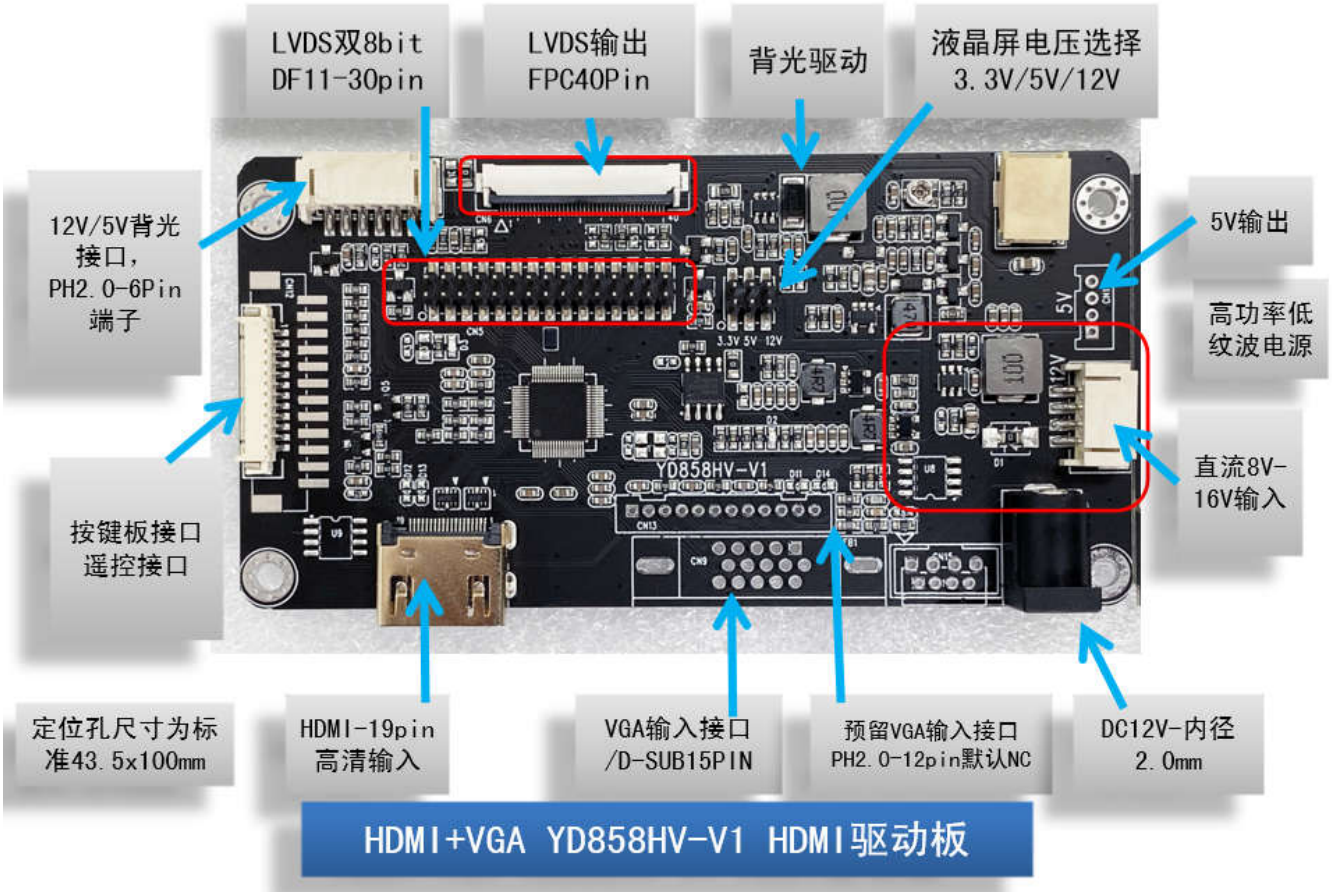
Version:A1.1

YD858-V1 Product Manual

Model: YD858-V1

P/N No.: V08702035



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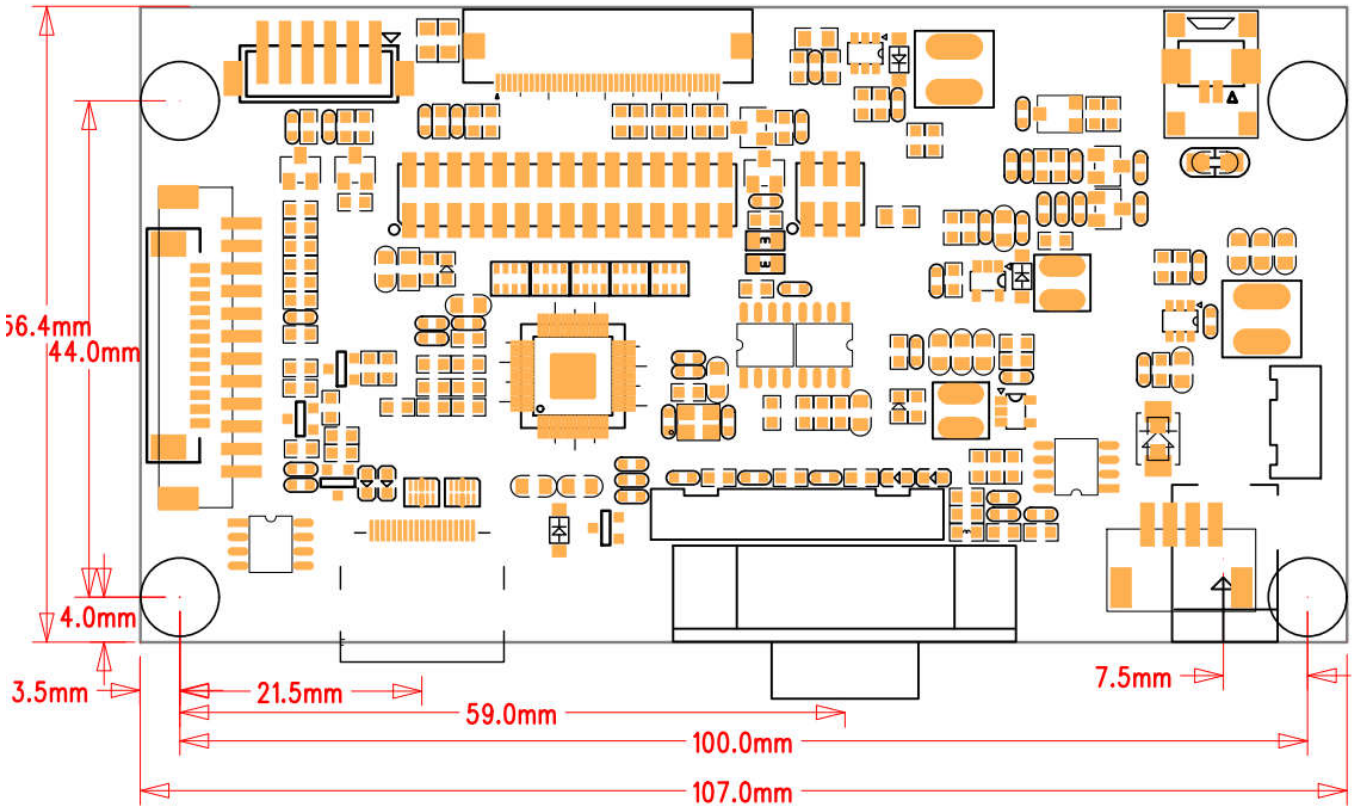
1.summary

YD858-V1 LCDThe driver board is mainly forTFTLCD-like design, suitable for LCD screens and some other flat panel displays.

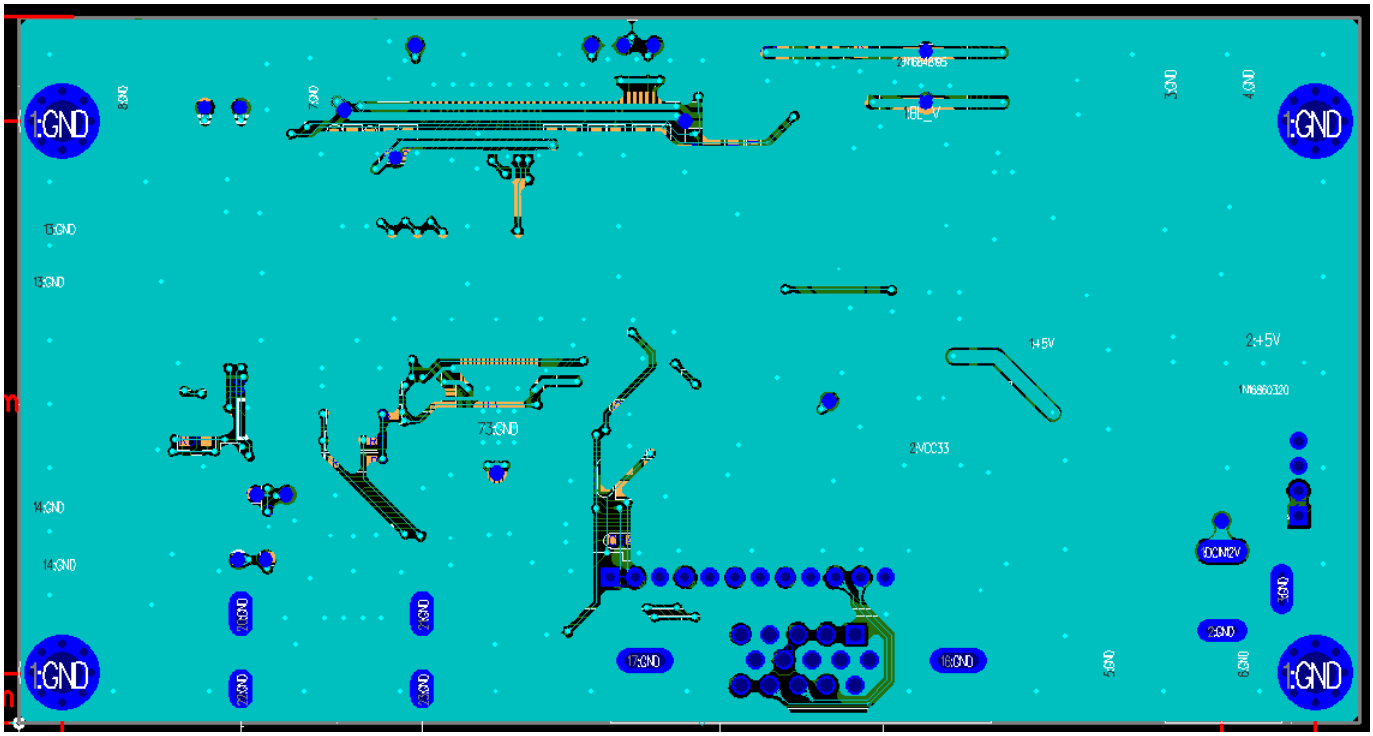
- Input signal type: Digital HD (HDMI),simulation(RGB, VGA).
- The board supports wide voltage input8V~18V;Typical Value12V(Screen power supply is12VWhen the board is powered12V)
- Wide operating temperature range: -10℃ ~ +70℃
- Supported resolution800x480~~190x1200.
- Board comes withledBacklight drive circuit; supports small and medium sizeledBacklight9~25VVoltage drive.
- Board comes withT-CONCircuit, can directly drive small and medium sizeLVDSWithoutT-CONofLCD
- Backlight power support5V/12V(default12V),supportPWMDuty cycle adjusts backlight brightness
- Display output interface: **LVDS one6BIT， LVDS one8BIT， LVDS pair6BIT， LVDS pair8BIT.**
- adaptPC(Personal computer) graphics card high definitionHDMI,simulationRGB(VGA)Resolution:480x272,VGA,SVGA,XGA, SXGA, WXGA+,UXGA,1920X1200waitVESAStandard signal;
- Features: This board has the characteristics of simple operation and reliable performance.

2.Layout and Dimensions

TOP VIEW:



BOTTOM VIEW:



3.How to use

First, make sure the controller and related accessories are complete and correct. Please refer to the relevant connection diagrams and assembly precautions. Check the settings of the controller to ensure they are accurate (wrong settings may damage the display);

Prepare the signal source (such asPC);

Connect all links according to the connection diagram;

Be familiar with how to operate and product functions.

4.Precautions for use

This control panel is suitable for1920×1200,1920×1080,1600×1200,1280×1024,1024×768,1024×600,800×600,800×480 and640×480 Equal resolutionTFTFor LCD display solutions, the following issues need to be noted:

4.1Preparation

Understand the component configuration of the entire system in advance, prepare the connecting devices, understand the installation dimensions, assembly layout, etc. Work according to the guidance of the system connection diagram. The following are some necessary preparations for reference:

（1） LCD screen: This control panel is suitable for power supply3.3V,5Vor12V, the interface isLVDSofTFTLCD screen.

（2） Control panel: When touching the control panel, be careful to avoid static electricity to avoid damaging components. Confirm that the control panel settings fully meet the requirements of the display. （3) LCD screen connection components: Different LCD screens may use different connectors and have different pin signal arrangements.

（4) Inverter: LCD screens without built-in inverters need to be equipped with inverters. You should choose a matching inverter based on the backlight parameters of the LCD screen.5) Inverter cable: Different inverters generally have different input signals, so you need to select matching cables. Improper connection may damage the inverter.

（6) Function control: Function control includes power switch, backlight adjustment andOSDMenu adjustment.7）

OSDAdjustment board connection cable: This cable is generally required to be1mWithin.

（8) Signal standard cable: This cable is very important to the display quality and requires the use of high-quality shielded cable.

(9)power supply:12VDC power supply requires a stable power supply. The power supply power depends on the LCD screen and the inverter. Generally speaking,3.5AThe power supply can meet the high brightness orLED1500Brightness determines the demand of LCD screen. Power fluctuations will affect the life of backlight, display quality and even damage the product.

4.2Power safety

becauseledThe driver outputs a high starting voltage and operating voltage (9~19VOr large size externalledDrive55V), the operating frequency is also relatively high (tens ofkHz) may have an impact on the display and system, and attention should be paid to the layout of the boost board.

4.3Electromagnetic Interference

It is necessary to take certain shielding measures to prevent external interference.

4.4Grounding

PCBThe mounting hole is connected to the ground.

4.5Controller Installation

When installing this controller, it is recommended that the component surface should be kept at least10mmHigh space, the other side at least maintain5mmAlso pay attention to: electrical insulation; good grounding; prevention of electromagnetic interference; reasonable cable layout.

It is important to note that the signal line of the LCD screen must be kept at a necessary distance from the backlight line to prevent signal crosstalk. Heat and ventilation: LCD screens with high backlight brightness will generate relatively high heat, so attention should be paid to heat dissipation.

4.6Other issues that may affect system security and system performance

PCGraphics card output: Signal quality is very important ifPCThe graphics card output signal is noisy or unstable, and its impact may be directly reflected in the display. Please refer to Adapting the graphics card mode.

5.Connection and Operation

5.1connect

Connect and use:

1)Backlight andledBacklight driver: connects the backlight of the LCD screen (if the LCD does not have a built-in inverter) toledDriver output,

ledThe input of the driver is connected to the backlight interface of the control board;

2) LVDSSignal display: Connect the signal cable directly to theLVDSport, and the other end is connected to the LCD screen;

3)Function control: Use cable toOSDThe regulator board is connected to the controllerOSDport;

4) HDMICables and controllers,HDMIConnect one end of the cable to the controllerHDMIport, the other end of the cable is connected toPCGraphics card output;

5) VGACables and Controllers:VGAConnect one end of the cable to the controllerVGAport, the other end of the cable is connected toPCGraphics card output;

6)Power supply and controller:12VThe DC power supply is connected to the power input port of the controller;

7)Display power switch: throughOSDAdjustment board to achieve.

5.2 PC set up

Although this controller is designed to accommodate a wide range of signals, it is recommended to optimize the display signal.PCThe display refresh rate is set to 60Hz——This will not easily cause the screen to flicker. It is best to set the resolution to match the LCD screen.

5.3Adjustment Operation

After the system is connected and working properly, you canOSDThe adjusted parameters are automatically stored.

5.4Display system block diagram

Please see the picture on the next page:

illustrate:

1,TFTLCD screen;

2, Display controller:YD858-V1;

3, backlight driver (if the LCD screen does not have a built-inledBooster board);

4,OSD（On Screen DisplayDisplay on the screen) Function adjustment board (manufacturers can make it according to the definitionOSDKeypad); 5, Cable connecting the LCD screen to the control board;

6, Cables connecting the inverter to the control board;

7,connectOSDCable from regulator board to control board.

5.5Feature Points

5.5.1Test Points

Logo	use way	Minimum	typical	maximum	unit	Ripple	Remark
12V	12VTest Points	10.8	12	13.2	V	400mV	By external module Decide
5V	5VTest Points	4.75	5	5.25	V	200mV	
3.3V	3.3VTest Points	3.13	3.25	3.46		150mV	
1.8V	1.8VTest Points	1.70	1.75	1.85	V	100mV	
GND	GND	-	-	-	V	-	
BL-EN	Backlight Enable	0.1	-	4.8	V	-	
BL-PWM	BacklightPWM	0.1	-	4.8	V	-	

5.6Interface Description

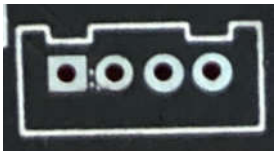
5.6.1Interface Overview

interface	use	Connector Description	Remark
CN1	12VDC power input	4P,2.0Pitch, single row,180°, socket (JST/CVILUX)	defaultNC
CN2	12VDC power input	DC JACK, positive inside and negative outside, positive electrode outer diameter ϕ2.0mm, negative electrode inner diameter ϕ5.5mm （JST/CVILUX）	
CN30	Inverter interface	6P,2.0Pitch, single row,180°, socket	
CN12	HDMIenter	HDMI-19pin,90degrees, Taiwan socket	
CN5	LVDS/Output Interface	2×15P,2.0pitch, double row,180°, socket (JST/CVILUX)	
CN3	OSDAdjust keyboard interface	10P,2.0Pitch, single row,180°, socket (JST/CVILUX)	
CN8	VGAInput standard socket	DB15FLC, female header,90°, blue, with screws (JST/CVILUX)	
CN9	VGAInput Substitution Plugin	12P,2.0Pitch, single row,180°, socket (JST/CVILUX)	defaultNC
CN16	LVDS-FFC0.5mm-40pin	LVDS-40PIN,default8bitOutput	

CN14	ledBacklight voltage output	Small and medium sizeledBacklight output; high voltage socket terminalSM-POW-2P	
J1	LCD screen power supply selection	1-2Short circuit3.3V,3-4Short circuit5V,5-6Short circuit12V	

5.6.2Input Interface

- Logo:CN1(defaultNC） Application:12VDC
- power input (defaultNC)
- type:4P,2.0Pitch, single row,180°, socket (JST/CVILUX),White
- Connectors:PH2.0mm-4PINDirect Plug
- Pin Definition



Pinout	symbol	explain bright	Pinout	symbol	explain bright
1	+12V	+12VDC power input (±10%)	2	+12V	+12VDC power input (±10%)
3	GND	land	4	GND	land

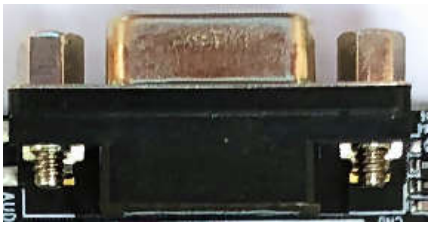
- Logo:CN2
- use:12VDC power input
- Type: positive inside and negative outside, positive outer diameterϕ2.0mmCopper, negative electrode inner diameter
- ϕ5.5mm, black connector:DC JACK（CVILUX）
- Pin Definition

Pinout	symbol	explain bright	Pinout	symbol	explain bright
1	+12V	+12VDC power input (±10%)	2	GND	land
3	GND	land			

- Logo:CN12
- use:HDMISignal input
- type:HDMI-19PIN/4Pin plug/gold-plated copper/
- 90Connector:DC JACK（CVILUX）
- Pin Definition

Pinout	symbol	explain bright	Pinout	symbol	explain bright
1	Data2+	HDMIdata2+	2	GND	land
3	Data2-	HDMIdata2-	4	Data1+	HDMIdata1+
5	GND	land	6	Data1-	HDMIdata1-
7	Data0+	HDMIdata0+	8	GND	land
9	Data0-	HDMIdata0-	10	Clock-	HDMIclock-
11	GND	land	12	Clock+	HDMIClock+
13	NC	NC	14	NC	NC
15	SCL	DDC I2Cclock	16	SDA	DDC I2Cdata
17	GND	land	18	+5V	
19	HPD	Hot plug DetectHot plug identification			

- Logo:CN8
- Purpose: SimulationRGB（VGA) Input type:
- DB15FLC（JST/CVILUX),black
- Connectors:HL128-15F-101-910（CVILUX）
- ESDgrade:3class
- Pin Definition



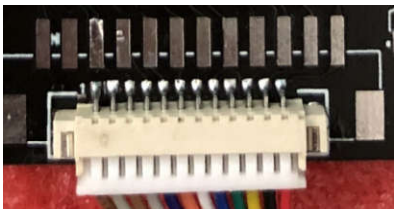
Pinout	symbol	explain bright	Pinout	symbol	explain bright
1	RED	Analog red signal	2	GRN	Analog green signal
3	BLU	Analog blue signal	4	NC	No connection
5	GND	Digitally	6	AGND	Analog Ground
7	AGND	Analog Ground	8	AGND	Analog Ground
9	5V	DDCuse5V	10	GND	Digitally
11	NC	No connection	12	VGA_DDC_SDA	DDCSerial Data
13	HSYNC	Horizontal sync input	14	VSYNC	Vertical Sync Input
15	VGA_DDC_SCL	DDCSerial Clock			

- Logo:CN8(defaultNC） Application:VGASignal
- input replacement connector
- type:PH2.0mm-12PIN,2.0Pitch, single row,180°,socket(JST/CVILUX), White

- Connector: (CVILUX)
- Pin Definition

Pinout	symbol	explain bright	Pinout	symbol	explain bright
1	VGA_SCL	DDCSerial Clock	2	VGA_SDA	DDCSerial Data
3	AGND	Analog Ground	4	BLU	Analog blue signal
5	AGND	Analog Ground	6	GRN	Analog green signal
7	AGND	Analog Ground	8	RED	Analog red signal
9	GND	Digitally	10	HSYNCIN	Horizontal sync input
11	VSYNCIN	Vertical Sync Input	12	GND	Digitally

- Logo:CN3
- use:OSDFunction control connector
- type:Molex 1.25mm-12Pin,1.25mm, single row,90°,socket(molex), White
- Connector: (CVILUX) or compatible
- Pin Definition



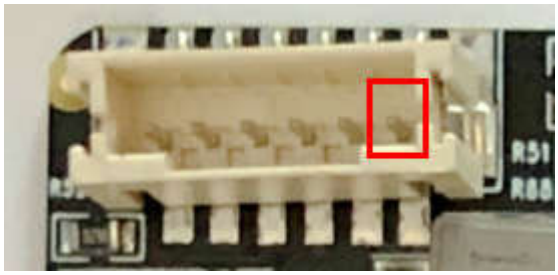
Pinout	symbol	explain bright	Pinout	symbol	explain bright
1	IR	Infrared remote control signal input	2	GND	land
3	VCC5V	5V	4	I/O（Source）	Signal source selection shortcut key/exit keyK1
5	I/O（Menu）	Menu Key K2	6	Auto	NC/ReserveK3
7	I/O（Left）	Left Adjustment KeyK4	8	I/O（Right）	Right Adjustment KeyK5
9	GND	land	10	LED_GREEN	Green indicator light
11	LED_RED	Red indicator light	12	I/O（Power）	Power buttonK6

5.6.3 LVDSOutput Interface

- Logo:CN5
- use:LVDSSignal output
- type:2×15P,2.0pitch,180°Straight plug, double row socket,
- black connector:CI0130P1VD0（CVILUX）/DF11-30DP-2DSA
- Pin Definition

Pinout	symbol	explain bright	Pinout	symbol	explain bright
1	VCC	3.3V/5V（±5%）	2	VCC	3.3V/5V（±5%）
3	VCC	3.3V/5V（±5%）	4	NC	NC
5	GND	land	6	GND	land
7	TXO0-	Odd channel channel1Output negative	8	TXO0+	Odd channel channel1Output positive
9	TXO1-	Odd channel channel2Output negative	10	TXO1+	Odd channel channel2Output positive
11	TXO2-	Odd channel channel3Output negative	12	TXO2+	Odd channel channel3Output positive
13	GND	land	14	GND	land
15	TXOC-	Negative clock output of odd channel	16	TXOC+	Odd channel clock output positive
17	TXO3-	Odd channel channel4Output negative	18	TXO3+	Odd channel channel4Output positive
19	TXE0-	Even channel1Output negative	20	TXE0+	Even channel1Output positive
twenty one	TXE1-	Even channel2Output negative	twenty two	TXE1+	Even channel2Output positive
twenty three	TXE2-	Even channel3Output negative	twenty four	TXE2+	Even channel3Output positive
25	GND	land	26	GND	land
27	TXEC-	Negative clock output of even channel	28	TXEC+	Even channel clock output positive
29	TXE3-	Even channel4Output negative	30	TXE3+	Even channel4Output positive

5.6.4Boost board/inverter interface



- Logo:CN3
- Application: Boost board/inverter interface
- type:PH2.0mm-6PIN,6P,2.0Pitch, single row,180°,socket(JST/CVILUX),White
- Connector: (CVILUX)
- Pin Definition

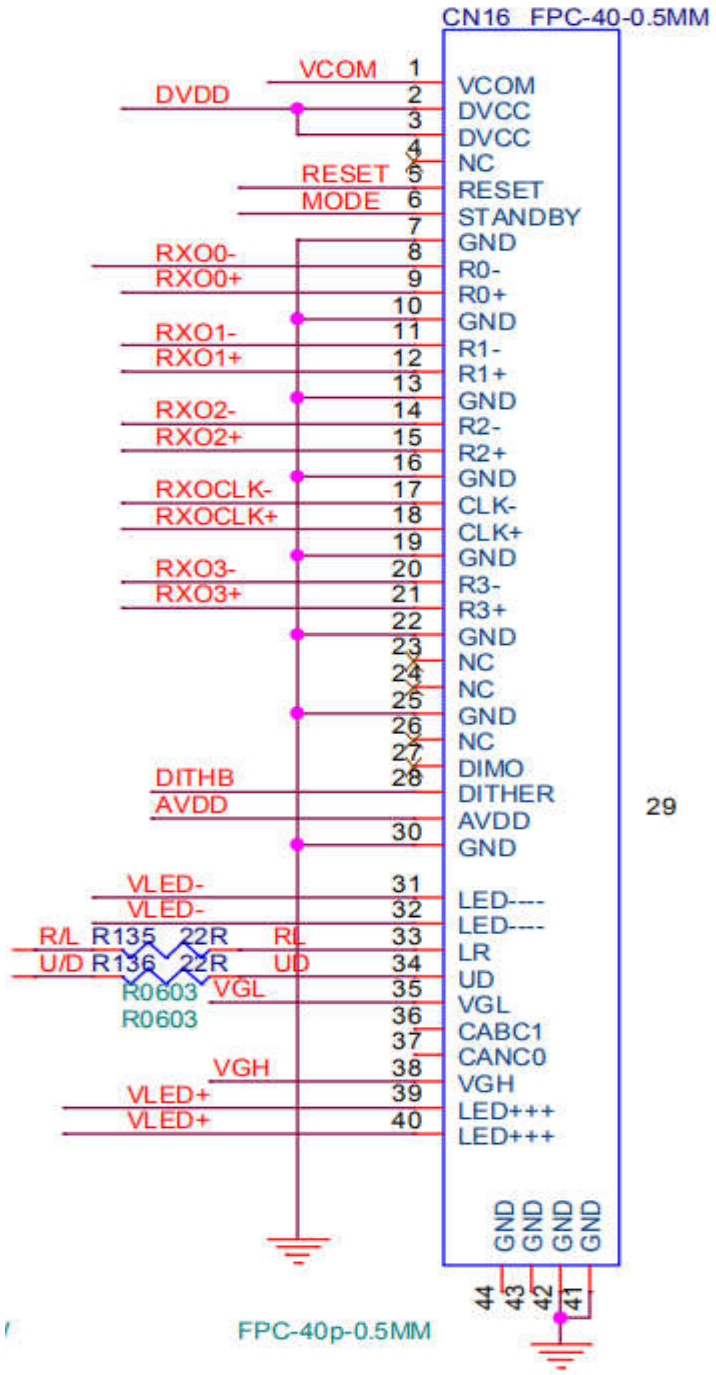
Pinout	symbol	explain bright	Pinout	symbol	explain bright
1	GND	land	2	GND	land
3	Vadj	Connect the brightness adjustment terminal of the inverter2】	4	ON/OFF	On/Off (Enable)5V / 0V
5	+12V/5V	Default+12V, inverter power supply [Note1】	6	+12V/5V	Default+12V, inverter power supply [Note1】

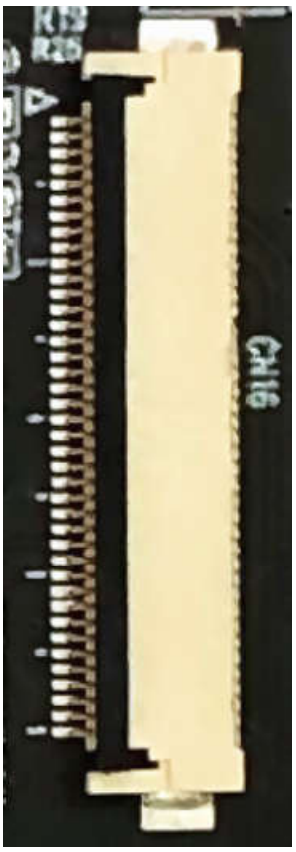
【Note1】 Load capacity is determined by the external power module [Note2】

For specific adjustment methods, refer to the jumper instructions

5.6.5 LVDS-40PINOutput Interface

- Logo:CN16
- use:LVDSOutput Interface default8bitOutput
- Connector/Type: Upper Contact,FFC-0.5mm-40pinor compatible, gold-plated/white pin
- definition

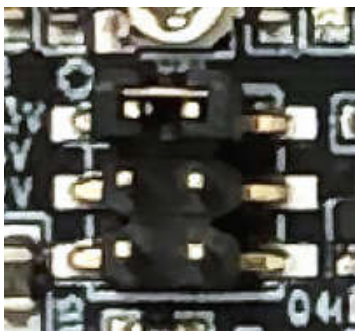




5.7Jumper Wires

5.7.1 J1Jumper screen supply voltage selection

Jumper Wires	Configuration	Function
J1	1-2Short Circuit	LCDpanel3.3VPower Supply Selection
	3-4Short Circuit	LCDpanel5VPower Supply Selection
	5-6Short Circuit	LCDpanel12VPower Supply Selection



6.Technical Parameters

Product Model		YD858-V1Version:V1		
Dimensions		107mm×56.4mm×16.5mm（L×W×H）		
Display Color		twenty fourBit(3×8,16.7M)		
Display screen interface		LVDS		
Control scope		480×272~1920×1200Equal resolutionLCD		
Signal input	Input signal type	VGA,HDMI		
	Input signal range	HDMIInput range	PC（VGA / HDMI)Highest1920×1200	
		VGAInput range	PC（VGA / HDMI)Highest1920×1200	
Supported input signal formats		Reference AppendixA,appendixB		
Supply voltage		Minimum:10.8V	Nominal:12V	maximum:13.2V
Working currentNote		Minimum:0.05A	Nominal:0.1A	maximum:0.3A
Standby power		<0.8W		
Display voltage		3.3V/5V/12VJumper selectable		
Maximum display load capacity (normal temperature)		1.8A@3.3V,2.5A@5V,3.5A@12V（12VThe screen is limited by the power supply capacity)		
User Interface		VisualizationOSDUser Interface		
Communication interface		Digital buttons, infraredIR,I^2C		
Operating temperature range		- 10°C～70°C;－30°C～70°C (Except main chip)		
Operating humidity range		10~95%RH（40°C,95%RH）		
Storage temperature range		- 30°C～70°C		
Storage humidity range		10~100%RH		
Working environment atmospheric pressure range		70kPa~106kPa		
MTBF		> 100000Hour		

Note:againstG170EG01VH

7.Display Adjustment

7.1Menu Structure

Main Menu (Main menu)	Submenu (Submenu)		Reset (Factory Reset)	Description (describe)
	Backlight brightness (BackLight)	0~100	100	Note: Some do not support brightness adjustment
	Signal brightness (Brightness)	0~100	50	
	Contrast (Contrast)	0~100	50	
	Color temperature (Color Temp)	6500K	6500K	Input onlyVGAVisible
		9300K		Input onlyVGAVisible
		user(User)		Input onlyVGAVisible at times.RGB Adjustable, range is0~255
Picture Adjustment (Adjust)	Automatic Adjustment (AutoConfig)			Input onlyVGAVisible

	Horizontal position (H Position)	0~100	50	Input onlyVGAVisible
	Vertical position (V Position)	0~100	50	Input onlyVGAVisible
	Phase (Phase)	0~63	indefinite	Input onlyVGAVisible
	clock(Clock)	0~100	50	Input onlyVGAVisible
menu(OSD)	language(Language)	Simplified Chinese/Englishwait10Seed Country Home Language	English	10National languages
	Horizontal position (H Position)	0~100	50	
	Vertical position (V Position)	0~100	50	
	time(OSD Timeout)	5~60	10	Menu disappearance time setting when no operation is performed
	transparent(Transparent)	1/2/3/4/5/6/7/close(Off)	close	When the selection is7The highest transparency is When Off is selected (Off) Brightness is0
Function(Function)	Reset (Reset)			
	Display Scale(Display Ratio)	16:9/4:3/AUTO		
	Blue Screen (Blue Screen)	open(On)/close(Off)	close(Off)	
	Clarity (Sharpness)	0~100	50	
	Flip (Rotation)	0-3	0	Image flip up, down, left, right (Need to confirm whether the screen supports it)
sound(Sound	volume (Volume)	0~100	50	
	Mute (Mute)	Off/on	off	

7.2Instructions

7.2.1Button Description:

Digital button description

K1（Source/EXIT）	Escape key/AUTO
K2（MENU）	Main menu button, confirm button
K3（NC）	No function
K4（Left）	Decrease option value (-)/signal source input selection key
K5（Right）	Increase option value (+)/FULL/4:3
K6（Power）	Standby button

Infrared button instructions (optional remote control)

Custom Code:03FC(Nec)
Software No.:KD315T-A000-001

7.2.2Indicator Light Description

After power on, no signal is displayed in red, normal operation is green, and shutdown is red. Note:

The standby indicator light caused by no signal is still orange.

7.2.3Menu operation method:

-according to"Menu”Press to bring up the main menu, then pressMenukey to enter the submenu;

-according to"Left”/“Right”Key to switch between main menu information and submenu items;

-according to"Menu”Go to the Adjustment Options and selectLeft”/“Right”Adjust the parameters in each adjustment option.

7.2.4Power management and indicator light function description:

-When the signal is working properly, the keypad indicator light is green.D1is red,D2is green.

-When you pressPowerWhen the key is pressed, the system enters standby mode and the keypad indicator light turns red.D1normal,D2Not lit.

-When there is no signal, the keypad indicator light is red.D1is red,D2Not lit.

-When no signal lasts15sAfter that, the system will enter the power saving mode, and the keypad indicator light will be red.D1is red,D2 When there is a signal, the power saving mode will be exited and the normal working mode will be entered. At this time, the keypad indicator light will return to green.

8.Fault analysis and troubleshooting

8.1Possible fault links

Generally, when the display system is abnormal, it is necessary to judge the following links. By checking them step by step, you can usually determine where the problem lies.

Controllers (such as jumpers,PCSignal settings);

Display (consider controller, signal cables, connections, display,PCSignal settings);

Backlight (related to the controller, cables, backlight tube);

Cables (such asHDMIWire);

Microcomputer system (display settings such as refresh rate, etc.);

8.2No display

If the connection is incorrect, or there is no power (such as no power input, the power switch is not turned on), orPCIf the output signal is out of the applicable range of this controller, it may result in no display.

8.3Image location

If passedOSDIf the image display position cannot be adjusted properly, it may be that the output timing of the graphics card does not meet the standard and the controller cannot adapt to it. You may try to replace another graphics card for testing. In addition, some video distributors may also have an impact.

8.4Abnormal image display

Abnormal display phenomena may include missing lines, jitter, flickering, shadows, etc.

Inconsistency between the graphics card's refresh rate, resolution setting, and scanning mode and the controller's requirements may result in abnormal image display size, image rolling, flickering, or even no display.

The quality of the cables connecting the display can also cause display anomalies.

The quality of the signal cable directly affects the quality of the input signal and the anti-interference ability of the input end. If there are shadows on the image, it is very likely caused by the poor quality of the signal cable.

If there is not an appropriate distance between the backlight and the display signal cable, it may affect the LCD screen's horizontal synchronization signal, and its impact can be seen directly in the display.

8.5Backlight

If the backlight is abnormal, you need to check the following aspects: power input, input switch signal, input regulation (the regulation signal not within the required range of the inverter may also be the reason why the backlight is not bright) and backlight tube, etc.

8.6Other faults

Improper use, such as inappropriate input power, circuit short circuit caused by wrong operation, incorrect cables, etc. may bring unpredictable adverse consequences.

appendixAsupportVGA,HDMIInput signal mode list

model	Resolution	Field frequencyHz]	Line frequencykHz]	clock[MHz]	Synchronous mode	standard
E1_70	640×350	70	31.469	25.175		N/A
E2_70	640×400	70	31.469	25.175		N/A
T_70	720×400	70	31.469	28.322		N/A
V60	640×480	59.940	31.469	25.175		Industry Standard
V75		75.000	37.500	31.500		VESA Standard
SV60	800×600	60.317	37.879	40.000		VESA Standard
SV75		75.000	46.875	49.500		VESA Standard
X_60	1024×768	60.004	48.363	65.000		VESA Standard
X_70		70.069	56.476	75.000		VESA Standard
X_75		75.029	60.023	78.750		VESA Standard
SX_60	1280×1024	60.020	63.981	108.000		VESA Standard
SX_75		75.025	79.976	135.000		VESA Standard
UX_60	1600×1200	60.000	75.000	112.288		VESA Standard
F-HD_60	1920×1080	59.940	67.433	148.352		VESA Standard

appendixBList of supported video input signal modes

Input image format	Display image parameter description					
	Interlacing ratio	Scan lines	Line frequencykHz	Field frequencyHz	Aspect Ratio	Remark
720×576i	2:1	625	15.625	50	4:3	CVBS,S-Video
720×480i	2:1	525	15.73425	59.94/60	4:3	CVBS,S-Video

Approval Records

Design department: R&D department		Type: YD858-V1/HDMI+VGA high-definition display driver board
Written by: zs		Date of writing: 2019.09.12
Hardware Review: zy		Review Date:
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Modification Record

date	Version Number	page number	Modifications	Modified by	Review and Signature
2019-9-12	A0	all	New compilation	ZlUT	
2020-06-18	A1		Button terminal		