# Serial Protocol for MHS-5200A

(Document version 3; 12 July 2018)

Shows up as normal serial port (e.g., /dev/ttyUSBx)

Baud 57600

8/n/1

Hardware handshake

Software sends at start:

:

:r1c

:r2c

:r0c

Presumably to probe different device types. The first line is just to clear any pending command.

:r1c returns :r1c323 (firmware 3.23)

:r2c returns :r2c015 (last digits of P/N?)

:r0c returns :r0c52A (model #? 5200A?)

If you get an echo of <CRLF>### that is some kind of error

|  |  |  |  |
| --- | --- | --- | --- |
| Command | Description | Returns | Notes |
| :r0c | Read model # | :r0c52A | Start up |
| :r1c | Read Prod# | :r1c323 | Start up |
| :r2c | Read FW (3.23) | :r2c015 | Start up |
| :sXfN | Write frequency N for channel X | ok |  |
| :rXf | Read frequency for channel X | :rXfNNNNNNNN |  |
| :sXwN | Select wave type N for channel X | ok | N: 0=sine, 1=square, 2=tri,3=up,4=dn, 100=arb0...115=arb15 (will also accept 32-47) |
| :rXw | Read wave type | :rXwNN | NN=00-04 as above but returns 32-47 for arb0...15 |
| :sXd | Write Duty cycle for chan X | ok |  |
| :rXd | Read Duty cycle for chan X | :rXdNNN |  |
| :sXo | Write offset for chan X | ok | Note: 0%=120 |
| :rXo | Read offset for chan X | :rXoNNN | Note 0%=120 |
| :sXp | Write phase for chan X | ok |  |
| :rXp | Read phase for chan X | :rXpNNN |  |
| :sXy | Set atten for chan X | ok | 1=0db 0=-20db |
| :rXy | Read atten for chan X | :rXyN |  |
| :sXa | Set amplitude for chan X | ok |  |
| :rXa | Read amplitude for chan X | :rXaNNNN |  |
| :sXb | Set chan X on or off | ok | 1=on, 0=off |
| :rXb | Read chan X on or off | :rXbN |  |
| :s3b | Set trace on or off | ok | 1=on 0=off |
| :r3b | Read trace on or off status | :r3b |  |
| :s4b | Select ext in or ttl | ok | 0=ext 1=ttl |
| :r4b | Read ext in or ttl | :r4bN |  |
| :r0e | Read freq/count value | :r0eXXXXXXX | Depends on selected reading type |
| :sNg | Set gate value | ok | N=0 (1s),1 (10s), 2 (.01s) ,3 (.1s) |
| :r1g | Read gate value | :rNg | See above |
| :s3f | Set Sweep Start | ok |  |
| :r3f | Read Sweep Start | :r3fNNNNNNNNNN |  |
| :s4f | Set Sweep End | ok |  |
| :r4f | Read Sweep End | :r4fNNNNNNNNNN |  |
| :s5tN | Set Sweep Time | ok | Reported by Kintekobo; N is sweep time |
| :s7bN | Set Line/log | ok | N=1 for lin, 0 for log |
| :r7b | Read line/log | :r7bN |  |
| :s8bN | Start Stop sweep | ok | N=0 for stop, 1 for start |
| :r8b | Read sweep state | :rb8N |  |
| :aNX | Set arb data for N | ok | 1024 samples in 16 slices, 64 samples per slice. N=0...F for each slice. Each sample is 0 to 255 with 125 as the nominal center  There is apparently a newer version that uses 12 bits and a larger buffer size. A user contributed this change:  N is the location of the arbitrary waveform(0-9), n represents the slice(0-F) and samples are values(0-4095 with 2048 representing the 0 point) |
| :s9b | Turn on/off power amp | ok | If equipped; 0=off, 1=on |
| :r9b | Read amp status | :r9bN |  |
| :r1m | Read counter/frequency mode | :rNm | N=Mode (see below) |
| :s1m | Set mode to counter | ok |  |
| :s0m | Set mode to freq | ok |  |
| :s2m | Set mode to + pulse width | ok |  |
| :s3m | Set mode to - pulse width | ok |  |
| :s4m | Set mode to period | ok |  |
| :s5m | Set mode duty cycle | ok |  |
| :s6bN | Run | ok | N=0 for stop, 1 for run -- only affects counter mode |
| :r6b | Read run state | :r6bN |  |
| :s5b1 | Reset counter | ok |  |
| :r5b | Read reset status | :r5bN |  |
| :sAv | Store settings in Memory | ok | A=0 to 9 |
| :sAu | Loads memory settings | ok | A=0 to 9 |

Still unknown:

Reading back arbitrary storage (if even possible)

Setting or loading stored setups **Solved by Ignacio Cembreros**

Thanks to Kinetekobo for the sweep command.

Note from Ignacio Cembreros:

The commands for storing and loading setups has been found (at least for F/W version 4.23

The version 4 software has this function grayed out. Version 5 software has this function enabled, but it does not work with version 4.23 F/W (wrong command sent). The protocol manual (in Chinese) includes this command, but it is also erroneous (not the same error).

I had to find it by try and error.