DOC101681-1

8 AND 13" DIS DDC CONTROL

Revision 3

Revision History

	Created		Approved		
Rev	Date	By	Date	By	Description
01	2013-10-25	André Kråkenes	2013-10-28	Wei Jing	Based on SDS-002-000-02
2	2013-11-06	André Kråkenes	2013-11-06	Wei Jing	Removed reference to custom models.
3	2022-04-26	Viktor Malzev Stein Eikesdal	2022-04-26	Viktor Malzev Stein Eikesdal	Change company template and name Revised supported typenumber tables Removed reference to obsolete WinI2C-DDC

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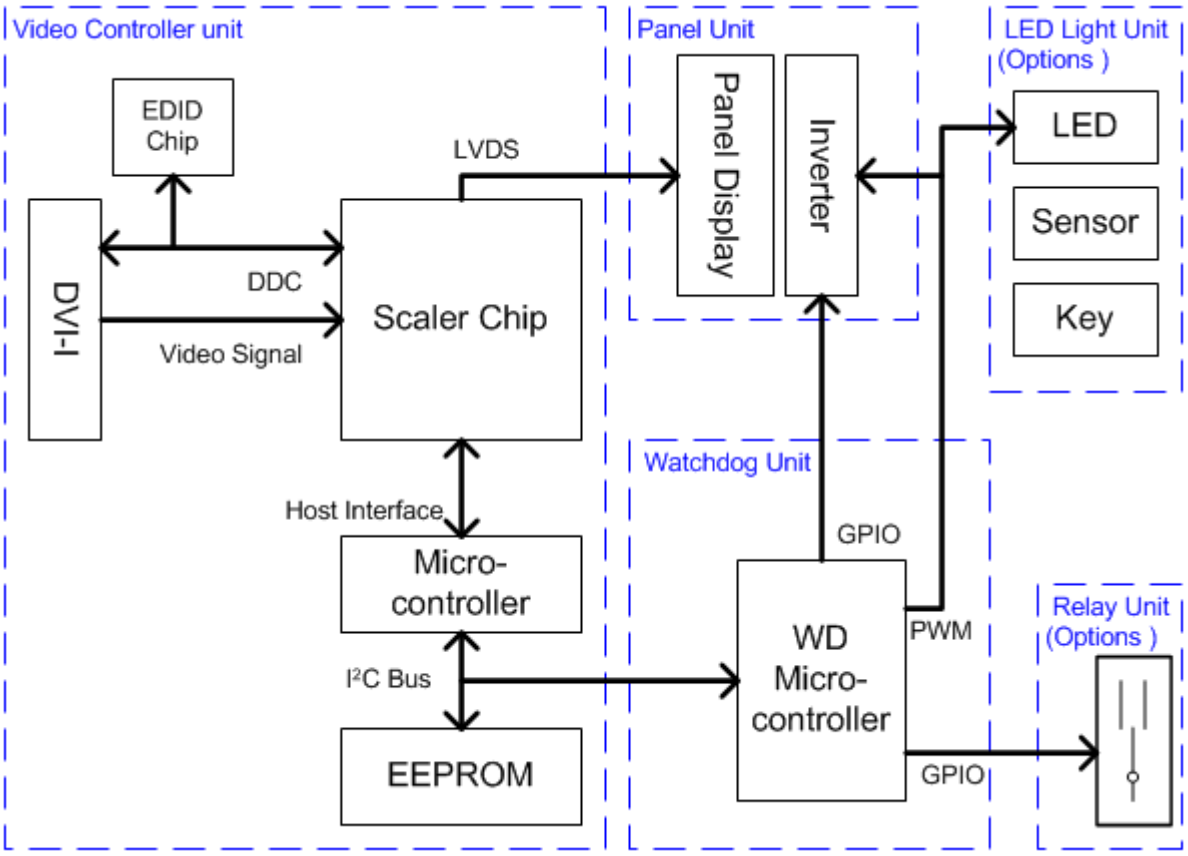
1. General Description

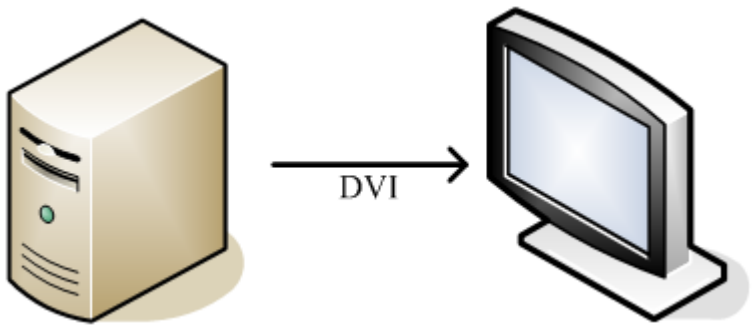
- Support standard DDC/CI format communicate. The maximum transfer rate is 100 kb/s in "standard-mode".
- Support Manufacturer Specific DDC/CI format communicates.
- Support ALARM Board Control

2. Block Diagram

Monitor Inside Block Connect



Monitor outside Block Connect



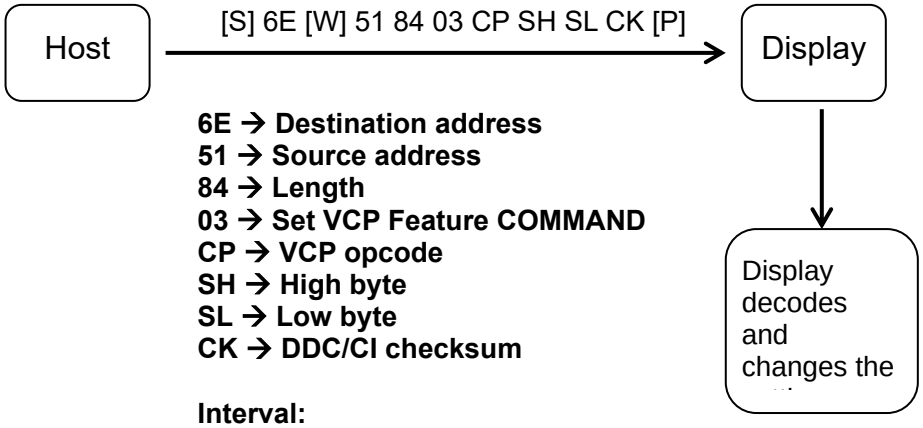
3. Communicate List

Define an I²C™ based protocol which operates over the DDC channel to provide interactive control of a display and, optional associated devices. Communicate are divided into two parts. One is the standard and other is a manufacture specific.

3.1. DDC/CI communicate flowchart description

■ **Set VCP Feature**

Send the adjustment data from host to the display corresponding to a specified VCP.

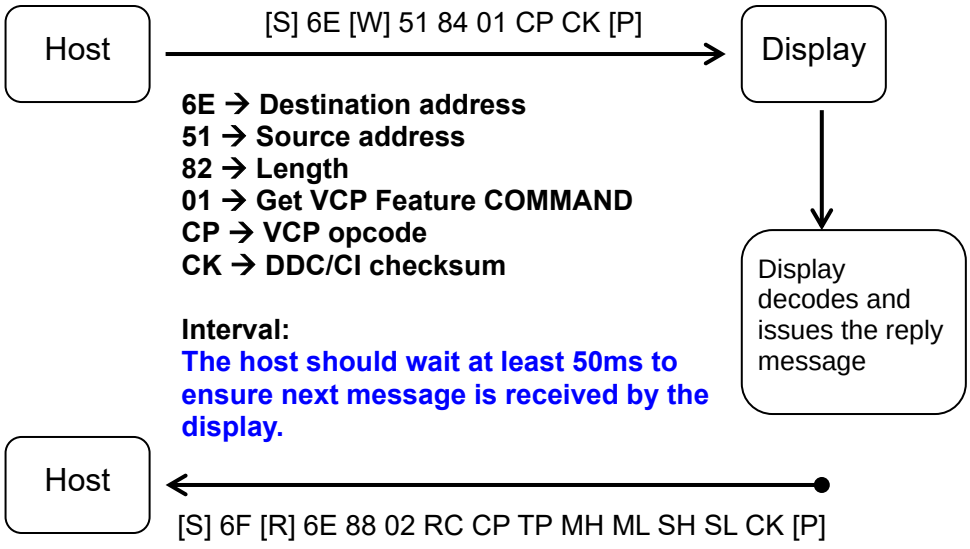


6E → Destination address
51 → Source address
84 → Length
03 → Set VCP Feature COMMAND
CP → VCP opcode
SH → High byte
SL → Low byte
CK → DDC/CI checksum

Interval:
The host should wait at least 50ms to ensure next message is received by the display.

■ **Get VCP Feature and VCP Feature Reply**

1. Send a request from host to the display for the adjustment data corresponding to a specified
VCP code.
2. Wait 50ms
3. Receive the current setting data from the display to the host for the adjustment specified by
the VCP code.



6E → Destination address
51 → Source address
82 → Length
01 → Get VCP Feature COMMAND
CP → VCP opcode
CK → DDC/CI checksum

Interval:
The host should wait at least 50ms to ensure next message is received by the display.

6F → Destination address
6E → Source address
88 → Length
02 → VCP Feature reply op code
RC → Result Code
00h: No Error
01h: Unsupported VCP Code
CP → VCP opcode from Feature request message
TP → VCP type code
00h: Set parameter
01h: Momentary
MH → Maximum value High byte
ML → Maximum value Low byte
SH → Present value High byte
SL → Present value Low byte
CK → DDC/CI checksum

3.2. DDC/CI Standard Command

■ VCP Type description
RO → Read Only
WO → Write Only
RW → Read and Write

This part is follow VESA standard DDC/CI command that standard command support detailed data as below.

■ DDC/CI Standard Command Table

VCP Code	Description	Type
0x03	Soft Controls	WO
0x04	Restore Factory Defaults	WO
0x10	Black Level Control	RW
0x12	Contrast Control	RW
0x13	Back Light Control	RW
0x14	Color Mode	RW
0x1E	Auto Setup (Analog signal only)	WO
0x60	Input source	RW
0xC0	Display Usage Time (Operation Hour)	RO
0xC8	Display Controller Type	RO
0xCC	OSD Language	RW
0xDF	VCP Version	RO
0xFD	Model Identity	RO

3.2.1. **VCP Code: 0x03 Soft Controls**
Allows display controls to be used as soft keys.

■ Data setting description
00h: No button active
01h: Button 1 active to Enter key
02h: Button 2 active to Right Key
03h: Button 3 active to Left key
04h: Button 4 active to OSD close

Command example:
<Set VCP>
[S] 6E [W] 51 84 03 03 00 01 BA [P]
[S] 6E [W] 51 84 03 03 00 02 B9 [P]
[S] 6E [W] 51 84 03 03 00 03 B8 [P]
[S] 6E [W] 51 84 03 03 00 04 BF [P]

Green color → VCP opcode
Blue color → High byte / Low byte

3.2.2. **VCP Code: 0x04 Restore Factory Defaults**
Restore all factory presets including brightness / contrast, color mode defaults.

Command example:
<Set VCP>
[S] 6E [W] 51 84 03 04 00 01 BD [P]

Green color → VCP opcode
Blue color → High byte / Low byte

3.2.3. **VCP Code: 0x10 Black Level Control**
Increasing (decreasing) this value will increase (decrease) the Luminance of the image.

Command example:
<Set VCP>
[S] 6E [W] 51 84 03 10 00 32 9A [P]

<Get VCP>
[S] 6E [W] 51 82 01 10 AC [P]

<Reply>
[S] 6F [R] 6E 88 02 00 10 00 00 64 00 32 F2 [P]

Green color → VCP opcode
Blue color → High byte / Low byte

3.2.4. **VCP Code: 0x12 Contrast Control**
Increasing (decreasing) this value will increase (decrease) the Contrast of the image.

Command example:
<Set VCP>
[S] 6E [W] 51 84 03 12 00 59 F3 [P]

<Get VCP>
[S] 6E [W] 51 82 01 12 AE [P]

<Reply>
[S] 6F [R] 6E 88 02 00 12 00 00 64 00 59 9B [P]

Green color → VCP opcode
Blue color → High byte / Low byte

3.2.5. VCP Code: 0x13 Back Light Control

Increasing (decreasing) this value in the second byte will increase (decrease) the specified Backlight Control value.

Command example:
<Set VCP>
[S] 6E [W] 51 84 03 13 00 C8 63 [P]

<Get VCP>
[S] 6E [W] 51 82 01 13 AF [P]

<Reply>
[S] 6F [R] 6E 88 02 00 13 00 00 FF 00 C8 90 [P]

Green color → VCP opcode
Blue color → High byte / Low byte

3.2.6. VCP Code: 0x14 Color Mode

Select a specified color temperature.

■ Data setting description
0x08: Cool
0x05: Neutral
0x04: Warm
0x0B: User
0x0D: Gamma 2.2

Command example:
<Set VCP>
[S] 6E [W] 51 84 03 14 00 05 A9 [P]

<Get VCP>
[S] 6E [W] 51 82 01 14 A8 [P]

<Reply>
[S] 6F [R] 6E 88 02 00 14 00 00 0B 00 05 AE [P]

Green color → VCP opcode
Blue color → High byte / Low byte

3.2.7. VCP Code: 0x1E Auto Setup (Analog support only)

Perform auto setup function (H/V position, clock, clock phase, A/D converter, etc)

■ Data setting description
00h: Auto setup is not active

01h: Perform / performing auto setup

Command example:
<Set VCP>
[S] 6E [W] 51 84 03 1E 00 01 A7 [P]

Green color → VCP opcode
Blue color → High byte / Low byte

3.2.8. VCP Code: 0x60 Input source

Used to select the active video source

■ Data setting description
01h: Analog video (R/G/B) 1
03h: Digital video (TMDS) 1

Command example:
<Set VCP>
[S] 6E [W] 51 84 03 60 00 03 DB [P]

<Get VCP>
[S] 6E [W] 51 82 01 60 DC [P]

<Reply>
[S] 6F [R] 6E 88 02 00 60 00 00 01 00 03 D6 [P]

Green color → VCP opcode
Blue color → High byte / Low byte

3.2.9. VCP Code: 0xC0 Display Usage Time

Returns the current value (in hours) of "active power on" time accumulated by the display a 2 byte value.
"Active power on" time is defined as the period when the emissive elements(s) of the display fluorescent lamps for a LCD, etc are active.

Command example:
<Get VCP>
[S] 6E [W] 51 82 01 C0 7C [P]

<Reply>
[S] 6F [R] 6E 88 02 00 C0 00 FF FA 00 22 53 [P]

Green color → VCP opcode
Blue color → High byte / Low byte

■ Data description
0x0022 → 34 Hrs

Reference "Display Usage Time" functions reset to initially value. It is active only on the factory mode.

Command example:

<Set VCP>
[S] 6E [W] 51 84 03 C0 00 00 78 [P]

Complete instructions,

[S] 6E [W] 51 84 03 04 A0 01 1D [P] → Into factory mode.
[S] 6E [W] 51 84 03 C0 00 00 78 [P] → Setting display usage time to zero.
[S] 6E [W] 51 84 03 04 A0 00 1C [P] → Leave factory mode.

3.2.10. VCP Code: 0xC8 Display Controller Type (TBD)

This VCP code will provide the host with knowledge of the controller type being used by a particular display which will enable a table based approach (by applications) to what features may be available on attached display.

Command example:
<Get VCP>
[S] 6E [W] 51 82 01 C8 74 [P]

<Reply>
[S] 6F [R] 6E 88 02 00 C8 00 00 FF 00 09 8A [P]

Green color → VCP opcode
Blue color → High byte / Low byte

■ Data setting description
01h → Conexant
02h → Genesis Microchip
03h → Macronix
04h → MRT (Media Reality Technologies)
05h → Mstar Semiconductor
06h → Myson
07h → Philips
08h → PixelWorks
09h → RealTek Semiconductor
0Ah → Sage
0Bh → Silicon Image
0Ch → SmartASIC
0Dh → STMicroelectronics
0Eh → Topro
0Fh → Trumpion
10h → Welltrend
11h → Samsung
12h → Novatek Microelectronics
13h → STK
FFh → Not defined – a manufacturer designed controller

3.2.11. VCP Code: 0xCC OSD Language

Allows the displayed OSD language to be selected

Command example:
<Set VCP>
[S] 6E [W] 51 84 03 CC 00 02 76 [P]

<Get VCP>

[S] 6E [W] 51 82 01 CC 70 [P]

<Reply>
[S] 6F [R] 6E 88 02 00 CC 00 00 0A 00 02 70 [P]

Green color → VCP opcode
Blue color → High byte / Low byte

■ Data setting description
02h: English
03h: French
04h: German
05h: Italian
06h: Japanese
10h: Spanish

3.2.12. VCP Code: 0xDF VCP Version

Define the version number of VCP list recognized by the display.
This is a 2 byte value, byte 1 defines the version number and byte 2 defines the revision number

Command example:
<Get VCP>
[S] 6E [W] 51 82 01 DF 63 [P]

<Reply>
[S] 6F [R] 6E 88 02 00 DF 00 FF FF 02 01 68 [P]

Green color → VCP opcode
Blue color → High byte / Low byte

■ Data description
0x02 → Version
0x01 → Revision

0x0201 → defines Version 2, Revision 1

3.2.13. VCP Code: 0xFD Model Identity

This function is return model identity of monitor.

Command example:
<Get VCP>
[S] 6E [W] 51 82 01 FD 41 [P]

<Reply>
[S] 6F [R] 6E 88 02 00 FD 00 FF FF 07 06 48 [P]

0x0706 → 13.3" DIS TCP

Monitor main board identity table:

ID	Model	Description
0x0700		Reserve
0x070D	HD 08T21 STD	8" DIS TCP(HD)
0x070E	HD 13T21 STD	13.3” DIS TCP(HD)

3.3. DDC/CI Manufacture Specific Command (0xF3 Watchdog Function)

VCP Code value is 0xF3 that it is watchdog function control to bridge of DDC/CI communication. That it is follow table read and write format with DDC/CI data communication. Format is as below.

■ **Set Table Format:**

6E 51 8N E7 F3 D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 CK

8N: DDC/CI data length
D0: Write Data Length (Send to watchdog board data)
D1: Sub Function ID (Watchdog board support function to register ID)
D2: Data (0) / High byte of word data
D3: Data (1) / Low byte of word data
.....
D9: Data (7)
CK: DDC/CI communication checksum

■ **Get Table Format:**

6E 51 83 E2 F3 D0 D1 CK

D0: Read Data Length (Read data length from watchdog board side)
D1: Sub Function ID (Watchdog board support function to register ID)
CK: DDC/CI communication checksum

■ **Reply**

6F 6E NN E4 D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 CK

D0: Read Data Length
D1: Sub Function ID (Watchdog board support function to register ID)
D2: Data (0) / High byte of word data
D3: Data (1) / Low byte of word data
.....
D9: Data (7)
CK: DDC/CI communication checksum

Manufacture Specific command detailed data as below.

■ **Firmware Information**

VCP Code	Sub-F	Function Description	D_N		Type
			R	W	
0xF3	0x00	a1) WD Firmware Version (100513R0V01)	11		RO
0xF3	0x01	a2) WD Firmware Mode Name (WD Board)			RO
0xF3	0x03	a4) WD Firmware Model Identity (WD Board)	2		RO

3.3.1. Sub-Function: 0x00 Watchdog firmware version

Data array is ASCII char string return and 0x0A is end.

Command example:
<Get Table>
[S] 6E [W] 51 84 E2 F3 0D 00 A7 [P]

<Reply>
[S] 6F [R] 6E 90 E4 0D 00 31 30 30 39 30 39 52 30 56 30 31 0A 00 79 [P]

Red color → Get data length
Green color → Sub function ID
Blue color → WD firmware data and end char.
Return string is "100909R0V01".

3.3.2. Sub-Function: 0x01 Watchdog mode name

Data array is ASCII char string return and 0x0A is end.

Command example:
<Get Table>
[S] 6E [W] 51 84 E2 F3 14 01 BF [P]

<Reply>
[S] 6F [R] 6E 97 E4 14 01 31 33 2E 33 20 44 49 53 54 43 50 0A 00 31 78 [P]

Red color → Get data length
Green color → Sub function ID
Blue color → WD model name and end char.
Return string is "13.3" DIS TCP".

3.3.3. Sub-Function: 0x03 Watchdog model identity

This function is return model identity of watchdog.

Command example:
<Get Table>
[S] 6E [W] 51 84 E2 F3 02 03 AB [P]

<Reply>
[S] 6F [R] 6E 85 E4 02 03 07 06 5F [P]

0x0706 → 13.3" DIS TCP

Watchdog board DIS identity table:

ID	Model	Description (Firmware Model Name string)
0x0700		Reserve
0x070D	HD 08T21 STD	8" DIS TCP(HD)
0x070E	HD 13T21 STD	13.3" DIS TCP(HD)

■ **Back Light Control**

VCP Code	Sub-F	Function Description	D_N		Type
			R	W	
0xF3	0x10	b1) Back Light Inverter ON/OFF [0 ~ 1]	1	1	RW
0xF3	0x11	b2) Back Light Adjustment (16 bit PWM Out Control) [0 ~ 255]	1	1	RW
0xF3	0x15	b6) Back Light PWM output value setting [0 ~ 60000]	-	2	WO

3.3.4. Sub-Function: 0x10 Back Light Inverter ON/OFF

This command is back light turn it ON or OFF control to inverter drive board.

Command example:
<Set Table>
[S] 6E [W] 51 85 E7 F3 01 10 01 BE [P]

<Get Table>
[S] 6E [W] 51 84 E2 F3 01 10 BB [P]

<Reply>
[S] 6F [R] 6E 84 E4 01 10 01 4E [P]

Red color → Set or Get data length
Green color → Sub function ID
Blue color → Set or get data.

3.3.5. Sub-Function: 0x11 Back Light Adjustment

This command is back light dimming control that value range is 0 to 255.

Command example:
<Set Table>
[S] 6E [W] 51 85 E7 F3 01 11 C8 76 [P]

<Get Table>
[S] 6E [W] 51 84 E2 F3 01 11 BA [P]

<Reply>
[S] 6F [R] 6E 84 E4 01 11 C8 86 [P]

Red color → Set or Get data length.
Green color → Sub function ID.
Blue color → Set or get data.

3.3.6. **Sub-Function: 0x15 Back Light PWM output value setting.**

This command is PWM output value control direct to back light that value range is 0 to 60000.

Command example:
<Set Table>
[S] 6E [W] 51 86 E7 F3 02 15 A5 D7 C8 [P]

Red color → set data length.
Green color → Sub function ID.
Blue color → set data.

0xA5 is high byte of word data.
0xD7 is low byte of word data.

■ **Watchdog and ALARM Control**

VCP Code	Sub-F	Function Description	D_N		Type
			R	W	
0xF3	0x20	c1) Watchdog Monitor Enable		0	WO
0xF3	0x21	c2) Watchdog Monitor Enable Wait Time (second)	2	2	RW
0xF3	0x22	c3) Watchdog Monitor Count Reset		0	WO
0xF3	0x24	c5) ALARM Reset		0	WO
0xF3	0x25	c6) ALARM Fault Test (Set Buzzer ON / Error LED Red)		0	WO
0xF3	0x26	c7) ALARM Sound OFF		0	WO
0xF3	0x27	c8) ALARM ACK (Set Error LED Dark / Buzzer OFF)		0	WO
0xF3	0x28	c9) I/O status return (for Error LED , Relay K1 , HS , Buzzer	1	1	RW

3.3.7. **Sub-Function: 0x20 Watchdog Monitor Enable ON/OFF**

This command is watchdog monitor turn it ON.

Command example:
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 20 8F [P]

Red color → set data length.
Green color → Sub function ID.

3.3.8. **Sub-Function: 0x21 Watchdog Monitor Enable Wait Time**

This command is watchdog active to wait time.

Command example:
<Set Table>
[S] 6E [W] 51 86 E7 F3 02 21 01 F4 7B [P]

<Get Table>
[S] 6E [W] 51 84 E2 F3 02 21 89 [P]

<Reply>
[S] 6F [R] 6E 85 E4 02 21 01 F4 89 [P]]

Red color → Set or Get data length.
Green color → Sub function ID.
Blue color → Set or get data.

3.3.9. Sub-Function: 0x22 Watchdog Monitor Count Reset

This command is reload wait time value to watchdog count register.

Command example:
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 22 8D [P]

Red color → set data length.
Green color → Sub function ID.

3.3.10. Sub-Function: 0x24 ALARM Reset

This command is initially to watchdog board status.

Command example:
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 24 8B [P]

Red color → set data length.
Green color → Sub function ID.

3.3.11. Sub-Function: 0x25 ALARM Fault Test

This command is fault status test.

Command example:
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 25 8A [P]

Red color → set data length.
Green color → Sub function ID.

3.3.12. Sub-Function: 0x26 ALARM Sound OFF

This command is buzzer OFF when buzzer is active.

Command example:
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 26 89 [P]

Red color → set data length.
Green color → Sub function ID.

3.3.13. Sub-Function: 0x27 ALARM ACK

This command is buzzer OFF and error LED dark when watchdog is active to fault.

Command example:
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 27 88 [P]

Red color → set data length.
Green color → Sub function ID.

3.3.14. Sub-Function: 0x28 ALARM I/O status

This command is watchdog active to wait time.

Command example:
<Set Table>
[S] 6E [W] 51 85 E7 F3 01 28 01 86 [P]

<Get Table>
[S] 6E [W] 51 84 E2 F3 01 28 83 [P]

<Reply>
[S] 6F [R] 6E 84 E4 01 28 11 66 [P]

Red color → Set or Get data length.
Green color → Sub function ID.
Blue color → Set or get data.

■ I/O data map is as below.
Bit 0: Error LED
Bit 1: Relay K1
Bit 2: HS
Bit 3: Buzzer
Bit 4: 5V input status
Bit 5 – 7: Reserve

■ Touch Pad LED Display

VCP Code	Sub-F	Function Description	DN		Type
			R	W	
0xF3	0x30	d1) Pad LED ON/OFF	1	1	RW
0xF3	0x31	d2) Pad LED Dimming Control	1	1	RW
0xF3	0x32	d3) Pad LED Dimming Control Adjust follow Back Light	1	1	RW

3.3.15. Sub-Function: 0x30 Pad LED ON/OFF

This command is turn it ON or OFF to pad LED.

Command example:
<Set Table>
[S] 6E [W] 51 85 E7 F3 01 30 01 9E [P]

<Get Table>
[S] 6E [W] 51 84 E2 F3 01 30 9B [P]

<Reply>
[S] 6F [R] 6E 84 E4 01 30 01 6E [P]

Red color → Set or Get data length.
Green color → Sub function ID.
Blue color → Set or get data.

■ Data setting description
0x00 → OFF
0x01 → ON

3.3.16. Sub-Function: 0x31 Pad LED Dimming Control

This command is pad LED dimming control that range is 0 to 255.

Command example:
<Set Table>
[S] 6E [W] 51 85 E7 F3 01 31 C8 56 [P]

<Get Table>
[S] 6E [W] 51 84 E2 F3 01 31 9A [P]

<Reply>
[S] 6F [R] 6E 84 E4 01 31 C8 A6 [P]

Red color → Set or Get data length.
Green color → Sub function ID.
Blue color → Set or get data.

3.3.17. Sub-Function: 0x32 Pad LED Dimming Control Adjust follow Back Light

This command is flag status setting of pad LED dimming follow back light control.

Command example:
<Set Table>

[S] 6E [W] 51 85 E7 F3 01 32 01 9C [P]

<Get Table>
[S] 6E [W] 51 84 E2 F3 01 32 99 [P]

<Reply>
[S] 6F [R] 6E 84 E4 01 32 01 6C [P]

Red color → Set or Get data length.
Green color → Sub function ID.
Blue color → Set or get data.

■ Data setting description
0x00 → Independent controls.
0x01 → Follow back light control.

■ Sensor

VCP Code	Sub-F	Function Description	D_N		Type
			R	W	
0xF3	0x38	e1) Ambient Light Sensor	2		RO
0xF3	0x39	e2) Ambient Light Sensor Range	1	1	RW
0xF3	0x3A	TBD			WO

3.3.18. Sub-Function: 0x38 Ambient Light Sensor

This command is get sensor value of ambient light.

Command example:
<Get Table>
[S] 6E [W] 51 84 E2 F3 02 38 90 [P]

<Reply>
[S] 6F [R] 6E 85 E4 02 38 00 31 54 [P]

Red color → Set or Get data length.
Green color → Sub function ID.
Blue color → Set or get data.

■ Data description
0x00 is high byte of word data.
0x31 is low byte of word data.

0x0031 → 49 LUX

3.3.19. Sub-Function: 0x39 Ambient Light Sensor Range

This command is sensor receive range level setting that level range is 0 to 4.

Command example:
<Set Table>
[S] 6E [W] 51 85 E7 F3 01 39 03 95 [P]

<Get Table>
[S] 6E [W] 51 84 E2 F3 01 39 92 [P]

<Reply>
[S] 6F [R] 6E 84 E4 01 39 03 65 [P]

Red color → Set or Get data length.
Green color → Sub function ID.
Blue color → Set or get data.

■ Data setting description
When value is 0 that sensor reaction level is range 1.
When value is 1 that sensor reaction level is range 2.
When value is 2 that sensor reaction level is range 3.
When value is 3 that sensor reaction level is range 4.
When value is 4 that sensor reaction is off.

■ ALARM status of Computer side and Video Control

VCP Code	Sub-F	Function Description	D_N		Type
			R	W	
0xF3	0x40	f1) Power OFF --> ON	0	0	WO
0xF3	0x41	f2) Booting	0	0	WO
0xF3	0x42	f3) OS Running	0	0	WO
0xF3	0x43	f4) Application running normal	0	0	WO
0xF3	0x44	f5) Maintenance	0	0	WO
0xF3	0x45	f6) Computer halted	0	0	WO
0xF3	0x46	f7) Computer running in loop	0	0	WO
0xF3	0x47	f8) Shut Down	0	0	WO
0xF3	0x48	f9) Restart	0	0	WO
0xF3	0x49	f10) Sleep Mode	0	0	WO
0xF3	0x4A	f11) Low Power	0	0	WO
0xF3	0x4B	f12) I/O Grading not ok	0	0	WO
0xF3	0x4C	f13) Power ON --> OFF	0	0	WO

3.3.20. Sub-Function: 0x40 – 0x4C Computer state

This part command is follow Hatteland system overview status.

Command example:
■ 0x40
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 22 8D [P]

Red color → set data length.
Green color → Sub function ID.

■ 0x40
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 40 EF [P]

Red color → set data length.
Green color → Sub function ID.

■ 0x41
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 41 EE [P]

Red color → set data length.
Green color → Sub function ID.

■ 0x42
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 42 ED [P]

Red color → set data length.
Green color → Sub function ID.

■ 0x43
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 43 EC [P]

Red color → set data length.
Green color → Sub function ID.

■ 0x44
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 44 EB [P]

Red color → set data length.
Green color → Sub function ID.

■ 0x45
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 45 EA [P]

Red color → set data length.
Green color → Sub function ID.

■ 0x46
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 46 E9 [P]

Red color → set data length.
Green color → Sub function ID.

■ 0x47
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 47 E8 [P]

Red color → set data length.
Green color → Sub function ID.

■ 0x48
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 48 E7 [P]

Red color → set data length.
Green color → Sub function ID.

■ **0x49**
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 49 E6 [P]

Red color → set data length.
Green color → Sub function ID.

■ **0x4A**
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 4A E5 [P]

Red color → set data length.
Green color → Sub function ID.

■ **0x4B**
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 4B E4 [P]

Red color → set data length.
Green color → Sub function ID.

■ **0x4C**
<Set Table>
[S] 6E [W] 51 84 E7 F3 00 4C E3 [P]

Red color → set data length.
Green color → Sub function ID.