Ashtech Micro-Z Interface Protocol Quick Reference

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Ashtech Micro-Z Interface Protocol Quick Reference

System Default Settings

Serial port baud rate: 9600, 8, N, 1
Clock steering: Enabled
Raw data output rate: 20.0 sec

Once new values are set they can be saved to memory by issuing a $PASHS,SAV,Y command to the serial port. Parameters are saved to memory until a memory reset or a receiver initialization is performed. This will reset all parameters back to their defaults.

The following command will force the receiver to default values: **$PASHS,RST (hit Enter)**

To clear the stored almanac, emphemeris data, reset the receiver memory, set the serial port baud rate to the specified rates, and/or send the modem initialization string through the specified port send the $PASHS,INI command. The format of the command is **$PASHS,INI,d1,d2,d3,d4,d5,c6** where d1-d4 are the default baud rate codes for ports A-D, d5 is the reset memory code and takes a value of 0-3 with the following codes:

0 = No memory reset
1 = Reset internal memory/battery back-up memory
2 = Reset/reformat memory card
3 = Reset internal memory and memory card

For example, sending **$PASHS,INI,5,5,5,5,3,0** will do a full receiver reset. Codes 0 and 2 behave like a power cycle. Codes 1 and 3 reset all parameters to default as well as the ephemeris and almanac. Code 2 and 3 reformat the memory card by clearing the FAT table and directory structure. The parameter c6 sets the modem initialization and takes values A-D or 0 = no initialization.

System Initialization - Baud Rate

The $PASHQ,PRT quarries the baud rate of the current port. The return is $PASHR,PRT,c1,d2*cc where c1 is the port (A,B,C,D), d2 is the port code listed below and *cc is the checksum.

0 = 300
1 = 600
2 = 1200
3 = 2400
4 = 4800
5 = 9600
6 = 19200
7 = 38400
8 = 56800
9 = 115200

To set the baud rate of a port send the following command $PASHS,SPD,A,9 (hit Enter) this sets port A to 115200.

$PASHS,BEEP	**Enable/Disable LED and warning beep**
$PASHS,OUT,A	**turns all output off on port A**
$PASHS,NME,ALL,A,OFF	**turns off all nmea outputs on port A**
$PASHS,SES,DEL	**deletes all stored sessions**
$PASHS,MSV,3	**sets min sv's to 3**
$PASHS,ELM,0	**sets elevation mask to 0**
$PASHS,RCI,5	**sets recording interval to 5 sec**
$PASHG,MULM,0	**turns multipath mitigation off**
$PASHS,UTS,N	**sets clock steering to no**
$PASHS,OUT,A,MBN,PBN,SNV,BIN	**enables output of MBN,PBN,SNV,BIN on port A**
$PASHS,FRM,Y	**enable Ring File memory mode**
$PASHS,REC,N	**Disable recording data**

System Information

$PASHQ,STA,c	**Show status of SVs currently locked, c is optional output serial port**
$PASHQ,TMP	**Query receiver temperature**
$PASHQ,WKN	**Query GPS week number**
$PASHQ,PPS	**Display 1PPS parameters**
$PASHQ,PAR	**Request current settings of receiver parameters**
$PASHQ,RID	**Request receiver identification**

Meteorological Unit Commands

$PASHQ,MET	**Query meteorological unit setup**
$PASHS,MET,CMD	**Set meteorological unit trigger string (default is *0100P9)**
$PASHS,MET,INIT	**Set meteorological unit initialization string (default is none)**
$PASHS,MET,INTVL	**Set meteorological unit output interval in seconds (default is 5 seconds)**
$PASHS,OUT,c,MET	**Start/Stop output of meteorological unit data**

For example: $PASHS,MET,INTVL,C,10
$PASHS,OUT,C,MET,ON
Sets the MET interval to 10 seconds and enables output on port C

BINEX Commands

Turn on/off BINEX output:
$PASHS,BNX,ON,A
$PASHS,BNX,OFF,A

Set observables output interval:
$PASHS,BNX,INT,1.0

Control output of individual record type:
$PASHS,BNX,TYP,,A,[ON|OFF|0.1]

Query the output status
$PASHQ,BNX
$PASHR,BNX,A,ON,0,ON,1,OFF,126,0.2,B,OFF,C,OFF,D,OFF

Streaming Example

 # check to make sure you are connected, and to which port
SEND: $PASHQ,RID
RESPONSE: $PASHR,RID,UZ,30,CJ10,---XM--3--,0A16*7E

SEND: $PASHQ,PRT
RESPONSE: $PASHR,PRT,B,7*57

 # Set Port A, C, and D baud rates to 38400
SEND:$PASHS,SPD,A,7
RESPONSE: $PASHR,ACK*3D
SEND: $PASHS,SPD,C,7
RESPONSE: $PASHR,ACK*3D
SEND: $PASHS,SPD,D,7
RESPONSE: $PASHR,ACK*3D

 # Turn off data recording
SEND: $PASHS,REC,N
RESPONSE: $PASHR,ACK*3D

 # Set the elevation mask to zero
SEND:$PASHS,ELM,0
RESPONSE: $PASHR,ACK*3D

#Set the binex output interval
SEND:$PASHS,BNX,INT,10
RESPONSE: $PASHR,ACK*3D

#Turn binex on on port A
SEND: $PASHS,BNX,ON,A
RESPONSE: $PASHR,ACK*3D

#Save the current set up as power down default
SEND: $PASHS,SAV,Y
RESPONSE: $PASHR,ACK*3D

#Query the status of binex output. Note that binex records are set on for port A.
SEND:$PASHQ,BNX
RESPONSE:$PASHR,BNX,SMT,A,ON,0x0,ON,CHG,0x1,ON,CHG,0x7E,ON,CHG,0x7F,ON,
10.00,B,OFF,0x0,ON,CHG,0x1,ON,CHG,0x7E,ON,CHG,0x7F,ON,10.00,C,OFF,0x0,ON,CHG,
0x1,ON,CHG,0x7E,ON,CHG,0x7F,ON,10.00,D,OFF,0x0,ON,CHG,0x1,ON,CHG,0x7E,ON,CHG,
0x7F,ON,10.00*0C

MORE EXAMPLES:

Connect to the receiver in terminal mode:
COMMAND: sharc --port /dev/ttyS0 --baud 38400 --terminal
1. Reset ashtech
- a power cycle
For 9600 ports -> COMMAND: $PASHS,INI,5,5,5,5,0,0
For 19200 ports -> COMMAND: $PASHS,INI,6,6,6,6,0,0
For 38400 ports -> COMMAND: $PASHS,INI,7,7,7,7,0,0
For 115200 ports -> COMMAND: $PASHS,INI,9,9,9,9,0,0

- hard reset will remove programed session info and site name and data
For 9600 ports -> COMMAND: $PASHS,INI,5,5,5,5,2,0
For 19200 ports -> COMMAND: $PASHS,INI,6,6,6,6,2,0
For 38400 ports -> COMMAND: $PASHS,INI,7,7,7,7,2,0

- hard reset will SLEDGE HAMMER
For 9600 ports -> COMMAND: $PASHS,INI,5,5,5,5,3,0
For 19200 ports -> COMMAND: $PASHS,INI,6,6,6,6,3,0
For 38400 ports -> COMMAND: $PASHS,INI,7,7,7,7,3,0

2. Add site name SEY1:
COMMAND: $PASHS,sit,SEY1

3. Program sessions:
One 24 hour session
COMMAND: sharc --port /dev/ttyS1 --baud 38400 --session 24,30,5,1
24 hourly session
COMMAND: sharc --port /dev/ttyS1 --baud 38400 --session 1,30,5,1

4. Start/restart/stop survey

COMMAND: $PASHS,REC,R/Y/N (R = rester, Y = start, N= stop)

5. check status
COMMAND: $PASHQ,INF

6. Check files
COMMAND: $PASHQ,FLS,0

7. Current receiver setting:
 $PASHQ,PAR

8. rX DATA RECOERDING SETTINGS:
 $PASHQ,RID

9. # od SVs locked
 $PASHQ,STA

10. Stop stream
 $PASHS,OUT,A
 $PASHS,BNX,OFF,A

11. Start stream (20 second)
 $PASHS,OUT,A,MBN,PBN,BIN

12. change output to serial port 10 sec rate
 $PASHS,DOI,10
13. Session programming

Terminal-> $PASHS,SES,SET,A,Y,000000,235959,30,00,01,0
Terminal-> $PASHQ,SES

14. Enable Ring File
 $PASHS,FMR,Y

15. set port to 115K
 $PASHS,SPD,A,9
 set port to 192.K
 $PASHS,SPD,A,6

Questions or problems with receiver firmware uploading may be directed to Ashtech Technical Suport at: (408)615-3980, 1-800-229-2400, or

support@magellangps.com

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