 Good Display	LCD MODULE SPECIFICATIONS	SPEC NO	
	GDNHD156AU-G104X1-L04	REV NO	1.0

Good Display Specifications

Type: 10.4 inch TFT LCD module
Model No. GDNHD156AU-G104X1-L04
10.4 inch LCD with 1024 x 768 pixels
Description:

- Support HDMI / VGA input
- With LED backlight
- RoHS Compliant


Prepared: Xiaoli Lan
Checked: Moon Wu
Approved: Boris Jen
Issue Date: 2013.8.5



Good Display

Dalian Good Display Co., Ltd.


No.17 Gonghua Street, Shahekou District, Dalian 116021 China
Tel: +86-411-84619565 Fax: +86-411-84619585
E-mail: info@good-display.com
Website: www.good-display.com

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1. Notice: Important Safety Instructions

- The nominal voltage of DC input to the A/D board is 12V, the size of DC current depends on the TFT LCD, audio amplifier etc. Please note that your AC/DC adapter's output plug need to match the DC input jack, the diameter of the jack is 5.5 mm.
- Before connecting these input/output ports, Video port, it is strongly recommended that your turn off the A/D board and remove the DC 12V plug from the DC input jack.
- Don't put the A/D board on the back of LCD display or other metallic conductor without insulation in case of being burnt for short.
- Don't put the A/D board into an airtight package. When it works, it will produce a certain heat.
- When assembling it, please use a suitable force; don't distort the PCB and other components.

2. Technical Specifications

2.1 Features:

- 10.4 inch TFT LCD Module: GDNH156AU-G104X1-L04 includes:
A/D board: DN-HD156AU,
8 inch Digital TFT LCD Panel: G104X1-L04
Button board, Power cable, HDMI cable and VGA cable,
- DC/ DC Converter, LED Backlight Driver, HDMI and VGA Decoder All In One
- Single Operation Voltage +12.0V (Min9.0V, Max15.0V)
- Support HDMI and VGA Signal Input
- OSD controls: Allow on-screen adjustments of H-Position, V-position, Timer, and Language.
- This product is RoHS compliant

2.2 Applications:

This color TFT LCD is the most suitable display for VGA,VCD, DVD and GPS system for motorcars and ships .It also can be used in the office ,in flat ,at home also in other suitable position. You will certainly benefit from this LCD module in lots of ways, to name some of them: convenience, safety, space-saving.

3. General Specifications:

Item	Specifications	Unit
Model name	GDNHD156AU-G104X1-L04	
Screen size	10.4 (diagonal)	inch
Display ratio	4:3	
Resolution	1024×3(RGB)×768	
Backlight	LED	
Brightness	500	cd/m ²
LED life time	50000(Typ.)	hr
View angle	88/88/88/88 (U/D/L/R)	°
Input/output interface	HDMI	
	D-Sub 15 pin female for VGA	
	USB (A Type) or RS-232 (DB9 Female) for Touch Screen Driver (Option)	
Display dimension	215.4(W) ×161.8(H)×2.5(D)	mm
TFT-LCD Active area	210.4(H) ×157.8(V)	mm
A/D board dimension	128.0(W)×85.0(H)×16.0(D)	mm
Operation voltage	DC12.0(Typ.) (Min.9.0, Max.15.0)	V
Input current	DC340±30	mA
Power consumption	4.08	W
Start time	1.5	s
Touch Screen	without	
Operation temperature	-30 to 70	°C
Storage temperature	-30 to 80	°C
Humidity	5~95	%RH



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4. Ordering Information

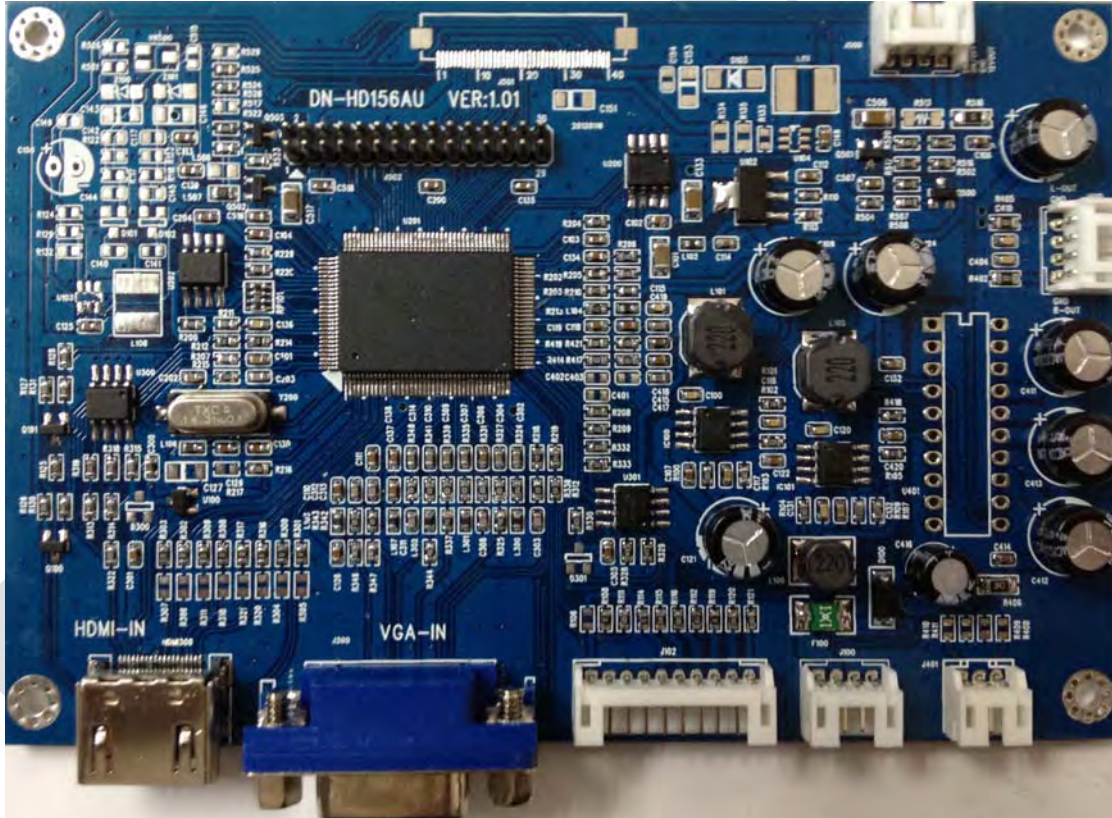
Parameter	GDNHD156AU-G014X1-L04	Unit
Support HDMI input	Yes	
Support VGA input	Yes	
Display dimension	229.46(W)×149.1(H)×2.5(D)	mm
Accessory	None	
Unit module net weight	0.21	Kg
Packing Information		
Box Information		
	Box Tare Weight: 1.1Kg Package Dimension: 28.0x18.0x6.0cm	1.5Kg 52.0x27.0x28.0cm
LCD Modules Capacity	1pc	10pcs


Remark: The above information is just for your reference, we will choice the suitable outer carton for you according to the ordering quantity.

5. The pictures of the Product.

GDNHD156AU-GTIEJ01IA-01G TFT LCD module:

A/D Board



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6. Setting the TFT LCD module.

6.1 Button board operation, the button board includes <UP> , <DOWN>, <MENU>, <POWER>, <SOURCE>, <EXIT>



[UP] [DOWN] [MENU] [POWER][SOURCE][EXIT]

The description of each button:

<UP>: Press the <Up> button to move the cursor(highlight bar) from “up” to “Down” on the OSD menu, or increase the parameters value from “small” to “large”. These parameters are such as Brightness, Contrast, Volume, etc.

<DOWN>: Press the <Down> button to move the cursor (highlight bar) from “Down” to “up” on the OSD menu, or reduce the parameters value from “large” to “small”. These parameters are such as Brightness, Contrast, Volume, etc.

<MENU>: Press the <Menu> button to pop the OSD menu on no menu status, the <Menu> button is confirmation button also, it confirms your operation.

<POWER>: Press the <Power> button on the button board to turn the backlight ON or OFF. But this is not shutting off the power supply from AC/DC adapter, this only let the module into standby (power saving) status. If you want to shut off the power supply entirely, please pull the DC plug of the AC/DC adapter out from the DC input connector of the module.



<SOURCE>: Press the <Source> button to switch the input signal between HDMI and VGA.

<EXIT>: Press the <Exit> button to pop the OSD menu to exit present menu level to its father menu level.

6.2 OSD menu introduction (On Screen Display)

Press the <Source> button to switch the input signal between HDMI and VGA.

6.2.1 Press the <Menu> button, pop the top main menu.

	<p>Main OSD menu contains the following main menu as the left picture:</p> <p>Color Image Setting OSD Menu Audio Special</p>
	<p>Color</p> <p>When you press the <Down> or <Up> button move the cursor to the Color bar on the OSD menu, you can press <Menu> button to pop the sub menu as the left picture:</p> <p>Contrast Brightness Color Adjust Color Temp</p>



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Contrast

When you press the **<Down>** or **<Up>** button move the cursor to the Contrast bar on the OSD menu, you can press **<Menu>** button to pop the sub menu as the left picture, and you can press **<Down>** or **<Up>** button to adjust the image contrast value.



Brightness

When you press the **<Down>** or **<Up>** button move the cursor to the Brightness bar on the OSD menu, you can press **<Menu>** button to pop the sub menu as the left picture, and you can press **<Down>** or **<Up>** button to adjust the image brightness value.



Color Adjust

When you press the **<Down>** or **<Up>** button move the cursor to the Color Adjust bar on the OSD menu, you can press **<Menu>** button to pop the sub menu as the left picture:

Red Green Blue,
and you can press **<Down>** or **<Up>** button move the cursor to the color you want to adjust, press **<Menu>** button to pop the value bar, you can press **<Down>** or **<Up>** button to adjust the image color value.



Color Temp

When you press the **<Down>** or **<Up>** button move the cursor to the Color Temp bar on the OSD menu, you can press **<Menu>** button to pop the sub menu as the left picture: 9300 6500 5800 sRGB USER, and you can press **<Down>** or **<Up>** button move the cursor to the color temp you want to get.



Image Setting

When you press the **<Down>** or **<Up>** button move the cursor to the Image Setting bar on the OSD menu, you can press **<Menu>** button to pop the sub menu as the left picture:

Clock
Phase
Sharpness
H. Position
V. Position



Good Display

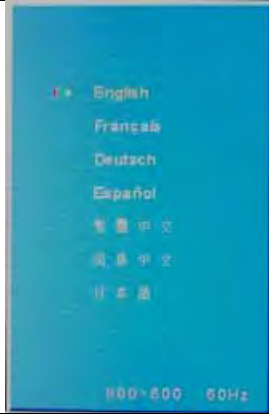
LCD MODULE SPECIFICATIONS

SPEC NO

GDNHD156AU-G104X1-L04

REV NO

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OSD Menu

When you press the **<Down>** or **<Up>** button move the cursor to the OSD Menu bar on the OSD menu, you can press **<Menu>** button to pop the sub menu as the left picture:

OSD H.Pos
OSD H.Pos
OSD Timer
Language



Audio

When you press the **<Down>** or **<Up>** button move the cursor to the Audio bar on the OSD menu, you can press **<Menu>** button to pop the sub menu as the left picture:

Volume
Mute



Special

When you press the **<Down>** or **<Up>** button move the cursor to the Special bar on the OSD menu, you can press **<Menu>** button to pop the sub menu as the left picture:

Aspect Ratio
Color Format
Super Resolution



Good Display

LCD MODULE SPECIFICATIONS

SPEC NO

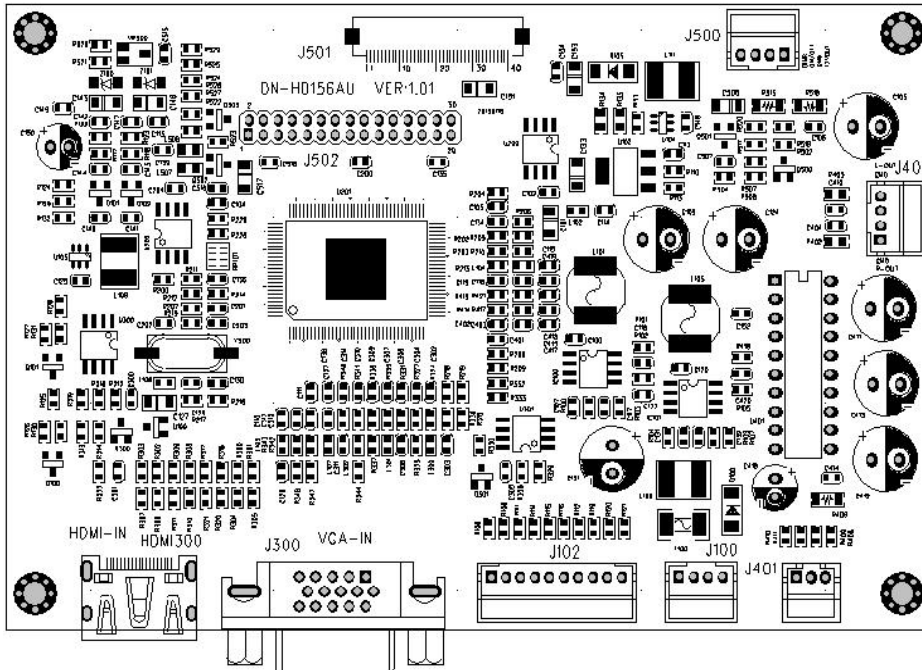
GDNHD156AU-G104X1-L04

REV NO

1.0

7. The interface definition of the A/D board

7.1 A/D board: DN-HD156AU Diagram



7.2 A/D board interface definition:

- ①HDMI300 interface definition(Standard HDMI signal interface).
- ②J300 interface definition (Standard PC-RGB signal interface, DSUB 15PIN) .
- ③J102 interface definition (Button Board),please refer to Table-1.
- ④J100 interface definition (Power Input), please refer to Table -2.
- ⑤J401 interface definition (Audio Input), please refer to Table -3.
- ⑥J400 interface definition (Audio Output), please refer to Table -4.
- ⑦J500 interface definition (Backlight Output), please refer to Table -5.
- ⑧J501&J502 interface definition (LVDS interface, connecting LCD Panel) .

Table-1 J102 interface definition (Button Board)

PIN No.	Symbol	I/O	Description
1	Vcc	O	+3.3V output
2	GND		Ground
3	LED1	I	LED indicator light1
4	LED2	I	LED indicator light2
5	SELECT/EXIT	I	Exit
6	MENU	I	Menu
7	AUTO	I	Auto
8	LEFT	I	Reducing
9	RIGHT	I	Increase
10	ON/OFF	I	ON/OFF

Table-2 J100 interface definition (Power Input)

PIN No.	Symbol	I/O	Description
1	+12V	I	DC input
2	+12V	I	DC input
3	GND	-	Power ground
4	GND	-	Power ground


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Table-3 J401 interface definition (Audio Input)

PIN No.	Symbol	I/O	Description
1	VGA-L	I	PC-RGB Left Channel Input
2	GND	-	GND
3	VGA-R	I	PC-RGB Left Channel Input

Table-4 J400 interface definition (Audio Output)

PIN No.	Symbol	I/O	Description
1	L-OUT	O	Left Channel Output
2	GND	-	Ground
3	GND	-	Ground
4	R-OUT	O	Right Channel Output

Table-5 J500 interface definition (Backlight Output)

PIN No.	Symbol	I/O	Description
1	DIMR	O	Backlight Pulse-Width Output
2	ON/OFF	-	ON/OFF
3	GND	-	Ground
4	12VOUT	O	12V Output

8. Support Display Resolution Mode

8.1 For HDMI signal:

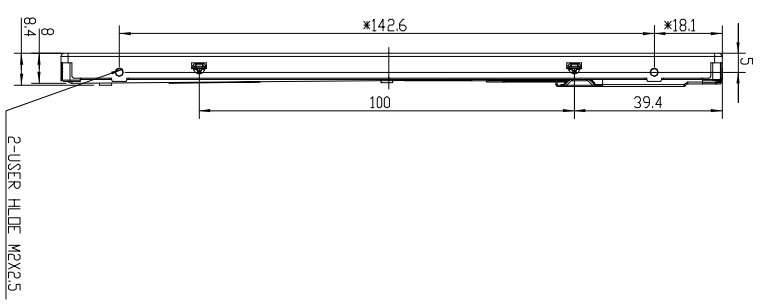
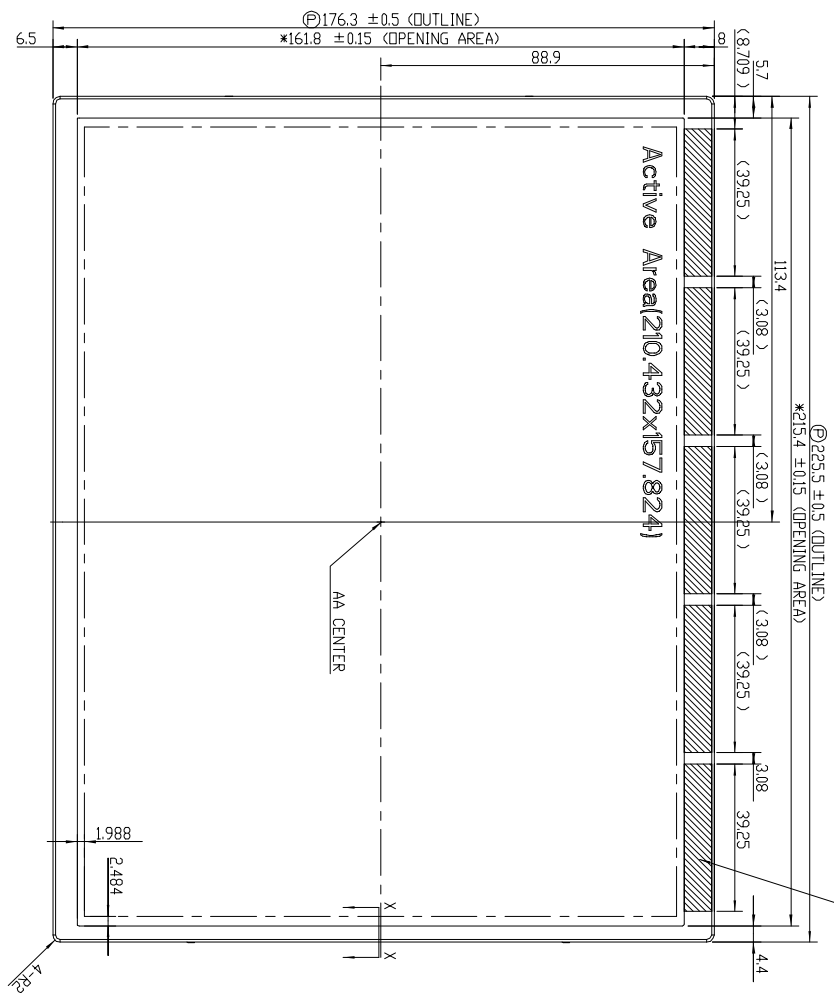
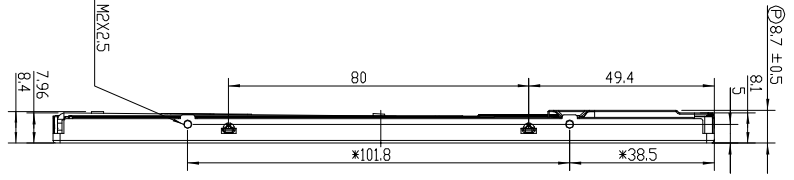
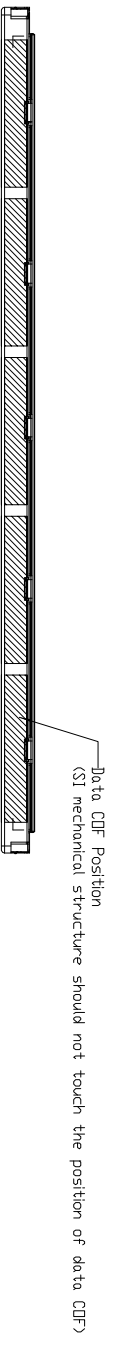
480i 60Hz,
 576i 50Hz,
 480P 60Hz,
 576P 50Hz,
 720P 50Hz,
 720P 0Hz,
 1080i 50Hz,
 1080i 60Hz,
 1080P 50Hz,
 1080P 60Hz

8.2 For PC-RGB (VGA) signal:

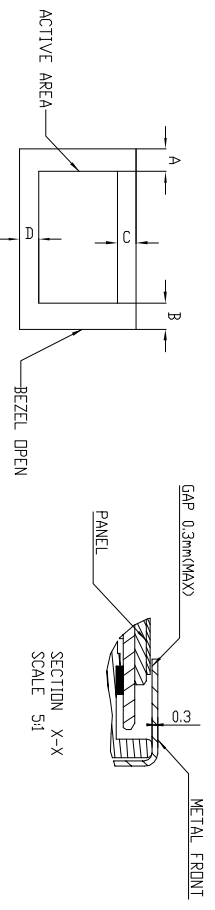
640x480 60Hz/72Hz/75Hz
 720x400 70Hz (DOS MODE)
 800x600 56Hz/60Hz/72Hz/75Hz
 1024x768 60Hz
 1152x864 60Hz
 1280x768 60Hz
 1280x960 60Hz
 1280x1024 60Hz
 1360x768 60Hz
 1440x900 60Hz
 1680x1050 60Hz
 1920 x1080 60Hz

Recommend customer to use 1024x768 resolution.

9. TFT LCD Panel Mechanical

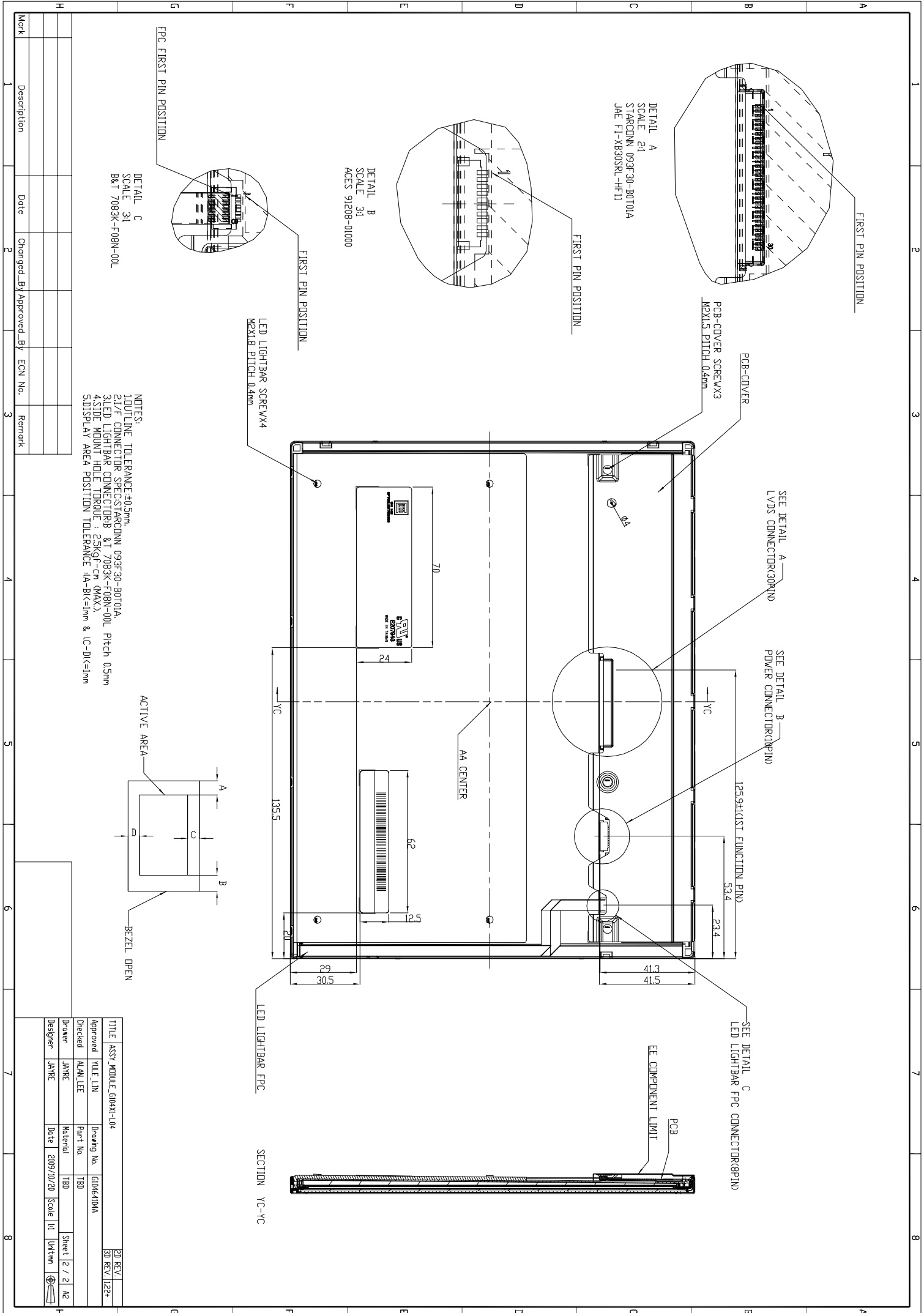


NOTES:
 1. OUTLINE TOLERANCE: ±0.5mm
 2. I/F CONNECTOR SPEC: ARCDNN 093F30-80101A
 3. LED LIGHTBAR CONNECTOR: B & T 7083K-F08N-00L Pitch: 0.5mm
 4. SIDE MOUNT HOLE TORQUE: 2.5kgf-cm (MAX.)
 5. DISPLAY AREA POSITION TOLERANCE: ±A-B<=1mm & ±C-D<=1mm



Mark	Description	Date	Changed_By	Approved_By	ECN No.	Remark
1						
2						
3						
4						
5						
6						
7						
8						

TITLE	ASSY_MODULE_E_0104X-1104	REV.	20
Approved	WILE_LIN	Drawing No.	G10664104A
Checked	ALAN_LEE	Part No.	TBD
Drawer	JAVRE	Material	TBD
Designer	JAVRE	Date	2009/10/20
		Scale	1:1
		Sheet	1 / 2
		Unit	mm



DETAIL A
SCALE 2:1
STARCONN_093F-30-80T01A
JAE FI-YB30SR-L-H11


DETAIL B
SCALE 3:1
ACES 91208-01000

DETAIL C
SCALE 3:1
B&T 7083K-F08N-00L

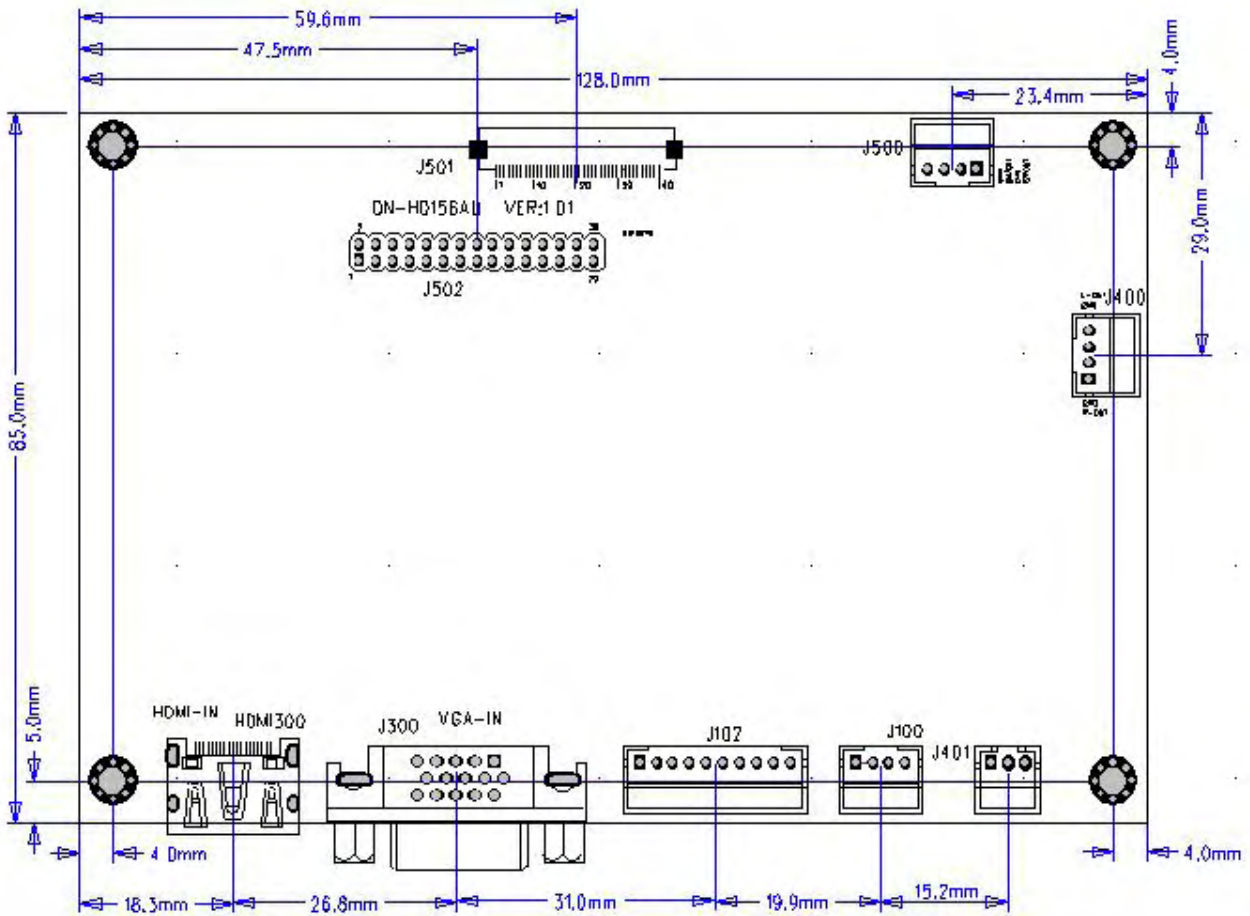
NOTES:
1)OUTLINE TOLERANCE:±0.5mm,
2)I/F CONNECTOR SPEC:STARCONN 093F-30-80T01A,
3)LED LIGHTBAR CONNECTOR B & T 7083K-F08N-00L Pitch 0.5mm
4)SIDE MOUNT HOLE TORQUE : 25%GF-cm (MAX).
5)DISPLAY AREA POSITION TOLERANCE :A-B|<=1mm & |C-D|<=1mm

Mark	Description	Date	Changed By	Approved By	ECN No.	Remark
1						
2						
3						
4						
5						
6						
7						
8						


TITLE	ASSY_MODULE_E_0104X-104	20 REV.
Approved	YILE_LIN	30 REV.1.22*
Checked	ALAN_LEE	
Drawer	JAYRE	
Designer	JAYRE	
Part No.	G1064104A	
Drawing No.	G1064104A	
Material	TBD	
Date	2009/10/20	
Scale	1:1	
Sheet	2 / 2	
Unit	mm	

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10. A/D Board: DN-HD156AU Mechanical Drawing



A/D board dimension: 128.0 (W) × 85.0(H) × 16.0(D)mm

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11. Product Label



Label Dimension : 48.0X12.0mm

XXXXXXXX / XXXXXXXX


Production Date (Y/M/D)

Delivery Date (Y/M/D)

12. Precaution

For the sake of normal usage of this product, preventing incident from the electric shock or fire etc., please follow the precaution below instructions:

1. Before operating this appliance, read these instructions, keep these instructions, heed all warnings, and follow these instructions.
2. The DC (Direct current) supply of appliance is from the indicated AC (Alternating Current)/DC adapter. The AC voltage and AC frequencies C should be in of accord with the description of its on Metal card, the power adapter should be away from the hotness, being put in the well ventilated place.
3. AC power electric outlet and the AC power line of the AC/DC adaptor must be noticed to connect a ground well, and have an enough power supply if needed.
4. Input electric voltage of DC supply of our board is 12V, the error margin is not over and above +/- 3V/, The value of the electric current changes for the different LCD and that whether to have audio amplifier or not etc. Pay attention to connect well between 12V DC power electric outlet and the power electric outlets of the board.
5. Do not place the board inside of the Hull or Box that do not transmit heats, with the environment the airiness spreads well, Do not let the sunshine contact the board or other heat sources close to it, The heat sources, such as radiators, stoves, or their apparatus that produce heat.
6. Pay attention to prevent it from contacting with wetness or the dust, in order to protect the electric circuit from decaying.
7. While assembling, pay attention to reserve the certain space to keep the air spreads well, while it can prevent the conductor (for the fixed sheet iron of the of the controller board and the inverter) from contacting with the units of electricity board, from happening the short circuit with the board.(knothole install position bore etc. excepted) .
8. While assembling, pay attention to make sure that the controller board is prevented from not being curved because of the additional pressure.
9. While assembling, notice that the controller board is in right connection with inverter, LCD, OSD buttonpad, choosing the right LCD work electric voltage(over low the display will not right, LCD may be burnt under over the high work voltage), The power is ON after all checking is well.
10. The circuit signal on the Buttonpad board, the infrared acceptor and the inverter must pass directly the electric cable to connect to the IC on the board, the attention is that avoiding short circuit and the damages from the static electricity on the hand ESD.
11. All connectors of output or input should be operated under the situation of cutting the power (pull out to put to deal with contact).
12. This product is applicable to common business usage and domestic usage, if it is applied into the environment with high temperature (such as in outdoor), high humidity, the strong vibration (carried in car), strong electromagnetism radiation, please contact our sales personnel.
13. Please pull out the power supply if you do not use it in a long time.

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13. Trouble Shooting

If experiencing trouble with the module, or it fails to operate correctly, please refer to the following instructions before returning to us for repairs.

Condition	Check Point
1. The picture does not appear	Check to see that all the I/O and power cables is firmly seated in the socket. Check if the brightness control is at the appropriate position, not at the minimum.
2. The screen is not synchronized	Check if the I/O signal cable is firmly seated in the socket. Check if the output level matches the input level. Make sure the signal timings of the computer system are within the specification of the module.
3. The position of the screen is not in the center	Adjust the H-position, and V-position, or perform the auto adjustment.
4. The screen is too bright (too dark).	Check if the brightness or contrast control is at the appropriate position, not at the Maximum (Minimum).
5. The Screen is shaking or waving	Press the Auto adjustment control to adjust. Moving all objects which emit a magnetic field such as motor or transformer, away from the module. Check if the specific voltage is applied. Check if the signal timing of the computer system is within the specification of module.

If you are unable to correct the fault by using this chart, stop using your module and contact us.

14. TFT- LCD Inspection standard:

17.1. Definition of TFT-LCD Inspection Standards

17.1.1 Range of TFT-LCD Inspection Standards

It should be applied to TFT LCD panel products of Good Display.

17.1.2 Purpose of Setting TFT-LCD Inspection Standards

It is the standard or definition of LCD panel defect between Customer and Good Display by mutual agreement. By adjusting identical inspection condition and criteria, both Customer and Good Display could meet identical inspection quality level.

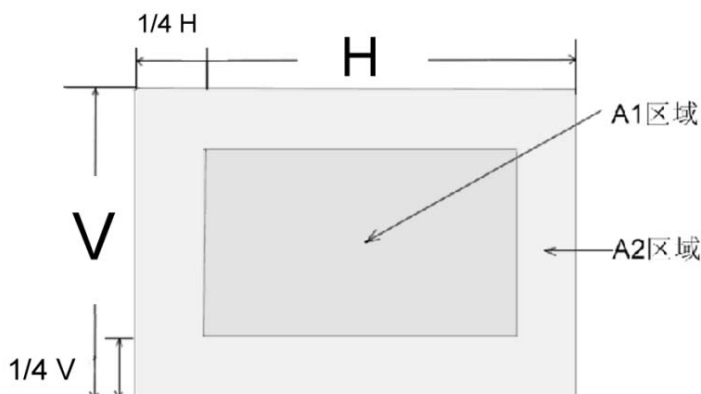
17.2 Inspection conditions


The LCD shall be inspected under 40W white fluorescent light.

$\theta \leq 45^\circ$ inspection under non-operating condition.

$\theta \leq 5^\circ$ inspection under operating condition.

17.3 Definition of applicable Zones



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17.4 Inspection Parameters:

Dimension (mm)		Acceptable number	
		A1	A2
Black Spot	0.15<d≤0.3	4	4
	0.3<d≤0.5	2	3
	0.5<d<0.8	0	2
White or color spot	0.15<d≤0.3	3	3
	0.3<d≤0.5	1	2
	0.5<d<0.8	0	1

Remark:

1. Size: Average Diameter $d = (\text{Max. Diameter} + \text{Min. Diameter}) / 2$
2. Using information above as a standard in order to judge while the spot is are dense.
3. Black & White spot: To judge the obvious spots through the change of voltage by comparison.
4. Total quantity of Black & white & color spot: $A1 + A2 \leq 4$.

15. Limited Warranty Statement

GOOD DISPLAY DOES NOT WARRANT THAT OPERATION OF THIS GOOD DISPLAY TFT LCD DISPLAY WILL BE UNINTERRUPTED OR ERROR FREE. YOU MUST READ AND FOLLOW ALL SET-UP AND USAGE INSTRUCTIONS IN THE PROVIDED MANUALS. IF YOU FAIL TO DO SO, THIS PRODUCT MAY NOT FUNCTION PROPERLY OR MAY SUFFER OTHER DAMAGE.

Consumer Guarantees

You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

This Warranty does not provide for remedy of failure caused by improper installation, connectivity, operation, cleaning or maintenance, accidental and physical damage, misuse, abuse, non-GOOD DISPLAY modifications to the goods, software faults, normal wear and tear or any other event, act, default or omission outside GOOD DISPLAY's control. The Warranty also excludes any damage from use outside usage or storage parameters set forth in the Users' Guide, supplied with each product or available on GOOD DISPLAY's website, any damage to the LCD (screen) and fluid ingress of any kind (including damage from condensation).

The product you have purchased is not designed for any "critical applications."


"Critical applications" means life support systems, medical applications, connections to implanted medical devices, commercial transportation, nuclear facilities or systems or any other applications where product failure could lead to injury to persons or loss of life or catastrophic property damage.

Warranty Period

Subject to the opening paragraph, GOOD DISPLAY expressly warrants this product to be free from operational defects in workmanship and materials ("defect") for a period of one year from the date of purchase.

For confirmation of the Warranty period applicable to your model and updates to this Warranty terms and conditions, please refer to GOOD DISPLAY's website www.good-display.com, or contact GOOD DISPLAY

Recommended Action for a Remedy

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The product arrives damaged, incomplete, does not substantially match description or is not substantially fit for purpose.	➔	Please take a picture of current phenomenon firstly and we shall give you a solution by seeing photo. If it's our fault and please send it back to us for replacement.
The product has warranty related fault that is within the timeframe specified by the Supplier's refund/ exchange policy.	➔	Please take a picture of defect phenomenon firstly and we shall provide technical support directly by seeing photo. If defect reason can not be judged by photo and please send it back to us for replacement.
The product has warranty related fault after the timeframe specified by the Supplier's refund/ exchange policy.	➔	Contact the GOOD DISPLAY to determine and arrange the best service option for you.
The product exhibits a fault not related to the GOOD DISPLAY warranty but has third party extended warranty or insurance cover.	➔	Refer to the Third Party Extended Warranty or contact Good Display

How to Obtain Service

1. Where appropriate, visit GOOD DISPLAY's website, here you will find support documents, files and drivers that may assist you with the problem.
2. If the product still exhibits the problem, contact the GOOD DISPLAY within the Warranty period and no later than 30 days after the discovery of the claimed defect (whichever is the earlier).
3. If you call GOOD DISPLAY, a technical representative will help you to diagnose the problem and identify the most likely method for remedy, and if repair service deemed necessary, referral to the GOOD DISPLAY service coordinator.
4. If a hardware fault is diagnosed, GOOD DISPLAY may send customer replaceable part(s) directly to your nominated address,
5. GOOD DISPLAY maintains a record of warranty entitlement for all products shipped and/ or registered, and this will be used to validate your end warranty date. If you disagree with GOOD DISPLAY's identification of warranty entitlement, you must provide proof of purchase before any warranty service can be performed.

Online Support

Technical support is available electronically on GOOD DISPLAY's website www.good-display.com here you will find answers to many commonly asked technical questions,

Warranty Coverage

If the product fails during normal and proper use within its Warranty period GOOD DISPLAY will repair or exchange the faulty parts within the product, or the product itself. **Goods presented for repair may be replaced by refurbished goods of the same type rather than being repaired. Refurbished parts may be used to repair the product.** Repair or exchange is subject to the original item being genuine and unaltered. The Warranty extends only to defects in materials or workmanship and does not extend to any product or parts that have been lost or discarded by you or any damage to the product, parts or cosmetic parts (such as but not limited to the LCD (screen), connection ports and casework) or damage caused by fires, fluid, misuse, accident, Acts of God (such as lightning or fluctuations in electric power), improper installation, improper maintenance, or use in violation of instructions furnished by GOOD DISPLAY; use or malfunction through simultaneous use of this product and connected equipment; or to product that have been modified or had the serial number removed, altered, defaced, or rendered illegible. Service charges for set installation, de-installation, setup and adjustment of customer controls and application software are not covered by this Warranty.