" not in scene
E	Error <sup>1</sup>	!XXXEee;	!XYZEbz; !XYZEnc; !XYZEml;	2	Characters (ee) describing error bz = busy nc = limits are not set ml = message lost (uplink or downlink)
N	Report the name	!XXXNn;	!XYZNKitch1;	≤16	n=Up to 16 ASCII printable characters <sup>3</sup> (no ";", "!" or "?" throughout 'name')
p	Report parameter (lowercase "p")	!XXXpPHHH;	!XXXpT018; !XXXpM01;	3 or 4 <sup>4</sup>	P = parameter character, then appropriate data <sup>5</sup> HHH = options for parameter character (2 or 3 characters accordingly) parameter Travel time is 18 seconds parameter Momentary Motor Action is enabled
r	Report current <sup>1</sup> position	!XXXr%%;	!XYZr00;... !XYZr47; !XYZ>23; !XYZ<69;	2	%% = 00-99 (%) at current position <sup>6</sup> not moving, at 47% increasing from 23% decreasing from 69%
U	Undefined / bad message	!XXXU;	!XYZU;	0	None
v	Report version	!XXXvGVV;	!XYZvGp5;	3	"G" + 2 characters of version (p5 = version P5) VV=version
x	Report status of Manual Inputs <sup>1</sup>	!XXXx¢\$;	!XYZxdo; !XYZxuc;		¢ = Manual Input contact either down or up <sup>7</sup> , \$ = o for open or c for close down contact is open up contact is closed

<sup>1</sup> may be an unsolicited message

<sup>2</sup> means scene character 0-9, A-Z, a-z

<sup>3</sup> A-Z, a-z, 0-9, @, #, \$, %, ^, &, \*, ...et al: [http://en.wikipedia.org/wiki/Ascii#ASCII\\_printable\\_characters](http://en.wikipedia.org/wiki/Ascii#ASCII_printable_characters)

<sup>4</sup> means variable length message

<sup>5</sup> see **Setting Parameters** for available options and appropriate data

<sup>6</sup> 00 means at reference (default = open), 99 means at limit away from reference (closed)

<sup>7</sup> Manual inputs are noted as **u** (up or open) common and **d** (down or close); must be enabled via RP commands.

**M40Q 115VAC and 230VAC Series Motor P5  
and M50Q 115VAC and 230VAC Series Motor P5  
RQ Command Summary**

**Corresponding Downlink Command and Uplink Message Examples**

Downlink Message	Uplink Message	Comments
!M11v?;	!M11vGp5;	Request to <u>M11</u> for version, M40Q/M50Q response w/ <u>Gp5</u> (version P5)
!M34r?;	!M34r76; !M34<36; !M34Enc;	Request M34 position, M34 responds 76% and not moving M34 is at 36% and moving toward reference (alt. possible response) M34 limits are not set.
!M15m62;	!M15>18; !M15r62; !M15Enc;	M15 move to 62%, responds at 18% moving away from reference Later, Responds at 62% when finished moving Position unknown due to Error, limits are not set

**Global M40Q/M50Q Control Message Examples**

Downlink Message	Uplink Message	Comments
!000v?;	... !BR1vB10;!M01vGp5; ...	All devices respond w/ version, including RQ Bridge
!000r?;	... !M01r28; ...	All devices show position

**Setting Parameters**

A variety of special Parameters may be set that correspond to motor control features. It is important for the motor to be stopped when setting parameters on the M40Q/M50Q.

The Parameter itself is one character followed by data characters, as appropriate. Each parameter defines the data that follows, if any. All Options for a particular parameter must be considered at once, since the corresponding characters will turn on/off various Options without regard for their previous values.

All parameter commands require **p** after the RQ address, followed by the Parameter Character then the corresponding Parameter Character Options.

**Travel Time Parameter Table**

Parameter Character and Description	Example Downlink Message	Example Uplink Message	Description of Data
T Request M40Q/M50Q Travel Time	!XYZpT?;	!XYZpT016;	"T" for Time, question mark [responds with Report M40Q/M50Q Travel Time in seconds]
T Report M40Q/M50Q Travel Time	!XYZpT?;	!XYZpT016;	Travel time in seconds If travel time is not known, an "Enc" error message is reported
T Calibrate M40Q/M50Q Travel Time	!XYZpTC; or !000pTC;		"C" = Calibrate, however the M40Q/M50Q does not perform calibration [responds with Report M40Q/M50Q Travel Time in seconds]

**Reset Embedded Control Option Parameter Table**

Parameter Character and Description	Example Downlink Message	Example Uplink Message	Description of Data
R Reset M40Q/M50Q to factory default	!XYZpRD;	n/a	"D" = Default. Resets all RQ and RP programming to factory default, <u>except</u> RP main channel and RQ address and RQ name. This will also clear all RQ scenes, but will NOT clear either motor limit.

**M40Q 115VAC and 230VAC Series Motor P5  
and M50Q 115VAC and 230VAC Series Motor P5  
RQ Command Summary**

**DETAILED MOTOR PARAMETER TABLE**

**M40Q/M50Q Motor Action ParameterTable – detailed**

M40Q/M50Q Parameter Description								
M40Q/M50Q Reference is Close Limit	Fast Motor Release Time	Stop On Transmitter / Keypad Button Release	Momentary Motor Action	Reverse Motor Direction	Do NOT Act on ALL Channel from Input Devices	Example Downlink Message	Example Uplink Message <sup>1</sup>	Description of Data
Set All M40Q/M50Q Parameters to Factory Default						!XYZpM00;	!XYZpM00;	Sets motor parameters to factory defaults
•						!XYZpM10;	!XYZpM10;	Reference is Close Limit (CLOS)
	•					!XYZpM40;	!XYZpM40;	Fast Motor Release Time (FAST)
•	•					!XYZpM50;	!XYZpM50;	CLOS + FAST
		•				!XYZpM80;	!XYZpM80;	Stop On Transmitter Button Release (SOBR)
•		•				!XYZpM90;	!XYZpM90;	CLOS + SOBR
•		•				!XYZpMC0;	!XYZpMC0;	FAST + SOBR
•	•	•				!XYZpMD0;	!XYZpMD0;	CLOS + FAST + SOBR
			•			!XYZpM01;	!XYZpM01;	Momentary Motor Action (MOM)
				•		!XYZpM02;	!XYZpM02;	Reverse Motor Direction (REV)
			•	•		!XYZpM03;	!XYZpM03;	MOM + REV
					•	!XYZpM04;	!XYZpM04;	Do Not Act on ALL channel commands (NOALL)
			•		•	!XYZpM05;	!XYZpM05;	MOM + NOALL
				•	•	!XYZpM06;	!XYZpM06;	REV + NOALL
			•	•	•	!XYZpM07;	!XYZpM07;	MOM + REV + NOALL
•			•			!XYZpM11;	!XYZpM11;	CLOS + MOM
•				•		!XYZpM12;	!XYZpM12;	CLOS + REV
•			•	•		!XYZpM13;	!XYZpM13;	CLOS + MOM + REV
•					•	!XYZpM14;	!XYZpM14;	CLOS + NOALL
•			•		•	!XYZpM15;	!XYZpM15;	CLOS + MOM + NOALL
•				•	•	!XYZpM16;	!XYZpM16;	CLOS + REV + NOALL
•			•	•	•	!XYZpM17;	!XYZpM17;	CLOS + MOM + REV + NOALL
•			•			!XYZpM19;	!XYZpM19;	CLOS + MOM + LMTS
•				•		!XYZpM1A;	!XYZpM1A;	CLOS + REV + LMTS
•			•	•		!XYZpM1B;	!XYZpM1B;	CLOS + MOM + REV + LMTS
•					•	!XYZpM1C;	!XYZpM1C;	CLOS + NOALL + LMTS
•			•		•	!XYZpM1D;	!XYZpM1D;	CLOS + MOM + NOALL + LMTS

**M40Q 115VAC and 230VAC Series Motor P5  
and M50Q 115VAC and 230VAC Series Motor P5  
RQ Command Summary**

M40Q/M50Q Parameter Description								
M40Q/M50Q Reference is Close Limit	Fast Motor Release Time	Stop On Transmitter / Keypad Button Release	Momentary Motor Action	Reverse Motor Direction	Do NOT Act on ALL Channel from Input Devices	Example Downlink Message	Example Uplink Message <sup>1</sup>	Description of Data
•				•	•	!XYZpM1E;	!XYZpM1E;	CLOS + REV + NOALL + LMTS
•			•	•	•	!XYZpM1F;	!XYZpM1F;	CLOS + MOM + REV + NOALL + LMTS
	•		•			!XYZpM41;	!XYZpM41;	FAST + MOM
	•			•		!XYZpM42;	!XYZpM42;	FAST + REV
	•		•	•		!XYZpM43;	!XYZpM43;	FAST + MOM + REV
	•				•	!XYZpM44;	!XYZpM44;	FAST + NOALL
	•		•		•	!XYZpM45;	!XYZpM45;	FAST + MOM + NOALL
	•			•	•	!XYZpM46;	!XYZpM46;	FAST + REV + NOALL
	•		•	•	•	!XYZpM47;	!XYZpM47;	FAST + MOM + REV + NOALL
•	•		•			!XYZpM51;	!XYZpM51;	CLOS + FAST + MOM
•	•			•		!XYZpM52;	!XYZpM52;	CLOS + FAST + REV
•	•		•	•		!XYZpM53;	!XYZpM53;	CLOS + FAST + MOM + REV
•	•				•	!XYZpM54;	!XYZpM54;	CLOS + FAST + NOALL
•	•		•		•	!XYZpM55;	!XYZpM55;	CLOS + FAST + MOM + NOALL
•	•			•	•	!XYZpM56;	!XYZpM56;	CLOS + FAST + REV + NOALL
•	•		•	•	•	!XYZpM57;	!XYZpM57;	CLOS + FAST + MOM + REV + NOALL
		•	•			!XYZpM81;	!XYZpM81;	SOBR + MOM
		•		•		!XYZpM82;	!XYZpM82;	SOBR + REV
		•	•	•		!XYZpM83;	!XYZpM83;	SOBR + MOM + REV
		•			•	!XYZpM84;	!XYZpM84;	SOBR + NOALL
		•	•		•	!XYZpM85;	!XYZpM85;	SOBR + MOM + NOALL
		•		•	•	!XYZpM86;	!XYZpM86;	SOBR + REV + NOALL
		•	•	•	•	!XYZpM87;	!XYZpM87;	SOBR + MOM + REV + NOALL
•		•	•			!XYZpM91;	!XYZpM91;	CLOS + SOBR + MOM
•		•		•		!XYZpM92;	!XYZpM92;	CLOS + SOBR + REV
•		•	•	•		!XYZpM93;	!XYZpM93;	CLOS + SOBR + MOM + REV
•		•			•	!XYZpM94;	!XYZpM94;	CLOS + SOBR + NOALL

**M40Q 115VAC and 230VAC Series Motor P5  
and M50Q 115VAC and 230VAC Series Motor P5  
RQ Command Summary**

M40Q/M50Q Parameter Description								
M40Q/M50Q Reference is Close Limit	Fast Motor Release Time	Stop On Transmitter / Keypad Button Release	Momentary Motor Action	Reverse Motor Direction	Do NOT Act on ALL Channel from Input Devices	Example Downlink Message	Example Uplink Message <sup>1</sup>	Description of Data
•		•	•		•	!XYZpM95;	!XYZpM95;	CLOS + SOBR + MOM + NOALL
•		•		•	•	!XYZpM96;	!XYZpM96;	CLOS + SOBR + REV + NOALL
•		•	•	•	•	!XYZpM97;	!XYZpM97;	CLOS + SOBR + MOM + REV + NOALL
	•	•	•			!XYZpMC1;	!XYZpMC1;	FAST + SOBR + MOM
	•	•		•		!XYZpMC2;	!XYZpMC2;	FAST + SOBR + REV
	•	•	•	•		!XYZpMC3;	!XYZpMC3;	FAST + SOBR + MOM + REV
	•	•			•	!XYZpMC4;	!XYZpMC4;	FAST + SOBR + NOALL
	•	•	•		•	!XYZpMC5;	!XYZpMC5;	FAST + SOBR + MOM + NOALL
	•	•		•	•	!XYZpMC6;	!XYZpMC6;	FAST + SOBR + REV + NOALL
	•	•	•	•	•	!XYZpMC7;	!XYZpMC7;	FAST + SOBR + MOM + REV + NOALL
•	•	•	•			!XYZpMD1;	!XYZpMD1;	CLOS + FAST + SOBR + MOM
•	•	•		•		!XYZpMD2;	!XYZpMD2;	CLOS + FAST + SOBR + REV
•	•	•	•	•		!XYZpMD3;	!XYZpMD3;	CLOS + FAST + SOBR + MOM + REV
•	•	•			•	!XYZpMD4;	!XYZpMD4;	CLOS + FAST + SOBR + NOALL
•	•	•	•		•	!XYZpMD5;	!XYZpMD5;	CLOS + FAST + SOBR + MOM + NOALL
•	•	•		•	•	!XYZpMD6;	!XYZpMD6;	CLOS + FAST + SOBR + REV + NOALL
•	•	•	•	•	•	!XYZpMD7;	!XYZpMD7;	CLOS + FAST + SOBR + MOM + REV + NOALL

<sup>1</sup> The uplink message may vary if the motor limits of the M40Q/M50Q are set. Please refer to the **SIMPLIFIED MOTOR PARAMETER SETTINGS and REPORTING TABLES** below.

**M40Q 115VAC and 230VAC Series Motor P5  
and M50Q 115VAC and 230VAC Series Motor P5  
RQ Command Summary**

**SIMPLIFIED MOTOR PARAMETER TABLE**

**M40Q/M50Q Motor Action Parameter (uplink & downlink)**

First Motor Option Setting Character	First Motor Option Setting Character Description	Second Motor Option Setting Character	Second Motor Option Setting Character Description
0 <sup>A</sup>	Factory default	0 <sup>A</sup>	Factory default
1 <sup>A</sup>	Reference is Close Limit (CLOS)	1 <sup>A</sup>	Momentary Motor Action (MOM)
2	<i>not applicable</i>	2 <sup>A</sup>	Reverse Motor Direction (REV)
3	<i>not applicable</i>	3 <sup>A</sup>	MOM + REV
4 <sup>A</sup>	Fast Motor Release Time (FAST)	4 <sup>A</sup>	Do Not Act on <b>ALL</b> Buttons (NOALL)
5 <sup>A</sup>	CLOS + FAST	5 <sup>A</sup>	MOM + NOALL
6	<i>not applicable</i>	6 <sup>A</sup>	REV + NOALL
7	<i>not applicable</i>	7 <sup>A</sup>	MOM + REV + NOALL
8 <sup>A</sup>	Stop On Transmitter Button Release (SOBR)	8 <sup>B</sup>	Motor Limits are set (LMTS)
9 <sup>A</sup>	CLOS + SOBR	9 <sup>B</sup>	MOM + LMTS
A	<i>not applicable</i>	A <sup>B</sup>	REV + LMTS
B	<i>not applicable</i>	B <sup>B</sup>	MOM + REV + LMTS
C <sup>A</sup>	FAST + SOBR	C <sup>B</sup>	NOALL + LMTS
D <sup>A</sup>	CLOS + FAST + SOBR	D <sup>B</sup>	MOM + NOALL + LMTS
E	<i>not applicable</i>	E <sup>B</sup>	REV + NOALL + LMTS
F	<i>not applicable</i>	F <sup>B</sup>	MOM + REV + NOALL + LMTS

<sup>A</sup> Uplink or downlink message.

<sup>B</sup> Uplink message only.

**\*\* SPECIAL NOTES \*\***

- Sending the RQ command to "reset" the M40Q / M50Q - **!XYZpRD;** - will blink the **RED** LED briefly.
- For an M40Q / M50Q the Travel Time cannot be set using the corresponding RQ60 AC motor control RQ command. Nor can the M40Q or M50Q be calibrated using the **!M01pTC;** RQ60 AC motor control RQ command. If **!XYZpTC;** is downlinked to the M40Q / M50Q, the response will be a report of the Travel Time, or an error if the limits are not set.