## LipSync Mouse Command List

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| --- | --- | --- | --- |
| Command | Success Response | Failure Response | Description |
| SETTINGS | SUCCESS:SETTINGS | FAIL:SETTINGS | Enter Settings mode |
| EXIT | SUCCESS:EXIT | FAIL:SETTINGS | Exit Settings mode |
| MN,0:0 | SUCCESS:MN,0:1 | FAIL:SETTINGS | Get Model number (1=Mouse) |
| VN,0:0 | SUCCESS:VN,0:V{N.NN} | FAIL:SETTINGS | Get version number (V{N.NN}) |
| SS,0:0 | SUCCESS:SS,0:{Level} | FAIL:SETTINGS | Get mouse cursor speed value (Level) |
| SS,1:1 | SUCCESS:SS,1:{Level} | FAIL:SETTINGS | Decrease the speed using command (Level) |
|  | MANUAL:SS,1:{Level} |  | Decrease the speed using push button (Level) |
| SS,1:2 | SUCCESS:SS,1:{Level} | FAIL:SETTINGS | Increase the speed using command (Level) |
|  | MANUAL:SS,1:{Level} |  | Increase the speed using push button (Level) |
| PT,0:0 | SUCCESS:PT,0:{Threshold 1% to 50%}:{Nominal Pressure} | FAIL:SETTINGS | Get pressure threshold (threshold 1% to 50%) (Nominal Pressure V) |
| PT,1:{threshold 1% to 50%} | SUCCESS:PT,1:{Threshold 1% to 50%}:{Nominal Pressure} | FAIL:SETTINGS | Set pressure threshold (threshold 1% to 50%) (Nominal Pressure V) |
| RA,0:0 | SUCCESS:RA,0:{Rotation Angle} | FAIL:SETTINGS | Get rotation angle (deg) |
| RA,1:{Angle: 0-359} | SUCCESS:RA,1:{Rotation Angle} | FAIL:SETTINGS | Set rotation angle (0,90,180,270 deg) |
| DM,0:0 | SUCCESS:DM,0:{Debug Mode} | FAIL:SETTINGS | Get debug mode value ( 0=debug mode disabled,1=debug mode enabled) |
| DM,1:0 | SUCCESS:DM,1:0 | FAIL:SETTINGS | Set debug mode value to 0 (Disabled) |
| DM,1:1 | SUCCESS:DM,1:1 | FAIL:SETTINGS | Set debug mode value to 1 (Enabled) |
|  | LOG:1:{xHighNeutral,xLowNeutral,yHighNeutral,yLowNeutral} |  | Log initialization values once if debug mode is enabled |
|  | LOG:2:{xHighMax,xLowMax,yHighMax,yLowMax} |  | Log calibration values once if debug mode is enabled |
|  | LOG:3:{xHigh,xLow,yHigh,yLow} |  | Log FSR values if debug mode is enabled until debug mode is disabled |
| RM,0:0 | SUCCESS:RM,0:{Raw Mode} | FAIL:SETTINGS | Get Raw mode value ( 0=raw mode disabled,1=raw mode enabled) |
| RM,1:0 | SUCCESS:RM,1:0 | FAIL:SETTINGS | Set Raw mode value to 0 (Disabled) |
| RM,1:1 | SUCCESS:RM,1:1 | FAIL:SETTINGS | Set Raw mode value to 1 (Enabled) |
|  | RAW:1:{x,y,action}:{xHigh,xLow,yHigh,yLow} | FAIL:SETTINGS | Log raw values if raw mode is enabled until raw mode is disabled |
| IN,0:0 | SUCCESS:IN,0:{xHighNeutral,xLowNeutral,yHighNeutral,yLowNeutral} | FAIL:SETTINGS | Get joystick initialization values (xHighNeutral,xLowNeutral,yHighNeutral,yLowNeutral) |
| IN,1:1 | SUCCESS:IN,1:{xHighNeutral,xLowNeutral,yHighNeutral,yLowNeutral} | FAIL:SETTINGS | Perform joystick initialization using command (xHighNeutral,xLowNeutral,yHighNeutral,yLowNeutral) |
|  | MANUAL:IN,1:{xHighNeutral,xLowNeutral,yHighNeutral,yLowNeutral} |  | Perform joystick initialization using push button or sip/puff (xHighNeutral, xLowNeutral,yHighNeutral,yLowNeutral) |
| CA,0:0 | SUCCESS:CA,0:{xHighMax,xLowMax,yHighMax,yLowMax} | FAIL:SETTINGS | Get joystick calibration values (xHighMax,xLowMax,yHighMax,yLowMax) |
| CA,1:1 | SUCCESS:CA,1:0 | FAIL:SETTINGS | Perform joystick calibration using command |
|  | SUCCESS:CA,1:1 | FAIL:SETTINGS | Perform joystick calibration using command (Step 1) |
|  | SUCCESS:CA,1:2 | FAIL:SETTINGS | Perform joystick calibration using command (Step 2) |
|  | SUCCESS:CA,1:3 | FAIL:SETTINGS | Perform joystick calibration using command (Step 3) |
|  | SUCCESS:CA,1:4 | FAIL:SETTINGS | Perform joystick calibration using command (Step 4) |
|  | SUCCESS:CA,1:5:{xHighMax,xLowMax,yHighMax,yLowMax} | FAIL:SETTINGS | Perform joystick calibration using command (Step 5) (xHighMax,xLowMax,yHighMax,yLowMax) |
|  | MANUAL:CA,1:0 |  | Perform joystick calibration using push button |
|  | MANUAL:CA,1:1 |  | Perform joystick calibration using push button (Step 1) |
|  | MANUAL:CA,1:2 |  | Perform joystick calibration using push button (Step 2) |
|  | MANUAL:CA,1:3 |  | Perform joystick calibration using push button (Step 3) |
|  | MANUAL:CA,1:4 |  | Perform joystick calibration using push button (Step 4) |
|  | MANUAL:CA,1:5:{xHighMax,xLowMax,yHighMax,yLowMax} |  | Perform joystick calibration using push button (Step 5) (xHighMax,xLowMax,yHighMax,yLowMax) |
| CT,0:0 | SUCCESS:CT,0:{changePercent, xHighChangeTolerance,xLowChangeTolerance, yHighChangeTolerance,yLowChangeTolerance} | FAIL:SETTINGS | Get change tolerance values based on max value of FSRs and change tolerance percentage |
| MP,0:0 | SUCCESS:MP,0:{NNNNNN} | FAIL:SETTINGS | Get Button mapping ( Example: SUCCESS:MP,0:123465) |
| MP,1:{NNNNNN} | SUCCESS:MP,1:{NNNNNN} | FAIL:SETTINGS | Set Button mapping ( Example: MP,1:123465) |
| FR,0:0 | SUCCESS:FR,0:0 | FAIL:SETTINGS | Perform factory reset |

## Input Actions

|  |  |
| --- | --- |
| Input Action | Description |
| Short Puff | < 3 seconds |
| Short Sip | < 3 seconds |
| Long Puff | 3-5 seconds |
| Long Sip | 3-5 seconds |
| Very Long Puff | > 5 seconds |
| Very Long Sip | > 5 seconds |

## Output Actions Options

|  |  |  |
| --- | --- | --- |
| Action Number | Output Action | Description |
| 0 | (No action) | No action |
| 1 | Left Click | Presses and immediately releases a left click. |
| 2 | Right Click | Presses and immediately releases a right click. |
| 3 | Drag Mode | Initiates drag mode. Left click is pressed and held down. Cancelled with short puff or short sip. |
| 4 | Scroll Mode | Initiates Scroll mode. Vertical motion of joystick generates mouse scroll wheel movements. Cancelled with short puff or short sip. |
| 5 | Middle Click | Presses and immediately releases a middle click. |
| 6 | Center Reset | Initiates center reset routine to set joystick center position. |
| 7 | Calibration | Initiates joystick calibration routine to set joystick limits and reset joystick center. |

## Action Mapping

|  |  |
| --- | --- |
| Input Action | LipSync Mouse Action |
| Short Puff | 1 : Left Click |
| Short Sip | 2 : Right Click |
| Long Puff | 3: Drag Mode |
| Long Sip | 4 : Scroll Mode |
| Very Long Puff | 6: Center Reset |
| Very Long Sip | 5: Middle Click |

## Example

|  |  |  |
| --- | --- | --- |
| INPUT | RESPONSE | ACTION |
| SETTINGS | SUCCESS:SETTINGS | LipSync Ready for API Command |
| VN,0:0 | SUCCESS:VN,0:V3.0 | LipSync return firmware version 3.0 |

|  |  |  |
| --- | --- | --- |
| INPUT | RESPONSE | ACTION |
| SETTINGS | SUCCESS:SETTINGS | LipSync Ready for API Command |
| PT,0:0 | SUCCESS:PT,0:10 | LipSync return current pressure threshold of 10% |
| PT,1:20 | FAIL:SETTINGS | (Attempt to set pressure threshold failed – need to resend SETTINGS for each command) |
| SETTINGS | SUCCESS:SETTINGS | LipSync Ready for API Command |
| PT,1:20 | SUCCESS:PT,1:20:50 | LipSync set new pressure threshold of 20% and returned current nominal pressure of |