

Antex XM-100 Satellite Receiver RS232 Control Port Command Set 6/8/05

Updated 22 March, 2006

This update pertains to firmware version 6.30.126. If you do not know the software version of your XM100, enter the Setup menu by holding down the “Mode” button on the front panel. Press the “Down” button and the next menu should say “SETUP SW VERSION”. If there is no such Setup menu, your firmware is older than 6.30.126. Once at “SETUP SW VERSION”, if you press “Mode” again, you should see the firmware version number. You can also use the *VN command described later in this document. The *VN command will work on software versions older than 6.30.126.

This document describes the commands needed to access various functions of the Antex XM-100 XM satellite receiver via its rear RS232 serial port. The communications channel is RS-232 format, (transmit, receive and ground) 9600 baud, No parity, 8 data bits, 1 stop bit. No handshaking. Receiving equipment must be able to accept a string of 60 characters without breaks.

Typical cable construction

HOST CONTROLLER		XM-100 Male DB9
PIN#		PIN#
2 RXD	-	2 TXD
3 TXD	-	3 RXD
5 GND	-	5 GND

Each command string sent to the receiver must start with an {*} (hex 2A) and be terminated with a carriage return {cr} (hex 0D). The sender may also optionally send a line feed {lf} (hex 0A) after the carriage return. A line feed is not required, and if sent will be ignored – parsing of command strings sent to the receiver terminates when a carriage return is received.

Each response string sent will start with an {*} (with the one exception of the AMX beacon command, “AMX”) and terminate with a {cr}. Commas {,} are used to delimit separate fields in long strings. In this document, the following nomenclature is used:

ccc = (channel number) valid values are 001 – 255 (must have leading zeros)

Note that the XM-100 radio will not respond to RS232 commands when it has locally been put into Setup Mode (see user manual). Locking the front panel is one way to prevent this possibility.

RS232 Commands

***PR0, *PR1 Power Command – On, Off, or Query state**

***PR0{cr}**

Turns the unit off, stopping music. Returns state, *PR0.

***PR1{cr}**

Turns the unit on, playing music. Returns state, *PR1.

***PR{cr}**

Queries the current powered state of the receiver

Returned: ***PR0{cr}** if unit is off

***PR1{cr}** if unit is on

***CH1 Direct Tune Channel Number - Query or Set**

This command sets or queries the current channel number . *CH1 sent without a parameter will query the current channel number and return TTA info. Valid parameter for ccc are 001 – 255.

***CH1{cr}**

Queries the current channel and returns TTA information

Returned: *CH1,ccc,category,channel name,artist name,song title{cr}

Example: *CH1,007,Pop,Totally 70's,Earth, Wind and Fire,Can't Hide Love{cr}

***CH1,ccc{cr}**

tune to channel ccc and return the above string syntax.

Tuning to an invalid channel will return *CH1. (No {cr} or TTA.)

Tuning to a channel >255 will return nothing.

***CD1 Channel Down (decrement)**

This command decrements the Channel, returning the new channel, ccc, and its TTA information.

Returned: *CD1,ccc,category,channel name,artist name,song title{cr}

Example: *CD1,007,Pop,Totally 70's,Earth, Wind and Fire,Can't Hide Love{cr}

The above string will be returned after the selected channel remains stable for one second.

***CU1 Channel Up (increment)**

This command increments the channel returning the new channel, ccc, and its TTA information.

Returned: *CU1,ccc,category,channel name,artist name,song title{cr}

Example: *CU1,007,Pop,Totally 70's,Earth, Wind and Fire,Can't Hide Love{cr}

The above string will be returned after the selected channel remains stable for one second.

***CGD1 Category Down (decrement)**

This command decrements the category.

Returned: *CGD1,ccc,category,channel name,artist name,song title{cr}

Example: *CGD1,007,Pop,Totally 70's,Earth, Wind and Fire,Can't Hide Love{cr}

The above string will be returned after the selected category remains stable for one second. The Channel number returned is the first channel in the category found by decrementing.

***CGU1 Category Up (increment)**

This command increments the category

Returned: *CGU1,ccc,category,channel name,artist name,song title{cr}

Example: *CGU1,007,Pop,Totally 70's,Earth, Wind and Fire,Can't Hide Love{cr}

The above string will be returned after the selected category remains stable for one second. The Channel number returned is the first channel in the category found by incrementing.

XID1*Serial Identification Number Query**

This command is used to query the 8 digit XM radio ID.

Returned: *XID1,nnnnnnnn{cr }

SK1*Skip Channel**

This command removes the specified channel number from the universe of channels allowed when using Up/Down commands. Note that unlike parental blocked channels, skipped channels may still be tuned to directly by their channel number.

If SK1,ccc{cr} is sent, the receiver will skip channel ccc.

Returned: *SK1 if successful, *SK0 if unsuccessful, for example, if an invalid channel is specified.

US1*Unskip Channel**

This command adds the specified channel number to the universe of channels allowed when using Up/Down commands. Parental blocked channels cannot be added.

If *US1,ccc{cr} is sent, the receiver will unskip channel ccc.

Returned: *US1 if successful, *US0 if unsuccessful, for example, if an invalid channel is specified.

LK1*Lock Channel**

This command locks out the specified channel number from the universe of channels allowed when using Up/Down commands or direct tune commands.

If *LK1,ccc{cr} is sent, the receiver will lock channel ccc. Note that for this command, the channel number must be 3 digits. For example, channel 22 must be sent as 022.

Returned:*LK1{cr} if lock is successful, *LK0 if unsuccessful, for example, if an invalid channel is specified. If the channel number is less than 3 digits, there will be no response.

***UL1 Unlock Channel**

This command unlocks the specified channel number from the universe of channels allowed when using Up/Down commands or direct tune commands

If *UL1,ccc{cr} is sent, the receiver will unlock channel ccc. Note that for this command, the channel number must be 3 digits. For example, channel 22 must be sent as 022.

Returned: *UL1{cr} if unlock is successful, *UL0 if unsuccessful, for example, if an invalid channel is specified. If the channel number is less than 3 digits, there will be no response.

***PS1 Preset select command**

This command selects or stores a preset.

If *PS1,n{cr} is sent, where n is the preset number 0 – 9, the channel will be changed to the stored channel in preset n.

Returned: *PS1,n,ccc,category,channel name,artist name,song title{cr}

If *PS1,n,ccc{cr} is sent, the channel number ccc will be stored in preset n.

The command string is echoed.

***SV1 Signal Value**

This command will return *SV,n{cr} where n is one a digit signal strength received by the unit, in the range of 0 to 3.

- 0 : No Signal
- 1 : Poor Signal
- 2 : Good Signal, and
- 3 : Excellent Signal.

***UN1 Unsolicited Data ON command**

Enables the return of unsolicited data, enabling song TTA to be returned whenever a song changes or a channel is changed.

Return: *UN1,ccc,category,channel name,artist name,song title{cr}.

Channel name, artist name, and song title fields will contains error messages when an error occurs.

***UN0 Unsolicited Data OFF command**
Disables the return of unsolicited data, enabling song TTA to be returned whenever a song changes or a channel is changed.

Return: *UN1,ccc,category,channel name,artist name,song title{cr}.

Channel name, artist name, and song title fields will contains error messages when an error occurs.

***MU1 Mute ON command**
Mutes Audio Outputs.

Return: command echo.

***MU0 Mute OFF command**
Enables Audio Outputs.

Return: command echo.

***VN Query software version**
Returns software version number. For example:
*VN,VER 6.30.126

***FA Add Forced Tune Event command**
Adds a Forced Tune Event (FTE) to the internal table. It must be followed eventually by *FS to save the FTE(s). You may add several FTE's and then send the *FS. **Important: the execution of all FTE's is suspended once the first *FA command is received and does not resume until the *FS command is received.** The syntax is:

*FA,ff,cc,dd,hh,mm,vv{cr}

All parameters are sent in ASCII hex, and must be 2 digits For example, to send an "11" for a parameter, send "0B".

"ff" is a flag byte, which indicates if the channel number is a numeric channel, or a special instruction. "80" means special instruction, "00" means normal numeric channel.

“cc” is the channel number. The channel number must be between 1 and 255. Note that this is NOT checked for invalid channels. If the flag byte is “80”, then this stands for a special instruction. The following values are valid special instructions :

“00” means any channel. That is to say, do not change the channel, execute a volume change only.

“01” means mute the audio and put the XM100 in standby mode. Note that there is no separate FTE to take the XM100 out of standby mode. Any subsequent FTE will do this automatically.

“03” means lock the front panel.

“04” means unlock the front panel.

“dd” is the day of the week. The allowed values are:

“00” - Sunday

“01” – Monday

“02” – Tuesday

“03” – Wednesday

“04” – Thursday

“05” – Friday

“06” – Saturday

“07” – Monday through Friday

“08” – Monday through Thursday

“09” – Everyday

“hh” is the hour in 24 hour time. For example, 8PM would be 20:00, expressed as hexadecimal would be “14”.

“mm” is the minute.

“vv” is the volume. The allowed values are from +9 to –9, expressed as a signed byte.

+9 = “09”

+8 = “08”

+7 = “07”

+6 = “06”

+5 = “05”

+4 = “04”

+3 = “03”

+2 = “02”

+1 = “01”

0 = "00"
-1 = "FF"
-2 = "FE"
-3 = "FD"
-4 = "FC"
-5 = "FB"
-6 = "FA"
-7 = "F9"
-8 = "F8"
-9 = "F7"

There is a program available from Antex called FTE.exe which reads a comma delimited Excel spreadsheet file (.csv) and outputs it to the XM100 using the *FA command. The spreadsheet is formatted in a more user friendly manner.

This command returns *FA1{cr} if successful and *FA0{cr} if there are illegal values, or there are already 99 FTE's programmed.

***FC**

Clear All Forced Tune Events command

This command clears all FTE's from volatile and non-volatile memory. Note that there is no command to clear individual FTE's.

This command returns *FC1.

***FD1**

Forced Tune Event debug on command

This command turns on debug print for Forced Tune Event execution. The XM100 has an internal clock. Once a minute by the internal clock, the XM100 will read the time from the satellite (in UTC) and make sure the internal clock stays synchronized. If for some reason the UTC cannot be read, the XM100 will continue on using the internal clock. The next FTE to be executed is cued up in advance, based upon time only (day of the week is ignored at this point). When the local time matches the time of the FTE, then the day is checked and the FTE is either executed (if the day matches) or skipped and the next FTE is cued up. When debug print is turned on, the time will be printed each minute, followed by the FTE that is cued up. The following is a typical printout:

```
*Time,Sat ,12:58
*FTE,57,219,All ,H=13,M=00,V=+9
*Time,Sat ,12:59
*FTE,57,219,All ,H=13,M=00,V=+9
*Time,Sat ,13:00
*FTE,57,219,All ,H=13,M=00,V=+9
*Execute: CHAN 0xDB; VOL 0x09
```

*Time,Sat ,13:00
*FTE,58,172,Wed ,H=13,M=52,V=-8

The first field following *FTE, is the FTE number. Note that FTE's are sorted and numbered by hour and minute, regardless of the order they were entered in. The second field is the channel number, the third is the day of the week. The others are self explanatory.

This command returns FD1{cr}. The debug printing will begin at the next minute tick. You may wish to turn unsolicited data off (*UN0) so that the resulting printout is more readable.

***FD0 Forced Tune Event debug off command**

This command turns off the FTE debug printout.

This command returns *FD0{cr}.

***FP Print Forced Tune Events command**

This command will print out all FTE's in memory, in the format:

*FTE,nn,ccc,dddd,H=hh,M=mm,V=vv{cr}

The values are all in decimal (not hexadecimal).

“nn” is the FTE number. They are arranged in order of time.

“ccc” is the channel number, with leading zeros, if applicable. Special channels are abbreviated “Any”, “Off”, “LCK”, “UNL”.

“dddd” is the day of the week, “Sun”, “Mon”, “Tue”, “Wed”, “Thu”, “Fri”, “Sat”, “Sun”, “M-F”, “M-Th”, and “All”.

“hh” is the hour, in 24 hour time.

“mm” is the minute.

“vv” is the volume, form +9 to -9.

The printout is terminated with *FP1{cr}.

***FS Save Forced Tune Events command**

The command will save the FTE's that were added with the *FA command and resume the suspended execution of FTE's.

This command returns *FS1{cr}.

***CA**

Print Channel Available List command

The command will respond with a 32 byte channel bitmap, showing which channels are available. This shows channels available from XM, and does not reflect blocking or skipping programmed into the XM100. A typical printout would be as follows:

```
*CA1,F2,FF,F1,BB,03,FB,7F,70,CF,3F,1F,D4,70,40,1B,BE,7E,F0,CD,0B,FC,BF,FF,FF,FF,F5,FF,FF,7F,00,B0,00{cr}
```

The bytes are shown in ASCII hexadecimal, with the Least Significant Byte first. Bit 0 of the LSB is reserved, since channel 0 does not exist. So, for example, the LSB shown of “F2” would be a binary bitmap of “11110010”. This represents channel 7 down to 0, so channels 7, 6, 5, 4, and 1 are available.

AMX

AMX Beacon

This command is used by the AMX Duet control panel so the XM100 can identify itself. The response to the command is:

```
AMXB<-UUID=XM100-LA5R6087><SDKClass=AudioTunerDevice><-Make=Antex Electronics><-Model=XM100><-Version=VER6.30.126>{cr}
```

Note that the “LA5R6087” is the XM radio ID of the XM100, and will be different for your unit.