RS232G Protocol
Version 2.6.2

The RS232G Protocol is standard ASCII based. The commands must include parameters (separated by commas) and terminated with a carrier return <CR> = ASCII 13. The commands provided in this protocol allow an external control of the IntelliControl ICS system.

Hardware Overview:

- 9 pin female D type connector:
  - Pin 2 = transmit
  - Pin 3 = received
  - Pin 5 = signal ground

- Default Communication parameters:
  - 9600-baud rates
  - 8-data bits
  - 1-stop bit
  - None-parity
  - None-flow control

- Available baud rates via Intellifile-3
  - 4800, 9600, 19200, 38400, 57600

The serial communication parameters can be changed from the Intellifile-3 setup program

If you wish to test the RS232G from a PC, run the Hyper Terminal program, or an equivalent program. Then select "Send line ends with line feeds", "Echo typed characters locally" and "Append line feeds to incoming line ends". This allows you to see the characters that you are typing as well as keep the responses from overwriting typed characters.

Commands Overview:

znc	Zone commands	
	1	Request Available Zones
	2	Request Zone Names
	3	Request Current Zone Information
	4	Change Zone
	5	Request Current Zone Status
znt	Zone Transport Commands	
	1	Master Key 1 Command
	2	Master Key 2 Command
	3	Master Key 3 Command
	4	Master Key 4 Command
	5	Master Key 5 Command
	6	Master Key 6 Command
	7	Master Key 7 Command
	8	Master Key 8 Command
	10	OFF Command
	11	Mute Command
	12	Volume Up Command
	13	Volume Down Command
	128	Bass Up Command
	129	Bass Down Command
	130	Treble Up Command
	131	Treble Down Command
	132	Balance Down Command
	133	Balance Up Command
src	Source Commands	
	1	Request Available Master Keys
	2	Request Master Key Information
	3	Request Source Status
	4	Request Metadata Status
	5	Request Available Soft Keys
	6	Request Soft Key Information
	7	Press Soft Key Command
	8	Request Available Menu Items
	9	Request Menu Item Information
	10	Press Menu Command
	11	Direct Tune Command
	12	Request Soft Keys Status
	13	Request Menu Items Status
	14	Alphanumeric Search
	15	Cancel Menu
srt	Source Transport Commands	
	17	Play Command
	18	Stop Command

	20	Rewind Command
	21	Fast Forward Command
	22	Menu Command
	23	Up Command
	24	Guide Command
	25	Left Command
	26	Select Command
	27	Right Command
	28	Exit Command
	29	Down Command
	30	Info Command
	33	Numeral 1 Command
	34	Numeral 2 Command
	35	Numeral 3 Command
	36	Numeral 4 Command
	37	Numeral 5 Command
	38	Numeral 6 Command
	39	Numeral 7 Command
	40	Numeral 8 Command
	41	Numeral 9 Command
	42	Numeral 0 Command
	43	Previous Command
	44	Next Command
	45	Random Command
	46	Group Command
	47	Dics Command
	48	Fav Command
	65	AM Command
	66	FM Command
	67	Pg / Ch Up Command
	68	Pg / Ch Down Command
	69	Enter Command
	70	Clear Command
spc		Special Commands
	1	Request Time
	2	Set Time
	3	Request Zone Sleep Timer Configuration
	4	Set Zone Sleep Timer Configuration
	5	Request Zone Alarm Clock Configuration
	6	Set Zone Alarm Clock Configuration
	7	Request Zone Page
	8	Set Zone Page
	9	Request Zone Turn ON Volume
	10	Set Zone Turn ON Volume

		11	Request Zone Max Volume
		12	Set Zone Max Volume
		13	Set Volume for current zone
		14	Set Volume for a zone
syc	System Commands		
		1	Reset Command
		2	Report Mode Command
		3	Rebuild EEPROM
usc	Unsolicited Commands		
		1	Ready Command
		2	Zone Status Command
		3	Source Status Command
		4	Metadata Status Command
		5	Available Soft Keys Command
		6	Available Menu Items Command
		7	Available Metadata and Soft Keys Command
		8	Available Soft Keys and Menu Items Command
		9	Soft Keys Status Command
		10	Menu Items Status Command
		11	Menu Items Status Command Extended
		12	Short Zone Status
		13	New Metadata Available
rXXX	Responses		
			OK Command
			Fail Command

Messages Format Overview:

DATA		ETX
Command	Key Code	<cr>

DATA			ETX
Command	Key Code	Flag	<cr>

DATA			ETX
Command	Key Code	Parameter1, …, Parameter N	<cr>

Zone Commands

1) Request Available Zones

This command provides you the number of zones previously configured in the system.

Syntax:
    znc,1<CR>

Response:
    rznc,1,#<CR>

#: Number of available zones.

Example:
ui: znc,1<CR>   (request available zones)
rs232g: rznc,1,4<CR> (there are 4 available zones – up to 30)

2) Request Zone Names

This command is used after we determine how many available zones "do we have". Its only parameter is the index of the zone (the index is not the same as zone number). The index starts in 0.

Syntax:
    znc,2,#<CR>

#: Index of the zone to retrieve its name. Index start in 0.

Response:
    rznc,2,zone,bytes,name<CR>

zone: zone number.
bytes: bytes of the name.
name: name string.

Example:
ui: znc,2,0<CR>   (request zone name on index 0)
rs232g: rznc,2,1,11,Family Room<CR>   (the zone number is 1, the name has
11 characters and the name is "Family Room").

3) Request Current Zone Information
This command provides you information about the zone that the RS232G were set to work.

Syntax:
    znc,3<CR>

Response:
    rznc,3,zone,bytes,name<CR>

zone: zone number.
bytes: bytes of the name.
name: name string.

Example:
ui: znc,3<CR>   (request current zone information)
rs232g: rznc,3,4,6,Office<CR>   (the zone number set to work is 4,
the name has 6 characters and the name is "Office").

4) Change Zone
This command allows you change zone that the RS232G will work. You have to use the zone number provides by *Request Zone Name* Command.

Syntax:
    znc,4, zone <CR>

zone: new zone number.

Response:
    rznc,4,zone<CR>

zone: zone number assigned.

Example:
ui: znc,4,2<CR>   (request change to zone 2)
rs232g: rznc,4,2<CR>   (confirmation that now you are in zone 2)

5) Request Current Zone Status
This command provides you the zone status, which is actually assigned to the RS232G. Use this command only in Manual Mode (check System Commands – Report Mode Command: SYC,2) every time that you need update the zone status.

Syntax:
    znc,5<CR>

Response:
    Check Unsolicited Commands (Zone Status – USC,2)

Example:
ui: znc,5<CR>   (request zone status)
rs232g: usc,2,1,3,14,0,0,0,0,1<CR>   (the current zone is 1, the current master key selected is 3, volume is 14,is not mute, the bass is 0, the treble is 0, the balance is 0 and the slot of the source card is1)

Zone Transport Commands

6) Zone Transport Command

The transport contains a key code number and a flag field. This command affects only zones. The repeat and hold flags are mutually exclusive. All key codes are sent once without flag when first pressed (key down event). If still pressed, most key codes every 150 milliseconds send a repeat flag; other keys, master keys and OFF key for instance, after two (maybe three) seconds send the hold flag. The Mute key only sends a Key down event.

Syntax (key down event):
    znt,key code<CR>

Response: Only in Manual Mode (check System Commands – Report Mode Command: SYC,2)
    rznt,key code,OK<CR>

key code: 1 = Master Key 1 Command.
                   2 = Master Key 2 Command.
                   3 = Master Key 3 Command.
                   4 = Master Key 4 Command.
                   5 = Master Key 5 Command.
                   6 = Master Key 6 Command.
                   7 = Master Key 7 Command.
                   8 = Master Key 8 Command.
                   10 = OFF Command.
                   11 = Mute Command.
                   12 = Volume Up Command.
                   13 = Volume Down Command.
                   128 = Bass Up Command.
                   129 = Bass Down Command.
                   130 = Treble Up Command.
                   131 = Treble Down Command.
                   132 = Balance Down Command.
                   133 = Balance Up Command.

Syntax (key still pressed):
    znt,key code,flag<CR>

flag: h = hold flag for follow key codes:
                    1 = Master Key 1 Command.
                    2 = Master Key 2 Command.
                    3 = Master Key 3 Command.
                    4 = Master Key 4 Command.
                    5 = Master Key 5 Command.
                    6 = Master Key 6 Command.
                    7 = Master Key 7 Command.
                    8 = Master Key 8 Command.
                    10 = OFF Command.

NOTE.- Key Code 11 = Mute is not affected (do not anything).

Response: Only in Manual Mode (check System Commands – Report Mode Command: SYC,2)
    rznt,key code,OK<CR>

Example (Manual Mode):
ui: znt,2<CR>   (select Master Key 2)
rs232g: rznt,2,OK<CR>   (confirmation that you are selected Master Key 2)
(every 2 or 3 seconds)
ui: znt,2,h<CR>   (send select Master Key 2 with hold flag)
rs232g: rznt,2,OK<CR>   (confirmation that you are selected Master Key 2)

Example (Auto Mode):
ui: znt,2<CR>   (select Master Key 2)
rs232g: will send an Unsolicited Commands.
(every 2 or 3 seconds)
ui: znt,2,h<CR>   (send select Master Key 2 with hold flag)
rs232g: will send an Unsolicited Commands.

Source Commands

7) Request Available Master Keys

This command provides you the number of Master keys previously configured in the system.

Syntax:
    src,1<CR>

Response:
    rsrc,1,#<CR>

#: Number of available Master keys.

Example:
ui: src,1<CR>   (request available master keys)
rs232g: rsrc,1,4<CR> (there are 4 available master keys – up to 8)

8) Request Master Key Information

This command is used after we determine how many available master keys the system has. Its only parameter is the index of the master key (the index is not the same as master key number). The index starts in 0.

Syntax:
    src,2,#<CR>

#: Index of the Master Key to retrieve its information. Index start in 0.

Response:
    rsrc,2,master key,slot,type,bytes,name<CR>

master key: master key number.
slot: slot of source associated.
type: 1 = XM.
         2 = Sirius.
         3 = iPod (MP3).
         4 = AM / FM.
         5 = Audio.
         6 = Lutron.
         7 = HD AM / FM
         8 = AM / FM Export

bytes: bytes of the name.
name: name string.

Example:
ui: src,2,0<CR>   (request master key information on index 0)
rs232g: rsrc,2,1,1,5,3,DVD<CR>   (the master key number is 1, the slot of the source card is 1, the type of the source is Audio, the name has 3 characters and the name is "DVD").

9) Request Source Status

This command provides you the source status, which is actually selected. Used this command only in Manual Mode (check System Commands – Report Mode Command: SYC,2) every time that you need update the source status.

Syntax:
     src,3<CR>

Response:
     Check Unsolicited Commands (Source Status – USC,3).

Example:
ui: src,3<CR>   (request source status)
rs232g: usc,3,1,5,0,0,0,0,0,0<CR>   (the current source number is 1, the source type is Audio, there no antenna connected, there are no signal present, is not in stereo, is not in shuffle mode, is not in pause)

10) Request Metadata Status

This command provides you the data that needs to be displayed. Use this command only in Manual Mode (check System Commands – Report Mode Command: SYC,2) every time that you need update your screen and you are not interacting with the menu.

Syntax:
     src,4<CR>

Response:
     Check Unsolicited Commands (Metadata Status – USC,4).

Example:
ui: src,4<CR>   (request metadata status)

rs232g: usc,4,2,11,2,FM,12,4,98.3<CR>   (there are two metadata, first metadata is Band with 2 characters and the name is FM and second metadata is Frequency with 4 characters and the name is 98.3)

11) Request Available Soft Keys
This command provides you the number of Soft Keys available fro the current screen.

Syntax:
    src,5<CR>

Response:
    Check Unsolicited Commands (Available Soft Keys – USC,5).

Example:
ui: src,5<CR>   (request available soft keys)
rs232g: usc,5,3<CR> (there are 3 available soft keys – up to 3)

12) Request Soft Key Information
This command is used after we determine how many available soft keys do we have. Its only parameter is the index of the soft key. The index starts in 0.

Syntax:
    src,6,#<CR>

#: Index of the Soft Key to retrieve its information. Index start in 0.

Response:
    rsrc,6,#,type,behavior,bytes,name<CR>

#: Index of the Soft Key.
type: 0 = Default.
        1 = Page Down.
        2 = Page Up.
        3 = Select.
        4 = Back.
        5 = Menu.
        6 = Guide.
        7 = Favorites.
        8 = Transport.
behavior: 0 = no alternate behavior.

1 = alternate behavior.
bytes: bytes of the name.
name: name string.

Example:
ui: src,6,2<CR>   (request soft key information on index 2)
rs232g: rsrc,6,0,0,4,Favs<CR>   (for the soft key index 0 its type is
Default, it does not have alternative behavior, it has 4 characters and its name is "Favs").

13) Press Soft Key Command
This command selects a specific soft key. The parameter needed must be taken from the
Soft Key Information. If the behavior of the Soft Key is 0 the only behavior for this
command is 0. On the other hand, if the behavior of the Soft Key is 1 we can use 0 for a
normal behavior (press and release) or 1 for alternative behavior (alternative behavior is
send if is still press for 2 seconds).

Syntax:
    src,7,#,behavior <CR>

#: Index of the Soft Key
behavior: 0 = no alternate behavior.
               1 = alternate behavior.

Response: Only in Manual Mode (check System Commands – Report Mode Command:
SYC,2)
    rsrc,7,OK<CR>

Example:
ui: src,7,2,0<CR>   (select soft key index 2 normal behavior)
rs232g: rsrc,7,OK<CR>   (acknowledge that the command was
executed).

14) Request Available Menu Items
This command provides you the number of Menu Items available fro the current screen.

Syntax:
    src,8<CR>

Response:
    Check Unsolicited Commands (Available Menu Items – USC,6).

Example:
ui: src,8<CR>   (request available menu items)
rs232g: usc,6,4,5,"Songs",0<CR>   (there are 4 available menu items – up to 5,
the title has 5 characters and the name is "Songs", this set of menus do not support
alphanumeric search)

15) Request Menu Item Information
This command is used after we determine how many available menu items do we have.
Its only parameter is the index of the menu item. The index starts in 0.

Syntax:
    src,9,#<CR>

#: Index of the Menu Item to retrieve its information. Index start in 0.

Response:
    rsrc,9,#,behavior,bytes,name<CR>

#: Index of the Menu Item.
behavior: 0 = no alternate behavior.
               1 = alternate behavior.
bytes: bytes of the name.
name: name string.

Example:
ui: src,9,2<CR>   (request menu item information on index 2)
rs232g: rsrc,9,2,10,3. FM 93.1<CR> (for the menu item index 0 its behavior is
not have alternative, it has 10 characters and its name is "3. FM 93.1").

16) Press Menu Command
This command selects a specific menu item. The parameter needed must be taken from the Menu Item Information. If the behavior of the Menu Item is 0 the only behavior for this command is 0. On the other hand, if the behavior of the Menu Item is 1 we can use 0 for a normal behavior (press and release) or 1 for alternative behavior (alternative behavior is send if is still press for 2 seconds).

Syntax:
    src,10,#,behavior<CR>

#: Index of the Menu Item
behavior: 0 = no alternate behavior.
                 1 = alternate behavior.

Response: Only in Manual Mode (check System Commands – Report Mode Command: SYC,2)
    rsrc,10,OK<CR>

<u>Example:</u>
ui: src,10,2,1<CR>   (select menu item index 2 alternative behavior)
rs232g: rsrc,10,OK<CR>   (acknowledge that the command was executed).

17) Direct Tune Command
All tunable modules (XM, Sirius, AM/FM, HD radio) must support this command. For the XM and Sirius the string must be of the form XX or XXX. For AM the string must be of the form XXX or XXXX. For FM the decimal point should be included, for instance XX.X or XXX.X.

For HD radio a digital sub station id may also be included. The format would be: XXX-X or XXXX-X for AM stations and XX.X-X or XXX.X-X for FM stations.

Syntax:
    src,11,#,string value<CR>

#: bytes of the string value.
string value: station string.

value: depend of the source card.
        XM and Sirius : XX or XXX
        AM   : XXX or XXXX
        FM   : XX.X or XXX.X
        AM HD   : XX-X or XXX-X
        FM HD   : XX.X-X or XXX.X-X

Response: Only in Manual Mode (check System Commands – Report Mode Command: SYC,2)
    rsrc,11,OK<CR>

Example(s):
ui: src,11,4,93.1<CR>   (select direct tune 93.1) – or -
               src,11,7,102.7-1<CR> (select direct tune HD station 102.7-1)
rs232g: rsrc,11,OK<CR>   (acknowledge that the command was executed)

18) Request Soft Keys Status
This command provides you the available Soft Keys including all its information. Use this command only in Manual Mode (check System Commands – Report Mode Command: SYC,2) every time that you need update the Soft Keys.

Syntax:
    src,12<CR>

Response:
    Check Unsolicited Commands (Soft Keys Status – USC,9).

<u>Example:</u>
ui: src,12<CR>   (request soft keys status)
rs232g: usc,9,3,0,0,1,3,Cat,1,0,1,5,Guide,2,0,0,4,Favs<CR> (exist available three soft keys: the first soft key has index 0, type 0, it has alternate behavior, it has 3 characters and its name is "Cat"; the second soft key has index 1, type 0, it has an alternate behavior, it has 5 characters and its name is "Guide"; the last soft key has index 2, type 0, it has no alternate behavior, it has 4 characters and its name is "Favs")

19) Request Menu Items Status
This command provides you the available Menu Items including all its information. Use this command only in Manual Mode (check System Commands – Report Mode Command: SYC,2) every time that you need update the Menu Items.

Syntax:
    src,13<CR>

Response:
    Check Unsolicited Commands (Menu Items Status – USC,10).

<u>Example:</u>
ui: src,13<CR>   (request soft keys status)
rs232g: usc,10,14,XM   -   Favorites,2,0,1,15,1.   Sports   Guide,1,1,14,\tadd favorite\t<CR>   (the title has 14 characters and its name is "XM - Favorites"; exist available two menu items: the first menu item has index 0, it has an alternate behavior, it has 15 characters and its name is "1. Sports Guide"; the last menu item has index 1, it has alternate behavior, it has 14 characters and its name is "\tadd favorites\t")

20) Alphanumeric Menu Search
This command provides you the capability to do alphanumeric search only if the menus support it (the command ,6 Unsolicited Commands – Available Menu Items Command tells you if the menus support alphanumeric search) . After you send the command alphanumeric search you will received as a response the command USC,6 (Unsolicited Commands – Available Menu Items Command) that indicate that there are a new set of menus according with the alphanumeric word.

Syntax:
    src,14,bytes,alphanumeric_word<CR>

bytes: bytes of the alphanumeric word (max 3 characters).
alphanumeric_word: letter or word to be search.

Response:
    Check Unsolicited Commands (Available Menu Items Command – USC,6).

Example:
ui: src,14,1,H<CR>   (request soft keys status)
rs232g: usc,6,5,5,Songs,1<CR>   (we have 5 new menus, the title of
the menu has 5 characters and the name is "Songs", also this set of menus support
alphanumeric search)

21) Cancel Menu
This command will exit the current menu and force the interface back to the 'Now Playing Screen' If the interface is in automatic mode 2 or 4 this command will cause the usc,4 response to be sent with the current metadata followed by usc,9 with the current soft key status. If the interface is in automatic mode 1 or 3 this command will cause the USC,7 response to be issued when new metadata is available. If this command is issued and the interface is NOT in menu mode the command will still be accepted and will force the return of the current metadata. In this case this command is the equal of issuing src,4 and src,6 commands.

Syntax:
        src,15<CR>

Response:
        rsrc,15,0<CR>

Example:
ui: src,15<CR>   (request cancel menu)
rs232g: rsrc,15,0   (command accepted)
             usc,4,……..   (receive current meta data)
             usc,9,…….   (receive current soft key status)

Source Transport Commands

22)   Source Transport Command
The transport contains a key code number and a flag field. This command affects only sources. All key codes are sent once without flag when first pressed (key down event). If still pressed, key codes every 150 milliseconds send a repeat flag.

Syntax (key down event):
    srt,key code<CR>

Response: Only in Manual Mode (check System Commands – Report Mode Command: SYC,2)
    rsrt,key code,OK<CR>

key code: 17 = Play Command.
                18 = Stop Command.
                19 = Pause Command.
                20 = Rewind Command.
                21 = Fast Forward Command.
                22 = Menu Command.
                23 = Up Command.
                24 = Guide Command.
                25 = Left Command.
                26 = Select Command.
                27 = Right Command.
                28 = Exit Command.
                29 = Down Command.
                30 = Info Command.
                33 = Numeral 1 Command.
                34 = Numeral 2 Command.
                35 = Numeral 3 Command.
                36 = Numeral 4 Command.
                37 = Numeral 5 Command.
                38 = Numeral 6 Command.
                39 = Numeral 7 Command.
                40 = Numeral 8 Command.
                41 = Numeral 9 Command.
                42 = Numeral 0 Command.
                43 = Previous Command.
                44 = Next Command.
                45 = Random Command.
                46 = Group Command.

47 = Disc Command.
48 = Favorite Command.
65 = AM Command.
66 = FM Command.
67 = Page / Channel Up Command.
68 = Page / Channel Down Command.
69 = Enter Command.
70 = Clear Command.

Note: the key code never must be 0x00 (0) or 0xFF(255)

Syntax (key still pressed):
    srt,key code,repeat<CR>

key code: same key codes listed above.
repeat: r = repeat flag.

Response: Only in Manual Mode (check System Commands – Report Mode Command: SYC,2)
    rsrt,key code,OK<CR>

Example (Manual Mode):
ui: srt,20<CR>   (send Rewind command)
rs232g: rsrt,20,OK<CR>   (confirmation that you are Rewind)
(every 150 milliseconds)
ui: srt,20,r<CR>   (send Rewind command with hold flag)
rs232g: rsrt,20,OK<CR>   (confirmation that you are Rewind)

Example (Auto Mode):
ui: srt,33<CR>   (send number 1 command)
rs232g: will send an Unsolicited Commands.
(every 150 milliseconds)
ui: srt,33,r<CR>   (send number 1 command with repeat flag)
rs232g: will send an Unsolicited Commands.

Special Commands

23) Request Time
This command provides you the hour, minutes and seconds of the system. 00:00 is 12:00 am (midnight) and 12:00 is 12:00 pm (noon).

Syntax:
    spc,1<CR>

Response:
    rspc,1,hours,minutes,seconds<CR>

hours: 0 to 23.
minutes: 0 to 59.
seconds: 0 to 59.

Example:
ui: spc,1<CR>   (request time)
rs232g: rspc,1,11,25,5<CR>   (11 am with 25 minutes and 5 seconds)

24) Set Time
This command sets the new hour, minutes and seconds of the system. 00:00 is 12:00 am (midnight) and 12:00 is 12:00 pm (noon).

Syntax:
    spc,2,hours,minutes,seconds<CR>

hours: 0 to 23.
minutes: 0 to 59.
seconds: 0 to 59.

Response:
    rspc,2,OK<CR>

Example:
ui: spc,2,5,3,4<CR>   (set new time 5 am with 3 minutes and 4 seconds)
rs232g: rspc,2,OK<CR>   (acknowledge that the command was executed)

25) Request Zone Sleep Timer Configuration
This command provides you the current zone sleep timer configuration.

Syntax:
    spc,3<CR>

Response:
    rspc,3,on off,all zones,timeout<CR>

on off: 0 = timer is OFF.
                1 = timer is ON.
all zones: 0 = not all zones should be turn off when timer expires.
                1 = all zones should be turn off when timer expires.
timeout: in minutes (0 to 120).

Example:
ui: spc,3<CR>   (request current zone sleep timer)
rs232g: rspc,3,0,0,5<CR>   (sleep timer disable, not all zones should be turn off
when timer expired, 5 minutes of timeout)

26) Set Zone Sleep Timer Configuration
This command sets the sleep timer configuration for the current zone.

Syntax:
    spc,4,on off,all zones,timeout <CR>

on off: 0 = timer is OFF.
                1 = timer is ON.
all zones: 0 = not all zones should be turn off when timer expires.
                1 = all zones should be turn off when timer expires.
timeout: in minutes (0 to 120).

Response:
    rspc,4,OK<CR>

Example:
ui: spc,4,1,1,25<CR>   (enable sleep timer, all zone should be turn off in 25
minutes)
rs232g: rspc,4,OK<CR>   (acknowledge that the command was executed)

27) Request Zone Alarm Clock Configuration
This command provides you the current zone alarm clock configuration.

Syntax:
    spc,5<CR>

Response:
    rspc,5,on off,master key,hour,minute<CR>

on off: 0 = timer is OFF.
                 1 = timer is ON.
master key: master key to select when alarm is trigger (1 to 8).
hour: 0 to 23.
minute: 0 to 59.

Example:
ui: spc,5<CR>   (request current zone alarm clock)
rs232g: rspc,5,0,2,7,30<CR> (alarm clock disable, trigger master key 2 at 7:30
am)

28) Set Alarm Zone Clock Configuration
This command sets the alarm clock configuration for the current zone.

Syntax:
    spc,6,on off,master key,hour,minute <CR>

on off: 0 = timer is OFF.
                 1 = timer is ON.
master key: master key to select when alarm is trigger (1 to 8).
hour: 0 to 23.
minute: 0 to 59.

Response:
    rspc,6,OK<CR>

Example:
ui: spc,6,1,2,7,30<CR> (enable alarm clock, trigger master key 2 at 7:30
am)
rs232g: rspc,6,OK<CR>   (acknowledge that the command was executed)

29) Request Zone Page

This command provides you the current zone page setting.

Syntax:
   spc,7<CR>

Response:
   rspc,7,setting,volume<CR>

setting: 0 = Never play page or doorbell in this zone.
                1 = Always play page or doorbell in this zone, even if the zone is off.
                2 = Zone On, always page or doorbell in this zone when the zone is already on.

volume: page volume of this zone.

Example:

ui: spc,7<CR>   (request current zone page setting)
rs232g: rspc,7,0,30<CR>   (never play page or doorbell in this zone, volume=30)

30) Set Zone Page

This command sets the page setting for the current zone.

Syntax:
   spc,8,setting,volume <CR>

setting: 0 = Never play page or doorbell in this zone.
                1 = Always play page or doorbell in this zone, even if the zone is off.
                2 = Zone On, always page or doorbell in this zone when the zone is already on.

volume: page volume of this zone.

Response:
   rspc,8,OK<CR>

Example:

ui: spc,8,1,30<CR>   (always play page or doorbell in this zone, volume=30)
rs232g: rspc,8,OK<CR>   (acknowledge that the command was executed)

31) Request Zone Turn ON Volume
This command provides you the current zone turn on volume.

Syntax:
    spc,9<CR>

Response:
    rspc,9,use preset,preset<CR>

use preset: 0 = use last volume.
               1 = preset volume.
preset: preset volume setting.

Example:
ui: spc,9<CR>   (request current zone turn on volume)
rs232g: rspc,9,0,30<CR>   (use last volume, volume preset=30)

32) Set Zone Turn ON Volume
This command sets the turn on volume for the current zone.

Syntax:
    spc,10,use preset,preset <CR>

use preset: 0 = use last volume.
               1 = preset volume.
preset: preset volume setting.

Response:
    rspc,10,OK<CR>

Example:
ui: spc,10,1,30<CR>   (use preset volume, volume preset=30)
rs232g: rspc,10,OK<CR>   (acknowledge that the command was executed)

33) Request Zone Max Volume
This command provides you the current zone maximum volume.

Syntax:
 spc,11<CR>

Response:
 rspc,11,max volume<CR>

max volume: maximum volume.

Example:
ui: spc,11<CR>   (request current zone turn on volume)
rs232g: rspc,11,30<CR>   (maximum volume is 30)

34) Set Zone Max Volume
This command sets the maximum volume for the current zone.

Syntax:
 spc,12,max volume <CR>

max volume: maximum volume.

Response:
 rspc,12,OK<CR>

Example:
ui: spc,12,50<CR>   (set maximum volume to 50)
rs232g: rspc,12,OK<CR>   (acknowledge that the command was executed)

35) Set Volume in current zone
This command sets a new volume level for the current zone.
Note: This command will over ride the max volume setting in the GXR2. The user should request the current max volume with the *Request Zone Max Volume* command and avoid exceeding this level.

Syntax:
    spc,13,volume<CR>

Volume: new volume level 0-100

Response:
    rspc,13,volume<CR>

Example:
ui: spc,13,55<CR>   (set current volume to 55)
rs232g: rspc,13,55<CR> (acknowledge that new volume is 55)

36) Set volume in any Zone
This command sets a new volume level for any zone.
Note: This command will over ride the max volume setting in the GXR2. The user should request the current max volume with the *Request Zone Max Volume* command and avoid exceeding this level.

Syntax:
    spc,14,zone,volume<CR>

zone: zone to set volume in 1-30
volume: new volume level 0-100

Attempting to set a new volume level in a zone that does not exist will be ignored by the GXR2. The command will be accepted by the rs232g however.

Example:
ui: spc,14,2,55<CR>   (set volume in zone 2 to 55)
rs232g rspc,14,2,55<CR>   (acknowledge that new volume in zone 2 will be 55)

System Commands

37) Reset Command

This command reset the RS232G box. After the reset is performing the RS232G will send an Unsolicited Command – Ready Command: USC,1.

Syntax:
    syc,1<CR>

Response:
    None.

Example:
ui: syc,1<CR>   (reset command)

38) Report Mode Command

This command sets the RS232G to work in manual or automatic mode. Automatic mode means that the RS232G will send unsolicited command according to what events happen, for instance if we send a zone transport command to increase the volume the RS232G will send an unsolicited command zone status in order that the third party device will update the volume variable they are managing. Work in manual mode means that you have to poll the RS232G in order to get status for zone or source or if there are menu items to be display, etc. There are 5 levels of report mode available. The report mode setting is kept is you loose power.

Syntax:
    syc,2,mode<CR>

Response:
    rsyc,2,mode<CR>

mode: 0=manual,
       1=automatic zone and source status (USC,2 USC,3, USC,7 USC,8)
       2=automatic zone and source status plus metadata (USC,2 USC,3 USC,4 USC,9 USC,8)
       3=automatic zone and source status plus menu (USC,2 USC,3 USC,7, USC,10 USC, 9)
       4=automatic zone and source status, plus menu and metadata (USC,2 USC,3 USC,4 USC,9 USC,10 USC,9)

       The factory default mode 'out of the box' is mode=0.

Example:
ui: syc,2,1<CR>   (set in automatic mode)
rs232g: rsyc,2,1<CR>   (acknowledge that the command was execute).

If this command is issued without a parameter it will report the current setting.

Example:
ui: syc,2<CR>   (query automatic mode)
rs232g: rsyc,2,1<CR>   (in this case reports that current mode is 1)

39) Rebuild EEPROM
This command restores the external EEPROM like the first time that the RS232G was powered up. After the command is perform the RS232G reset it self.

Warning! Do NOT issue this command if you have changed the baud rate with Intellifile-3! This command will reset the baud rate back to 9600 and you can only set it to something else with Intellfile-3.

Syntax:
    syc,3<CR>

Response:
    None

Example:
ui: syc,3<CR>   (perform rebuild EEPROM command)

Unsolicited Commands

40) Ready Command
This command is send to the third-party device to indicate that the RS232G is ready to work.

Syntax:
    usc,1<CR>

41) Zone Status Command
This command is sent to the third-party device as a response (when the third-party device sends the command Request Current Zone Status) or this command is sent every time that an event happens to the zone like increase volume or this command is sent every 3 seconds (the last two only when the RS232G is set in any of the automatic update modes).

Syntax:
    usc,2,zone,master key,volume,mute,bass,treble,balance,slot<CR>

zone: current zone (1 to 30).
master key: current master key (1 to 8).
volume: current zone volume (1 to 100).
mute: current zone mute status, 1=mute, 0=un-mute.
bass: current zone bass (-10 to +10).
treble: current zone treble (-10 to +10).
balance: current zone balance (-50 to +50).
slot: current source number selected.

42) Source Status Command
This command is sent to the third-party device as a response (when the third-party device sends the command Request Source Status) or this command is sent every time that an event happens to the source like signal strength change or this command is sent every 2 second (the last two when the RS232G is set in any of the automatic modes).

Syntax:
    usc,3,source,type,antenna,signal strength,stereo,shuffle,pause<CR>

source: current source number.
type: 1 = XM.
        2 = Sirius.
        3 = iPod.
        4 = AM / FM.

5 = Audio.
6 = Lutron.
7 = HD AM / FM
8 = AM / FM Export
antenna: 0 = no antenna.
              1 = antenna present.
signal strength: 0 = no signal.
                      1 = low.
                      2 = middle.
                      3 = good.
stereo: 0 = no stereo.
             1 = FM stereo.
shuffle: 0 = no shuffle mode.
             1 = shuffle mode.
pause: 0 = no paused.
             1 = paused.

43) Metadata Status Command
This command is sent to the third-party device as a response (when the third-party device sends the command Request Metadata Status) or this command is sent every time that an event happens to the source like station change (the last one when the RS232G is set in automatic mode 2 or 4).

Syntax:
    usc,4,#,id1,bts1,name1,…,idN,btsN,nameN<CR>

#: Number of available metadata.
id: 3 = Artist.
        4 = Song.
        5 = Channel.
        6 = Channel Number.
        7 = Category or Genre.
        8 = Album Title.
        9 = Image Reference.
        10 = Truck Number.
        11 = Band.
        12 = Frequency.
        13 = Generic Label 1.
        14 = Generic Data 1.
bts: bytes of the metadata.
name: metadata string.

44) Available Soft Keys Command

This command is sent to the third-party device as a response (when the third-party device sends the command Request Available Soft Keys) After you received this command you have to perform the command Request Soft Key Information as many times as available Soft Keys do you have; starting with index 0 and increase it after the Request Soft Key Information is perform in order to get the next Soft Key Information.

Syntax:
    usc,5,#<CR>

#: Numbers of available Soft Keys.

45) Available Menu Items Command

This command is sent to the third-party device as a response (when the third-party device sends the command Request Available Menu Items). After you received this command you have to perform the command Request Menu Item Information as many times as available Menu Items do you have; starting with index 0 and increase it after the Request Menu Item Information is perform in order to get the next Menu Item Information.

Syntax:
    usc,6,#,bytes,title,menus_type<CR>

#: Numbers of available Menu Items.
bytes: bytes of the title.
title: title string.
menus_type: -1 = now playing screen (do not support alphanumeric search)
                     0 = menus that do not support alphanumeric search
                     1 = menus that support alphanumeric search

46) Available Metadata and Soft Keys Command

This command is sent to the third-party device every time that an event happens to the source like go back from the menu screen and need to update metadata and soft keys (only when the RS232G is set in automatic mode 1 or 3). After you received this command you have to perform the command Request Metadata Status and then perform the command Request Available Soft Keys or vice versa.

Syntax:
    usc,7<CR>

47) Available Soft Keys and Menu Items Command

This command is sent to the third-party device every time that an event happens to the source like go to the menu screen and need to update menus items and soft keys (only when the RS232G is set in automatic mode 1 or 2). After you received this command you have to perform the command *Request Available Soft Keys* and then perform the command *Request Available Me*nu Items or vice versa.

Syntax:
    usc,8<CR>

48) Soft Keys Status Command

This command is sent to the third-party device as a response (when the third-party device sends the command *Request Soft Keys Status*) or this command is sent every time that an event happens and the soft keys need to be updated (the last one when the RS232G is set in automatic mode 2, 3 or 4).

Syntax:
    usc,9,#,index1,type1,behavior1,bytes1,name1,…,indexN,typeN,behaviorN,bytesN,nameN<CR>

#: Numbers of available soft keys.
index: Index of the Soft Key. Index start in 0.
type: 0 = Default.
          1 = Page Down.
          2 = Page Up.
          3 = Select.
          4 = Back.
          5 = Menu.
          6 = Guide.
          7 = Favorites.
          8 = Transport.
behavior: 0 = no alternate behavior.
               1 = alternate behavior.
bytes: bytes of the name.
name: name string.

49) Menu Items Status Command
This command is sent to the third-party device as a response when the third-party device sends the command *Request Menu Items Status*.

Syntax:
    usc,10,bytes,title,#,index1,behavior1,bytes1,name1,…,indexN,behaviourN,bytesN,nameN<CR>

\#: Numbers of available Menu Items.
bytes: bytes of the title.
title: title string.
index: Index of the Menu Item. Index start in 0.
behavior: 0 = no alternate behavior.
                 1 = alternate behavior.
bytes: bytes of the name.
name: name string.

50) Menu Items Status Command Extended
This command is sent to the third-party device as a response every time that an event happens and the menu items need to be updated when the RS232G is set in automatic mode 3 or 4. This response adds the menu type to the *Menu Items Status Command* (USC,10) described above. This response is ONLY issued when the interface is in automatic mode 3 or 4).

Syntax:
    usc,11,bytes,title,menus_type,#,index1,behavior1,bytes1,name1,…,indexN,behaviourN,bytesN,nameN<CR>

\#: Numbers of available Menu Items.
bytes: bytes of the title.
title: title string.
Menus_type: -1 = now playing (do not support alphanumeric search)
                 0 = menus that do not support alphanumeric search.
                 1 = menus that do support alphanumeric search
index: Index of the Menu Item. Index start in 0.
behavior: 0 = no alternate behavior.
                 1 = alternate behavior.
bytes: bytes of the name.
name: name string.

51) Short Zone Status Command
This command is sent to the third party device whenever a change occurs in the status of a zone that is NOT the currently selected zone. This command is only sent when the update mode is set to any of the automatic modes.

Syntax:
    usc,12,zone,master key,what_changed<CR>

zone: Zone in which status has changed (1-30).
master key: The new status of the zone. Either 0 if the zone is now off, or 1-8 to indicate the new master key selection.
what_changed: Is a bit wise representation of each possible change to the zone status as follows:
        Zone Status (master key) changed = 1
        Volume Status changed = 2
        Mute Status changed = 4
        Balance changed = 8
        Bass changed = 16
        Treble changed = 32

52) New Metadata Available Command
This command is sent to the third party device as a response every time that new metadata for an active source (turned on in at least one zone) changes in a zone where it is not the current active source. This command is only sent when the update mode is set to any of the automatic modes.

Syntax:
        usc,13,src

Where *src* is the number of the active source whose metadata has changed.
The third party device should connect as the active source to obtain the new metadata.

Response Commands

53) OK Command
This command is a confirmation that a Command Performed has been executed without problems.

Syntax:
    rXXX,key code,OK<CR>

XXX: name of the command.
        znc = zone commands.
        znt = zone transport commands.
        src = source commands.
        srt = source transport commands.
        spc = special commands.
        syc = system commands.
key code: take the same key code of the command.

54) Fail Command
This command is indicate that a Command Performed has been failed.

Syntax:
    rXXX,key code,FAIL,description<CR>

XXX: name of the command.
        znc = zone commands.
        znt = zone transport commands.
        src = source commands.
        srt = source transport commands.
        spc = special commands.
        syc = system commands.
key code: take the same key code of the command.
description:
    1   Cannot allocate memory to process message.
    2   Invalid command.
    3   Incomplete message: missing command.
    4   Incomplete message: missing parameter.
    5   Cannot allocate memory to process command.
    6   Cannot change the zone: invalid zone number.
    7   Invalid key code.
    8   Is not allowed hold flag.
    9   Is not allowed repeat flag.
    10 Invalid flag.
    11 Is not allowed flags.

12 Cannot find the zone: invalid index.
13 Cannot find the source: invalid index.
14 Cannot find the soft key: invalid index.
15 Cannot find the menu item: invalid index.
16 IP Address is not defined.
17 Alternative behavior is not supported.
18 RS232G is waiting previous special command answer.
19 RS232G is waiting previous special command setting answer.
20 Parameter 1 is out of the range.
21 Parameter 2 is out of the range.
22 Parameter 3 is out of the range.
23 Parameter 4 is out of the range.
24 Invalid parameter: to many dots.
25 Invalid parameter: must be all numbers.
26 Menu is not available.
27 Pound (#) or bytes do not match with the string value bytes that you taped.
28 Menu does not support alphanumeric search