

Cary Audio Design

Cinema 12 Surround Sound Processor

RS-232 Protocol and Control Details

Com Port Setup:

Use standard communications settings. The default that most devices use/accept is:

Baud Rate : 9600 bps
Data Bits : 8
Parity : None
Stop Bits : 1 bit
Handshaking : None

Com Port Pin Configuration:

Use standard pin configuration. A configuration that allows direct connection to a PC via 9-pin straight through serial cable is best. Use of only 3 pins (Transmit, Receive, Ground) is best.

9 pin female D connector

Pin 2 = Transmit
Pin 3 = Receive
Pin 5 = Ground

Command Packets :

The Command Packets are provided for the Host Controller request to the Cinema 12 to perform a specific action.

Start character : '@'
COMMAND : see Data Packet 'COMMAND List'.
PARAMETERS : see Data Packet 'PARAMETERS List'.
End character (CR) : 0Dh

Start '@'	COMMAND	PARAMETERS	End 0Dh
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Status Request Packets:

The Status Request packets are provided for the Host Controller to request the Cinema 12 to report specific operating statuses.

Start character : '@'
Query COMMAND : see Data Packet 'Query COMMAND Request List'.
Query PARAMETERS : see Data Packet 'Query PARAMETERS Request List'
End character (CR) : 0Dh

Start '@'	Query COMMAND	Query PARAMETERS	End 0Dh
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RS-232 Protocol and Control Details

Response data packets from the Cinema 12 to the HOST:

The Cinema 12 provides an Answer Parameters to the HOST when the Cinema 12 has received a correct command request packet.

Start character : '@'
Return COMMAND : see Data Packet 'Return COMMAND list'.
Return Parameters : see Data Packet 'Return Parameters List'.
End character (CR) : 0Dh

Start '@'	Return COMMAND	Return Parameters	End 0Dh
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RS232-Interface Usage Details:

The RS-232 interface has a first-in-first-out (FIFO) buffer which will allow each command to be received in direct succession. Commands are executed in the order in which they are received with approximately a 1/2 second delay between each command. If a longer string of commands is necessary, a minimum of 1/2 second delay should be added before sending additional commands.

The Cinema 12 will send a NAK Response packet if the Cinema 12 has received an incorrect HOST command packet.

Start character : '@' NAK : ERR End character (CR) : 0Dh

Start '@'	NAK	End 0Dh
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Zone 1 Specific Commands

Command	Parameters	Description
Z1P	x	Zone1 Power on/off where x = 0,1 (off, on)
Z1S	x	Zone1 source selection where x = 0,1,2,3...17 (0=7.1IN, 1=INPUT 1, 2=INPUT 2, 3=INPUT 3, 4=INPUT 4, 5=INPUT 5, 6=INPUT 6, 7=INPUT 7, 8=INPUT 8, 9=AM 10=FM, 11=HDAM, 12=HDFM, 13=HDMI 1, 14=HDMI 2, 15=HDMI 3, 16=HDMI 4, 17=TV SOUND)
Z1M	x	Mute/un-mute the Main zone where x = 0,1 (un-mutes, mutes)
Z1VM	sxx.x	Set Main master volume to sxx.x dB where sxx.x = Main -90.0 to +15.0 dB in 1 dB steps
Z1VMU		Increase Main master volume (similar to vol up on remote)
Z1VMD		Decrease Main master volume (similar to vol down on remote)
Z1LPS	x	Listening Profiles selection where x = 0,1 (0=Memory 1 1=Memory 2)

Memory 1 Speaker Configuration

Command	Parameters	Description
SZL	x	Set Front Left Speaker configuration where x = 0,1 (0=Off, 1=On)
SZR	x	Set Front Right Speaker configuration where x = 0,1 (0=Off, 1=On)
SZSL	x	Set Surround Left Speaker configuration where x = 0,1 (0=Off, 1=On)
SZSR	x	Set Surround Right Speaker configuration where x = 0,1 (0=Off, 1=On)
SZSBL	x	Set Surround Back Left Speaker configuration where x = 0,1 (0=Off, 1=On)
SZSBR	x	Set Surround Back Right Speaker configuration where x = 0,1 (0=Off, 1=On)
SZC	x	Set Center Speaker configuration where x = 0,1 (0=Off, 1=On)
SZS	x	Set Subwoofer configuration where x= 0,1 (0=Off, 1=On)

Memory 1 Set Distance

Command	Parameters	Description
SPL	xxx.x	Set listener position from front left speaker

		where xxx.x is from 0.0 to 100.0 (in 1.0 ft or 0.3 m increment)
SPC	xxx.x	Set listener position from center speakers
		where xxx.x is from 0.0 to 100.0 (in 1.0 ft or 0.3 m increment)
SPR	xxx.x	Set listener position from front right speaker
		where xxx.x is from 0.0 to 100.0 (in 1.0 ft or 0.3 m increment)
SPSR	xxx.x	Set listener position from rear (surrounds) right speaker
		where xxx.x is from 0.0 to 100.0 (in 1.0 ft or 0.3 m increment)
SPSL	xxx.x	Set listener position from rear (surrounds) left speaker
		where xxx.x is from 0.0 to 100.0 (in 1.0 ft or 0.3 m increment)
SPBR	xxx.x	Set listener position from back right speaker
		where xxx.x is from 0.0 to 100.0 (in 1.0 ft or 0.3 m increment)
SPBL	xxx.x	Set listener position from back left speaker
		where xxx.x is from 0.0 to 100.0 (in 1.0 ft or 0.3 m increment)
SPs	xxx.x	Set listener position from subwoofer
		where xxx.x is from 0.0 to 100.0 (in 1.0 ft or 0.3 m increment)

Memory 1 Set Balance

Command	Parameters	Description
SLL	sxx.x	Set front left speaker calibration level (Balance) where sxx.x = +15.0 to -15.0 dB in 1.0 dB steps
SLC	sxx.x	Set front center speaker calibration level (Balance) where sxx.x = +15.0 to -15.0 dB in 1.0 dB steps
SLR	sxx.x	Set front right speaker calibration level (Balance) where sxx.x = +15.0 to -15.0 dB in 1.0 dB steps
SLSR	sxx.x	Set surround right speaker calibration level (Balance) where sxx.x = +15.0 to -15.0 dB in 1.0 dB steps
SLSL	sxx.x	Set surround left speaker calibration level (Balance) where sxx.x = +15.0 to -15.0 dB in 1.0 dB steps
SLBR	sxx.x	Set surround back right speaker calibration level (Balance) where sxx.x = +15.0 to -15.0 dB in 1.0 dB steps
SLBL	sxx.x	Set Surround back left speaker calibration level (Balance) where sxx.x = +15.0 to -15.0 dB in 1.0 dB steps
SLSW	sxx.x	Set Subwoofer speaker calibration level (Balance) where sxx.x = +15.0 to -15.0 dB in 1.0 dB steps

Memory 1 Set Crossover Point

Command	Parameters	Description
SZXFL	xxx	Set Front left Speaker crossover frequency where xxx=0,40, 50, 60, 70,80,90,100,110,120,130,150 (crossover frequency in Hertz) Note that 0=Full

SZXFC	xxx	Set Front center Speaker crossover frequency where xxx=0,40, 50, 60, ...150 (crossover frequency in Hertz) Note that 0=Full
SZXFR	xxx	Set Front right Speaker crossover frequency where xxx=0,40, 50, 60, ...150 (crossover frequency in Hertz) Note that 0=Full
SZXSRL	xxx	Set surround right Speaker crossover frequency where xxx=0,40, 50, 60, ...150 (crossover frequency in Hertz) Note that 0=Full
SZXSBR	xxx	Set surround back right Speaker crossover frequency where xxx=0,40, 50, 60, ...150 (crossover frequency in Hertz) Note that 0=Full
SZXSBL	xxx	Set surround back left Speaker crossover frequency where xxx=0,40, 50, 60, ...150 (crossover frequency in Hertz) Note that 0=Full
SZXSL	xxx	Set surround left Speaker crossover frequency where xxx=0,40, 50, 60, ...150 (crossover frequency in Hertz) Note that 0=Full
SZX	xxx	Set Subwoofer crossover frequency where xxx=0,40, 50, 60, 70, 80, 90,100, 110,120, 130,150 is crossover frequency in Hertz Note that 0=Full

Memory 1 Set Room EQ

Command	Parameters	Description
Z1EQL	syxx.x	Set Main front left EQ to syxx.x dB, where y=0,1,2,3,4....9(0=80Hz 1=160Hz 2=250Hz 3=500Hz 4=1kHz 5=2kHz 6=4kHz 7=8kHz 8=12kHz 9=16kHz and where sxx.x = +15.0 to -15.0 dB in 0.5 dB steps
Z1EQC	syxx.x	Set Main front center EQ to syxx.x dB, where y=0,1,2,3,4....9(0=80Hz 1=160Hz 2=250Hz 3=500kHz 4=1kHz 5=2kHz 6=4kHz 7=8kHz 8=12kHz 9=16kHz and where sxx.x = +15.0 to -15.0dB in 0.5dB steps
Z1EQR	syxx.x	Set Main front right EQ to syxx.x dB, where y=0,1,2,3,4.....9(0=80Hz 1=160Hz 2=250Hz 3=500kHz 4=1kHz 5=2kHz 6=4kHz 7=8kHz 8=12kHz 9=16kHz and where sxx.x = +15.0 to -15.0dB in 0.5dB steps
Z1EQSR	syxx.x	Set Main front surround right EQ to syxx.x dB, where y=0,1,2,3,4....9(0=80Hz 1=160Hz 2=250Hz 3=500Hz 4=1kHz 5=2kHz 6=4kHz 7=8kHz 8=12kHz 9=16kHz and where sxx.x = =15.0 to -15.0dB in 0.5dB steps
Z1EQBSR	syxx.x	Set Main front back surround right EQ to syxx.x dB, where y=0,1,2,3,4....9(0=80Hz 1=160Hz 2=250kHz 3=500Hz 4=1kHz 5=2kHz 6=4kHz 7=8kHz 8=12kHz 9=16kHz and where sxx.x = =15.0 to -15.0dB in 0.5dB steps
Z1EQBSL	syxx.x	Set Main front back surround left EQ to syxx.x dB, where y=0,1,2,3,4...9(0=80Hz 1=160Hz 2=250Hz 3=500Hz 4=1kHz 5=2kHz 6=4kHz 7=8kHz 8=12kHz 9=16kHz and where sxx.x = =15.0 to -15.0dB in 0.5dB steps
Z1EQSL	syxx.x	Set Main front surround left EQ to syxx.x dB, where y=0,1,2,3,4....9(0=80Hz 1=160Hz 2=250Hz 3=500Hz 4=1kHz 5=2kHz 6=4kHz 7=8kHz 8=12kHz 9=16kHz and where sxx.x = =15.0 to -15.0dB in 0.5dB steps

Z1EQSW	syxx.x	Set subwoofer EQ to syxx.x dB, where y=0,1,2,3,4....9(0=25Hz 1=40Hz 2=50Hz 3=63Hz 4=70Hz 5=80Hz 6=90Hz 7=100Hz 8=110Hz 9=125Hz and where sxx.x = -15.0 to -15.0dB in 0.5dB steps
Z1EQ	x	Set Main EQ controls where x = 0,1 (0=Off 1=On)

Memory 1 Set Speaker Phase

Command	Parameters	Description
SSPL	x	Set front left speaker phase where x = 0,1 (0=in phase 1=out phase)
SSPC	x	Set front center speaker phase where x = 0,1 (0=in phase 1=out phase)
SSPR	x	Set front right speaker phase where x = 0,1 (0=in phase 1=out phase)
SSPSR	x	Set surround right speaker phase where x = 0,1 (0=in phase 1=out phase)
SSPSL	x	Set surround left speaker phase where x = 0,1 (0=in phase 1=out phase)
SSPSBR	x	Set surround back right speaker phase where x = 0,1 (0=in phase 1=out phase)
SSPSBL	x	Set Surround back left speaker phase where x = 0,1 (0=in phase 1=out phase)
SSPSW	x	Set Subwoofer speaker phase where x = 0,1 (0=in phase 1=out phase)

Memory 2 Speaker Configuration

Command	Parameters	Description
MSZL	x	Set Front Left Speaker configuration where x = 0,1 (0=Off, 1=On)
MSZR	x	Set Front Right Speaker configuration where x = 0,1 (0=Off, 1=On)
MSZSL	x	Set Surround Left Speaker configuration where x = 0,1 (0=Off, 1=On)
MSZSR	x	Set Surround Right Speaker configuration where x = 0,1 (0=Off, 1=On)
MSZSBL	x	Set Surround Back Left Speaker configuration where x = 0,1 (0=Off, 1=On)
MSZSBR	x	Set Surround Back Right Speaker configuration where x = 0,1 (0=Off, 1=On)
MSZC	x	Set Center Speaker configuration

		where x = 0,1 (0=Off, 1=On)
MSZS	x	Set Subwoofer configuration
		where x= 0,1 (0=Off, 1=On)

Memory 2 Set Distance

Command	Parameters	Description
MSPL	xxx.x	Set listener position from front left speaker where xxx.x is from 0.0 to 100.0 (in 1.0 ft or 0.3 m increment)
MSPC	xxx.x	Set listener position from center speakers where xxx.x is from 0.0 to 100.0 (in 1.0 ft or 0.3 m increment)
MSPR	xxx.x	Set listener position from front right speaker where xxx.x is from 0.0 to 100.0 (in 1.0 ft or 0.3 m increment)
MSPSR	xxx.x	Set listener position from rear (surrounds) right speaker where xxx.x is from 0.0 to 100.0 (in 1.0 ft or 0.3 m increment)
MSPSL	xxx.x	Set listener position from rear (surrounds) left speaker where xxx.x is from 0.0 to 100.0 (in 1.0 ft or 0.3 m increment)
MSPBR	xxx.x	Set listener position from back right speaker where xxx.x is from 0.0 to 100.0 (in 1.0 ft or 0.3 m increment)
MSPBL	xxx.x	Set listener position from back left speaker where xxx.x is from 0.0 to 100.0 (in 1.0 ft or 0.3 m increment)
MSPs	xxx.x	Set listener position from subwoofer where xxx.x is from 0.0 to 100.0 (in 1.0 ft or 0.3 m increment)

Memory 2 Set Balance

Command	Parameters	Description
MSLL	sxx.x	Set front left speaker calibration level (Balance) where sxx.x = +15.0 to -15.0 dB in 1.0 dB steps
MSLC	sxx.x	Set front center speaker calibration level (Balance) where sxx.x = +15.0 to -15.0 dB in 1.0 dB steps
MSLR	sxx.x	Set front right speaker calibration level (Balance) where sxx.x = +15.0 to -15.0 dB in 1.0 dB steps
MSLSR	sxx.x	Set surround right speaker calibration level (Balance) where sxx.x = +15.0 to -15.0 dB in 1.0 dB steps
MSLSL	sxx.x	Set surround left speaker calibration level (Balance) where sxx.x = +15.0 to -15.0 dB in 1.0 dB steps
MSLBR	sxx.x	Set surround back right speaker calibration level (Balance) where sxx.x = +15.0 to -15.0 dB in 1.0 dB steps
MSLBL	sxx.x	Set Surround back left speaker calibration level (Balance) where sxx.x = +15.0 to -15.0 dB in 1.0 dB steps
MSLSW	sxx.x	Set Subwoofer speaker calibration level (Balance)

where sxx.x = +15.0 to -15.0 dB in 1.0 dB steps

Memory 2 Set Crossover Point

Command	Parameters	Description
MSZXFL	xxx	Set Front left Speaker crossover frequency where xxx=0,40, 50, 60, 70,80,90,100,110,120,130,150 (crossover frequency in Hertz) Note that 0=Full
MSZXFC	xxx	Set Front center Speaker crossover frequency where xxx=0,40, 50, 60, ...150 (crossover frequency in Hertz) Note that 0=Full
MSZXFR	xxx	Set Front right Speaker crossover frequency where xxx=0,40, 50, 60, ...150 (crossover frequency in Hertz) Note that 0=Full
MSZXSR	xxx	Set surround right Speaker crossover frequency where xxx=0,40, 50, 60, ...150 (crossover frequency in Hertz) Note that 0=Full
MSZXSTR	xxx	Set surround back right Speaker crossover frequency where xxx=0,40, 50, 60, ...150 (crossover frequency in Hertz) Note that 0=Full
MSZXSL	xxx	Set surround back left Speaker crossover frequency where xxx=0,40, 50, 60, ...150 (crossover frequency in Hertz) Note that 0=Full
MSZXSL	xxx	Set surround left Speaker crossover frequency where xxx=0,40, 50, 60, ...150 (crossover frequency in Hertz) Note that 0=Full
MSZX	xxx	Set Subwoofer crossover frequency where xxx=0,40, 50, 60, 70, 80, 90,100, 110,120, 130,150 is crossover frequency in Hertz Note that 0=Full

Memory 2 Set Room EQ

Command	Parameters	Description
MZ1EQL	syxx.x	Set Main front left EQ to syxx.x dB, where y=0,1,2,3,4....9(0=80Hz 1=160Hz 2=250Hz 3=500Hz 4=1kHz 5=2kHz 6=4kHz 7=8kHz 8=12kHz 9=16kHz and where sxx.x = +15.0 to -15.0 dB in 0.5 dB steps
MZ1EQC	syxx.x	Set Main front center EQ to syxx.x dB, where y=0,1,2,3,4....9(0=80Hz 1=160Hz 2=250Hz 3=500kHz 4=1kHz 5=2kHz 6=4kHz 7=8kHz 8=12kHz 9=16kHz and where sxx.x = +15.0 to -15.0dB in 0.5dB steps
MZ1EQR	syxx.x	Set Main front right EQ to syxx.x dB, where y=0,1,2,3,4.....9(0=80Hz 1=160Hz 2=250Hz 3=500kHz 4=1kHz 5=2kHz 6=4kHz 7=8kHz 8=12kHz 9=16kHz and where sxx.x = +15.0 to -15.0dB in 0.5dB steps
MZ1EQSR	syxx.x	Set Main front surround right EQ to syxx.x dB, where y=0,1,2,3,4....9(0=80Hz 1=160Hz 2=250Hz 3=500Hz 4=1kHz 5=2kHz 6=4kHz 7=8kHz 8=12kHz 9=16kHz and where sxx.x = +15.0 to -15.0dB in 0.5dB steps
MZ1EQBSR	syxx.x	Set Main front back surround right EQ to syxx.x dB, where y=0,1,2,3,4....9(0=80Hz 1=160Hz 2=250kHz 3=500Hz 4=1kHz 5=2kHz 6=4kHz 7=8kHz 8=12kHz 9=16kHz and

		where sxx.x = =15.0 to –15.0dB in 0.5dB steps
MZ1EQBSL	syxx.x	Set Main front back surround left EQ to syxx.x dB, where y=0,1,2,3,4...9(0=80Hz 1=160Hz 2=250Hz 3=500Hz 4=1kHz 5=2kHz 6=4kHz 7=8kHz 8=12kHz 9=16kHz and where sxx.x = =15.0 to –15.0dB in 0.5dB steps
MZ1EQSL	syxx.x	Set Main front surround left EQ to syxx.x dB, where y=0,1,2,3,4....9(0=80Hz 1=160Hz 2=250Hz 3=500Hz 4=1kHz 5=2kHz 6=4kHz 7=8kHz 8=12kHz 9=16kHz and where sxx.x = =15.0 to –15.0dB in 0.5dB steps
MZ1EQSW	syxx.x	Set subwoofer EQ to syxx.x dB, where y=0,1,2,3,4....9(0=25Hz 1=40Hz 2=50Hz 3=63Hz 4=70Hz 5=80Hz 6=90Hz 7=100Hz 8=110Hz 9=125Hz and where sxx.x = =15.0 to –15.0dB in 0.5dB steps

Memory 2 Set Speaker Phase

Command	Parameters	Description
MSSPL	x	Set front left speaker phase where x = 0,1 (0=in phase 1=out phase)
MSSPC	x	Set front center speaker phase where x = 0,1 (0=in phase 1=out phase)
MSSPR	x	Set front right speaker phase where x = 0,1 (0=in phase 1=out phase)
MSSPSR	x	Set surround right speaker phase where x = 0,1 (0=in phase 1=out phase)
MSSPSL	x	Set surround left speaker phase where x = 0,1 (0=in phase 1=out phase)
MSSPSBR	x	Set surround back right speaker phase where x = 0,1 (0=in phase 1=out phase)
MSSPSBL	x	Set Surround back left speaker phase where x = 0,1 (0=in phase 1=out phase)
MSSPSW	x	Set Subwoofer speaker phase where x = 0,1 (0=in phase 1=out phase)

Memory 2 Panorama Setting

Command	Parameters	Description
Z1EMDIM	x	Set Dolby Prologic Music Mode dimension to x where x=0,1,...7 (0=-3, 1=-2, 2=-1, 3=0,4=+1, 5=+2, 6=+3)
Z1EMP	x	Set Dolby Prologic Music Mode panorama to x where x=0,1 (0=off,1=on)
Z1EMC	x	Set Dolby Prologic Music Mode center width to x where x=0,1..7
Z1EMDEL	xx	Set Dolby Prologic Music Mode Delay to xx (0-15ms)

Other

Command	Parameters	Description
Z1E	x	Set stereo (LPCM) input effects to effect x where x = 0,1,2,...9,a,b,c,d (0=off, 1=ProLogic II-Movie, 2=ProLogic II-Music, 3=ProLogic IIx-Movie,4=ProLogic IIx-Music, 5=Neo:6-Cinema,6=Neo:6-Music, 7=CES 7.1 8=all stereo,9=all mono)
Z1EF	x	Set Dolby Digital 2.0 surround encoded input effects to effect x where x = 0,1,2,...7 (0=off 1=ProLogic II-Movie 2=ProLogic II-Music,3=ProLogic IIx-Movie,4=Pro Logic IIx Music, 5=CES 7.1 6=All Stereo 7=All Mono
Z1EX	x	Set Dolby D 5.1/6 Ch input effects to x=0,1,2,3 (0=Off,1=+PLIIx Movie,2=+PLIIx Music 3=+CES 7.1)
Z1ED	x	Set DTS-5.1 input effects to x=0,1, (0=Off, 1=+CES 7.1)

Zone 1 Query Specific Commands

Command	Parameters	Description
Z1P?		query main zone power: returns Z1Px
Z1S?		query main zone input: returns Z1Sx
Z1VM?		query main zone volume: returns Z1VMsxx.x
Z1VFL?		query current main zone front left volume returns Z1VFsxx.x
Z1VFR?		query current main zone front right volume returns Z1VFsxx.x
Z1VC?		query current main zone center volume returns Z1VCsxx.x
Z1VSL?		query current main zone surround left volume returns Z1VRsxx.x
Z1VSR?		query current main zone surround right volume returns Z1VRsxx.x
Z1VBL?		query current main zone surround back left volume returns Z1VBsxx.x)
Z1VBR?		query current main zone surround back right volume returns Z1VBsxx.x)
Z1VS?		query current main zone subwoofer volume returns Z1VSsxx.x
Z1?		query main zone status: returns Z1SVsyy.yMnDuEv where syy.y is volume, n is mute state, u is decoder status (see Z1D? command) and v is stereo effect
Z1E?		query current main zone stereo input surround effect: returns Z1Ex
Z1EF?		query current main zone Dolby Digital 2.0 surround encoded (i.e. flagged) input surround effect: returns Z1EFyx
Z1EE?		query current main zone Dolby Digital EX encoded (i.e. flagged) input effect status: returns Z1EEyx
Z1ES?		query current main zone DTS ES encoded input effect status: returns Z1ESyx
Z1EU?		query current main zone Dolby Digital 2.0 surround encoded (i.e. flagged) : returns Z1EUyx
Z1EX?		query current main zone DD-5.1/6 Ch input effect status: returns Z1EXyx
Z1ED?		query current main zone DTS-5.1 input effect status: returns Z1EDyx
Z1EMP?		query current main zone Dolby Prologic Music Mode panorama: return Z1EMPyx
Z1EMC?		query current main zone Dolby Prologic Music Mode center width: return Z1EMCyx
Z1EMDIM?		query current main zone Dolby Prologic Music Mode dimension: return Z1EMDyx
Z1C?		query current main zone dynamic range compression in Dolby Digital modes: returns Z1Cx
Z1D?		query main zone decoder status: returns Z1Dyx where current decoder mode where x = 0,1,2,3...6 (0=stereo source, 1=Dolby AC-3 source, 2=DTS source,3=LPCM source,4=7.1 source,5=2-ch analog direct source,6=no signal)
Z1DF?		query main zone decoder surround flagged status: returns Z1DFx where current decoder mode where x=0,1,2...9 (0=no signal, 1=mono,2=2ch not surround flagged, 3=2ch flagged eg DD-2.0 flagged for PL on, 4=more than 2 ch not flagged DD eg DD-5.1, 5=DD-5.1 EX flagged, 6=DD-Plus 7=DD-HD 8=more than 2 ch not flagged DTS eg DTS-5.1, 9=DTS ES Matrix, 10=DTS ES Discrete, 11=DTS HDMA 12=DTS HRA 13=LPCM2.0

14=LPCM5.1 15=LPCM7.1 16=7.1ch analog)

Z1A?

query main zone AC3 status: returns Z1Ayx where current AC3 status is x
and x=0,1,2(0=source not AC3,1=source 2 channel AC3,2=source multichannel
(surround) AC3)

Z1VFD?

query main zone VFD information: returns Z1ssssssssssssxxxxxxxxxxxxxxxxxxxx.....
s = input source, x=master volume level, y= input source surround mode

INPUT

Command	Parameters	Description
Z1IN1	x	Set input 1 for Assigned Inputs where x=0,1 (0=XLR Digital 1=XLR Analog)
Z1IN2	x	Set input 2 for Assigned Inputs where x=0,1,2 (0=Toslonk 2 1=Coaxial 2 2=Analog 2)
Z1IN3	x	Set input 3 for Assigned Inputs where x=0,1,2 (0=Toslink 3 1=Coaxial 3 2=Analog 3)
Z1IN4	x	Set input 4 for Assigned Input where x=0,1,2 (0=Toslink 4 1=Coaxial 4 2=Analog 4)
Z1IN5	x	Set input 5 for Assigned Input where x=0,1,2 (0=Toslink 5 1=Coaxial 5 2=Analog 5)
Z1IN6	x	Set input 6 for Assigned Input where x=0,1,2 (0=Toslink 6 1=Coaxial 6 2=Analog 6)
Z1IN7	x	Set input 7 for Assigned Input where x=0,1,2 (0=Toslink 7 1=Coaxial 7 2=Analog 7)
Z1IN8	x	Set input 8 for Assigned Input where x=0,1,2 (0=Toslink 8 1=Coaxial 8 2=Analog 8)
RSN	xnnnnnnn	Change Input name where x= 0,1,2,3,5,6...8 (0=7.1IN, 1=INPUT 2, 2=6 Ch SE, 3=INPUT 3, ..8 =INPUT 8) where nnnnnnn = any alphanumeric characters (up to 7) except ';' which is a command separator
Z1SAL1	xx.x	Set Analog in Level for INPUT 1 where xx.x is from 0.0 dB to 12dB
Z1SAL2	xx.x	Set Analog in Level for INPUT 2 where xx.x is from 0.0 dB to 12 dB
Z1SAL3	xx.x	Set Analog in Level for INPUT 3 where xx.x is from 0.0 dB to 12 dB
Z1SAL4	xx.x	Set Analog in Level for INPUT 4 where xx.x is from 0.0 dB to 12 dB
Z1SAL5	xx.x	Set Analog in Level for INPUT 5 where xx.x is from 0.0 dB to 12 dB
Z1SAL6	xx.x	Set Analog in Level for INPUT 6 where xx.x is from 0.0 dB to 12 dB
Z1SAL7	xx.x	Set Analog in Level for INPUT 7 where xx.x is from 0.0 dB to 12 dB
Z1SAL8	xx.x	Set Analog in Level for INPUT 8

where xx.x is from 0.0 dB to 12 dB

Z1ACN1	x	Set Analog in Configuration for INPUT 1 where x=0,1 (0=Bypass 1=DSP)
Z1ACN2	x	Set Analog in Configuration for INPUT 2 where x=0,1 (0=Bypass 1=DSP)
Z1ACN3	x	Set Analog in Configuration for INPUT 3 where x=0,1 (0=Bypass 1=DSP)
Z1ACN4	x	Set Analog in Configuration for INPUT 4 where x=0,1 (0=Bypass 1=DSP)
Z1ACN5	x	Set Analog in Configuration for INPUT 5 where x=0,1 (0=Bypass 1=DSP)
Z1ACN6	x	Set Analog in Configuration for INPUT 6 where x=0,1 (0=Bypass 6 1=DSP)
Z1ACN7	x	Set Analog in Configuration for INPUT 7 where x=0,1 (0=Bypass 7 1=DSP)
Z1ACN8	x	Set Analog in Configuration for INPUT 8 where x=0,1 (0=Bypass 8 1=DSP)
Z1ACN7.1	x	Set Analog in Configuration for 7.1IN where x=0,1 (0=Bypass 7 1=DSP)
Z1ACNR	x	Set Analog in Configuration for TUNER where x=0,1 (0=Bypass 8 1=DSP)

Zone2 Specific Commands

Command	Parameters	Description
Z2P	x	Zone2 Power on/off where x = 0,1 (off, on)
Z2S	x	Zone2 INPUT selection where x = 0,1,2,3...17 (0=7.1IN, 1=INPUT 1, 2=INPUT 2, 3=INPUT 3, 4=INPUT 4, 5=INPUT 5, 6=INPUT 6, 7=INPUT 7, 8=INPUT 8, 9=AM 10=FM, 11=HDAM, 12=HDFM, 13=HDMI 1, 14=HDMI 2, 15=HDMI 3, 16=HDMI 4, 17= TV SOUND)
Z2V	sxx.x	Set Zone2 volume to sxx.x dB where sxx.x= Zone2Vol to -90.0 dB to +15.0 dB in 1.0 dB steps
Z2VU		Increase Zone2 volume (similar to vol up on remote)
Z2VD		Decrease Zone2 volume (similar to vol down on remote)
Z2M	x	Mute/un-mute Zone2 where x= 0,1 (un-mutes, mutes)

Zone2 Query Specific Commands

Command	Parameters	Description
Z2P?		query Zone2 power: returns Z2Px
Z2S?		query Zone2 input: returns Z2Sx
Z2VFD?		query main zone VFD information: returns Z1ssssssssssssxxx s = input source, x=master volume level,
Z2V?		query Zone2 volume: returns Z2Vsxx.x
Z2?		query Zone2 status: returns Z2SVsyyy.yMn where syyy.y is volume and n is mute state

Set HD Radio Common Commands

Command	Parameters	Description
TAT	xxxx	Set tuner to AM band, frequency xxxx KHz where xxxx = 540 to 1600, in 10 KHz step
TATU		Tune up one step on AM band
TATD		Tune down one step on AM band
TAHDT	xxxx	Set tuner to HDAM band, frequency xxxx KHz where xxxx = 540 to 1600, in 10 KHz step
TAHDTU		Tune up one step on HDAM band
TAHDTD		Tune down one step on HDAM band
TFT	xxx.x	Set tuner to FM band, frequency xxx.x MHz where xxxx = 88.0 to 107.9, in 20 KHz step
TFTU		Tune up one step on current FM band
TFTD		Tune down one step on current FM band
TFHDT	xxx.x	Set tuner to HDFM band, frequency xxx.x MHz where xxxx = 88.0 to 107.9, in 20 KHz step
TFHDTU		Tune up one step on current HDFM band
TFHDTD		Tune down one step on current HDFM band
TAP	y	Set tuner to AM band, using preset y (01,02,03...99)
TAHDP	y	Set tuner to HDAM band, using preset y (01,02,03...99)
TFP	y	Set tuner to FM band, using preset y (01,02,03...99)
TFHDP	y	Set tuner to HDFM band, using preset y (01,02,03...99)
T	+	Tuner seek up from current station
T	-	Tuner seek down from current station
TAS	y=zzzz	Set preset y of tuner AM band to zzzz KHz where xxxx = 540 to 1600, in 10 KHz step
TAHDS	y=zzzz	Set preset y of tuner HDAM band to zzzz KHz where xxxx = 540 to 1600, in 10 KHz step
TAF	y=zzzz	Set preset y of tuner FM band to zzzz MHz where xxxx = 88.0 to 107.9, in 20 KHz step
TAHDF	y=zzzz	Set preset y of tuner HDFM band to zzzz MHz where xxxx = 88.0 to 107.9, in 20 KHz step

Query HD Radio Common Commands

Command	Parameters	Description
TAS?y		Query AM preset, where y is AM preset (01,02,03,04,05,06....99). Returns TASy=zzzz where z is station frequency
TAHDS?y		Query HDAM preset, where y is AM preset (01,02,03,04,05,06....99). Returns TAHDSy=zzzz where z is station frequency
TAF?y		Query FM preset, where y=FM preset (01,02,03,04,05,06,.....99). Returns TFSy=zzz.z where z is station frequency.
TAHDF?y		Query HDFM preset, where y=FM preset (01,02,03,04,05,06,.....99). Returns TFSy=zzz.z where z is station frequency.
TT?		query current station: returns TATxxxx , TFTxxx.x, THDATxxxx, THDFTxxx.x

Advanced Settings

Command	Parameters	Description
ASSP	x	Set Password where x = 0 (0=Off)
AZ1SMV	xxx	Set Z1 Master Volume where xxx -99.0 to 15.0
AZ2SMV	xxx	Set Z2 Master Volume where xxx -99.0 to 15.0
ASPAO	x	Set Pure Audio where x = 0,1 (0=off 1=On)
ASHDMIAO	x	Set HDMI Audio out where x = 0,1 (0=Off 1=On)
ASAVD	xxx	Set AV Sync Delay where xxx 0.0 -100ms (0.0 =Off)
ASFP	x	Set front panel display intensity where x =0,1,2,3 (Off, low, med, hi)
ASRSN	mmmmmmm	Edit Custom name where mmmmmm= any alphanumeric characters (up to 20)
ASIRC	x	Set IR Controls where x = 0,1,2 (0=Front 1=Rear 2=Both)
ASIR2C	x	Set Zone 2 IR Controls where x = 0,1,2 (0=Front 1=Rear 2=Both)
ASIRM	x	Set Zone 1 Rear IR Mode where x = 0,1 (0=Normal 1=Invert)
ASIR2M	x	Set Zone 2 Rear IR Mode where x = 0,1 (0=Normal 1=Invert)
ASTO1	x	Set Trigger 1 where x = 0,1,2 (0=Off 1=Zone 1 2=Zone 2)
ASTO2	x	Set Trigger 2 where x = 0,1,2, (0=Off 1=Zone 1 2=Zone 2)
ASTO3	x	Set Trigger 3 where x = 0,1,2, (0=Off 1=Zone 1 2=Zone 2)
AS AIS	x	Set Auto Input Seek where x = 0,1 (0=Off 1=On)
ASDD	x	Set LATE Mode for Dolby Digital where x = 0,1,2 (0=Off 1=Half 2=Full)
ASMVO	xx	Set Max Volume Out where xx 0.0 to15.0
ASRD	x	Set Restore Default