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RS232 COMMAND REQUIREMENT SPECIFICATION

FOR TID

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1 DOCUMENT INTRODUCTION

1.1 Revision History

Issue	Date	Notes
1.0A	20180515	First draft
1.0B	20180518	Update after review by STCAJA and STTHAD
1.0C	20180523	Update after review by STOLJ and STJOHAR
1.0	20180523	First release

1.2 References

1.3 Scope

This document describes the RS232 commands that is used to access and control the TID

2 Protocol set up

Port settings:

Baud rate : Preferred is 115200 (Between 9600 to 115200 is ok)
Data bits : 8
Parity : None
Stop bits : 1
Flow control : None

3 Required RS232 commands

Minimum RS232 requirements:

Function	Description	Example of commands
Power down/up	Soft power down/up or standby	See Appendix1 for proposal
Source select	Selects source input (Example VGA, HDMI, DVI-D)	See Appendix1 for proposal
Brightness control	We need to be able to adjust it between “black” and very bright	See Appendix1 for proposal
Contrast control		See Appendix1 for proposal
Auto Adjustment	Sets factory default settings	
Bit/Display status	Reports status	
Ack	All commands shall be answered with an acknowledge msg	
Checksum		

4 Optional RS232 commands

Commands for functions that are normally accessible from buttons on the side.

These commands needs to be accessible through RS232 or physical buttons (or both RS232 and buttons).

Function	Description	Example of commands
Colour temperature		
Picture position		
Picture phase		
Picture clock		
Backlight on/off		

5 APPENDIX 1 Example of communication protocol

This chapter is just an example of protocol, may be updated.

Description of exiting communication protocol:

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1. Baud rate : Must be set 115200 baudrate

2. Packet Send (PC System -> TID Board)
   a) Packet Length : 8Byte
   b) Packet Format : ABCDEFGH
   A(1st Byte): Packet Length -> 0x08
   B(2nd Byte): Packet CMD -> 0x22
   C(3th Byte): comm -> 1) command
   D(4th Byte): Reserved -> 0x00
   E(5th Byte): Reserved -> 0x00
   F(6th Byte): R/W -> 2) Read(0x01)/Write(0x00)
   G(7th Byte): Value -> 1) Value
   H(8th Byte): checksum -> 3) CheckSum
   ==========

   1) Command & Value:
   - 0x00 : Brightness control
     Value range : 0x00~0x64
   - 0x01 : Contrast control
     Value range : 0x00~0x64
   - 0x02 : Input Source change
     Value range : 0x00~0x04
     0 : Analog RGB
     1 : N/A
     2 : DVI-d
     3 : HDMI
     4 : VGA
   - 0xfe : Power On/Off control
     Value range : 0x00~0x01
     0 : Power Off
     1 : Power On

   2) Read & Write:
   - Read : 0x01
     Write : 0x00

   3) CheckSum: 0x100-(A+B+C+D+E+F+G)= H
   - -(A+B+C+D+E+F+G) & (0xFF) = 0x00

   ==========

c) Acknowledge Packet :
You can be aware whether the packet was send to board well with Acknowledge packet.
Refer to Packet Acknowledge.

3. Packet Acknowledge (TID Board -> PC SYSTEM)
a) Packet Length : 8Byte
b) Packet Format : ABCDEFGH
A(1st Byte): Packet Length -> 0x08
B(2nd Byte): Packet CMD -> 0x22
C(3th Byte): comm -> 1) command
D(4th Byte): Reserved -> 0x00
E(5th Byte): Reserved -> 0x00
F(6th Byte): Ack -> 0xff
G(7th Byte): Value -> 1) Value
H(8th Byte): checksum -> 2) CheckSum
==========
1) Command & Value:
- 0x00 : Brightness control
Value range : 0x00~0x64
- 0x01 : Contrast control
Value range : 0x00~0x64
- 0x02 : Input Source change
Value range : 0x00~0x04
0 : Analog RGB
1 : N/A
2 : DVI
3 : S-Video
4 : Composite
- 0xfe : Power On/Off control
Value range : 0x00~0x01
0 : Power Off
1 : Power On
2) CheckSum:
- (A+B+C+D+E+F+G+H) & (0xFF) = 0x00
==========

4. Packet Send Example
a) Set Contrast to 60
Send : 0x08, 0x22, 0x01, 0x00, 0x00, 0x00, 0x3c, 0x99
Acknowledge: 0x08, 0x22, 0x01, 0x00, 0x00, 0xff, 0x3c, 0x9a
b) Read current Brightness value (value is 70)
Send : 0x08, 0x22, 0x00, 0x00, 0x00, 0x01, 0x00, 0xd5

Acknowledge: 0x08, 0x22, 0x00, 0x00, 0x00, 0xff, 0x46, 0x91

c) Change input source to Component

Send : 0x08, 0x22, 0x02, 0x00, 0x00, 0x00, 0x01, 0xd3

Acknowledge: 0x08, 0x22, 0x02, 0x00, 0x00, 0xff, 0x01, 0xd4