

RB-DEED8 and RB-DEDD8

Command Protocol

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1 Notes

TCP connections must be made to port 31780.

All commands are sent as strings. These strings can be terminated with `\r\n` or `\n` but this is not necessary.

Unless otherwise stated, all numbers used in commands are in Hexadecimal format.

If a number (n) appears before a square bracket, then this data is repeated n times. For example if a command appears as `CMD:2[x,y,z,]` then the actual command sent is `CMD:x,y,z,x,y,z`

2 Common Commands

2.1 AMS

Command: **AMS:p**

Description: Get Dolby E program AC-3 metadata status. See Dolby documentation for definitions.

Parameters: p = program number (0-7)

Returns: **AMS:p,t,26[a,]**

p = program number (0-7)

t = Program description

a = AC-3 metadata values

The parameter values are returned in the following order :-

- Dialogue normalization
- Coding mode
- LFE channel
- Bit-stream mode
- Line mode profile
- RF mode profile
- Center downmix level
- Surround downmix level
- Dolby surround mode
- Audio production information exists
- Mixing level
- Room type
- Extra bitstream information exists
- Preferred downmix
- Lt/Rt Center mix
- Lt/Rt Surround mix
- Lo/Ro Center mix
- Lo/Ro Surround mix
- Dolby Surround EX mode

DC Filter
Low-pass filter
LFE low-pass filter
Surround phase shift
Surround attenuation

2.2 CMS

Command: **CMS:**
Description: Get common metadata status.
Parameters: None
Returns: **[RB-DEED8]**

CMS:a,b,c
a = Program configuration

0 = 5.1 + 2	1 = 5.1 + 2x1
2 = 4 + 4	3 = 4 + 2x2
4 = 4 + 2 + 2x1	5 = 4 + 4x1
6 = 4x2	7 = 3x2 + 2x1
8 = 2x2 + 4x1	9 = 2 + 6x1
10 = 8x1	11 = 5.1
12 = 4 + 2	13 = 4 + 2x1
14 = 3x2	15 = 2x2 + 2x1
16 = 2 + 4x1	17 = 6x1
18 = 4	19 = 2 + 2
20 = 2 + 2x1	21 = 4x1
22 = 7.1	23 = 7.1 Screen

b = Frame rate

1 = 23.98 fps
2 = 24 fps
3 = 35 fps
4 = 29.97 fps
5 = 30 fps

c = Bit depth

0 = 20-bit
1 = 16-bit

[RB-DEDD8]
CMS:a,b
a = Program configuration
See above.
b = Frame rate
See above.

2.3 MAC

Command: **MAC:**
Description: Get unit MAC address.

Parameters: None.
Returns: Returns unit MAC address as a 12 character string
MAC:xxxxxxxxxxxx

2.4 NET

Command: **NET:x,y,z** (SET)
NET:t (GET)

Description: Get static or current network address.
Set static address. The addresses are sent/received in standard format i.e.
192.168.0.1

Example: **NET:192.168.1.28,255.255.255.0,192.168.1.1**
Sets the static IP address to 192.168.1.28, the static subnet mask to 255.255.255.0 and the static gateway to 192.168.1.1.
NET:0
Gets the static address settings.

Parameters: GET operation
t = address type -
0 = static IP/gateway/subnet address
1 = current IP/gateway/subnet address
SET operation
x = IP address
y = Subnet mask
z = gateway

Returns: Get operation
NET:t,x,y,z
Set operation
ACK: or
ERR:n

2.5 NOP

Command: **NOP:x,y** (SET)
NOP:x (GET)

Description: Get/Set network options. Currently only one option available.

Example: **NOP:0,1**
Enables DHCP.

Parameters: GET operation
x = option number
0 = DHCP enable/disable.
SET operation
x = option number
0 = DHCP enable/disable.
y = option value
0 = disable
1 = enable

Returns: Get operation
NOP:x,y
Set operation
ACK: or
ERR:n

2.6 PFR

Command: **PFR:**
Description: Performs factory reset.
Parameters: None
Returns: **ACK:**

2.7 RWC

Command: **RWC:u,p**
Description: Request write permission. This must be called once a connection has been made, to allow the connection to perform SET commands. Not needed if only reading status. Write permission can only be granted to a single connection at any one time.
Parameters: u = user name
p = password
Returns: **ACK:** on success
ERR:n or
NAK: when user name/password is incorrect or write permission has already been granted to another connection.

2.8 SER

Command: **SER:**
Description: Get unit serial number.
Parameters: None
Returns: Returns unit serial number.
SER:xxxxxx

2.9 SRQ

Command: **SRQ:t**
Description: Get unit status.
Parameters: t = status group (0-5)
[RB-DEED8]
0 = System status
2 = Encoder
3 = External audio I/O
4 = Encoder inputs
5 = Remotes
[RB-DEDD8]

- 0 = System status
- 2 = Decoder
- 3 = External audio I/O
- 4 = Decoder outputs
- 5 = Remotes

Returns:

[RB-DEED8]

System Status

SRQ:0,a,b,c,d,e,f

- a = Metadata
- b = Encode
- c = Control lock
- d = Video ref lock
- e = Video ref rate
- f = Channel activity

Encoder

SRQ:2,a,b,c,d,e,f

- a = Encoding mode
 - 0 = Dolby E encoding
 - 1 = Pass-through
 - 3 = Dolby E encoding test -18dBFS
 - 4 = Pass-through test -18dBFS
 - 5 = Dolby E encoding test -20dBFS
 - 6 = Pass-through test -20dBFS
 - 7 = Dolby E encoding test silence
 - 8 = Pass-through test silence
- b = Pass-through latency
 - 0 = Normal
 - 1 = Minimum
- c = Pass-through SRC
 - 0 = Enabled
 - 1 = Disabled
- d = Output clock source
 - 0 = Video frame sync
 - 1 = Internal clock
 - 2 = Input CH1/2
- e = Metadata source
 - 0 = External
 - 1 = Internal
- f = Reversion mode
 - 0 = Last used
 - 1 = Internal
 - 2 = Stop encoding

External audio I/O

SRQ:3,a

a = External audio termination

bit 0 = channel 1/2 (0 = 75 Ohm, 1 = 110 Ohm)

bit 1 = channel 3/4 (0 = 75 Ohm, 1 = 110 Ohm)

bit 2 = channel 5/6 (0 = 75 Ohm, 1 = 110 Ohm)

bit 3 = channel 7/8 (0 = 75 Ohm, 1 = 110 Ohm)

bit 4 = Dolby output 1 (0 = 75 Ohm, 1 = 110 Ohm)

bit 5 = Dolby output 2 (0 = 75 Ohm, 1 = 110 Ohm)

Encoder inputs

SRQ:4,8[a],b

a = Channel gain for each available channel.

0 = -24 dB

1 = -23.5 dB...

48 = 0 dB

49 = 0.5 dB...

96 = +24 dB

b = reserved

Remotes

SRQ:5,8[a]

a = Remote output setting. See **WRA**, **WRE** and **WRP** for definitions.

bit 0 = polarity

bit 1 = action

bits 7-3 = event

[RB-DEDD8]

System status

SRQ:0,a,b,c,d,e,f,g

a = Bit-stream format

0 = Dolby Digital 32-bit

1 = Dolby Digital 16-bit (channel 1)

2 = Dolby Digital 16-bit (channel 2)

3 = Dolby Digital 16-bit (channels 1 and 2)

4 = Dolby E 24-bit

5 = Dolby E 20-bit

6 = Dolby E 16-bit

7 = PCM

b = video sync status

0 = OK

1 = error

c = Frame rate

1 = 23.98 fps

2 = 24 fps

3 = 25 fps

4 = 29.97 fps

5 = 30 fps

d = Front panel lock status

0 = Not locked

1 = locked

e = Video ref lock

f = Video ref rate

g = Output activity

Decoder

SRQ:2,18[a,]

a = Decoder parameters listed in the following order.

Reserved

Reserved

Reserved

AES channel select

0 = AES channel 1

1 = AES channel 2

Stream select

0 = Auto

1 = Stream select 1

2 = Stream select 2

3 = Stream select 3

4 = Stream select 4

5 = Stream select 5

6 = Stream select 6

7 = Stream select 7

Listening mode

0 = Full

1 = Dolby Digital Surround EX

2 = 3 Stereo

3 = Phantom

4 = Stereo

5 = Mono

DRC mode

0 = Line

1 = RF

2 = Custom

3 = Bypass

DRC custom low level boost (0-10)

DRC custom high level cut (0-10)

DRC line low level boost (0-10)

DRC line high level cut (0-10)

Dialogue normalization

0 = disabled

1 = enabled
Pro-logic decode
0 = disabled
1 = enabled
PCM latency
0 = single frame
1 = minimum
PCM metadata enable/disable
0 = disabled
1 = enabled
AUX output mode
0 = Lt/Rt
1 = Lo/Ro
2 = Mono
3 = Mute
AUX DRC
0 = Line
1 = RF
AUX Dolby E program select (0-7)

External audio I/O

SRQ:3,10[a],b

a = Output channel routing for each output channel

0 = Decoder output channel 1
1 = Decoder output channel 2
2 = Decoder output channel 3
3 = Decoder output channel 4
4 = Decoder output channel 5
5 = Decoder output channel 6
6 = Decoder output channel 7
7 = Decoder output channel 8
8 = Decoder AUX left
9 = Decoder AUX right
10-31 = Silence

b = External audio termination

bit 0 = Dolby input (0 = 75 Ohm, 1 = 110 Ohm)
bit 1 = channel 1/2 (0 = 75 Ohm, 1 = 110 Ohm)
bit 2 = channel 3/4 (0 = 75 Ohm, 1 = 110 Ohm)
bit 3 = channel 5/6 (0 = 75 Ohm, 1 = 110 Ohm)
bit 4 = channel 7/8 (0 = 75 Ohm, 1 = 110 Ohm)
bit 5 = Dolby output (0 = 75 Ohm, 1 = 110 Ohm)
bit 6 = AUX 1/2 (0 = 75 Ohm, 1 = 110 Ohm)

Decoder outputs

SRQ:4,10[a]

a = Channel gain
0 = -24 dB
1 = -23.5 dB...
48 = 0 dB
49 = 0.5 dB...
96 = +24 dB

Remotes

SRQ:5,8[a]

a = Remote output setting. See **WRA**, **WRE** and **WRP** for definitions.

bit 0 = polarity
bit 1 = action
bits 7-3 = event

2.10 UID

Command: **UID:**
Description: Get unit ID.
Parameters: None
Returns: **[RB-DEED8]**
UID:RB-DEED8
[RB-DEDD8]
UID:RB-DEDD8

2.11 VER

Command: **VER:**
Description: Get version information. Note that version numbers are in decimal format.
Parameters: None
Returns: **VER:x.x.x,y.y,y,z.z.z.z**
x = Firmware version
y = FPGA version
z = Dolby OEM version

2.12 WAL

Command: **WAL:u,p**
Description: Set user name and password for write permission. Default user name is "admin" and default password is "admin".
Parameters: u = user name
p = password
Returns: **ACK:** or
ERR:n

2.13 WCG

Command: **WCG:x,y**
Description: Set channel gain in 0.5 dB increments.
Parameters: x = channel (0-25)
y = gain value (0-96)
0 = -24 dB
1 = -23.5 dB...
48 = 0 dB
49 = 0.5 dB...
96 = +24 dB
Returns: **ACK:** or
ERR:n

2.14 WDT

Command: **WDT:c,o**
Description: Set digital I/O termination.
Parameters: c = external audio connection number.
[RB-DEDD8] (0-5)
0 = Dolby input
1 = Channel 1/2
2 = Channel 3/4
3 = Channel 5/6
4 = Channel 7/8
5 = Dolby output
6 = AUX output
[RB-DEED8] (0-4)
0 = Channel 1/2
1 = Channel 3/4
2 = Channel 5/6
3 = Channel 7/8
4 = Dolby output 1
5 = Dolby output 2
o = option (0-1)
0 = 75 Ohm
1 = 110 Ohm
Returns: **ACK:** or
ERR:n

2.15 WFL

Command: **WFL:x**
Description: Get/Set front panel lock.
Parameters: x = enable/disable
0 = disable

Returns: 1 = enable
ACK: or
ERR:n

2.16 WRA

Command: **WRA:o,i,e**
Description: Set remote I/O action.
Parameters: o = remote number (0-7)
 i = input or output (0-1)
 0 = input
 1 = output
 e = action (0-1)
 0 = momentary
 1 = latched
Returns: **ACK:** or
ERR:n

2.17 WRE

Command: **WRE:o,i,e**
Description: Set remote I/O event.
Parameters: o = remote number (0-7)
 i = input or output (0-1)
 0 = input
 1 = output
 e = event
 [RB-DEDD8] (0-6)
 0 = none
 1 = decoder error
 2 = decoding Dolby E
 3 = decoding Dolby D
 4 = decoding PCM
 [RB-DEED8] (0-4)
 0 = none
 1 = encoder error
 2 = external/VANC metadata
 3 = encoding stopped
Returns: **ACK:** or
ERR:n

2.18 WRP

Command: **WRP:o,i,e**
Description: Set remote I/O polarity.
Parameters: o = remote number (0-7)

i = input or output (0-1)
 0 = input
 1 = output
e = polarity (0-1)
 0 = normally active
 1 = normally inactive

Returns: **ACK:** or
 ERR:n

3 RB-DEDD8 Commands

3.1 AMD

Command: **AMD:p**
Description: Get Program AC3 Metadata (Internal)
Parameters: p = Program number (0-7)
Returns: **AMD:p,t,24[a]**
 p = Program number (0-7)
 t = Program description
 a = AC-3 metadata settings
 Dialogue normalization
 Coding mode
 LFE channel
 Bit-stream mode
 Line mode profile
 RF mode profile
 Center downmix level
 Surround downmix level
 Dolby surround mode
 Audio production information exists
 Mixing level
 Room type
 Extra bitstream information exists
 Preferred downmix
 Lt/Rt Center mix
 Lt/Rt Surround mix
 Lo/Ro Center mix
 Lo/Ro Surround mix
 Dolby Surround EX mode
 DC Filter
 Low-pass filter
 LFE low-pass filter
 Surround phase shift
 Surround attenuation

3.2 CMD

Command: **CMD:**

Description: Get Common Metadata (Internal)

Parameters: None

Returns: **CMD:p,f,b**

p = program configuration

0 = 5.1 + 2	1 = 5.1 + 2x1
2 = 4 + 4	3 = 4 + 2x2
4 = 4 + 2 + 2x1	5 = 4 + 4x1
6 = 4x2	7 = 3x2 + 2x1
8 = 2x2 + 4x1	9 = 2 + 6x1
10 = 8x1	11 = 5.1
12 = 4 + 2	13 = 4 + 2x1
14 = 3x2	15 = 2x2 + 2x1
16 = 2 + 4x1	17 = 6x1
18 = 4	19 = 2 + 2
20 = 2 + 2x1	21 = 4x1
22 = 7.1	23 = 7.1 Screen

f = frame rate

1 = 23.98 fps
2 = 24 fps
3 = 35 fps
4 = 29.97 fps
5 = 30 fps

b = bit depth

0 = 20-bit
1 = 16-bit

3.3 WAM

Command: **WAM:p,a,b**

Description: Set Program AC3 Metadata (Internal)

Parameters: p = program number (0-7)

a = parameter number (0-23)

0 = Dialogue normalization
1 = Coding mode
2 = LFE channel
3 = Bitstream mode
4 = Line mode profile
5 = RF mode profile
6 = Center downmix level
7 = Surround downmix level
8 = Dolby surround mode
9 = Audio production information exists
10 = Mixing level

- 11 = Room type
- 12 = Extra bitstream information exists
- 13 = Preferred downmix
- 14 = Lt/Rt Center mix
- 15 = Lt/Rt Surround mix
- 16 = Lo/Ro Center mix
- 17 = Lo/Ro Surround mix
- 18 = Dolby Surround EX mode
- 19 = DC Filter
- 20 = Lowpass filter
- 21 = LFE lowpass filter
- 22 = Surround phase shift
- 23 = Surround attenuation

b = parameter value
See Dolby documentation.

Returns: **ACK:** or
ERR:n

3.4 WCM

Command: **WCM:p,d**

Description: Set Common Metadata (Internal)

Parameters: p = parameter number (0-2)

0 = program configuration

1 = frame rate

2 = bit-depth

d = parameter value

Program Configuration

- | | |
|-----------------|-----------------|
| 0 = 5.1 + 2 | 1 = 5.1 + 2x1 |
| 2 = 4 + 4 | 3 = 4 + 2x2 |
| 4 = 4 + 2 + 2x1 | 5 = 4 + 4x1 |
| 6 = 4x2 | 7 = 3x2 + 2x1 |
| 8 = 2x2 + 4x1 | 9 = 2 + 6x1 |
| 10 = 8x1 | 11 = 5.1 |
| 12 = 4 + 2 | 13 = 4 + 2x1 |
| 14 = 3x2 | 15 = 2x2 + 2x1 |
| 16 = 2 + 4x1 | 17 = 6x1 |
| 18 = 4 | 19 = 2 + 2 |
| 20 = 2 + 2x1 | 21 = 4x1 |
| 22 = 7.1 | 23 = 7.1 Screen |

Frame rate

- 1 = 23.98 fps
- 2 = 24 fps
- 3 = 35 fps
- 4 = 29.97 fps

5 = 30 fps
Bit-depth
0 = 20-bit
1 = 16-bit

Returns: **ACK:** or
ERR:n

3.5 WCS

Command: **WCS:c,s**
Description: Set output clock source.
Parameters: s = clock source (0-2)
0 = Video ref
1 = Internal
2 = Input CH1/2

Returns: **ACK:** or
ERR:n

3.6 WMS

Command: **WMS:s**
Description: Set Metadata Source
Parameters: s = metadata source (0-10)
0 = External
1 = Internal

3.7 WPT

Command: **WPT:p,t**
Description: Set Program Description Text (Internal)
Parameters: p = program number (0-7)
t = program text description (32 characters max)

Returns: **ACK:** or
ERR:n

3.8 WRM

Command: **WRM:m**
Description: Set Reversion Mode
Parameters: m = reversion mode (0-2)
0 = Last used
1 = Internal
2 = Stop encoding

Returns: **ACK:** or
ERR:n

3.9 WSC

Command: **WSC:p,d**
Description: Set Encoder Sys Control
Parameters: p = parameter number (0-2)
 0 = Encoding mode
 1 = Pass-through latency
 2 = Pass-through SRC
 d = parameter value
 if p = 0
 0 = Dolby E encoding
 1 = Pass-through
 3 = Dolby E encoding test -18dBFS
 4 = Pass-through test -18dBFS
 5 = Dolby E encoding test -20dBFS
 6 = Pass-through test -20dBFS
 7 = Dolby E encoding test silence
 8 = Pass-through test silence
 else if p = 1
 0 = Normal
 1 = Minimum
 else if p = 2
 0 = Enabled
 1 = Disabled
Returns: **ACK:** or
 ERR:n

4 RB-DEDD8 Commands

4.1 DMS

Command: **DMS:**
Description: Get Dolby Digital AC3 Metadata Status. See Dolby documentation for parameter values and definitions.
Parameters: None
Returns: **DMS:22[a,]**
 a = metadata status listed in the following order
 Data rate
 Dialogue normalization
 Coding mode
 LFE channel
 Bit-stream mode
 Dynamic range
 Compression

Center mix level
Surround mix level
Dolby Surround mode
Audio production information exists
Mix level
Room type
Extra bit stream information exists
Preferred downmix
Lt/Rt Center mix
Lt/Rt Surround mix
Lo/Ro Center mix
Lo/Ro Surround mix
Dolby Surround EX mode

4.2 PMR

Command: **PMR:N[p]**

Description: Get PCM Metadata

Parameters: p = parameter

2 = bit-stream mode
3 = coding mode
6 = Dolby surround mode
11 = audio production information exists
12 = mixing level
13 = room type
28 = DC filter
29 = low-pass filter
35 = RF mode profile
38 = line mode profile

Returns: **PMR:N[p,d]**

p = parameter

See the parameter section above.

d = parameter value

See Dolby documentation for parameter values and definitions.

4.3 WDC

Command: **WDC:p,d**

Description: Set Decoder Control

Parameters: p = parameter number, d = parameter value

3 = AES channel select
0 = AES channel 1
1 = AES channel 2
4 = stream select

- 0 = Auto
- 1 = Stream select 1
- 2 = Stream select 2
- 3 = Stream select 3
- 4 = Stream select 4
- 5 = Stream select 5
- 6 = Stream select 6
- 7 = Stream select 7
- 5 = listening mode
 - 0 = Full
 - 1 = Dolby Digital Surround EX
 - 2 = 3 Stereo
 - 3 = Phantom
 - 4 = Stereo
 - 5 = Mono
- 6 = DRC mode
 - 0 = Line
 - 1 = RF
 - 2 = Custom
 - 3 = Bypass
- 7 = DRC custom low level boost (0-10)
- 8 = DRC custom high level cut (0-10)
- 9 = DRC line low level boost (0-10)
- 10 = DRC line high level cut (0-10)
- 12 = Dialogue normalization
 - 0 = disabled
 - 1 = enabled
- 13 = Pro-logic decode
 - 0 = disabled
 - 1 = enabled
- 14 = PCM latency
 - 0 = single frame
 - 1 = minimum
- 15 = PCM metadata enable/disable
 - 0 = disabled
 - 1 = enabled
- 16 = AUX output mode
 - 0 = Lt/Rt
 - 1 = Lo/Ro
 - 2 = Mono
 - 3 = Mute
- 17 = AUX DRC
 - 0 = Line
 - 1 = RF
- 18 = AUX Dolby E program select (0-7)

Returns: **ACK:** or
ERR:n

4.4 WOS

Command: **WOS:c,s**

Description: Routes a channel to an external audio output.

Parameters: c = external audio output channel (0-9)

0 = channel 1

1 = channel 2

2 = channel 3

3 = channel 4

4 = channel 5

5 = channel 6

6 = channel 7

7 = channel 8

8 = AUX left

9 = AUX right

s = source (0-31)

0 = Decoder output channel 1

1 = Decoder output channel 2

2 = Decoder output channel 3

3 = Decoder output channel 4

4 = Decoder output channel 5

5 = Decoder output channel 6

6 = Decoder output channel 7

7 = Decoder output channel 8

8 = Decoder AUX left

9 = Decoder AUX right

10-31 = Silence

Returns: **ACK:** or
ERR:n

4.5 WPM

Command: **WPM:p,d**

Description: Set PCM Metadata

Parameters: p = parameter number

2 = bit-stream mode

3 = coding mode

6 = Dolby surround mode

11 = audio production information exists

12 = mixing level

13 = room type

28 = DC filter

29 = low-pass filter
35 = RF mode profile
38 = line mode profile

d = parameter value

See Dolby documentation for parameter values and definitions.

Returns: **ACK:** or
ERR:n

5 Error Values

When an error occurs on a particular command. **ERR:** will be returned along with an error code. These codes are described below.

- 0 = no error.
- 2 = unknown command.
- 3 = incorrect number of parameters.
- 4 = one or more of the parameters contained an invalid value.
- 6 = read only. A SET command was sent when the connection has no write permission.