QUINTA CONTROL PROTOCOL V1.8

- CU communication channels: serial (RS232/USB) - 56700 baud (8Bits, no Parity, 1 Stop), TCP/IP telnet - port 23.
- All the commands are encoded using ASCII, each command should end with ASCII 0x0D (carriage return).
- After receiving a valid command from controller, the CU will reply with ">" to signal that it is ready for the next command. Controller should never send another command to CU before receiving the ">" message. The only circumstance you are allowed to send a command without ">" acknowledgement is due to timeout purpose (">" not received after 5 seconds since last command sent to CU).

Important:
Please note, to start with communication on one of the ports you must always initial send the 'U 0' command to start communication on the port you would like to use (it doesn't matter if you are using Serial, USB or Ethernet connection). After that you can communicate only on that port as long as you do not "Login" on Quinta on another communication port. If you are not logged in, you get the response "System locked".

History:

Version	Changes	Author
V1.0	• Release of Document	GF
V1.1	• Sorting Parameters	MF
V1.2	• Adding '~Q 00' command (Clears all registered and speaking MUs)	GF, MF
V1.3	• Changing '~Q 00' command description to "Clear all registered MUs	PE
V1.4	• Changing some information of 'i' and 'q' command • Adding additional information on how to use '~Q 00' command on double delegate stations.	PE
V1.5	• Adding History and List of Content • Correcting 'A' command description • Adding description of stream information to command 'Q' • Changing name of '~Q 00' to '~Q _0' command, because it can be used as '~Q 10' also • Changing format of command 'c' example • Adding 'a' command and description for it	MF
V1.6	• Did some layout changes	MF
V1.7	• Description update x command (section DARR/PnP version) • Description update V A command (additional Note regarding the version numbering)	PE
V1.8	• Additional details for the "U 0" - command	PE

1 List of Contents

2 Commands for internal Audio Control

2.1 "P" commands - DSP Read/Write

Direction – controller->CU->DSP
Format:
P r - read register "r". Upon each read the CU will generate a reply of type "DSP[r]=v";
P r v – write "v" value to "p" register;

r,v – ASCII hex byte – [min 00 / max FF]

Note:
If "r" < 0x0F the command will be void and will not be executed.

Example:
Read register 0x10 (Volume Master):
Controller -> CU: P 10 (read Volume Master Volume Value)
CU -> Controller: DSP[10]=0x0C
CU -> Controller: >

Write register 0x10 (Volume Master)
Controller -> CU: P 10 00 (set DSP Volume Master to 0dB)
CU -> Controller: DSP[10]=0x00
CU -> Controller: >

2.2 "b" commands - AVB Read/Write

Direction – controller -> CU -> AVB
Format:
b c n – send AVB read command "c" and read "n" bytes. CU will reply the read command with ***AVB[c]=0x…***
b c n x y – send AVB write command "c" with "n" byte parameters (will be taken from x, y)

c – ASCII hex byte – [min 00 / max FF];
n – ASCII hex byte – [min 00 / max 08] – maximum 8 bytes can be written to AVB on a single command;
x, y – DWORD – [min 00 / max FFFFFFFF].

"y" will be used only if "n">4.

Example:
Read register:
Controller -> CU: b 10 4 (send AVB read command 10 and read 4 bytes as response)
CU -> Controller: AVB[10]=0xC0A80104
CU -> Controller: >

Write register:
Controller -> CU: b 10 4 C0A80104 (send AVB write command 0x10 with the following bytes as parameters 0xC0, 0xA8, 0x01, 0x04)

3 General Commands

3.1 "U" command - Communication channel unlock

Direction: controller->CU.
Format:
U 0 psw – unlock current communication channel;
U 1 npsw – change password and save it to EEPROM;
U B - lock all the communication channels;

Note:
psw – current password (max. 15 ASCII characters); empty, if no psw is set (factory default)
npsw – new password (max. 15 ASCII characters)
"U 1 npsw" will be executed only after unlocking the current channel.
Same Password as in the Quinta PC-Software, Menu-Button → Startup Settings → Set Password

3.2 "V" command - Show version and Configuration info

Direction: controller->CU.
Format:
V – show version;
V A – show version and configuration;

Note:
The response contain a version information like: "DARRFW V35". DARRFW is a identical to the PnP Version (Qunita Software) with the slight difference that the PnP additionally reports a precesding '1.'

3.3 "c" commands - TCP/IP configuration

Direction – controller -> CU
Format:
c - shows MAC, IP, IPMASK, GTW and DHCP Status (Enabled/Disabled)
c 2 a - changeIP
c 3 a - change IPMASK
c 4 a - change GTW
c 5 f - change DHCPEn (f=0 DHCP disabled, f=1 DHCP enabled)
c 6 p - apply & save to SPI flash the new configuration (p=0x1422)

IP address must be ASCII hex (8 ASCII hex characters =4 bytes)

Example:
For setting IP=192.168.1.55 the following command should be used:

```
c 2 3701A8C0
    ||||||||
    ||||||++--> 0xC0=192
    ||||++----> 0xA8=168
    ||++------> 0x01=1
    ++--------> 0x37=55
```

For saving the new configuration in SPIFlash the following fixed command must be used:
c 6 1422

3.4 "~^d" command – Remote Power-Off MUs

Direction: controller->CU->MU.
Format:
~^d – power-off MUs

4 Conference Control Commands

4.1 "A" command - MU start/stop Speaking

Direction – controller->CU->MU
Format:
A muad m f

muad – MU ID - [min 1 / max FFFFFF]
m - start/stop speaking – [1 – start, 0 - stop]
f - MU flags – [min 00 / max FF]

```
76543210 <- bit in MU flags
||||||||
||||++++-----------> allocation mode (see below)
|+++---------------> MU zone (Zone 0x1 - 0x4)
+------------------> N.U.

Allocation mode:
SDel  = 0x0 - Single Delegate
DDelL = 0x1 - Double Delegate Left
DDelR = 0x9 - Double Delegate Right
Chrm  = 0x2 - Chairman
```

Note:
This command works only while PC control mode is activated (see "J" command, **PCCtrl=1**).

4.2 "i" command - Clear all speaking MUs

Direction – controller->CU->MU
Format:
i 00

Note:
This command will not clear the request to speak status of MUs (see ~Q 00), it clears only open mics.

4.3 "q" command – MU Request to Speak

Direction – MU -> CU -> controller
Format:

q muad m f - request to speak

muad – MU ID - [min 1 / max FFFFFF]
m - start/stop speaking
f - MU flags

```
76543210 <- bit in MU flags
||||||||
||||++++-----------> allocation mode
|+++---------------> MU zone
+------------------> N.U.

alocation mode:
SDel  = 0x0 - Single Delegate
DDelL = 0x1 - Double Delegate Left
DDelR = 0x9 - Double Delegate Right
Chrm  = 0x2 - Chairman
```

4.4 “a” command – MU Request to Speak

Note:
Similar command as “q” but needed for internal redundancy mechanism (not needed for end customer!)

4.5 “Q” command – MU Allocation/De-allocation on a Stream

Direction – CU->controller
Format:
Q muad m s - right/left or single delegate, allocated/de-allocated to/from a specific Stream.

muad – MU ID - [min 1 / max FFFFFF]

```
m
76543210 <- bit in m
||||||||
|||||||+----> allocated/de-allocated (1=allocated)
||||+++-----> N.U.
|||+--------> right/left or single delegate (1=right)
+++---------> N.U.

s - allocation stream

0C:   MU allocated on stream 1
0D:   MU allocated on stream 2
0E:   MU allocated on stream 3
0F:   MU allocated on stream 4
```

Note:
Command is generated by CU when a MU Allocation/De-allocation event occurs.

4.6 “S” - command - Display / modify CU allocation table

Direction – CU->controller
Format:
S 0 – display the allocation table
S C – display stream C status
S D - display stream D status
S E - display stream E status
S F - display stream F status
S C v - change stream C status
S D v - change stream D status
S E v - change stream E status
S F v - change stream F status

```
v
76543210 <- “v” bits
||||||||
|||||||+-------> stream activated/deactivated
||||||+--------> chairman reserved
++++++---------> N.U.
```

Answer format:
StrX muad FLAGS MUFlags

FLAGS

```
76543210 <-- FLAGS bits
||||||||
|||||||+-----> stream activated/deactivated
||||||+------> stream left - allocated/free
|||||+-------> stream right - allocated/free
||||+--------> stream timer on/off
|||+---------> stream timer overflow
||+----------> stream reserved for chairman
|+-----------> MuteStatus (Stream muted in priority mode 1)
+------------> N.U.
```

MUFlags

```
76543210 <- MUFlags bits
||||||||
|||||+++--------> Allocation mode
||||+-----------> Flag left/right (only for double delegate)
|+++------------> Zone
+---------------> N.U.

Allocation mode
0x0 - Single Delegate (SDel)
0x1 - Double Delegate (DDelL, DDelR)
0x2 - Chairman(Chrm)
0x3 - Listener(Lstn)
```

4.7 “~Q _0” command - Clear speak request on MUs

Direction – controller->CU->MU

Format:

~Q 00 **clears Single Delegate and Double Delegate left button speak requests**
~Q 10 **clears Double Delegate right button speak requests**

Note:
This command works only while PC control mode is activated (see “J” command, **PCCtrl=1**).
For clearing all MUs in speaking and request mode send:
i 00
~Q 00
~Q 10

4.8 “x" command - MU information message

Direction: MU->CU->controller
Format:

```
x muad m f v
|      | | |
|      | | +---------> Versions
|      | +-----------> MU status (Bat. level, RF level &Charger status)
|      +-------------> MU Flags
+--------------------> command code "x"

muad - source MU ID - [min 1 / max FFFFFF]

m - MU flags
FEDCBA9876543210 <- m bits
|||||||||||||||
|||||||||||||+++-------> Allocation mode
||||||||||||+-----------> left/right flag (only for double delegate)
|||||||||+++-----------> MUZone
||||||||+---------------> 0 (N.U.)
||||++++----------------> Hardware Type
++++--------------------> N.U.

Allocation mode
0x0 - Single Delegate (SDel)
0x1 - Double Delegate (DDelL, DDelR)
0x2 - Chairman(Chrm)
0x3 - Listener(Lstn)

HWType values:
0 - Single MU Unit
1 - Double MU Unit
2 - Chairman MU Unit

f - status
76543210 <- Status bits
||||||||
|||||+++--------> BatLevel
|||++------------> RFLevel
||+---------------> Charger on/off
|+----------------> Charger error
+-----------------> N.U.

BatLevel
4 - 100%
3 - 80%
2 - 60%
1 - 40%
0 - 20%
v - versions
11111111000000000000000000
76543210FEDCBA9876543210 <- v bits
||||||||||||||||||||||||||
||||||||||||||++++++++---> FW build
||||||||||||++++-----------> FW revision
||||||||++++-----------------> FW version
++++++++--------------------> PnP version (without preceding ‘1.’)
```

Note:
The message is sent periodically by MUs to CU.

5 Configuration Commands

5.1 "J" commands - system configuration

Direction – controller->CU
Format:

J – shows: PC Control Status, PIN Status, NOM Status, Last Mic. Hold Status and Manuel RF-Channel Selection Status
J 1 m - change PC Control Mode (0 = Stand-Alone/1 = PC Control)
J 4 m - change PIN State (0 = Disable/1 = Enable)
J 5 m - change NOM override State (0 = Disable/1 = Enable)
J 6 n - change NOM (1 – 4)
J 8 n - change RF Mode (0 = Auto/1 = Manuel, fix RF-channel)
J 9 n - change global NOM (0 = use NOM in allocation/1 = NOM globally disabled)
J A n - change Speak/Allocation Mode (0 - Toggle / 1 - Push To Talk / 3 - Voice activation)
J B n - change MU Button Power Off (0 – deactivate MU Button Power Off / 1 – activate MU Button Power Off)
J C n - change Priority Mode (see below)
J 10 v - change Last Mic. Hold (0 - Last Mic. Hold disabled / 1 - Last Mic. Hold enabled)
J 11 c - change Manuel RF Channel (see below)

Controls:
Priority Modes:
- 0 - Normal (Toggle)
- 1 - Mute (Toggle)
- 2 - Clear Prio.
- 3 - Mute Aux IN (Toggle)
- 4 - Mute Aux In & Clear (Toggle)
- 5 - Mute Aux Out (Toggle)
- 6 - Com. Message send
- 7 - Custom strings

Manuel RF-Channel Selection:
- 0 - 2.4 GHz Low
- 1 - 2.4 GHz Mid
- 2 - 2.4 GHz High
- 3 - 5.2 GHz Low
- 4 - 5.2 GHz Mid
- 5 - 5.2 GHz High
- 6 - 5.8 GHz Low
- 7 - 5.8 GHz Mid
- 8 - 5.8 GHz High

5.2 "i" command "Clear" chairman message

This message will be received from CU after a chairman had pressed his "Clear" button!

Direction – MU->CU->controller
Format :
i p - clear

5.3 “l” command – Change "Priority" Mode

Direction – MU->CU->controller
Format:
l p - priority

p values:
0 - Normal
1 - Mute
2 - Clear Prio.
3 - Mute Aux IN
4 - Mute Aux In + Clear
5 - Mute Aux Out
6 - Com. Message send
7 - Custom strings

5.4 “s” commands - Show / change custom string for Priority mode 7

Direction – controller->CU
Format:
s – show custom strings
s 0 str - change str & save it to Custom_String0
s 1 str - change str & save it to Custom_String1

Note:
str - max. 15 ASCII characters

5.5 “~p” command - MU ping and speaking warning time

Direction: controller->CU->MU.
Format:
~**p muad** - ping LED Mic
~**p muad m** - activate/deactivate warning time speaking (WTS)

Note:
m:
0 - stop WTS signaling;
1 - WTS signaling simple delegate or double delegate left
2 - WTS signaling double delegate right
3 - WTS signaling double delegate left & right