# Arduino Motor Controller Command Reference

As learned from the LabVIEW VI Arduino\_WriteInput.vi

In general, commands and queries start with a single letter, followed by a single digit motor number, followed by a single letter command then parameters, if any. Motors are 0 based.

Example: “Q1C” Queries Arduino for completed steps on motor 1.

Example: “M11+R1000:500:500” Tells the Arduino to move motor 1, and enable motor 1, to positive position 1000 steps from current position at 500 steps/sec and accelerate at 500 steps/sec/sec.

EOT Character is “\n”

Delimiter Character is “:”

ACK Character is ASCII 0x06

NAK Character is ASCII 0x15

Baud rate is 57600

Queries can be sent one after the other without immediately waiting for response. All responses can then be read consecutively.

## Queries

Requests for information start with the letter Q followed by the motor number then a command.

Example: “Q1M” requests the motor state on motor 1.

The response is the same as the command with the answer at the end and either an ACK character (0x06) or a NAK character (0x15).

|  |  |  |  |
| --- | --- | --- | --- |
| Command Type | Command Letter | Response | Purpose |
| Q | S | L or H | Switch State low or high |
| Q | M | 0 or 1 | Motor stopped or moving |
| Q | D | + or - | Motor direction |
| Q | C | nnnnnnn | Current position |
| Q | R | nnnnnnn | Motor step rate |
| M | S | ccccc:vvvvv:aaaaa | Move to switch or move cccc counts at velocity vvvv and acceleration aaaa |
| M | R | ccccc:vvvvv:aaaaa | Same as above accept do not search for switch |
| R |  |  | Reset Arduino (no parameters) |
|  |  |  |  |

Response to “Q1M” could be “Q1M1” indicating motor 1 is moving.

When a move is completed and End of Run message is sent from the Arduino with the position of the motor. End of Run is sent as the literal string EOR followed by axis number then the position.

Example: “EOR1+123456”

## Commands

Special Notes from Code

Emergency Stop:

\* [M]|Motor # [0-3]|Motor State [0]|[EOT]

\*

\* Get Motor Completed Steps:

\* [Q]|Motor # [0-3]|[C]|[EOT]

\* Get Motor Direction:

\* [Q]|Motor # [0-3]|[D]|[EOT]

\* Get Motor Step Rate:

\* [Q]|Motor # [0-3]|[R]|[EOT]

\* Get Switch State:

\* [Q]|Motor # [0-3]|[S]|[EOT]

\*

\* Set Emergency Ramp Multiplier:

\* [V]|Motor # [0-3]|[E]|Multiplier [uint]|[EOT]

\*

\* Reset the arduino:

\* [R]|[EOT]

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