Request Commands

Command	Command Value	Data Format	Description	C425
Query Variable	20	1 byte representing which variable to query. Refer to the Variable table for a list of valid values.	This command requests that a value be sent back from the unit. For example the current volume level could be requested. If the variable requested is not supported, no response should occur.	Yes
Set Variable	21	1 byte representing which variable to set, followed by the value to which it should be set. The length and format of the value depends on which function is being sent. Refer to the Variable table for more details.	This command sets a specified function to a specified value. For example, the volume could be set to a specific value. A Variable Value response should always be sent in response to this command to confirm the value was set. If an illegal value was sent, then there should not be any changes made, and the current value should be returned. If an unsupported variable was set, then the unit should not acknowledge it.	Yes
Remote Command	22	The remote code.	Remote codes can be sent with this command. The unit should respond to the remote code as if the command had actually been received from the remote.	Yes
Get Software Version	23	n/a	Request software version number.	Yes
Software Update	24	Depends on the device.	This command can be used for doing software updates of the unit. However, since the method of updating the software is highly dependent on the hardware and software implementation, other methods of update are also acceptable provided they do not conflict with any other part of this protocol.	No
Store A/V Preset	25	1 byte value to indicate which preset to store the current settings in.	This command causes all the current settings to be stored in the specified A/V preset.	No

Store Tuner Preset	26	1 byte to indicate which preset to store into.	Store the current tuner frequency in the specified preset.	Yes

Response Commands

Response Command	Command Value	Data Format	Description	C425
Function Value	20	1 byte indicating which function the value is for, followed by the value for that function. The format and length of the value depends on the function. Refer to the Function table for more details.	This command should be sent whenever any of the function values change. This includes changes through the front panel controls, the remote, and the RS-232 port. This command should also be sent in response to Query Function and Set Function commands. For example, if the user changes the volume using the remote, this command should be sent indicating the new volume.	Yes
Software Version	23	Depends on the device.	This response is sent when a Get Software Version command is received.	Yes
Software Verify	24	Depends on the device.	This command can be used to retrieve the software from the unit for verification purposes. Other methods are also acceptable. See the description for the Update Software command.	No
A/V Preset Stored	25	1 byte indicating which preset was stored.	This response is sent back to confirm a preset has been stored in response to a Store Preset command.	No
Tuner Preset Stored	26	1 byte indicating which preset was stored.	This response is sent back to confirm a tuner preset has been stored in response to a Store Tuner Preset command.	Yes
RDS - PS	27	0 bytes if no PS name, or 8 bytes for current PS name.	Whenever a new FM station is tuned or the PS name changes, this message will be sent.	Yes
RDS - RT	28	If no data bytes are sent, then the current RT message should be cleared. Otherwise, 1 byte indicates position in the message (0 - 63) followed by 2 or 4 characters of the message.	As RDS Radio Text is decoded, each block is sent via RS232. Each RDS RT block is 2 or 4 characters at a time.	Yes

Variable Table

Function	Function Value	Description	C425
Device ID	20	This function can only be queried, and not set. When this function is queried it should return a string identifying the model of the unit. For example, the T762 would return the string "T762".	Read Only
Power Mode	21	Mode of the unit, Standby or On. Protect is only used for M3.	Read/Write Arguments: 0 = Standby 1 = ON
VFD Brightness	22	Brightness mode of the display.	Read/Write Arguments: 0 = Bright 1 = Dimmed
Volume	23	Master Volume level.	N / A
Mute	24	Mute status.	N / A
	25		
	26		
Zone Volume	27	Multi Source volume level.	N / A
Zone Mute	28	Multi Source mute status.	N / A
THX Mode	29	The THX mode is in conjuction with Surround Mode	N / A
	30		
Tape Monitor	31	Tape monitor status.	N / A
Treble	32	Treble level.	N / A
Bass	33	Bass level.	N / A
Subwoofer Level	34	Sub Woofer level.	N / A
Center Level	35	Center channel level.	N / A
Surround Level	36	Surround level.	N / A
Center Dialog	37		N / A
Audio Input Type	38	Audio Input Type.	N / A
Audio Signal Type	39	Audio Signal Type.	N / A

Variable Table

Function	Function Value	Description	C425
Surround Mode	40	Surround Mode.	N / A
Video Input Type	41	Video input type.	N / A
Late Night / DRC	42	Status of Late Night mode.	N / A
Tuner Band	43	Selected tuner band.	Read/Write Arguments: 0 = AM 1 = FM
AM Frequency	44	Currently selected AM frequency.	Read/Write Arguments: 2 byte unsigned number representing AM
FM Frequency	45	Currently selected FM frequency.	Read/Write Arguments: 2 byte unsigned number representing FM frequency. The number should be scaled by a factor of 100. ie) Frequency
Tuner Stereo Mode	46	Tuner Stereo Mode	N / A
FM Mute	47	FM Mute Status. Note: On the T163/T762/T763/T773/C425, the FM Mute and FM Stereo functions are linked.	Read/Write Arguments: 0 = FM mute off 1 = FM mute on
Digital Input Selection	48	Digital Input setting	N / A
Blend	49	Tuner Blend Status	Read/Write Arguments: 0 = Blend off 1 = Blend on
Zone Power Mode	52	Power mode of the second zone.	N / A
Current Input	53	Current Input.	N / A

Variable Table

Function	Function Value	Description	C425
Zone Input	54	Current Zone Input.	N / A
Input Name	55	This function can be used to retrieve and set input names.	N / A
AM Preset	56	Current AM frequency preset.	N / A
FM Preset	57	Current FM frequency preset. This is used for AM and FM preset on the C425.	Read/Write Arguments: 1 byte to indicate the current preset (both AM and
Speaker A	58	Speaker A Relay setting.	N / A
Speaker B	59	Speaker B Relay setting.	N / A
Tone Defeat	60	Tone Defeat setting.	N / A
Tilt	61	Tilt Setting	N / A
Balance	62	Balance level setting. Negative for left side, positive for right side.	N / A
Stereo Mode	64	Stereo mode of speakers.	N / A
Crossover	65	Biamp crossover	N / A
Play Time	80	Current play time of the CD or DVD. Should match what the display is currently set to (ie. Elapsed or Remaining)	N / A
Track Info	81	Current track of the CD or DVD	N / A
Video System	83	Video format setting	N / A
Resolution	84	Resolution setting	N / A
Progressive Scan	85	Progressive scan setting	N / A
Play Back Control	86	Applies to Video CDs. PBC Control. As it is in the OSD	N / A
Tray Status	87	Tray status setting	N / A

Variable Table

Function	Function Value	Description	C425
Play Mode	88	Play mode setting	N / A
Repeat	89	Repeat setting. Repeat A-B setting is Read-Only	N / A
Zoom	90	Zoom setting	N / A
Audio Track	91	Audio track setting (select between audio tracks available on DVD)	N / A
Subtitle	93	Subtitle setting	N / A
Angle	94	Angle setting	N / A
Digital Output	95	Digital output setting	N / A
Black Level	96	Video black level setting	N / A
Random	100	Random Mode	N / A
TV Aspect Ratio	101	Change the TV aspect ratio	N / A
Picture Mode	102	Change the Picture Mode setting	N / A
Brightness	103	Change the video output's brightness	N / A

Variable Table

Function	Function Value	Description	C425
Contrast	104	Change the video output's contrast	N / A
Saturation	105	Change the video output's saturation	N / A
Sharpness	106	Change the video output's sharpness	N / A
Gamma	107	Change the gamma setting	N / A
Video Output (HDMI/VGA)	108	Change the video output setting. Note: Only one output, HDMI or VGA, can be ON at a time	N / A
Video Output (ON/OFF)	109	Change the video output ON or OFF	N / A
Digital Audio Output Sample Freq.	110	Change the digital audio output sample frequency	N / A
Master Volume	111	Change the Master Volume setting	N / A
Downmix	112	Change the Downmix setting	N / A
Test Tone	113	Turn the test tone on or off	N / A
AutoPlay	114	Turn autoplay on or off	N / A
CD Filter	115	Change the CD Filter setting	N / A
Layer	116	Change the CD Layer Setting as the remote does, not the default mode within the OSD	N / A
SACD Mode	117	Change the SACD mode from 2 channel to multi-channel as the remote does, not the default mode within the OSD	N / A
Display Mode	118	Change the display from elapsed, remain, disc elapsed, disc remain	N / A
Query All	255	If this value is queried, all of the above function values which are supported for the model in question will be sent.	Yes

* This works, depending on the type of media
** Not all of the functions work

Example Table

I8	I8 - One byte signed two's complement number	Example: -128 = 0x80 Example: -53 = 0xCB Example: 4 = 0x04 Example: 127 = 0x7F
Q8.8	Q8.8 - Two byte signed two's complement fixed-point number. To be sent/received as little-endian.	Example: -71.5 = 0xB880 Example: -1.5 = 0xFE80 Example: 8 = 0x0800 Example: 120.5 = 0x7880

Command Examples using Q8.8	Set Volume to -71.5 dB (PC to Unit) *decimal:* 1, 21, 23, 128, 184, 2, 155 *hex:* 0x01, 0x15, 0x17, **0x80, 0xB8**, 0x02, 0x9B	