



VSX-91TXH

RS232C Protocol

March 2007

Revision 1.0

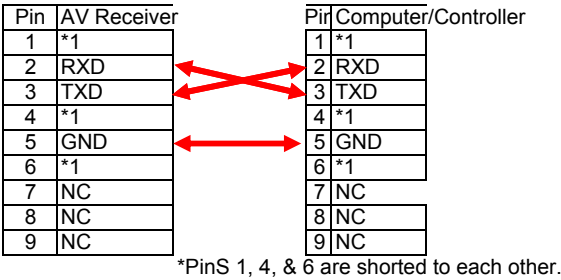
For Custom Installation

Physical Cable Connection

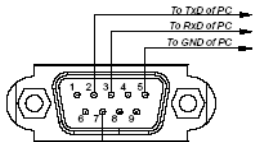
Connector

RS232C DB9 Male

Pioneer A/V Receivers use a "crossover" (aka/"null modem" or "twisted pair") cable.



RECEIVER PINOUTS



Communication

Communication Speed : 9600bps

Protocol Type : 8data bits,1stop bit,no parity

Notice1

To meet stringent power conservation measures Pioneer A/V receivers consume less than 1 Watt when in the "Standby" or "Off" mode.

To achieve this the main CPU doesn't operate in Standby/Off.

For this reason the receiver may not understand the first command send to it's the RS-232C port but the main CPU will "wake up" with the first command.

In other words, the receiver is using the first command as a trigger to wake up the main CPU and may not respond correctly to it.

For the proper execution of the first command please send the command twice.

Also, please make sure to have at least a 100msec. interval between the first and second command.

Example1

```
PO<CR>
  ↓
100msec Wait
  ↓
PO<CR>
```

Notice2

It takes a brief amount of time for the receiver to respond to a command like "Surround Mode" from your control system.

When the receiver receives a command it writes that information to the EEPROM.

Accordingly, you have to keep at least 100msec. before you do a "TIMEOUT" after sending the command to the receiver.

Example2

SR: The receiver's response to the command for PRO LOGIC II MUSIC.

```
Control System      → Receiver
014SR<CR>           → Receives the command and writes the info to the EEPROM.
                    ↓
                    ↓ 100msec
                    ↓
Confirmation ← SR014<CR+LF>
```

Notice3

The interval between each response sent from the receiver is 20msec.

Therefore you have to wait at least 20msec. before a "TIMEOUT".

Example3

?F: Responding to a request for the current function (input).

```
Control System      → Receiver
?F<CR>             → Receives the command and processes a response.
                    ↓ 20msec
                    F
                    ↓ 20msec
                    N
                    ↓ 20msec
                    0
                    ↓ 20msec
                    4
                    ↓ 20msec
                    CR
                    ↓ 20msec
Confirmation ← LF
```

Commands List

Automatic Feedback

When the customer changes the status using knobs on the front panel or the remote controller of AV receiver,
AV receiver send new status automatically. (VOLXX,PQRX,MUTX,FNXX,SRXXX,LMXXX

(For example) The user changes function on the front panel.
We send : FNXX<CR+LF>

X:Argument,ASC II code

Status Request Command

Command	Command Name	Argument	operation	Answer
?V<CR>	VOLUME LEVEL STATUS REQUEST		Return the VOLUME LEVEL	VOLXX<CR+LF> *1
?P<CR>	POWER STATUS REQUEST		Return the POWER status	PWRX<CR+LF> *2
?M<CR>	MUTE STATUS REQUEST		Return the MUTE status	MUTX<CR+LF> *2
?F<CR>	FUNCTION MODE REQUEST		Return the FUNCTION MODE	FNXX<CR+LF> *3
?S<CR>	LISTENING MODE SETTING REQUEST		Return the L.M SETTING	SRXXX<CR+LF> *4
?L<CR>	LISTENING MODE REQUEST		Return the L.M	LMXXX<CR+LF> *5
?BA<CR>	BASS STATUS REQUEST		Return the BASS Level	BAXX<CR+LF> *7
?TR<CR>	TREBLE STATUS REQUEST		Return the TREBLE Level	TRXX<CR+LF> *8
?PR<CR>	TUNER PRESET REQUEST		Return the PRESET number	PRXXX<CR+LF> *9
?FR<CR>	TUNER FREQ REQUEST		Return the FREQ number	FRXXX<CR+LF> *10
?AP<CR>	ZONE 2 POWER STATUS REQUEST		Return the POWER status	APRX<CR+LF> *2
?ZS<CR>	ZONE 2 FUNCTION STATUS REQUEST		Return the FUNCTION MODE	Z2FX<CR+LF> *3
?ZV<CR>	ZONE 2 VOLUME STATUS REQUEST		Return the VOLUME LEVEL	ZVXX<CR+LF> *1
?MC<CR>	MCACC POSITION REQUEST		Return the MCACC POSITION status	MCX<CR+LF> *15
?EX<CR>	SBCh PROCESSING STATUS REQUEST		Return the SBCh PROCESSING status	EXXX<CR+LF> *14
?XM<CR>	XM channel REQUEST	000-255	Return XM channel	XMXX<CR+LF>
?IS<CR>	ISOPAHSE STATUS REQUEST		Return ISOPAHSE STATUS	ISX<CR+LF>

Operation command

Command	Command Name	Argument	Operation	Answer
VU<CR>	VOLUME UP		VOLUME UP	VOLXX<CR+LF> *1
VD<CR>	VOLUME DOWN		VOLUME DOWN	VOLXX<CR+LF> *1
XXVL<CR>	VOLUME SET	00-93 *1	Set the VOLUME level	VOLXX<CR+LF> *1
PO<CR>	POWER ON		POWER ON	PWRX<CR+LF> *2
PF<CR>	POWER OFF		POWER OFF	PWRX<CR+LF> *2
MO<CR>	MUTE ON		MUTE ON	MUTX<CR+LF> *2
MF<CR>	MUTE OFF		MUTE OFF	MUTX<CR+LF> *2
XXFN<CR>	FUNCTION MODE SET	*3	Set the FUNCTION MODE	FNXX<CR+LF> *3
FU<CR>	FUNCTION MODE UP		Change the FUNCTION MODE	FNXX<CR+LF> *3
XXX(X)SR<CR>	LISTENING MODE SET	*4	Change the LISTENING MODE	SRXXX(X)<CR+LF> *4
BI<CR>	BASS INCREMENT		BASS INCREMENT	BAXX<CR+LF> *7
BD<CR>	BASS DECREMENT		BASS DECREMENT	BAXX<CR+LF> *7
TI<CR>	TREBLE INCREMENT		TREBLE INCREMENT	TRXX<CR+LF> *8
TD<CR>	TREBLE DECREMENT		TREBLE DECREMENT	TRXX<CR+LF> *8
TB<CR>	TUNER BAND		change the BAND (AM/FM)	FRXXX<CR+LF> *10
XTP<CR>	TUNER PRESET	0-9	change the TUNER PRESET	PRXXX<CR+LF> *9
TC<CR>	TUNER CLASS		change the TUNER CLASS	PRXXX<CR+LF> *9
TPI<CR>	TUNER PRESET INCREMENT		TUNER PRESET INCREMENT	PRXXX<CR+LF> *9
TPD<CR>	TUNER PRESET DECREMENT		TUNER PRESET DECREMENT	PRXXX<CR+LF> *9
TFI<CR>	TUNER FREQ INCREMENT		TUNER FREQ INCREMENT	FRXXX<CR+LF> *10
TFD<CR>	TUNER FREQ DECREMENT		TUNER FREQ DECREMENT	FRXXX<CR+LF> *10
XXZS<CR>	ZONE2 FUNCTION MODE SET	*3	Set the FUNCTION MODE	Z2FX<CR+LF> *3
ZU<CR>	ZONE2 VOLUME UP		VOLUME UP	ZVXX<CR+LF> *1
ZD<CR>	ZONE2 VOLUME DOWN		VOLUME DOWN	ZVXX<CR+LF> *1
XXZV<CR>	ZONE2 VOLUME SET	00-80	Set the VOLUME level	ZVXX<CR+LF> *1
AP0<CR>	ZONE2 POWER ON		ZONE2 POWER ON	APRX<CR+LF> *2
APF<CR>	ZONE2 POWER OFF		ZONE2 POWER OFF	APRX<CR+LF> *2
XMC<CR>	MCACC POSITION	0,1,2,3,4,5,6	change the MCACC POSITION	MCX<CR+LF> *15
XXEX<CR>	SBCh PROCESSING SET	0,1,2	Change EXTENDED MODE	EXXX<CR+LF> *14
STS<CR>	STATUS DISPLAY		to see OSD display	R
XIS<CR>	PHASE CONTROL	0,1	PHASE CONTROL ON/OFF	ISX<CR+LF>*16

These commands can be operated only in STEREO MODE..

iPod OPERATION

Command	Command Name	Argument	Operation	Answer
00IP<CR>	PLAY	-	to see OSD display	R
01IP<CR>	PAUSE	-	to see OSD display	R
02IP<CR>	STOP	-	to see OSD display	R
03IP<CR>	PREVIOUS (< <)	-	to see OSD display	R
04IP<CR>	NEXT (> >)	-	to see OSD display	R
05IP<CR>	REV (< <)	-	to see OSD display	R
06IP<CR>	FWD (> >)	-	to see OSD display	R
07IP<CR>	REPEAT	-	to see OSD display	R
08IP<CR>	SHUFFLE	-	to see OSD display	R
09IP<CR>	DISPLAY	-	to see OSD display	R
10IP<CR>	OSD ON/OFF	-	to see OSD display	R
13IP<CR>	Cursor UP	-	to see OSD display	R
14IP<CR>	Cursor DOWN	-	to see OSD display	R
15IP<CR>	Cursor RIGHT	-	to see OSD display	R
16IP<CR>	Cursor LEFT	-	to see OSD display	R
17IP<CR>	ENTER	-	to see OSD display	R
18IP<CR>	RETURN	-	to see OSD display	R
19IP<CR>	CATEGORY	-	to see OSD display	R

XM radio OPERATION (USA model only)

Command	Command Name	Argument	Operation	Answer
00XM<CR>	STATION 10	-	to see OSD display	XM***<CR+LF>
01XM<CR>	1	-	to see OSD display	XM***<CR+LF>
02XM<CR>	2	-	to see OSD display	XM***<CR+LF>
03XM<CR>	3	-	to see OSD display	XM***<CR+LF>
04XM<CR>	4	-	to see OSD display	XM***<CR+LF>
05XM<CR>	5	-	to see OSD display	XM***<CR+LF>
06XM<CR>	6	-	to see OSD display	XM***<CR+LF>
07XM<CR>	7	-	to see OSD display	XM***<CR+LF>
08XM<CR>	8	-	to see OSD display	XM***<CR+LF>
09XM<CR>	9	-	to see OSD display	XM***<CR+LF>
10XM<CR>	CH + / Cursor DOWN ↓	-	to see OSD display	XM***<CR+LF>
11XM<CR>	CH - / Cursor UP ↑	-	to see OSD display	XM***<CR+LF>
12XM<CR>	PRESET ST + (→)	-	to see OSD display	XM***<CR+LF>
13XM<CR>	PRESET ST - (←)	-	to see OSD display	XM***<CR+LF>
14XM<CR>	DISPLAY	-	to see OSD display	XM***<CR+LF>
15XM<CR>	PRESET	-	to see OSD display	XM***<CR+LF>
16XM<CR>	CLASS	-	to see OSD display	XM***<CR+LF>
17XM<CR>	DIRECT ACCESS(CH)	-	to see OSD display	XM***<CR+LF>
18XM<CR>	MEMORY (EDIT)	-	to see OSD display	XM***<CR+LF>
19XM<CR>	MENU	-	to see OSD display	XM***<CR+LF>
21XM<CR>	ENTER	-	to see OSD display	XM***<CR+LF>
22XM<CR>	RETURN	-	to see OSD display	XM***<CR+LF>
23XM<CR>	CATEGORY	-	to see OSD display	XM***<CR+LF>

(↑ when change channel)

Sirius Operation (USA model only)

Command	Command Name	Argument	Operation	Answer
00SI<CR>	STATION 10	-	to see OSD display	SI***<CR+LF>
01SI<CR>	1	-	to see OSD display	SI***<CR+LF>
02SI<CR>	2	-	to see OSD display	SI***<CR+LF>
03SI<CR>	3	-	to see OSD display	SI***<CR+LF>
04SI<CR>	4	-	to see OSD display	SI***<CR+LF>
05SI<CR>	5	-	to see OSD display	SI***<CR+LF>
06SI<CR>	6	-	to see OSD display	SI***<CR+LF>
07SI<CR>	7	-	to see OSD display	SI***<CR+LF>
08SI<CR>	8	-	to see OSD display	SI***<CR+LF>
09SI<CR>	9	-	to see OSD display	SI***<CR+LF>
10SI<CR>	CH + / Cursor DOWN ↓	-	to see OSD display	SI***<CR+LF>
11SI<CR>	CH - / Cursor UP ↑	-	to see OSD display	SI***<CR+LF>
12SI<CR>	PRESET ST + (→)	-	to see OSD display	SI***<CR+LF>
13SI<CR>	PRESET ST - (←)	-	to see OSD display	SI***<CR+LF>
14SI<CR>	DISPLAY	-	to see OSD display	SI***<CR+LF>
15SI<CR>	PRESET	-	to see OSD display	SI***<CR+LF>
16SI<CR>	CLASS	-	to see OSD display	SI***<CR+LF>
17SI<CR>	DIRECT ACCESS(CH)	-	to see OSD display	SI***<CR+LF>
18SI<CR>	MEMORY (EDIT)	-	to see OSD display	SI***<CR+LF>
19SI<CR>	MENU	-	to see OSD display	SI***<CR+LF>
21SI<CR>	ENTER	-	to see OSD display	SI***<CR+LF>
22SI<CR>	RETURN	-	to see OSD display	SI***<CR+LF>
23SI<CR>	CATEGORY	-	to see OSD display	SI***<CR+LF>

(↑ when change channel)

Error message

Error Message	Error Name	Meaning
E04<CR+LF>	COMMAND ERROR	Detect inappropriate Command line
E06<CR+LF>	ARGUMENT ERROR	Inappropriate Factor

Explanation of argument

*1 VOLUME LEVEL [2byte]

93	+12dB
81	0dB
01	-80dB
00	-- (same as mute)

Example1

Command ?V<CR>
Answer VOL93<CR+LF>

Request Volume Level.
Volume is set to +12dB.

*2 ON/OFF [1byte]

0	ON
1	OFF

Example2

Command ?M<CR>
Answer MUT0<CR+LF>

Request Mute Status.
Mute On.

*3 FUNCTION MODE NO. [2byte]

01FN<CR>	CD
02FN<CR>	TUNER
03FN<CR>	CDR
04FN<CR>	DVD
05FN<CR>	TV
10FN<CR>	VIDEO or VIDEO1
15FN<CR>	DVR or DVR1
16FN<CR>	DVR2
17FN<CR>	iPod
18FN<CR>	XM
19FN<CR>	HDMI1
20FN<CR>	HDMI2

Example3

Command 04FN<CR>
Answer FN04<CR+LF>

Change to source 04(DVD).

Example4

Command in respect of ?F<CR>
Answer FUN04<CR+LF>

Request Current Source.
Source 04 is selected(DVD).

*7 BASS status [2byte]

00	+6
02	+4
04	+2
06	0
08	-2
10	-4
12	-6

Example2

Command ?BA<CR>
Answer BA02<CR+LF>

Request BASS Level.
BASS is set to +4dB.

*8 TREBLE status [2byte]

00	+6
02	+4
04	+2
06	0
08	-2
10	-4
12	-6

Example3

Command ?TR<CR>
Answer TR02<CR+LF>

Request TREBLE Level.
TREBLE is set to +4dB.

*9 PRESET number [3byte]

*00	10
*01	1
*02	2
*03	3
*04	4
*05	5
*06	6
*07	7
*08	8
*09	9

* = A : class A
* = B : class B
* = C : class C

Example4

Command ?PR<CR>
Answer PRA04<CR+LF>
PRC00<CR+LF>

Request PRESET number
PRESET number is set to class A 4
PRESET number is set to class C 10

*10 FREQ number [7byte]

A0****	
F*****	

A is AM

F is FM

* is ASC II code 0 - 9

Example5

Command ?FR<CR>

Answer FRA00890<CR+LF>

FRF08010<CR+LF>

Request FREQ number

FREQ number is set to AM 890 kHz

FREQ number is set to FM 80.10 MHz

*14 SBch PROCESSING [1byte]

0EX<CR>	OFF
1EX<CR>	ON
2EX<CR>	AUTO

*15 MCACC POSITION [1byte]

0MC<CR>	MCACC OFF
1MC<CR>	MEMORY 1
2MC<CR>	MEMORY 2
3MC<CR>	MEMORY 3
4MC<CR>	MEMORY 4
5MC<CR>	MEMORY 5
6MC<CR>	MEMORY 6

*16 ISOPHASE [1byte]

0IS<CR>	OFF
1IS<CR>	ON

*4 LISTENING MODE SET LISTENING MODE SETTING REQUEST [4byte]

When you set the "Listening Mode" with the receiver's front panel keys and knobs, you use the "LISTENING CH SELECT" button.

Depending on the source signal there are some modes which are not available. There is automatic detection for 2ch and 6.1ch, but that too is source dependent (flags).

With the "SR" command, you can select whichever mode you wish.

Also, you can confirm your selection with the "SR" command by using "?S" command query.

When a LISTENING MODE is changed, the receiver will dispatch an ANSWER to let the controller know the current set status automatically without receiving a LISTENING MODE SETTING REQUEST. (Automatic Feedback)

[2-4byte]:data for mode setting.

Below the are the commands for selecting a LISTENING MODE.

NEW version (from '06 model) [3byte]

[1-3byte]:data for mode setting.

Indicating below the combination of the modes selected by LISTENING MODE

Example

Command 001SR<CR>

Answer SR001<CR+LF>

Answer LM130<CR+LF>

Command ?S<CR>

Answer SR031<CR+LF>

set STEREO mode.

current status STEREO mode.

current status 96kHz STEREO play.

LISTENING mode current status?

ACTION mode.

001SR<CR>	STEREO	
003SR<CR>	FRONT STAGE SURROUND ADVANCE FOCUS	STEREO
004SR<CR>	FRONT STAGE SURROUND ADVANCE WIDE	STEREO
005SR<CR>	AUTO SURROUND/STREAM DIRECT (same as key)	AUTO SURR
006SR<CR>	AUTO SURROUND	AUTO SURR
007SR<CR>	NORMAL DIRECT	AUTO SURR
008SR<CR>	PURE DIRECT	AUTO SURR
010SR<CR>	STANDARD SELECTION (same as key)	
012SR<CR>	PRO LOGIC	for 2ch Source
013SR<CR>	PRO LOGIC II MOVIE	for 2ch Source
014SR<CR>	PRO LOGIC II MUSIC	for 2ch Source
015SR<CR>	PRO LOGIC II GAME	for 2ch Source
016SR<CR>	Neo:6 CINEMA	for 2ch Source
017SR<CR>	Neo:6 MUSIC	for 2ch Source
018SR<CR>	PRO LOGIC II x MOVIE	for 2ch Source
019SR<CR>	PRO LOGIC II x MUSIC	for 2ch Source
020SR<CR>	PRO LOGIC II x GAME	for 2ch Source
021SR<CR>	Depending on Source (for Multi-ch)	for Multi-ch Source
022SR<CR>	(Multi-Channel Source) + EX	for Multi-ch Source
023SR<CR>	(Multi-Channel Source) + PRO LOGIC II x MOVIE	for Multi-ch Source
024SR<CR>	(Multi-Channel Source) + PRO LOGIC II x MUSIC	for Multi-ch Source
025SR<CR>	DTS + Neo:6	for Multi-ch Source
026SR<CR>	DTS-ES matrix6.1	for Multi-ch Source
027SR<CR>	DTS- ES discrete6.1	for Multi-ch Source
100SR<CR>	ADVANCED SURROUND SELECTION (same as key)	
101SR<CR>	ACTION	
102SR<CR>	SCI-FI	
103SR<CR>	DRAMA	
104SR<CR>	ENTERTAINMENT SHOW (MUSICAL)	
105SR<CR>	MONO FILM	
106SR<CR>	EXPANDED THEATER (7-D THEATER)	
107SR<CR>	CLASSICAL	
108SR<CR>	CHAMBER	
109SR<CR>	UNPLUGGED (JAZZ)	
110SR<CR>	ROCK/POP (ROCK)	
111SR<CR>	DANCE	
112SR<CR>	EXTENDED STEREO (7CH-STEREO)	
113SR<CR>	PHONES SURROUND	
050SR<CR>	THX SELECTION (same as key)	
051SR<CR>	PRO LOGIC + THX	for 2ch Source
052SR<CR>	PRO LOGIC II MOVIE + THX	for 2ch Source
053SR<CR>	Neo:6 CINEMA + THX	for 2ch Source
054SR<CR>	PRO LOGIC II x MOVIE + THX	for 2ch Source
055SR<CR>	THX GAMES MODE	for 2ch Source
056SR<CR>	THX Depending on Source (for Multi-ch)	for Multi-ch Source
057SR<CR>	THX SURROUND EX	for Multi-ch Source
058SR<CR>	PRO LOGIC II x MOVIE + THX	for Multi-ch Source
059SR<CR>	DTS + Neo:6 + THX	for Multi-ch Source
060SR<CR>	DTS-ES MATRIX6.1 + THX	for Multi-ch Source
061SR<CR>	DTS-ES DISCRETE6.1 + THX	for Multi-ch Source
062SR<CR>	THX SELECT2	for Multi-ch Source
063SR<CR>	THX MUSICMODE SELECT	for Multi-ch Source
064SR<CR>	THX GAMES MODE (for multi-ch)	for Multi-ch Source
150SR<CR>	MULTI CH IN	for only Answer

*5 **LISTENING (DECODE) MODE REQUEST** [3byte]

Below is the list indicating the combination of the LISTENING MODE selected by "xxxSR" command and the LISTENING MODE determined by the input source signal.

When the LISTENING MODE is set and the format for the source signal is confirmed, the receiver will send an ANSWER COMMAND to the controller to let it know the LISTENING MODE status. It replies automatically and does not need to receive a LISTENING MODE REQUEST.

(Automatic Feedback)

LISTENING MODE shows the current signal format the receiver is detecting or the surround mode which has been added to the original signal.

LM***

STEREO

LM128	STEREO
LM130	96KHz STEREO
LM132	88KHz STEREO

LM304	PCM 88.2KHz STEREO
LM305	PCM 96KHz STEREO
LM306	PCM 176.4KHz STEREO
LM307	PCM 192KHz STEREO

LM322	DTS 96/24 STEREO
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LM342	SACD STEREO
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STANDARD

LM002	PRO LOGIC
LM000	PRO LOGIC II MOVIE
LM001	PRO LOGIC II MUSIC
LM005	PRO LOGIC II GAME
LM003	Neo:6 CINEMA
LM004	Neo:6 MUSIC
LM050	PRO LOGIC II x MOVIE
LM051	PRO LOGIC II x MUSIC
LM056	PRO LOGIC II x GAME

LM054	Neo:6 88K CINEMA
LM055	Neo:6 88K MUSIC
LM052	Neo:6 96K CINEMA
LM053	Neo:6 96K MUSIC

LM008	96kHz PRO LOGIC
LM009	96kHz PRO LOGIC II MOVIE
LM010	96kHz PRO LOGIC II MUSIC
LM011	96kHz PRO LOGIC II GAME
LM057	96kHz PRO LOGIC II x MOVIE
LM058	96kHz PRO LOGIC II x MUSIC
LM059	96kHz PRO LOGIC II x GAME

LM140	PCM88.2kHz + PRO LOGIC
LM141	PCM88.2kHz + PRO LOGIC II MOVIE
LM142	PCM88.2kHz + PRO LOGIC II MUSIC
LM143	PCM88.2kHz + PRO LOGIC II GAME
LM144	PCM88.2kHz + PRO LOGIC II x MOVIE (for 2ch)
LM145	PCM88.2kHz + PRO LOGIC II x MUSIC (for 2ch)
LM146	PCM88.2kHz + PRO LOGIC II x GAME
LM162	PCM88.2kHz + PRO LOGIC II x MOVIE (for multichannel)
LM163	PCM88.2kHz + PRO LOGIC II x MUSIC (for multichannel)
LM164	PCM96kHz + PRO LOGIC II x MOVIE (for multichannel)
LM165	PCM96kHz + PRO LOGIC II x MUSIC (for multichannel)
LM031	PCM
LM300	PCM 88.2KHz
LM015	PCM 96KHz
LM302	PCM 176.4KHz
LM303	PCM 192KHz
LM333	PCM + PRO LOGIC II x MOVIE (for multichannel)
LM334	PCM + PRO LOGIC II x MUSIC (for multichannel)

LM016	DOLBY DIGITAL
LM017	DOLBY DIGITAL EX
LM154	DOLBY DIGITAL + PRO LOGIC II x MOVIE
LM155	DOLBY DIGITAL + PRO LOGIC II x MUSIC
LM169	DOLBY DIGITAL PLUS
LM170	DOLBY DIGITAL PLUS EX
LM171	DOLBY DIGITAL PLUS +PRO LOGIC II x MOVIE
LM172	DOLBY DIGITAL PLUS +PRO LOGIC II x MUSIC
LM173	DOLBY DIGITAL PLUS +PRO LOGIC II x MOVIE +THX
LM174	DOLBY trueHD
LM175	DOLBY TrueHD EX
LM176	DOLBY TrueHD +PRO LOGIC II x MOVIE
LM177	DOLBY TrueHD +PRO LOGIC II x MUSIC
LM178	DOLBY TrueHD +PRO LOGIC II x MOVIE +THX

LM019	DTS
LM022	DTS-ES DISC 6.1
LM023	DTS-ES MTRX 6.1
LM030	DTS 96/24
LM324	DTS + Neo:6
LM156	DTS + PROLOGIC II x MOVIE
LM157	DTS + PROLOGIC II x MUSIC
LM166	DTS Express
LM167	DTS-HD HIGH RESOLUTION
LM168	DTS-HD MASTER AUDIO
LM179	DTS-(HD)ES 8ch Discrete
LM248	DTS-(HD)ES Matrix
LM249	DTS-(HD)ES Discrete

LM027	MPEG-2 AAC
LM028	MPEG-2 AAC EX
LM158	MPEG-2 AAC + PROLOGIC II x MOVIE
LM159	MPEG-2 AAC + PROLOGIC II x MUSIC

LM380	WMA 9 PRO
LM382	WMA 9 PRO + EX
LM384	WMA 9 Pro + PRO LOGIC II x MOVIE
LM385	WMA 9 Pro + PRO LOGIC II x MUSIC

LM340	SACD
LM344	SACD +EX
LM280	SACD + PRO LOGIC
LM281	SACD + PRO LOGIC II MOVIE
LM282	SACD + PRO LOGIC II MUSIC
LM283	SACD + PRO LOGIC II GAME
LM284	SACD + PRO LOGIC II x MOVIE (for 2ch)
LM285	SACD + PRO LOGIC II x MUSIC (for 2ch)
LM286	SACD + PRO LOGIC II x GAME
LM287	SACD + PRO LOGIC II x MOVIE (for multichannel)
LM288	SACD + PRO LOGIC II x MUSIC (for multichannel)

ADVANCED CINEMA

LM032	ACTION
LM033	SCIFI
LM034	DRAMA
LM035	ENTERTAINMENT SHOW (MUSICAL)
LM036	MONOFILM
LM043	EXPANDED THEATER (7-D THEATER)
LM185	PHONES SURROUND

ADVANCED CONCERT

LM096	CLASSICAL
LM097	CHAMBER
LM098	UNPLUGGED (JAZZ)
LM099	ROCK/POP (ROCK)
LM100	DANCE
LM102	ADVANCED VIRTUAL SURROUND
LM107	EXTENDED STEREO (7CH-STEREO)

THX

LM220	PRO LOGIC + THX
LM221	PRO LOGIC II MOVIE + THX
LM222	Neo:6 CINEMA + THX
LM087	PRO LOGIC II x MOVIE + THX
LM223	THX GAMES MODE (for 2ch)

LM080	THX CINEMA
LM081	THX SURROUND EX
LM230	DOLBY DIGITAL + PRO LOGIC II x MOVIE + THX
LM231	DTS + PRO LOGIC II x MOVIE + THX
LM234	MPEG-2 AAC + PRO LOGIC II x MOVIE + THX
LM235	WMA 9 Pro + PRO LOGIC II x MOVIE + THX
LM085	DTS + Neo6 + THX
LM236	THX SELECT2 CINEMA
LM083	THX MUSIC MODE (SELECT)
LM237	THX GAMES MODE (for multichannel)
LM232	DTS-ES MATRIX6.1 + THX
LM233	DTS-ES DISCRETE6.1 + THX

LM239	DTS-(HD)ES 8ch Discrete +THX
LM240	DTS-(HD)ES Discrete +THX
LM241	DTS-(HD)ES Matrix +THX

MULTI-CH / USB

LM200	6CH IN
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STREAM DIRECT

LM123	XM HD SURROUND
LM126	ANALOG DIRECT

ETC.

LM219	HDMI THROUGH
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Example8
Command ?L<CR>
Answer LM001<CR+LF> now PRO LOGIC II MUSIC playing.