

Product Specification

NHD-5.0-HDMI-N-RTXL

TFT Liquid Crystal Display

NHD-	Newhaven Display
5.0-	5" Diagonal
HDMI-	HDMI Interface
N-	800x480 Resolution
RTXL-	Premium (MVA) Display

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Additional Resources

- **Support Forum:** <http://www.nhdforum.newhavendisplay.com>
- **Github:** <https://github.com/newhavendisplay>
- **Example Code:** https://www.newhavendisplay.com/example_code.html
- **Knowledge Center:** https://www.newhavendisplay.com/knowledge_center.html
- **Quality Center:** https://www.newhavendisplay.com/quality_center.html
- **Precautions for using LCDs/LCMs:** <https://www.newhavendisplay.com/specs/precautions.pdf>
- **Warranty / Terms & Conditions:** <https://www.newhavendisplay.com/terms.html>

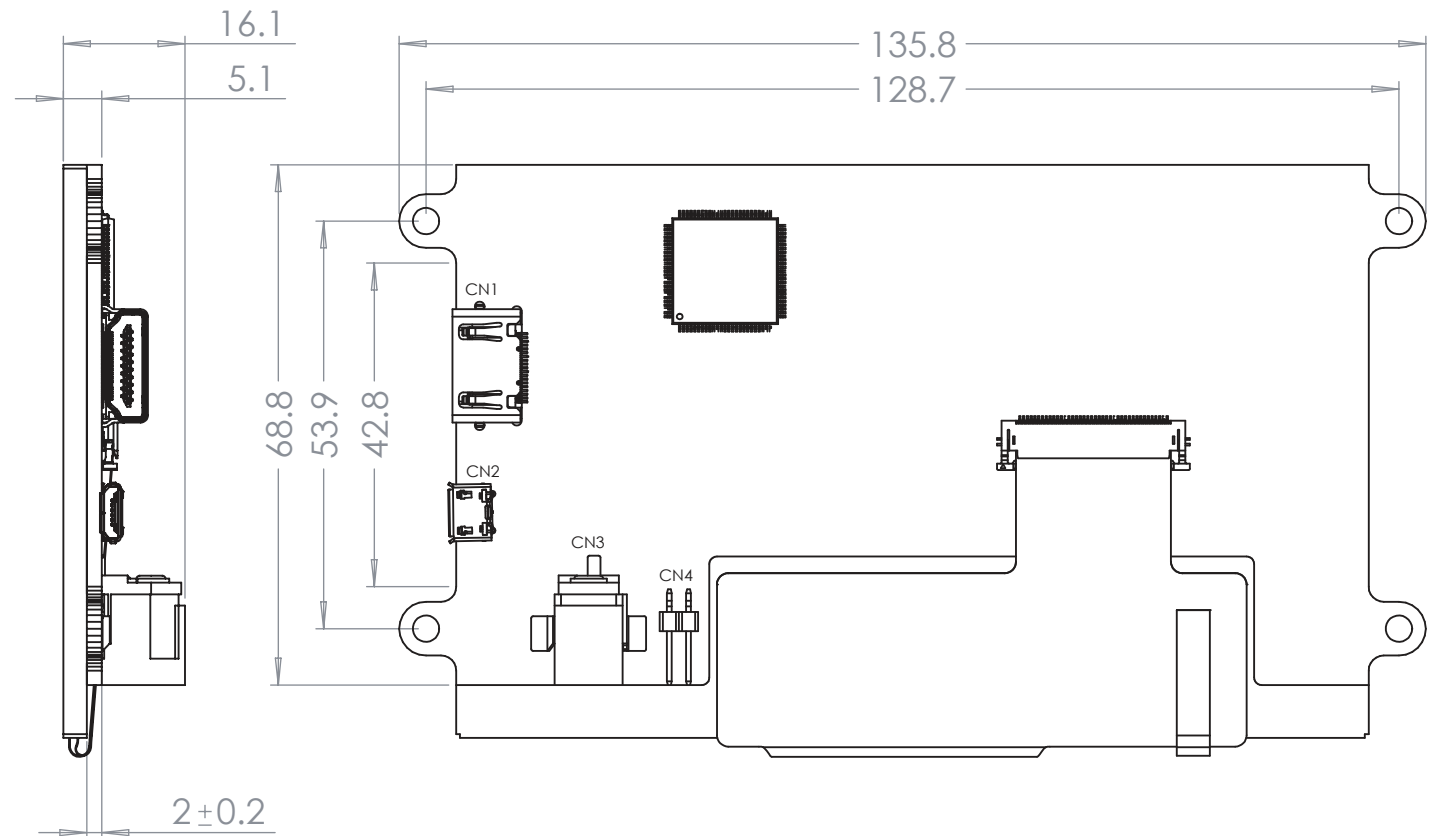
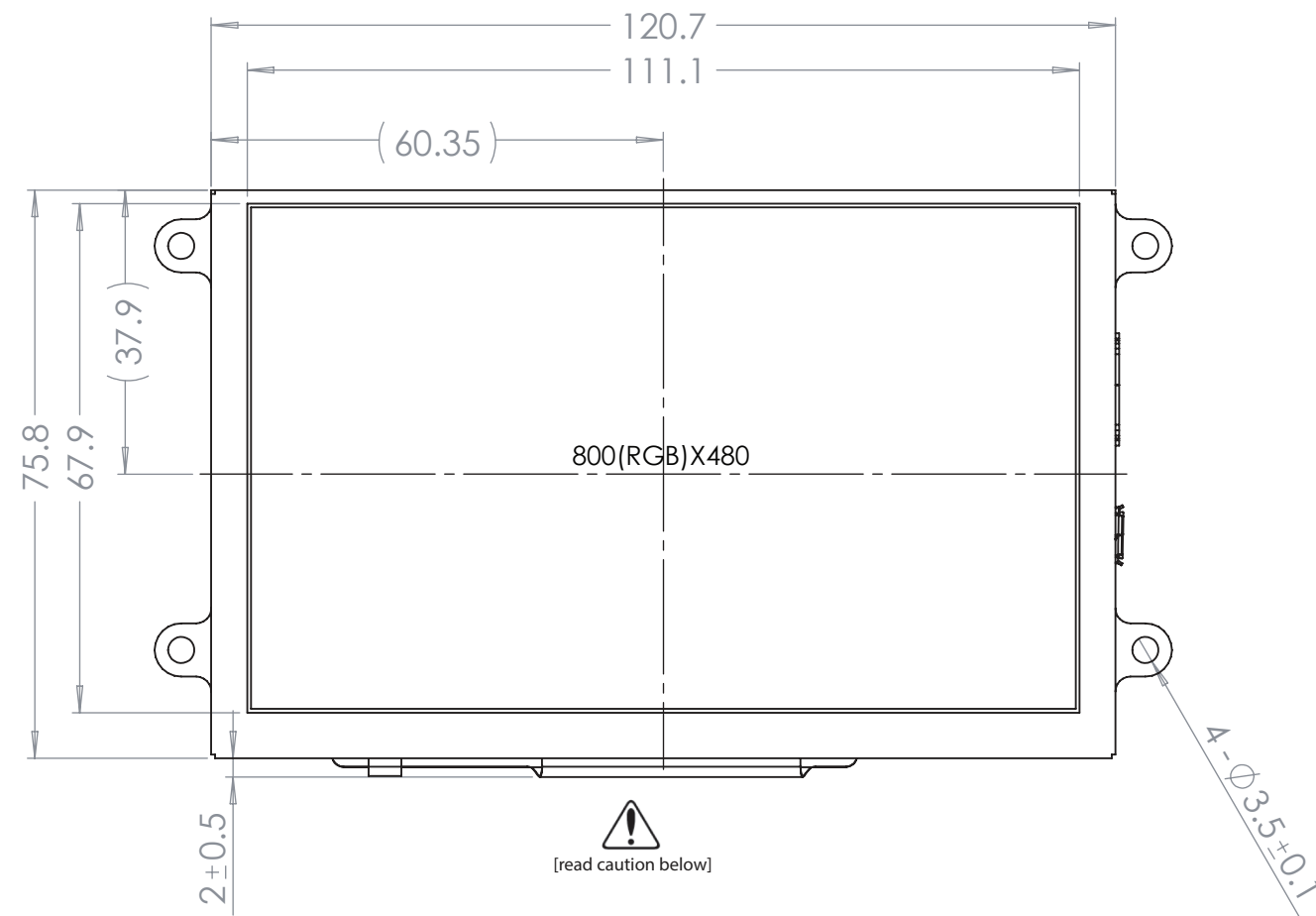


Document Revision History

Revision	Date	Description	Changed By
0	04/22/2021	Initial Release	ZP
1	01/25/2022	Updated Spec Format	ZP

Mechanical Drawing

SYMBOL	REVISION	DATE



Product Description: 5.0" Premium HDMI TFT Module

1. TFT Driver IC: TFP401A
2. TFT Interface: 24-Bit RGB
3. TFT Power Requirement: 5V/1.2A
4. Optical Features: Normally White, Transmissive, Anti-Glare, 620 cd/m2

 Improper handling of the FPC connection at the bottom edge of this module may cause damage resulting in display failure. Take special care when handling this area of the display module to make sure this connection is never strained nor creased.

STANDARD TOLERANCE: (UNLESS OTHERWISE SPECIFIED)			
LINEAR: $\pm 0.3\text{mm}$		DRAWING/PART NUMBER: NHD-5.0-HDMI-N-RTXL	REVISION: -
UNLESS OTHERWISE SPECIFIED: - DIMENSIONS ARE IN MILLIMETERS - THIRD ANGLE PROJECTION 		DRAWN BY: Z.Palrang	APPROVED BY: Z.Palrang
		DRAWN DATE: 01/25/2022	APPROVED DATE: 01/25/2022
		DO NOT SCALE DRAWING	SHEET 1 OF 1
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[illegible]

This diagram illustrates the electrical schematic for the Backlight and HDMI-A interfaces of a device, organized into columns 1 through 8.

Backlight

Backlight Configuration		
Current	R29	Display
(Default) ~60mA	Open	ATXL#
~90mA	Close	ASXU#, ASXN#

HDMI-A

[illegible]

The image contains two schematic diagrams. The first, titled "3.3V Regulator 800mA", shows a voltage regulator circuit. It includes an input voltage (VIN) connected to the IN pin of a regulator (U7: AZ1117EH-3.3TRG1). The OUT pin is connected to a 3V3 output. The circuit includes several capacitors (C40, C41, C42, C43) and a resistor (R31) connected to an LED (LED3: Green). The second diagram, titled "EEPROM", shows an I2C interface circuit. It features an EEPROM (U4: 24LC02BT-1/OT) connected to a DVI connector (J3) via SCL and SDA lines. The circuit includes pull-up resistors (R16, R17, R18) and decoupling capacitors (C30, C31) for the DVI_IN_5V supply.

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UIN / PWM

The schematic diagram illustrates the UIN / PWM circuit. It features a DC-DC converter (CN3) connected to a diode (D10) and a ferrite bead (FB8). The output is connected to a pin header (CN4) labeled PWM_2_PINR. The circuit is powered by VIN and GND. Test points TP1 and TP2 are indicated.

SCHEMATIC / PART NUMBER:		REVISION:
NHD-5.0-HDMI-N		1.1
DRAWN BY: P. Bartek		CHECKED BY: M. LaVine
DRAWN DATE: 06/01/17		CHECKED DATE: 06/02/17
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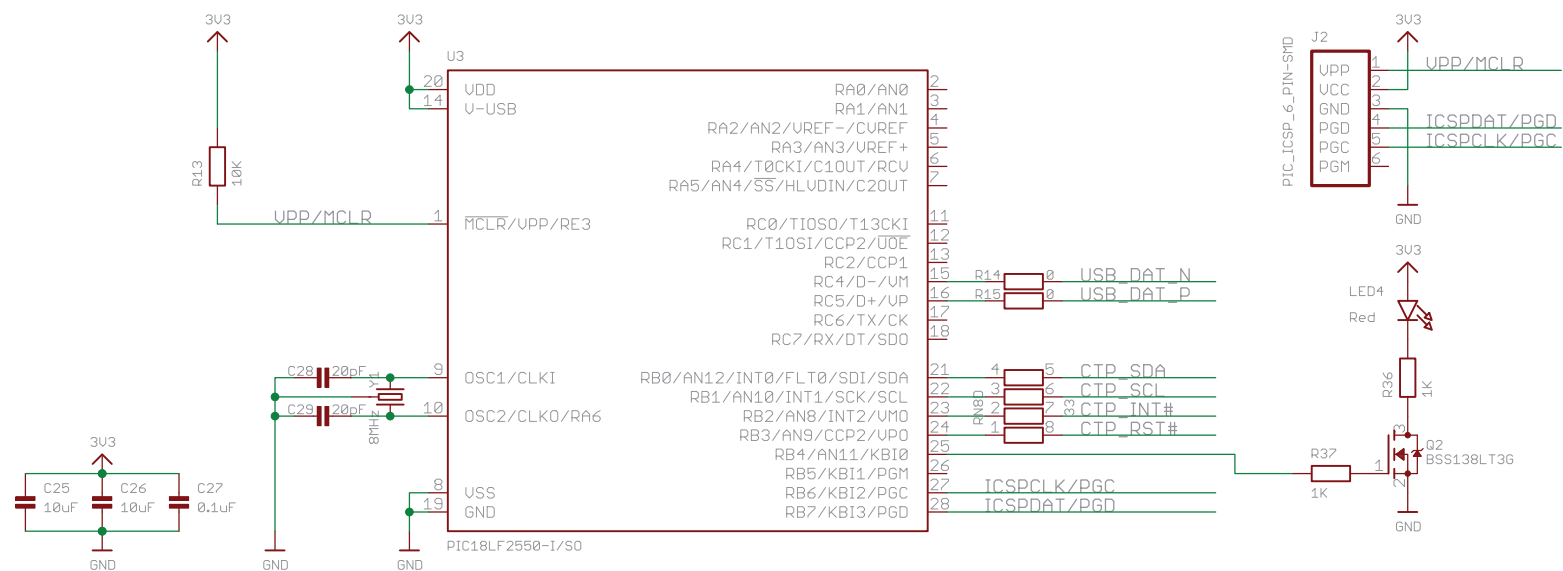
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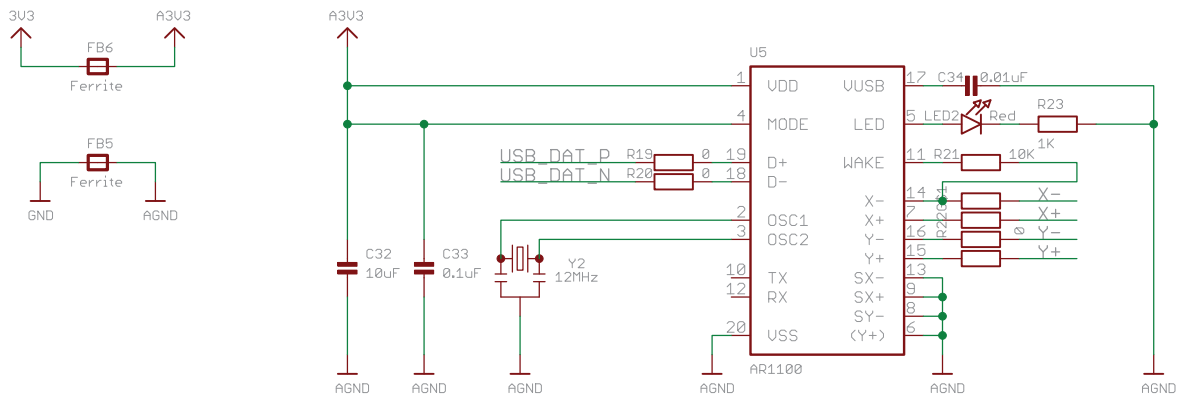
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Note: The PIC18LF2550 / Capacitive Touch Screen Controller and necessary components are only populated on the CTU version.

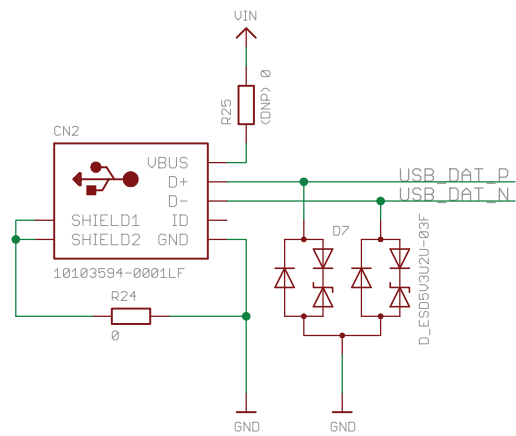
Resistive Touch Screen Controller



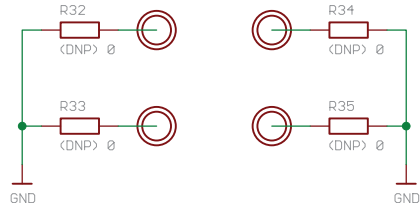
BOARD VERSIONS

- RTU Version:** (DNP) - C1, C20, C25, C26, C2, C22, C27, C28, C29, C39, CTP1, D1, D2, D3, D4, D5, D6, LED4, Q2, R4, R6, R13, R9, R10, R11, R36, R37, R12, R14, R15, R25, R29, R32, R33, R34, R35, RN8, U1, U3, Y1
- CTU Version:** (DNP) - C1, C32, C2, C33, C23, C24, C34, C39, D1, D2, D3, D4, D5, D6, FB5, FB6, LED2, R4, R6, R21, R19, R20, R25, R29, R22, R23, R32, R33, R34, R35, U1, U5, Y2
- Non-Touch Version:** (DNP) - C1, C20, C25, C26, C32, C2, C22, C27, C33, C23, C24, C34, C28, C29, C39, CN2, CTP1, D1, D2, D3, D4, D5, D6, D7, FB5, FB6, LED2, LED4, Q2, R4, R6, R13, R21, R9, R10, R11, R23, R36, R37, R12, R14, R15, R19, R20, R24, R25, R29, R22, R32, R33, R34, R35, RN8, U1, U3, U5, Y1, Y2

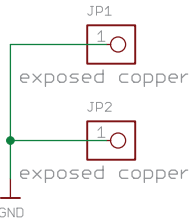
Micro-B USB



Mounting Holes 3.5mm Plated



Exposed Pads to Ground TFT Bezel



Electrical Characteristics

Item	Symbol	Condition	Min.	Typical	Max.	Unit
Operating Temperature Range	T _{OP}	Absolute Max	-20	-	+70	°C
Storage Temperature Range	T _{ST}	Absolute Max	-30	-	+80	°C
Backlight PWM Voltage	V _{PWM}	-	2.5	3.3	5.5	V
Backlight PWM Frequency	f _{PWM}	V _{PWM} = 3.3V	5	-	100	kHz
Module Supply Voltage	V _{DD}	-	5.0	-	7.0	V
Module Supply Current	I _{DD}	V _{DD} = 5V	-	1.2	1.5	A
		V _{DD} = 7V	-	0.9	1.2	A

HDMI Receiver Information

On-board Texas Instruments TFP401A Receiver. To view the full TFP401A specification, please download it by accessing the link: <http://www.ti.com/lit/ds/slids190a/slids190a.pdf>

Technical Resource

3D Model	TFT Panel Used	Display Type	Luminance Rating	Optimal Viewing Angle	Touch Panel
NHD-5.0-HDMI-N-RTXL	NHD-5.0-800480TF-ATXL#	Premium MVA	620 cd/m ²	70° all angles	No Touch

Quality Information

Test Item	Content of Test	Test Condition	Note
High Temperature storage	Endurance test applying the high storage temperature for a long time.	+80°C, 96 hrs.	2
Low Temperature storage	Endurance test applying the low storage temperature for a long time.	-30°C, 96 hrs.	1,2
High Temperature Operation	Endurance test applying the electric stress (voltage & current) and the high thermal stress for a long time.	+70°C, 96 hrs.	2
Low Temperature Operation	Endurance test applying the electric stress (voltage & current) and the low thermal stress for a long time.	-20°C, 96 hrs.	1,2
High Temperature / Humidity Operation	Endurance test applying the electric stress (voltage & current) and the high thermal with high humidity stress for a long time.	+60°C, 90% RH, 96 hrs.	1,2
Thermal Shock resistance	Endurance test applying the electric stress (voltage & current) during a cycle of low and high thermal stress.	-20°C, 30min->25°C, 5min -> 70°C, 30min = 1 Cycle 10 cycles	
Vibration test	Endurance test applying vibration to simulate transportation and use.	10-55Hz, 15mm amplitude. 60 sec in each of 3 directions X,Y,Z For 15 minutes	3
Static electricity test	Endurance test applying electric static discharge.	Air: V _s =±8KV, Contact: V _s =±4KV 10 Times	

Note 1: No condensation to be observed.

Note 2: Conducted after 4 hours of storage at 25°C, 0%RH.

Note 3: Test performed on product itself, not inside a container.