RS-232 & IP Control Protocol

(For firmware version UDP20X-54-1127 or above. Last Updated December 15, 2017.)

RS-232:

The OPPO UDP-203/UDP-205 is equipped with an RS-232 port for wired remote control. The RS-232 port is configured as a DCE device using a female 9-pin D-Sub type connector. The pin out of the UDP-203/UDP-205 RS-232C port is as the following:

Pin	2	3	5
Signal	TXD	RXD	GND

This pin configuration allows a PC running a serial terminal program (such as Hyper Terminal) to communicate with the player using a straight-through DB9 9-pin RS-232 serial cable. Do NOT use a "Null-Modem" type cable for PC connection. For connection to a remote control system, please refer to the documentation that comes with the remote control system.

RS-232 Communication Settings:

Baud Rate	Data Bits	Parity	Stop Bit	Flow Control
9600	8	None	1	None

IP Control:

The OPPO UDP-203/UDP-205 supports IP control. This feature allows a network-connected device such as a PC or a smartphone to control the player. The player functions as a Server, which broadcasts a discovery message, waits and listens to the control port, responds to the client's connection, receives the client's commands, and performs the action. The network device functions as a Client, which receives and processes the discovery message, sets up the TCP connection with the Server, and sends the control commands. In the remainder of this document, we use "Server" for the Player and "Client" for the controlling device.

Once the Server is running, it will automatically broadcast a discovery UDP message every 10 seconds to notify any interested Client about its availability, as well as the IP address, the port number, and the Server's name. The Client needs to receive this broadcasting message, extract the IP address, port number, Server name, and establish the connection with the Server. Once the connection is done, the Client should also discard any future broadcasting messages.
The address used for the Server's message broadcast is: 239.255.255.251:7624

The format of the broadcasting message is:

Notify: OPPO Player Start
Server IP:
Server Port:
Server Name:

For example:

Notify: OPPO Player Start
Server IP: 192.168.0.2
Server Port: 23
Server Name: OPPO UDP-203

The Client will use the IP address and port number extracted from the broadcasting message to establish the TCP connection with the Server. If the IP address of the player is already known, the Client can omit the discovery step and try connecting directly to the Server at TCP port 23 on the player's IP address. Please note that the IP control protocol is carried over as TCP packets. Although the TCP port number 23 is commonly used for "telnet" programs, the Server is not a telnet server. A telnet program will break the keystrokes of the commands into smaller packets, which cannot be accepted by the IP control Server. If one needs to test the IP control protocol using an existing program, the "Packet Sender" program (https://packetsender.com/) is recommended.

Command Structure:

Each command starts with a # sign (ASCII 0x23), followed by a 3-character command code. If there are any parameters for the command, the parameters are given in text format, separated by a space (ASCII 0x20) from the command code. The # character (ASCII 0x23) must never appear in the parameters. A carriage return (ASCII 0x0d) indicates the end of the command. A line feed (ASCII 0x0a) can optionally follow the carriage return and will be ignored. Each command generally may not exceed 25 bytes including the start of command and end of command bytes.

The illustration of the command structure is as follows:

<Command> = <Start of Command><Command Code>[<sp><Parameters>]<End of Command>
<Start of Command> = #, ASCII 0x23
<Command Code> = <byte><byte><byte>
<sp> = space, ASCII 0x20
<Parameters> = command-specific
<End of Command> = CR, ASCII 0x0d LF, ASCII 0x0a

Response Structure:

Upon receiving a command, the player will try to execute the command and send back a response. The response starts with an “@” sign (ASCII 0x23), followed by the original command code and a space (ASCII 0x20), and a result code, either “OK” or “ER”. If there are any parameters or additional messages, the parameters or messages are given in text format, separated by a space (ASCII 0x20) from the result code. The “@” character (ASCII 0x40) must never appear in the parameters or message. A carriage return (ASCII 0x0d) indicates the end of response. Each response generally may not exceed 25 bytes including the start of response and the end of response bytes.

The illustration of the response structure is as follows:

<Response> = <Start of Response><Command Code><sp><Result Code>
[<sp><Parameters>]<End of Response>
<Start of Response> = @, ASCII 0x40
<Command Code> = <byte><byte><byte>
<Result Code> = OK|ER
<sp> = space, ASCII 0x20
<Parameters> = command-specific
<End of Response> = CR, ASCII 0x0d

Please note that when the verbose mode is 0 (default), the command code and the following space are omitted from the response. This is to maintain compatibility with control programs using older control protocol form the BDP-8x/9x/10x series. To ensure that the command code is included in the response, please set the verbose mode to 1 or above.

Status Update Messages Structure:

If the verbose mode is set to 2 or 3, the player will send status update messages automatically. These messages are not a response to any particular command. Any status change caused by commands from RS232 control, front panel buttons, IR remote control, or playback progress may trigger status update messages.

The status update messages have the following structure:

<Update> = <Start of Update><Status Code>[<sp><Parameters>]<End of Update>
<Start of Update> = @, ASCII 0x40
<Status Code> = <byte><byte><byte>
<sp> = space, ASCII 0x20
<Parameters> = status-specific
<End of Response> = CR, ASCII 0x0d

Command Sequence:

Commands are executed in the order they are received. The control client should wait for a response from the player before sending the next command.

If the player receives a new command before executing the previous command, the player may execute the commands in sequence or discard the previous command, depending on the internal processing of the player. The control client should avoid sending multiple commands in sequence without waiting for a response.

If the host does not receive a response from the player 10 seconds after the command is issued, the host may consider the command or response lost during transmission, and can retransmit the command.

Command List:

A. Commands that are mapped to a remote control button

This group of commands maps directly to the infrared remote control keys. No parameters are needed for these commands. The player handles the commands as if it receives the same IR remote commands. For actions that require a multiple-key sequence, such as go to a certain chapter (GOT command followed by multiple numeric key commands and the SEL command), the player responds to each command individually until the last command is received. At that time the player will respond with either OK or ER depending on the result of the action.

Command Code	Remote Key	Function	Response Example
POW	POWER	Toggle power STANDBY and ON	OK ON OK OFF
EJT	OPEN	Open/close the disc tray	OK OPEN OK CLOSE
PON	ON	Discrete on	OK ON
POF	OFF	Discrete off	OK OFF
DIM	DIMMER	Dim front panel display	OK ON OK DIM OK OFF
PUR	PURE AUDIO	Pure Audio mode (no video)	OK ON OK OFF
VUP	VOL +	Increase volume	OK n (n is the volume number, 0 – 100)
VDN	VOL -	Decrease volume	OK n (n is the volume number, 0 – 100)

MUT	MUTE	Mute audio	OK MUTE OK UNMUTE
NU1	1	Numeric key 1	OK
NU2	2	Numeric key 2	OK
NU3	3	Numeric key 3	OK
NU4	4	Numeric key 4	OK
NU5	5	Numeric key 5	OK
NU6	6	Numeric key 6	OK
NU7	7	Numeric key 7	OK
NU8	8	Numeric key 8	OK
NU9	9	Numeric key 9	OK
NU0	0	Numeric key 0	OK
CLR	CLEAR	Clear numeric input	OK
GOT	GOTO	Play from a specified location	OK
HOM	HOME	Go to Home Menu to select media source	OK
PUP	PAGE UP	Show previous page	OK
PDN	PAGE DOWN	Show next page	OK
OSD	INFO	Show/hide on-screen display	OK
TTL	TOP MENU	Show BD top menu or DVD title menu	OK
MNU	POP-UP MENU	Show BD pop-up menu or DVD menu	OK
NUP	Up Arrow	Navigation	OK
NLT	Left Arrow	Navigation	OK
NRT	Right Arrow	Navigation	OK
NDN	Down Arrow	Navigation	OK
SEL	ENTER	Navigation	OK
SET	SETUP	Enter the player setup menu	OK
RET	RETURN	Return to the previous menu or mode	OK
RED	RED	Function varies by content	OK
GRN	GREEN	Function varies by content	OK
BLU	BLUE	Function varies by content	OK
YLW	YELLOW	Function varies by content	OK
STP	STOP	Stop playback	OK
PLA	PLAY	Start playback	OK
PAU	PAUSE	Pause playback	OK
PRE	PREV	Skip to previous	OK
REV	REV	Fast reverse play	OK 1X

FWD	FWD	Fast forward play	OK 1X
NXT	NEXT	Skip to next	OK
AUD	AUDIO	Change audio language or channel	OK
SUB	SUBTITLE	Change subtitle language	OK
ANG	ANGLE	Change camera angle	OK a/b (a: current angle number, b: total available angles)
ZOM	ZOOM	Zoom in/out and adjust aspect ratio	OK (zoom ratio text)
SAP	SAP	Turn on/off Secondary Audio Program	OK (audio track information) OK Off
ATB	AB REPLAY	Repeat play the selected section	OK A- OK A-B OK OFF
RPT	REPEAT	Repeat play	OK Repeat Chapter OK Repeat Title OK OFF
PIP	PIP	Show/hide Picture-in-Picture	OK (PIP program info) OK Off
HDM	RESOLUTION	Switch output resolution	OK
SUH	SUBTITLE (hold)	Press and hold the SUBTITLE key. This activates the subtitle shift feature	OK
OPT	OPTION	Show/hide the Option menu	OK
M3D	3D	Show/hide the 2D-to-3D Conversion or 3D adjustment menu	OK
SEH	PIC	Display the Picture Adjustment menu	OK
HDR	HDR	Display the HDR selection menu	OK
INH	INFO (hold)	Show on-screen detailed information	OK
RLH	RESOLUTION (hold)	Set resolution to Auto (default)	OK
AVS		Display the A/V Sync adjustment menu	OK

GPA		Gapless Play. This functions the same as selecting Gapless Play in the Option Menu.	OK
NOP		No operation.	OK
SRC	INPUT	Display the Input menu. Input selection can be made with visual cursor, or by following the SRC command with a numeric key command (e.g. #SRC followed by #NU1)	OK

B. Query Commands

This group of commands issues queries to the player. The player will respond according to its current status.

Command Code	Function	Response Example
QVM	Query verbose mode	OK 0 OK 1 OK 2 OK 3
QPW	Query power status	OK ON OK OFF
QVR	Query firmware version	OK UDP20X-xx-xxxx
QVL	Query volume	OK 100 OK MUTE
QHD	Query HDMI resolution	OK 480I OK 480P OK 576I OK 576P OK 720P50 OK 720P60 OK 1080I50 OK 1080I60 OK 1080P24 OK 1080P50 OK 1080P60 OK 1080PAUTO OK UHD24 OK UHD50

		OK UHD60 OK UHD_AUTO OK AUTO OK Source Direct
QPL	Query playback status	OK PLAY OK PAUSE OK STOP OK STEP OK FREV OK FFWD OK SFWD OK SREV OK SETUP OK HOME MENU OK MEDIA CENTER OK SCREEN SAVER OK DISC MENU
QTK	Query Track/Title	OK 02/10
QCH	Query Chapter	OK 03/03
QTE	Query Track/Title elapsed time	OK 00:01:34
QTR	Query Track/Title remaining time	OK 01:20:23
QCE	Query Chapter elapsed time	OK 00:01:34
QCR	Query Chapter remaining time	OK 00:12:22
QEL	Query Total elapsed time	OK 00:05:12
QRE	Query Total remaining time	OK 01:34:44
QDT	Query disc type	OK BD-MV OK DVD-VIDEO OK DVD-AUDIO OK SACD OK CDDA OK DATA-DISC OK UHBD OK NO-DISC OK UNKNOW-DISC
QAT	Query audio type	OK DD 1/1 OK DD 1/5 English OK DTS 2/5 English OK LPCM OK DTS-HD 1/4 English
QST	Query subtitle type	OK OFF OK 1/1 English

QSH	Query subtitle shift	OK -10 (valid returns are -10 .. 0 .. 10)
QOP	Query OSD position	OK 0 (valid returns are 0 .. 5)
QRP	Query Repeat Mode	OK 00 Off (OK followed by a repeat mode code and text: 00 Off 01 Repeat One 02 Repeat Chapter 03 Repeat All 04 Repeat Title 05 Shuffle 06 Random)
QZM	Query Zoom Mode	OK 00 (OK followed by a zoom mode code: 00 Off 01 Stretch 02 Full 03 Underscan 04 1.2x 05 1.3x 06 1.5x 07 2x 08 3x 09 4x 10 1/2 11 1/3 12 1/4)
QHR	Query HDR Setting	OK Auto OK On OK Off OK StripMetadata
Q3D	Query 3D Status	OK 2D OK 3D (returns the actual video output status)
QHS	Query HDR Status	OK HDR OK SDR OK DOV (returns the actual video output status)
QIS	Query Input Source	OK 0 BD-PLAYER

		OK 1 HDMI-IN OK 2 ARC-HDMI-OUT OK 3 OPTICAL-IN OK 4 COAXIAL-IN OK 5 USB-AUDIO-IN (Return the currently selected input source)
QCD	Query CDDB number	QC1 OK XXYY QC2 OK YYZZ ER INVALID (OK followed by the CDDB number of the CD being played)
QFT	Query media file format	OK FLAC OK WAV OK MKV OK JPG (OK followed by the media file format) ER INVALID
QFN	Query media file name	OK Rocky Mou*.wav (OK followed by the file name) ER INVALID
QTN	Query track name	OK Rocky Mountain* (OK followed by the current track name) ER INVALID
QTA	Query track album	OK Rise And Fall,Rage* (OK followed by the current track album) ER INVALID
QTP	Query track performer	OK The Offspring (OK followed by the current track performer) ER INVALID
QDS	Query directory size	OK 120 (OK followed by the number of entries in the current directory. This command is only valid when the player is navigating a data disc, USB drive or network share.) ER INVALID
QAR	Query aspect ratio setting	OK 16WW (16:9 Wide) OK 16AW (16:9 Wide Auto, currently wide) OK 16A4 (16:9 Wide Auto, currently playing 4:3) OK 21M0 (21:9 Movable, currently full

		screen mode) OK 21M1 (21:9 Movable, currently playing 16:9 or 4:3 content) OK 21M2 (21:9 Movable, currently playing 21:9 content) OK 21F0 (21:9 Fixed, currently full screen mode) OK 21F1 (21:9 Fixed, currently playing 16:9 or 4:3 content) OK 21F2 (21:9 Fixed, currently playing 21:9 content) OK 21C0 (21:9 Cropped, currently full screen mode) OK 21C1 (21:9 Cropped, currently playing 16:9 or 4:3 content) OK 21C2 (21:9 Cropped, currently playing 21;9 content)

C. Advanced Commands

This group of commands instructs the player to perform an advanced operation in a single step.

Command Code	Parameters	Function	Response Example
SVM	0 1 2 3	0 – Set Verbose Mode to off 1 – Not in use (for backwards compatibility) 2 – Enable unsolicited status updates. Only major status changes are reported. 3 – Enable detailed status updates. When content is playing, the player sends out playback time updates every second.	OK 0 OK 1 OK 2 OK 3
SHD	AUTO SRC UHD_AUTO UHD24 UHD50 UHD60 1080P_AUTO	Set HDMI output resolution. If a custom resolution parameter is given, this command changes the “Custom Resolution” setting in the Setup Menu and sets the “Output Resolution” to “Custom” at the same time.	OK 480P (OK followed by the original parameter)

	1080P24 1080P50 1080P60 1080I50 1080I60 720P50 720P60 576P 576I 480P 480I		
SZM	1 AR FS US 1.2 1.3 1.5 2 1/2 3 4 1/3 1/4	Set zoom ratio. AR – Aspect ratio correction (Stretch, Letterbox or Pillarbox) FS – Full Screen US – Under scan 1, 1.2, 1.3, 1.5, 2, 1/2 – Specified zoom ratio. (When the TV Aspect Ratio is set to 21:9 Movable/Fixed/Cropped in the Setup Menu, the only valid parameters are 1, AR, and FS. 1 for 16:9 mode, AR for 21:9 mode, and FS for full screen mode.)	OK 1.2 (OK followed by the zoom ratio) ER INVALID
SVL	0 – 100 MUTE	Set volume control	OK 100 OK MUTE
SRP	CH TT ALL OFF SHF RND	Repeat chapter Repeat title or CD track Repeat all Repeat off Shuffle Random	OK CH (OK followed by the repeat mode) ER INVALID
SRH	T3 C10 C 0:00:34 T 0:12:13 0:12:13	Search to Title 3 Search to Chapter 10 Search to 0:00:34 of the current chapter or track Search to 0:12:13 of the current title or disc Search to 0:12:13 of the current title or disc	OK ER INVALID

DPL		Direct play	OK
RST		Reset Command – Clean all command buffers, do not wait for any pending/executing commands. Start over again.	OK
SSH	-10 ... 10	Set subtitle shift	OK -10 (OK followed by the shift level) ER INVALID
SOP	0 … 5	Set OSD position	OK 5 (OK followed by the position value) ER INVALID
STC	E R T X C K	Set the time information display: E – Total Elapsed time R – Total Remaining time T – Title Elapsed time X – Title Remaining time C – Chapter/track Elapsed time K – Chapter/track Remaining time	OK E (OK followed by the display type) ER INVALID
SHR	Auto On Off	Set HDR setting	OK Auto
SIS	0 1 2 3 4 5	Select the input source: 0 – Blu-ray player 1 – HDMI IN 2 – ARC: HDMI OUT 3 – OPTICAL IN 4 – COAXIAL IN 5 – USB AUDIO IN (Parameters 3 – 5 are only available for UDP-205)	OK 0 BD-PLAYER OK 1 HDMI-IN OK 2 ARC-HDMI-OUT OK 3 OPTICAL-IN OK 4 COAXIAL-IN OK 5 USB-AUDIO-IN ER INVALID
SSA	ON OFF SAVE	Set the parameters for Screen Saver in the Setup Menu – Playback Setup – Screen Saver.	OK ON OK OFF OK SAVE ER INVALID
APP	DIS MUS PHO MOV NET SET	Stop current playback and start the corresponding application from the home menu: DIS – Disc MUS – Music PHO – Photo	OK DIS (OK followed by the application) ER INVALID

		MOV – Movie NET – Network SET – Setup	
SSD	M S C	Set SACD Priority. Possible parameters are: M – Multi-channel S – Stereo C – CD Mode (This command changes the Setup Menu setting for SACD Priority. The setting takes effect the next time an SACD is loaded into the player. If an SACD is already in the player, this setting does not immediately change the playback priority.)	OK M (OK followed by the set value) ER INVALID
SDP	D P A	Set the SACD output mode: D – Output DSD P – Output PCM A – Automatically decides between PCM or DSD based on connected devices' compatibility. (This command changes the Setup Menu setting for SACD Output. If an SACD is playing, the output will be changed on the fly.)	OK D (OK followed by the output mode) ER INVALID
FWD	1/32 1/16 1/8 1/4 1/2 1 2 3 4 5	Set Fast/Slow Forward Play speed.	OK 1/32 (OK followed by the forward speed) ER INVALID
REV	1/32 1/16 1/8 1/4 1/2 1	Set Fast/Slow Reverse Play speed.	OK 1/32 (OK followed by the forward speed) ER INVALID (Slow reverse is not available for UHD content)

	2 3 4 5		
QDR	1 … xxx	Query directory item. The parameter is the index number of the file or item in the current directory listing.	OK U USB1 (USB Device) OK O CDDA (Optical Disc) OK 0 .. (Upper Level) OK F Rocky-mou*.wav (File) OK D My Music (Directory) OK 0 My Network Search (Network) OK L oShare_MediaSer* (DLNA server) OK S MyPC (SMB server) OK N MyNFS (NFS server)

Status Update Messages:

The following status update messages are sent by the player automatically when the verbose mode is set to 2 or 3.

A. Verbose Mode 2:

UPW - Power Status Update:

Sent when there is a change of power on/off status.

Possible parameters: 1 digit

1 – Player is turned on

0 – Player is going off

Example: UPW 1

UPL - Playback Status Update:

Sent when there is a change of playback status.

Possible Parameters: 4 chars

DISC – No disc

LOAD – Loading disc

OPEN – Tray is open

CLOS – Tray is closing
PLAY – Playback is starting
PAUS – Playback is paused
STOP – Playback is stopped
STPF – Forward frame-by-frame step mode
STPR – Reverse frame-by-frame step mode
FFWn – Fast forward mode. Where n is a number of 1... 5 to indicate the speed level
FRVn – Fast reverse mode. Where n is a number of 1… 5 to indicate the speed level
SFWn – Slow forward mode. Where n is a number of 1…5 to indicate the speed level (1 = 1/2, 2 = 1/4, 3 = 1/8, 4 = 1/16, 5 = 1/32)
SRVn – Slow reverse mode. Where n is a number of 1…5 to indicate the speed level (1 = 1/2, 2 = 1/4, 3 = 1/8, 4 = 1/16, 5 = 1/32)
HOME – in home menu
MCTR – in media center
SCSV – Screen saver is active
MENU – Disc menu is showing

Example: UPL PLAY

UVL - Volume Level Update:

Sent when there is a change in volume level or mute status.
Possible Parameters: 3 chars
MUT – Mute is engaged
000 .. 100 – Current volume level. (Also sent when mute is cancelled.)
Example: UVL 095

UDT - Disc Type Update:

Sent when a new disc type is detected.
Possible Parameters: 4 chars
UHBD – Ultra HD Blu-ray Disc
BDMV – Blu-ray Disc
DVDV – DVD-Video
DVDA – DVD-Audio
SACD
CDDA
DATA – Data disc
VCD2 – VCD 2.0
SVCD – SVCD
UNKW – Unknown disc
Example: UDT DVDV

UAT - Audio Type Update:

Sent when a new audio track is encountered.

Parameters: Type (2 chars), space, number (01/99, 5 chars), space, language (3 chars), space, channels (2 chars)

Type code:

DD – Dolby Digital
DP – Dolby Digital Plus
DT – Dolby TrueHD
TS – DTS
TH – DTS-HD High Resolution
TM – DTS-HD Master Audio
PC – LPCM
MP – MPEG Audio
CD – CD Audio
UN – Unknown

Number: current audio track / available audio tracks in 2-digit number format. For example, 01/99 means the first of 99 available tracks; 02/05 means the second of 5 available tracks. If only one track is available, it is 01/01.

Language: Three-character language code: ENG for English, FRA for French, and so on (ISO3166). UNK for unknown.

Channels: 1.0 for mono, 2.0 for stereo, 5.1 or 7.1 for 5.1-channel or 7.1-ch surround, 0.0 for unknown.

Example: UAT DD 01/05 ENG 5.1

UST - Subtitle Type Update:

Sent when a new subtitle is selected.

Parameters: number (01/99, 5 chars), space, language (3 chars)

Number: current subtitle track / available subtitle tracks in 2-digit number format. For example, 01/99 means the first of 99 available tracks; 02/05 means the second of 5 available tracks. If subtitle is set to off, use 00/xx where xx is the number of available subtitle tracks. If no subtitle is available, use 00/00.

Language: Three-character language code: ENG for English, FRA for French, and so on (ISO3166). UNK for unknown.

Example: UST 02/05 ENG

UIS – Input Source Update:

Sent when there is a change in the input source selection.

Possible Parameters: source number (1 digit), space, source name

(See SIS command for the source number and the corresponding input source.)

Example: @UIS 0 BD-PLAYER
@UIS 2 ARC-HDMI-OUT

U3D - 3D status Update:

Sent when there is a change of 3D output Status.

Possible Parameters: 3D output status (2 chars)

3D - Output 3D Video

2D - Output 2D Video

Example: @U3D 3D

@U3D 2D

UAR – Aspect Ratio Status Update:

Sent when Home Menu is displayed, when a program starts playing, or when the user changes the aspect ratio.

Possible Parameters: aspect ratio status (4 chars)

16WW (16:9 Wide)

16AW (16:9 Wide Auto, currently wide)

16A4 (16:9 Wide Auto, currently playing 4:3)

21M0 (21:9 Movable, currently full screen mode)

21M1 (21:9 Movable, currently playing 16:9 or 4:3 content)

21M2 (21:9 Movable, currently playing 21:9 content)

21F0 (21:9 Fixed, currently full screen mode)

21F1 (21:9 Fixed, currently playing 16:9 or 4:3 content)

21F2 (21:9 Fixed, currently playing 21:9 content)

21C0 (21:9 Cropped, currently full screen mode)

21C1 (21:9 Cropped, currently playing 16:9 or 4:3 content)

21C2 (21:9 Cropped, currently playing 21:9 content)

Example: @UAR 16WW

@UAR 21M2

B. Verbose Mode 3:

UTC - Time Code Update:

Sent every second when the playback time advances. The time information is the same as the front panel display. To switch to a different type of time information, please refer to the STC command.

Parameters: Title (3 digits), space, Chapter (3 digits), space, Type (1 chars), space, time (8 chars HH:MM:SS)

Title: Current title number. For example: 001. For discs without title numbers (CD), 001 is always used.

Chapter: Current chapter or track number. For example: 003.

Type Code:

E – Total Elapsed time

R – Total Remaining time
T – Title Elapsed time
X – Title Remaining time
C – Chapter/track Elapsed time
K – Chapter/track Remaining time

Example: UTC 001 001 C 00:01:23

UVO - Video Resolution Update:

Sent when the source content resolution or the output resolution is changed.

Parameters: Source resolution (7 chars), space, Output resolution (7 chars)

Resolution Names:

_480I60 – 480i 60/59.94Hz
_480P60 – 480p 60/59.94Hz
_576I50 – 576i 50Hz
_576P50 – 576p 50Hz
_720P60 – 720p 60/59.94Hz
_720P50 – 720p 50Hz
1080I60 – 1080i 60/59.94Hz
1080I50 – 1080i 50Hz
1080P60 – 1080p 60/59.94Hz
1080P50 – 1080p 50Hz
1080P24 – 1080p 24Hz
1080P23 – 1080p 23.97Hz
UHD60 - UHD 60Hz/59.94Hz
UHD24 - UHD 24Hz/23.97Hz
UHD50 - UHD 50Hz
OTHER - Other