

REMOTE CONTROL PROTOCOL

RCP-1806 REV 1.9

HD2line PRO

Automation Interface

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1. Revision History

Protokoll Version	Firmware Version	Date	Details
V1.0	17/17/0.10/0305	03 Aug 2010	
V1.1	17/20/0.10/0505	12 Oct 2010	Added Tally support
V1.2	19/21/0.11/0505	18 Feb 2011	Added Screensaver support
V1.3	20/21/0.12/0705	01 May 2011	Clarification of protocol message
V1.4	24/2E/0.12/V1.40	01 Feb 2012	Added 3DLUT load support
V1.5	53/2E/0.12/V1.46	01 Apr 2012	Added Layout load support
V1.6	64/2E/1.13/V1.50	01 Jan 2013	Extended Widget support
V1.7	64/2E/1.13/V1.51	31 May 2013	Add Input select
V1.8	64/2E/1.13/V1.51	03 Jun 2013	Bug fix in Docu
V1.9	66/39/1.13/V1.53	01 July 2014	New design and some fixes in Docu

2. Introduction

This document specifies a protocol suitable for the control of HD2line PRO Displays by a computerized automation / control system. The following document describes the supported command set and how it relates to the HD2line products.

The automation protocol allows an external controller to exercise control over the HD2line PRO family in a variety of ways. You can:

- Set parameters normally set by the operator using the manual control panels or system configuration editor.
- Execute takes and or transitions.
- Query the status of the unit.

3. Electrical Interface

The link normally operates on the TCP/IP standard. The port we are using 9800

4. Commands

4.1 Commands Format

Commands are received by the HD2line PRO display. Commands direct the operation of the HD2line PRO display and the interpretation of all subsequently received characters. All commands have the format shown below.

% decimal-integer command-descriptor

Commands are introduced by the percent character % (decimal 37). The percent character is followed by an optional dash or plus character and any number of ASCII decimal digits representing one decimal integer. The dash character denotes a negative decimal integer. The plus character, or omission of the dash character, denotes a positive decimal integer. The last character of the command is the descriptor which identifies a specific command. If the decimal integer is omitted, a command-dependent default is used. Some commands must be immediately followed by other characters that further specify the intent of the command. All other characters received outside the scope of a command are assumed to be ASCII display information. The destination of this information depends on previously received commands or default conditions. The ASCII characters decimal 1 through 127 are accepted.

The special characters decimal 1 through 31 access variable information such as a time of day clock or host-downloadable characters. For maximum flexibility, the 31 special characters are actually split between access to variable digits and host-downloadable characters. The number of characters downloaded by the host system determines the split threshold. Special characters below the threshold access variable digits while the remaining characters (if any) access host-downloadable characters. If no characters are downloaded, all special characters access variable digits. If 31 characters are downloaded, there is no access to variable digits. Thus, the host system can split special character access as desired.

The null character (decimal 0) is ignored by the HD2line PRO display.

4.2 Commands Descriptors

Each descriptor character identifies a specific command. The following table shows each command with its descriptor, the meaning and valid range of the numeric parameter (if any), and the command's default

Descriptor	Command	Parameter	Range	Default
%	percent character	none		
C	set color	color code	0 to 255	255
D	select UMD	UMD ID	0 to 15	all
G	3DLUT load	3DLUT number	0 to 9	
H	3DLUT mode	Mode number	0 to 4	0
I	Inputs	Input number	0 to 30	
J	text justification	justify mode	0 to 3	0
M	Multi image layout load	Layout number	0 to 9	0
N	Format parameter	Format	0 to 255	0
Q	Query	none		
S	select lines	line number	0 to 2	1
W	Widget	Widget type	0 to 5	none
Z	end of display info	none		
16	Tally	none	0 to 98	
16	Screensaver	none	99	99

Alphabetic descriptor characters are not case sensitive. Using upper case or lower case has the same effect. If an invalid command descriptor is received, the command is ignored. The following sub-sections provide more detailed information on each command. In the command formats, a single decimal integer is represented by *n* and variable characters are represented by lower case letters in italics.

4.3 Display Select Command

Format

`%nD`

This command selects the widget sections having the identification number *n*. If *n* is positive, all subsequent commands and display characters are directed to the selected display sections until another display select command is received. If *n* is negative, any previously selected display sections remain selected and the selection is "extended" to include display sections which have an identification number matching the absolute value of the parameter *n*. This allows subsequent commands to apply to a group of displays.

If the parameter *n* is omitted, all sections of all display units are selected.

This command can be used in place of, or in addition to, the unique display select command.

Example

`%2D%1SHD2line PRO%Z`

All displays with identification number 2 display "HD2line PRO".

4.4 Color Command

Format

%nC

This command sets the current color attribute for subsequently received text characters. The command's parameter is a color code (color matrix HD2line PRO) using an eight-bit value (0 to 255).

Example

```
%2D%1S%1CHD2line PRO%Z
```

All displays with identification number 2 display "HD2line PRO" at "RED" color.

4.5 Text Justification Command

Format

%nJ

This command sets the current justification mode attribute for subsequently received text characters. The command's parameter is the justification mode. Justification modes are numbered 0 to 3 as shown in the following.

Justification Mode Description:

- 0 left, characters are positioned from the left
- 1 center, characters are centered
- 2 right, characters are positioned from the right

If the command parameter is invalid or omitted, left justification is assumed.

This command affects selected display sections only.

Note

It is possible to provide conflicting justification commands. Generally, a single line can contain one left, one right, and either one center or one full justification command. Also, a left justification command must precede a center or full justification command, which in turn must also precede a right justification command. Any other combination of justification commands may yield unpredictable results.

Example

```
%2D%1S%1J%1CHD2line PRO%Z
```

All displays with identification number 2 display "HD2line PRO" at "RED" color and "CENTRE"

4.6 Tally Command

Format

%16Sn

This command selects the widget sections having the identification number n. If n is positive, all subsequent commands and display characters are directed to the selected display sections until another display select command is received. If n is negative, any previously selected display sections remain selected and the selection is "extended" to include display sections which have an identification number matching the absolute value of the parameter n.

Example 1

%16S1=1%Z

Tally widget ID 1 are "active"

Example 2

%16S1=0%Z

Tally widget ID 1 are "inactive"

4.7 Screen Saver Command

Format

%16S99

This command start or stop the screen saver (Note: the screensaver need to switch discreet OFF)

Example 1

%16S99=1%Z

Screen Saver are "active"

Example 2

%16S99=0%Z

Screen Saver are "inactive"

4.8 Input Select Command

4.8.1 Old Input Select Command

This command selects the different input to the system.

Format

%16Sn

This command sets the current input attribute shown in the following table.

Input Select table

Command	Description
80	Analog 1
81	Analog 2
82	VGA
83	DVI
84	SDI 1
85	SDI 2
86	SDI 3
87	SDI 4
88	FIBER 1
89	FIBER 2
90	FIBER 3
91	FIBER 4
92	QuadSplit I

Example

%16S85=1%Z

This command switch to "SDI2"

4.8.2 New Input Select Command

This command selects the different input to the system

Format

%nl

This command sets the current input attribute shown in the following table.

Input Select table

Command	Description
0	Analog 1
1	Analog 2
2	VGA
3	DVI
4	SDI 1
5	SDI 2
6	SDI 3
7	SDI 4
12	FIBER 1
13	FIBER 2
14	FIBER 3
15	FIBER 4
16	TEST
20	QuadSplit I
21	QuadSplit II
22	HDMI I
34	HDMI II

Example

%5I%Z

This command switch to "SDI2"

4.9 End of Display Command

Format

%Z

This command submits the previously received characters to the selected display sections and lines, and blanks any remaining portion of the display section. No command parameter is required. If a command parameter is supplied, the parameter is discarded and the command is performed.

This command is also implied by any display and line select commands. Selecting any display or line is identical to first sending this command followed by a display or line select command. In fact, the end of display information command need only be sent after the host has completed all messages to all the remote display units which are connected together.

5. Extended Multi image Commands

5.1 Layout Load

Format

%nM

This command selects the design layout the identification number n.

Widget Select table

Command	Description
0	User Layout I
1	User Layout II
2	User Layout II
3	User Layout IV
4	User Layout V
5	User Layout VI
6	User Layout VII
7	User Layout VII
8	User Layout IX
9	User Layout X
20	Factory Layout I
21	Factory Layout II
22	Factory Layout III
23	Factory Layout IV
24	Factory Layout V
25	Factory Layout VI
26	Factory Layout VII
27	Factory Layout VIII
28	Factory Layout IX
29	Factory Layout X

Example

%21M%Z

This command loads the factory multi image layout number 2

6. Widget Commands

6.1 Select Widget Command

Format

%nW

This command sets the current widget attribute shown in the following table.

Widget Select table

Command	Description
0	Clock I
1	Clock II
2	Dolby
3	Timecode I
4	Timecode II
5	Video Standard

7. Widget Formats

7.1 Clock

This command selects the different clock formats to the system

Format

%nN

This command sets the current clock widget attribute shown in the following table.

Widget Select table

Command	Description
0	Off
1	Time
2	Date
3	Date Time
4	Time Date

Example 1

```
%0W%1N%1C %Z
```

This command bring the "Clock I" widget on the display screen and the format is "Time" and the font color are "RED".

Example 2

```
%0W%0N%Z
```

This command bring the "Clock I" widget off the display screen.

7.2 Dolby

This command selects the different Dolby formats to the system

Format

%nN

This command sets the current Dolby formats attribute shown in the following table.

Widget Select table

Command	Description
0	Off
1	Dolby

Example 1

%2W%1N%1C %Z

This command bring the "Dolby" widget on the display screen and the font color are "RED".

Example 2

%2W%0N%Z

This command bring the "Dolby" widget off the display screen.

7.3 Timecode

This command selects the different timecode formats to the system

Format

%nN

This command sets the current timecode widget attribute shown in the following table.

Widget Select table

Command	Description
0	Off
1	VITC
2	ATC VITC I
3	ATC VITC II
4	ATC LTC

Example 1

```
%3W%2N%1C %Z
```

This command bring the "Timecode I" widget on the display screen, the format are "ATC VITC I" and the font color are "RED".

Example 2

```
%3W%0N%Z
```

This command bring the "Timecode I" widget off the display screen.

7.4 Video Standard

This command selects the different Video Standard formats to the system.

Format

%nN

This command sets the current Video Standard widget attribute shown in the following table.

Widget Select table

Command	Description
0	Off
1	Video Standard
2	Source & Standard

Example 1

```
%5W%1N%1C %Z
```

This command bring the "Video Standard" widget on the display screen, the format are "Video Standard only" and the font color are "RED".

Example 2

```
%5W%0N%Z
```

This command bring the "Video Standard" widget off the display screen.

8. Query Command

This is a input request command to get information back from the system which input is selected and the screensaver is active or not.

Format

%nQ

This command request information from the monitor attribute shown in the following table.

Command	Description
0	res
1	Selected input
2	res

Example

%1Q%1Z

You will get

%20I%0S this means input QuadSplit 1 is selected with screensaver OFF

%2I%0S this means input VGA is selected with screensaver OFF

%16I%1S for source TEST with screensaver on (source is always TEST when screensaver is ON)