

NHD-4.3-480272MF-ATXI#-T-1

TFT (Thin-Film-Transistor) Color Liquid Crystal Display Module

| | |
|---------|-----------------------------------|
| NHD- | Newhaven Display |
| 4.3- | 4.3" Diagonal |
| 480272- | 480xRGBx272 pixels |
| MF- | Model |
| A- | Built-in driver / NO Controller |
| T- | White LED backlight |
| X- | TFT |
| I- | 6:00 viewing angle, Wide Temp |
| #- | RoHS Compliant |
| T-1 | with 4-wire resistive Touch Panel |

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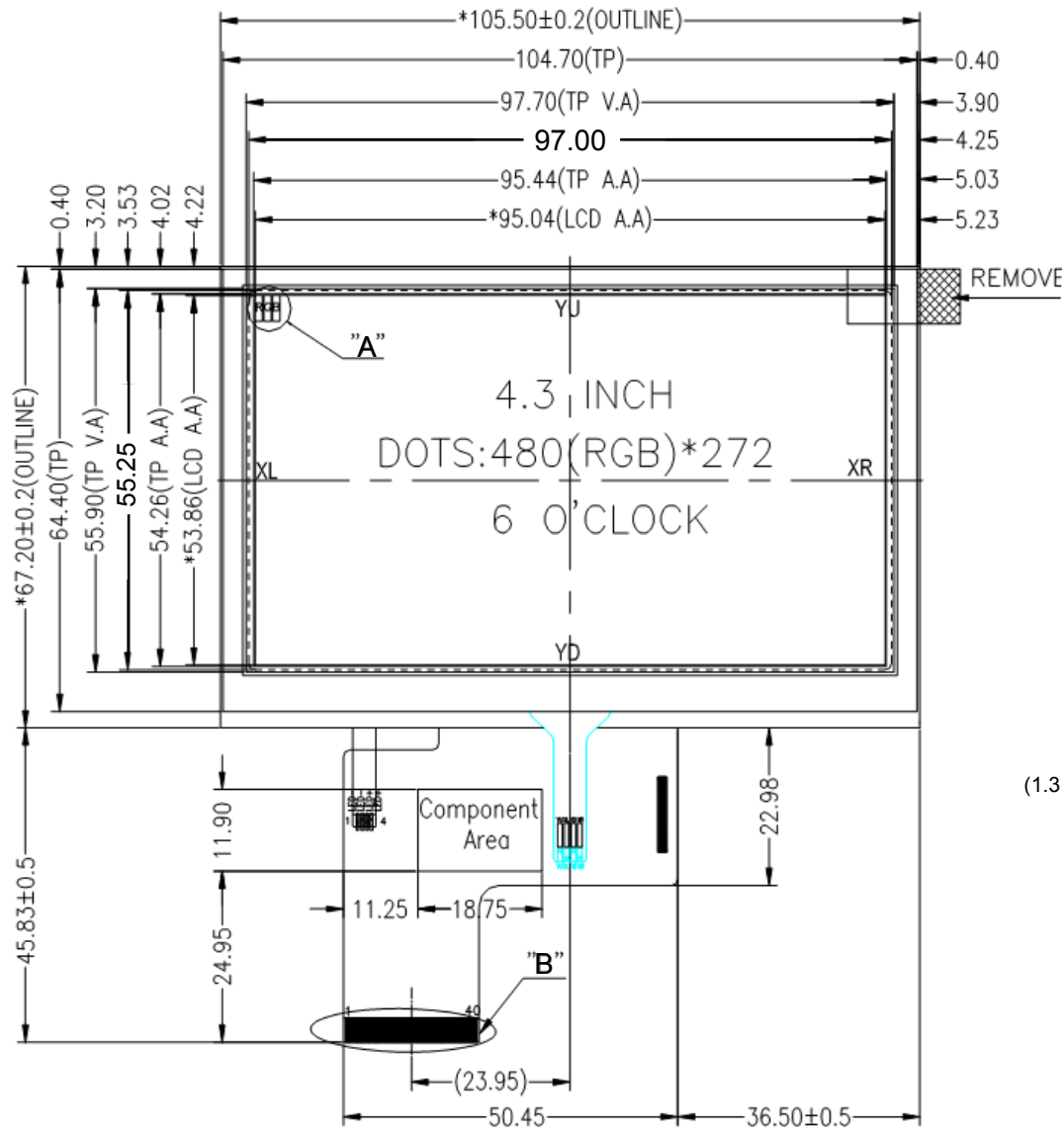
Document Revision History

| Revision | Date | Description | Changed by |
|----------|------------|--|------------|
| 0 | 7/8/2009 | Initial Release | CL |
| 1 | 7/29/2009 | Updated Touch panel information | CL |
| 2 | 7/29/2009 | MECHANICAL DRAWING UPDATE – change FFC shape | BE |
| 3 | 8/5/2009 | Increase LEDs from 7 to 12 | CL |
| 4 | 7/6/2010 | Electrical characteristics updated | BE |
| 5 | 10/15/2010 | for better reliability, VDD min = 3.0V | BE |
| 6 | 6/7/2011 | Built-in driver information updated | AK |
| 7 | 2/3/2012 | Mechanical drawing updated | AK |

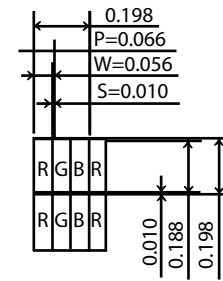
Functions and Features

- 480xRGBx272 resolution, up to 16.7M colors
- 12-LED backlight
- 24 bit RGB interface
- 4-wire resistive touch panel

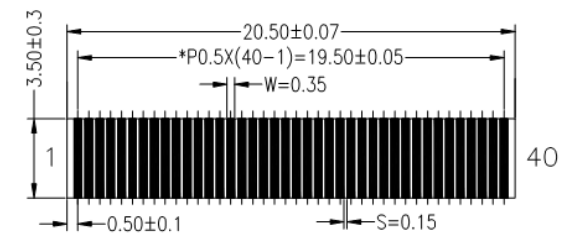
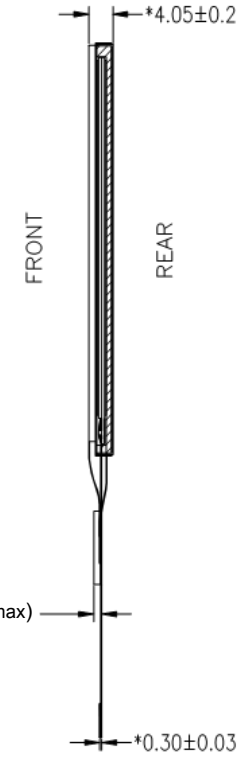
Mechanical Drawing



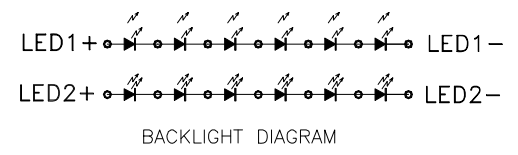
4.3 INCH
DOTS: 480(RGB)*272
6 O'CLOCK



DETAIL A



DETAIL B



NEWHAVEN DISPLAY INTERNATIONAL

NHD-4.3-480272MF-ATXI#-T1

Pin Description

| Pin No. | Symbol | External Connection | Function Description |
|---------|---------|---------------------|---------------------------------------|
| 1 | LED- | LED Power Supply | Ground for Backlight |
| 2 | LED+ | LED Power Supply | Backlight Power (32mA @ 20~22V) |
| 3 | GND | Power Supply | Ground |
| 4 | VCC | Power Supply | Power supply for LCD and logic (3.3V) |
| 5-12 | [R0-R7] | MPU | Red Data Signals |
| 13-20 | [G0-G7] | MPU | Green Data Signals |
| 21-28 | [B0-B7] | MPU | Blue Data Signals |
| 29 | GND | Power Supply | Ground |
| 30 | PCLK | MPU | Data sample Clock signal |
| 31 | DISP | MPU | Display ON/OFF signal |
| 32 | HSYNC | MPU | Line synchronization signal |
| 33 | VSYNC | MPU | Frame synchronization signal |
| 34 | DE | MPU | Data Enable signal |
| 35 | AVDD | - | No Connect |
| 36 | GND | Power Supply | Ground |
| 37 | XR | Touch Panel MPU | Touch Panel RIGHT |
| 38 | YD | Touch Panel MPU | Touch Panel DOWN |
| 39 | XL | Touch Panel MPU | Touch Panel LEFT |
| 40 | YU | Touch Panel MPU | Touch Panel UP |

Recommended LCD connector: 0.5mm pitch 40-Conductor FFC. Molex p/n: 54132-4097

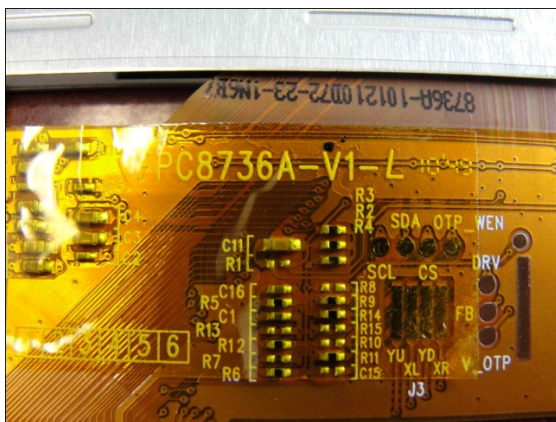
Backlight connector: on LCD connector **Mates with:** ---

****Note:**

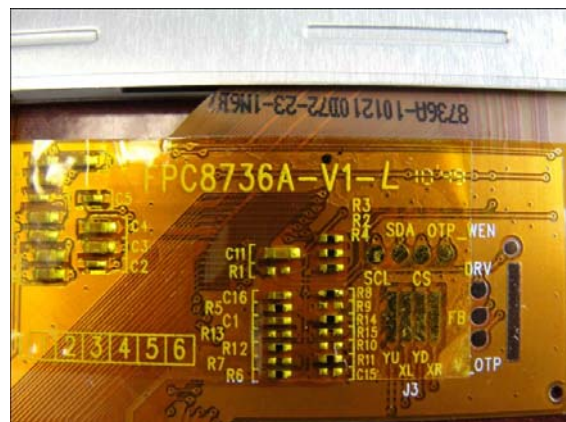
This display recently had a driver change.

The old driver ([HX8257](#)) accepted both SYNC mode and SYNC+DE mode simply by reading what was on the DE pin. The new driver (OTA5180A) accepts both SYNC mode and SYNC+DE mode, but the mode must be selected by a hardware setting.

You may move the resistor from position R9 (default: SYNC+DE mode) to position R8 (SYNC mode). See below:



Resistor on position 9



Resistor moved to position 8

If you are unable to move this resistor you can send the displays to us for service.

Electrical Characteristics

| Item | Symbol | Condition | Min. | Typ. | Max. | Unit |
|----------------------------------|--------|--------------|------|-------|------|------|
| Operating Temperature Range | Top | Absolute Max | -20 | - | +70 | °C |
| Storage Temperature Range | Tst | Absolute Max | -30 | - | +80 | °C |
| Supply Voltage | VDD | | 3.0 | 3.3 | 3.6 | V |
| Power Dissipation (White screen) | | fV=60Hz | - | 80 | 95 | mW |
| Power Dissipation (Black screen) | | fV=60Hz | - | 85 | 100 | mW |
| VSYNC frequency | fV | | - | 60 | 70 | Hz |
| HSYNC frequency | fH | | - | 17.26 | - | kHz |
| PCLK frequency | fPCLK | | - | 9.2 | - | MHz |
| | | | | | | |
| Backlight Supply Voltage | VLED | | 20 | - | 22 | V |
| Backlight Supply Current | ILED | | - | 32 | 40 | mA |
| Backlight Power Consumption | PBL | | - | 650 | - | mW |

Optical Characteristics

| Item | Symbol | Condition | Min. | Typ. | Max. | Unit |
|-----------------------|--------|-----------|------|------|------|-------------------|
| Viewing Angle –Top | | Cr ≥10 | - | 15 | - | ° |
| Viewing Angle –Bottom | | Cr ≥10 | - | 35 | - | ° |
| Viewing Angle – Left | | Cr ≥ 10 | - | 45 | - | ° |
| Viewing Angle – Right | | Cr ≥ 10 | - | 45 | - | ° |
| Contrast Ratio | Cr | | - | 400 | - | |
| Luminance | YL | | 380 | - | 480 | cd/m ² |
| Response Time (rise) | Tr | - | - | 5 | 15 | ms |
| Response Time (fall) | Tr | - | - | 15 | 30 | ms |

Touch Panel Characteristics

| Item | Min. | Typ. | Max. | Unit |
|-----------------------------|-----------|------|------|------------|
| Linearity | - | - | 1.5 | % |
| Circuit Resistance – X-Axis | 450 | 800 | 1300 | Ω |
| Circuit Resistance – Y-Axis | 100 | 350 | 800 | Ω |
| Insulation Resistance | 10 | - | - | MΩ |
| Operating Voltage | - | - | 5 | V |
| Chattering | - | - | 10 | ms |
| Transmittance | 82 | - | - | % |
| Activation Force | 50 | - | 200 | g |
| Pen Writing Durability | 100,000 | - | - | Characters |
| Pitting Durability | 1,000,000 | - | - | Touches |
| Surface Hardness | 3 | - | - | H |
| Haze | - | 7 | - | % |

Driver Information

Built-in OTA5180A.

For specific timing and color information, please download specification at

http://www.newhavendisplay.com/app_notes/OTA5180A.pdf

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 , 200hrs | 2 |
| Low Temperature storage | Endurance test applying the low storage temperature for a long time. | -30°C , 200hrs | 1,2 |
| High Temperature Operation | Endurance test applying the electric stress (voltage & current) and the high thermal stress for a long time. | +70°C 200hrs | 2 |
| Low Temperature Operation | Endurance test applying the electric stress (voltage & current) and the low thermal stress for a long time. | -20°C , 200hrs | 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 , 96hrs | 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. | VS=800V, RS=1.5kΩ, CS=100pF One time | |

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.

Precautions for using LCDs/LCMs

See Precautions at www.newhavendisplay.com/specs/precautions.pdf

Warranty Information and Terms & Conditions

http://www.newhavendisplay.com/index.php?main_page=terms