



LT1201

USER MANUAL

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1. Specification

| | |
|--------------------------------------|---|
| <i>LCD panel type</i> | 12.1" TFT (12.1" Diagonal) |
| <i>Displayable resolution</i> | WXGA 1280 x 800 maximum |
| <i>Pixel dimension</i> | 0.204 mm horizontal x 0.204 mm vertical |
| <i>LCD display color</i> | 262,144 Colors |
| <i>OSD control</i> | Exit, Positioning(Horizontal, Vertical) Image Settings(Auto Adjust, Pixel Clock, Phase) Color Setting(Auto Color, 9300K Preset, 6500K Preset, User Preset) OSD Setting(Horizontal Position, Vertical Position, OSD Hold Time, OSD Lock), Language(English, Español, Français, Deutsch) Factory Reset |
| <i>Manual control buttons</i> | POWER , + , - ,SELECT , MENU |
| <i>Viewing angle</i> | Horizontal: ± 89, Vertical: ± 89. (CR > 10) |
| <i>Contrast ratio</i> | 500:1 (Typ.) |
| <i>Brightness</i> | 300 cd/m ² |
| <i>Response time</i> | 30 ms, Tr + Td (Typ.) |
| <i>Active display area</i> | 261.12 mm (H) x163.20mm (V) |
| <i>AC/DC adapter</i> | Input: AC 100 ~ 240V, 50 ~ 60 Hz Output: +12 Vdc / 3.0A |
| <i>Input signal</i> | Video: Analog 0.7 Vp-p. 75 ohms Sync. : TTL Level, Positive/ Negative, Separate Sync. DVI : REV1.0 Digital Single T.M.D.S. |
| <i>Input connector</i> | 15 Pin D-Sub. , 24Pin DVI-D , USB B-type , 2.5ψ DC-Jack |
| <i>Touch screen MSR (option)</i> | 3M Cap. (SCT3250 98-0003-3205-0 & EXII-7730HC) ID-TECH (CPR60029 , USB Interface, 3 Track) |
| <i>Power management</i> | Yes |
| <i>Regulation</i> | cUL, FCC, CE |
| <i>Dimensions (W x D x H)</i> | 341 mm x 280 mm x 95 mm. |
| <i>Weight</i> | 220 g. (LCD Module only) 2.1 Kg. (unit) |
| <i>Accessory</i> | VGA cable, DVI-D cable, USB cable, AC/DC adapter, power cord. |
| <i>Temperature</i> | Operation : 0 ~ 40°C Storage : -20 ~ 60°C |

2. Important Servicing Safety Precautions

Prior to using this manual, please ensure that you have carefully followed all the procedures outlined in the user manual for this product. Read all of these instructions. Save these instructions for later use.

- Follow all warnings and instructions marked on the product.
- Do not use this product near water.
- This display should be installed on a solid horizontal base.
- When cleaning, use only a neutral detergent cleaner with a soft damp cloth. Do not spray with liquid or aerosol cleaners.
- Do not expose this display to direct sunlight or heat. Hot air may cause damage to the cabinet and other parts.
- Adequate ventilation must be maintained to ensure reliable and continued operation and to protect the display from overheating. Do not block ventilation slots and openings with objects or install the display in a place where ventilation may be hindered.
- Do not install this display near a motor or transformer where strong magnetism is generated. Images on the display will become distorted and the color irregular.
- Do not allow metal pieces or objects of any kind fall into the display from ventilation holes.
- Slots and openings in the cabinet and the back or bottom are provided for ventilation, to ensure reliable operation of the product and to protect it from overheating, those openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.

3. Location of Controls

1) POWER SWITCH

Pressing the power key will turn the monitor on. Pressing it again will turn it off.

2) POWER INDICATOR (green)

The LED indicator lamp is green; the unit is in normal operating mode.

The LED indicator lamp will change to orange when it is power-saving mode.

3) + : (RIGHT)

Auto Adjust in Progress

to scroll down the menu

to increase value of selected item

4) - : (LEFT)

to adjust the brightness and contrast on the monitor

to scroll up in the menu

to decrease value of selected item

5) SELECT:

To confirm the current selection. It's also used for going back to previous menu or sub-menu, and the changed data will be saved to memory.

6) MENU:

Enters or exits the OSD (On Screen Display) menus. It also exits from the submenu back to the previous menu. This type of cancellation will not save the previous changes.

4. Hot-key define

With signal input :

1) [+] key ==> Auto adjust in progress

2) [-] key ==> Adjust Brightness and Contrast

3) [SELECT] key ==> change VGA and DVI input source

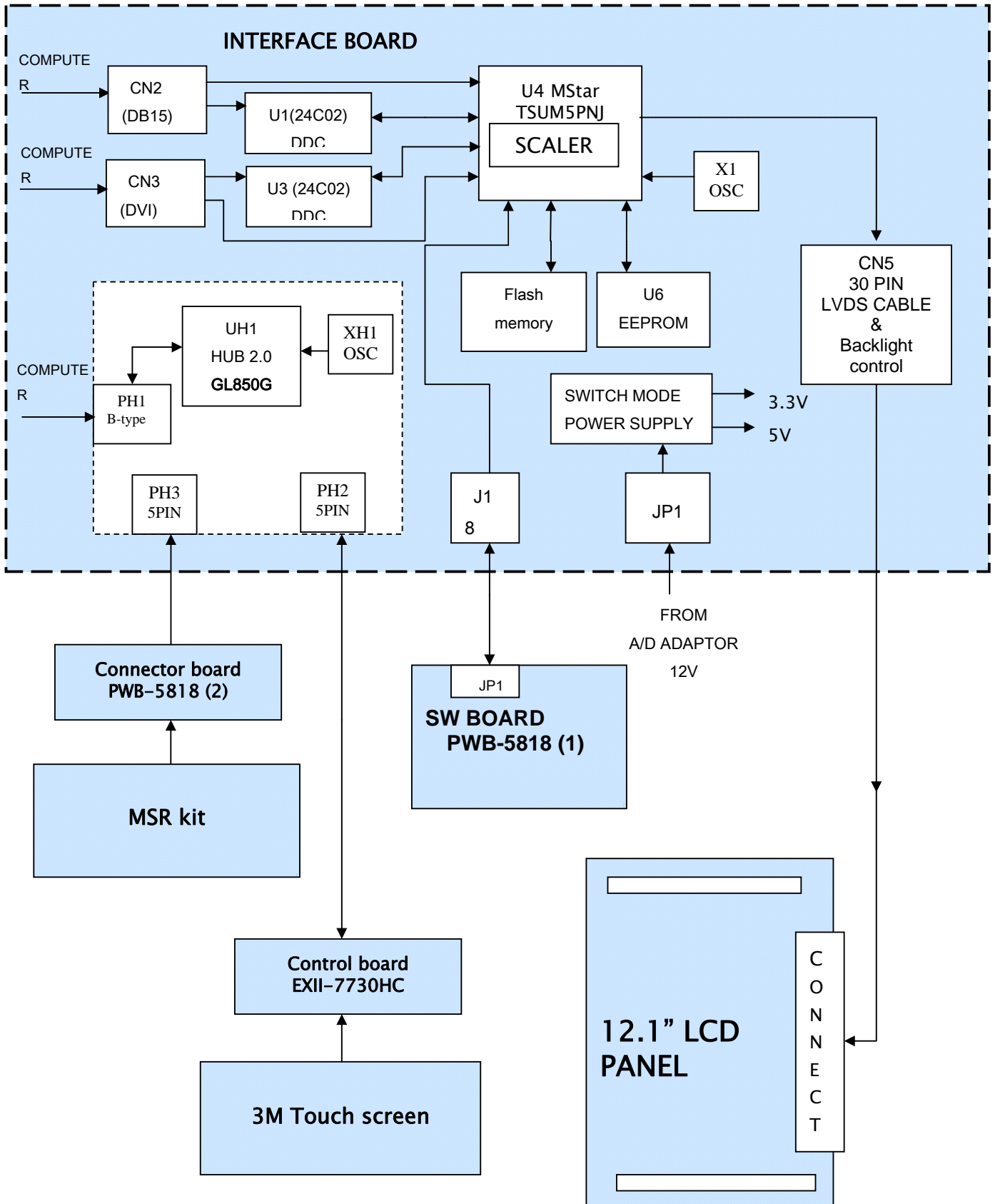
4) [+] and [-] ==> key lock & key unlock, when push [+] and [-] buttons simultaneously

5) [MENU] key ==> Factory mode, push and hold [MENU] key then power-in

Without signal input:

6) [+] and [-] ==> Burn-in mode, when push and hold [+] and [-] buttons simultaneously,
Then power-in

5. Block Diagram



6. Internal connector pin definition

WXGA I/F BOARD

J1: Key Switch for OSD Adjustment, Power Switch and Brightness Control Input Terminal

| Pin No. | Symbol | Function |
|---------|------------|--------------------|
| 1 | ADJUST / - | For OSD Adjustment |
| 2 | ADJUST / + | For OSD Adjustment |
| 3 | MENU | For OSD Adjustment |
| 4 | SELECT | For OSD Adjustment |
| 5 | POWER | For POWER on/off |
| 6 | LED-GRN | Normal Mode: Low |
| 7 | LED-ORG | Save Mode : Low |
| 8 | GND | Ground |

PH2.PH3: Output Terminal for USB device unit

| Pin No. | Cable Color | Function |
|---------|-------------|---------------|
| 1 | Red | VBUS(5 Volts) |
| 2 | White | D- |
| 3 | Green | D+ |
| 4 | Black | Ground |
| 5 | Drain wire | Shield ground |

PH1: USB B-type Input Terminals

| Pin No. | Cable Color | Function |
|---------|-------------|---------------|
| 1 | Red | VBUS(5 Volts) |
| 2 | White | D- |
| 3 | Green | D+ |
| 4 | Black | Ground |



CN2: VGA Signal Input Terminals

| Pin No. | Symbol | Function |
|---------|--------------|-----------------------------|
| 1 | VGA R | RED Video Input Signal |
| 2 | VGA G | GREEN Video Input Signal |
| 3 | VGA B | BLUE Video Input Signal |
| 4 | NC | |
| 5 | GND | GND |
| 6 | RED RETURN | GND for RED video signal |
| 7 | GREEN RETURN | GND for GREEN video signal |
| 8 | BLUE RETURN | GND for BLUE video signal |
| 9 | 5V DCC | Support DDC +5V power |
| 10 | VGA CONN | Detect VGA connector signal |
| 11 | NC | |
| 12 | VGA SDA | DDC data |
| 13 | VGA HS | Horizontal Sync. Signal |
| 14 | VGA VS | Vertical Sync. Signal |
| 15 | VGA SCL | DDC clock |

CON3: DVI Signal Input Terminals

| Pin NO. | Symbol | Function |
|---------|------------|------------------------|
| 1 | Dat2- | T.M.D.S Data2- |
| 2 | Dat2+ | T.M.D.S Data2+ |
| 3 | 2/4 Shield | T.M.D.S Data2/4 Shield |
| 4 | Dat4- | T.M.D.S Data4- |
| 5 | Dat4+ | T.M.D.S Data4+ |
| 6 | DDC SCL | DDC Clock |
| 7 | DDC SDA | DDC Data |
| 8 | VSYNC | NC |
| 9 | Dat1- | T.M.D.S Data1- |
| 10 | Dat1+ | T.M.D.S Data1+ |
| 11 | 1/3 Shield | T.M.D.S Data1/3 Shield |
| 12 | Dat3- | T.M.D.S Data3- |
| 13 | Dat3+ | T.M.D.S Data3+ |
| 14 | +5V | +5V Power |
| 15 | SYNC GND | Ground |
| 16 | HPD | Hot Plug Detect |
| 17 | Dat0- | T.M.D.S Data0- |
| 18 | Dat0+ | T.M.D.S Data0+ |
| 19 | 0/5 Shield | T.M.D.S Data0/5 Shield |
| 20 | Dat5- | T.M.D.S Data5- |
| 21 | Dat5+ | T.M.D.S Data5+ |
| 22 | CLK Shield | T.M.D.S Clock Shield |
| 23 | CLK+ | T.M.D.S Clock+ |
| 24 | CLK- | T.M.D.S Clock- |
| C1 | Red | NC |
| C2 | Green | NC |
| C3 | Blue | NC |
| C4 | HSYNC | NC |
| C5 | RGB GND | NC |

CN5: Output Terminal for Panel Connector

| Pin No. | Symbol | Function |
|---------|---------------------|-------------------------------|
| 1 | PANEL_VCC | 3.3 Power supply |
| 2 | PANEL_VCC | 3.3 Power supply |
| 3 | PANEL_VCC | 3.3 Power supply |
| 4 | LVDS_SET | LVDS_SET |
| 5 | GND | Ground |
| 6 | GND | Ground |
| 7 | RXE0- | Receiver signal (-) |
| 8 | VDD_EDID | VCC 3.3V |
| 9 | RXE0+ | Receiver signal (+) |
| 10 | GND | Ground |
| 11 | RXE1- | Receiver signal (-) |
| 12 | CLK_EDID | CLK_EDID |
| 13 | RXE1+ | Receiver signal (+) |
| 14 | DATA_EDID | DATA_EDID |
| 15 | RXE2- | Receiver signal (-) |
| 16 | GND | Ground |
| 17 | RXE2+ | Receiver signal (+) |
| 18 | VDIM | Adjust back-light |
| 19 | RXEC- | Clock signal (-) |
| 20 | BL ON | Black-light on/off |
| 21 | RXC+ | Clock signal (+) |
| 22 | GND | Ground |
| 23 | RXE3- | Receiver signal (-) |
| 24 | Black-light VCC 12V | VCC 12V for back-light device |
| 25 | RXE3+ | Receiver signal (+) |
| 26 | Black-light VCC 12V | VCC 12V for back-light device |
| 27 | GND | Ground |
| 28 | Black-light VCC 12V | VCC 12V for back-light device |
| 29 | GND | Ground |
| 30 | Black-light VCC 12V | VCC 12V for back-light device |

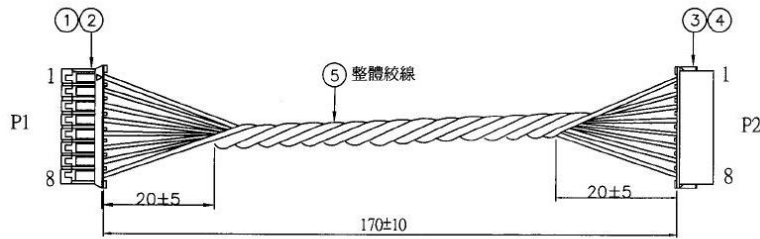
SW board

JP1: Output Terminal for OSD, Power and Brightness control.

| | Symbol | Function |
|---|------------|--------------------|
| 1 | POWER | For POWER on/off |
| 2 | LED-GRN | Normal Mode: Low |
| 3 | LED-ORG | Save Mode: Low |
| 4 | ADJUST / + | For OSD Adjustment |
| 5 | ADJUST / - | For OSD Adjustment |
| 6 | SELECT | For OSD Adjustment |
| 7 | MENU | For OSD Adjustment |
| 8 | GND | Ground |

7. Cable pin definition

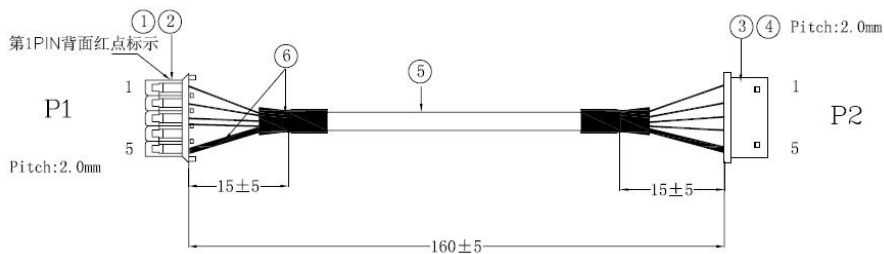
Switch board cable: WIRE 28AWG



Connection relationship

| P1 (PHR-8) | WIRE COLOR | P2 (ZHR-8) |
|------------|------------|------------|
| Pin No. | | Pin No. |
| 1 | BLACK | 5 |
| 2 | BROWN | 4 |
| 3 | RED | 7 |
| 4 | ORANGE | 6 |
| 5 | YELLOW | 1 |
| 6 | GREEN | 3 |
| 7 | BLUE | 2 |
| 8 | PURPLE | 8 |

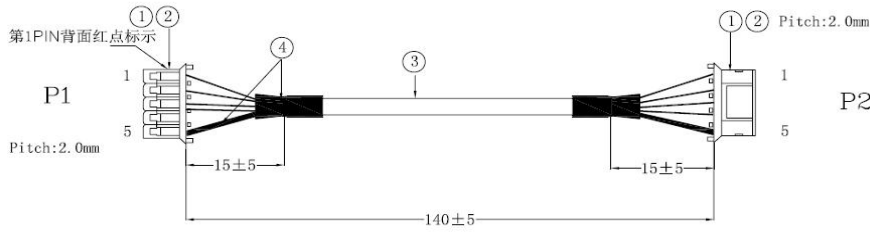
Int. C/B cable for 3M touch: WIRE 28AWG, Shielding cable



Connection relationship

| P1 (PHR-5) | WIRE COLOR | P2 (ZHR-5) |
|------------|------------|------------|
| Pin No. | | Pin No. |
| 1 | BLACK | 1 |
| 2 | BROWN | 2 |
| 3 | RED | 3 |
| 4 | ORANGE | 4 |
| 5 | DRAIN | 5 |

Int. MSR extend cable: WIRE 28AWG, Shielding cable



Connection relationship

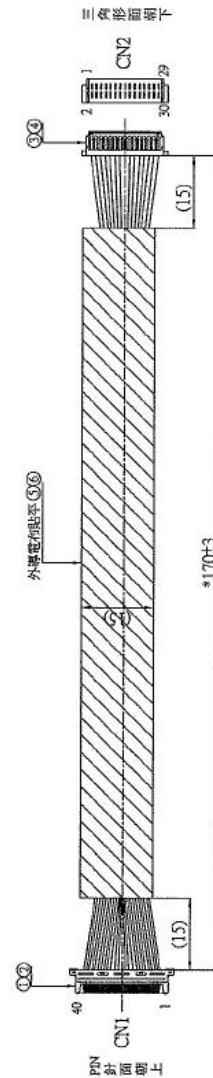
| P1 (PHR-5) Pin No. | WIRE COLOR | P2 (PHR-5) Pin No. |
|-----------------------|------------|-----------------------|
| 1 | BLACK | 1 |
| 2 | BROWN | 2 |
| 3 | RED | 3 |
| 4 | ORANGE | 4 |
| 5 | DRAIN | 5 |

LVDS cable: WIRE UL10064 34# OD: 0.35mm

CN1 housing: JAE FI-JT40C-R3000 CNC housing: ACS 87219-3000

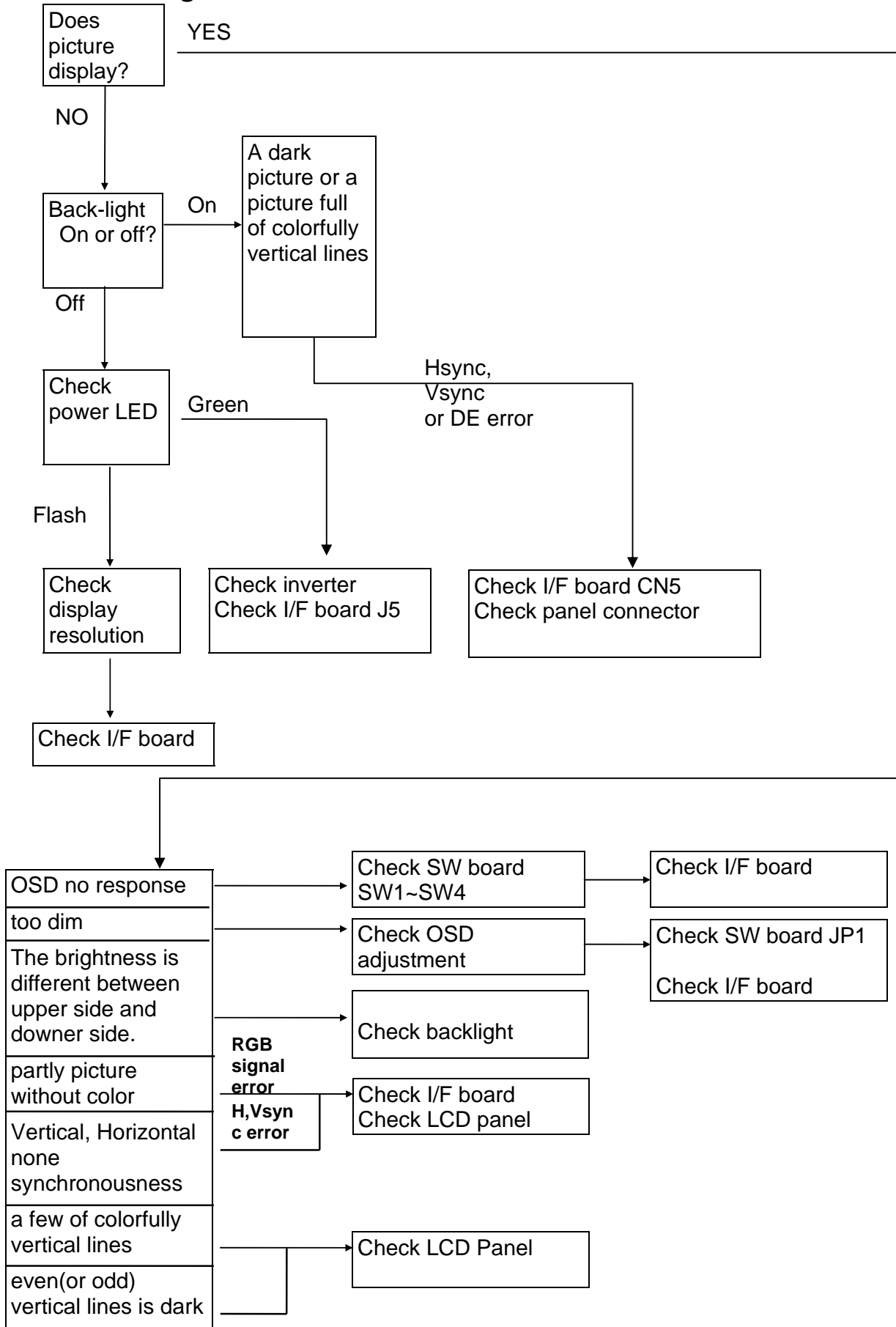
Connection relationship

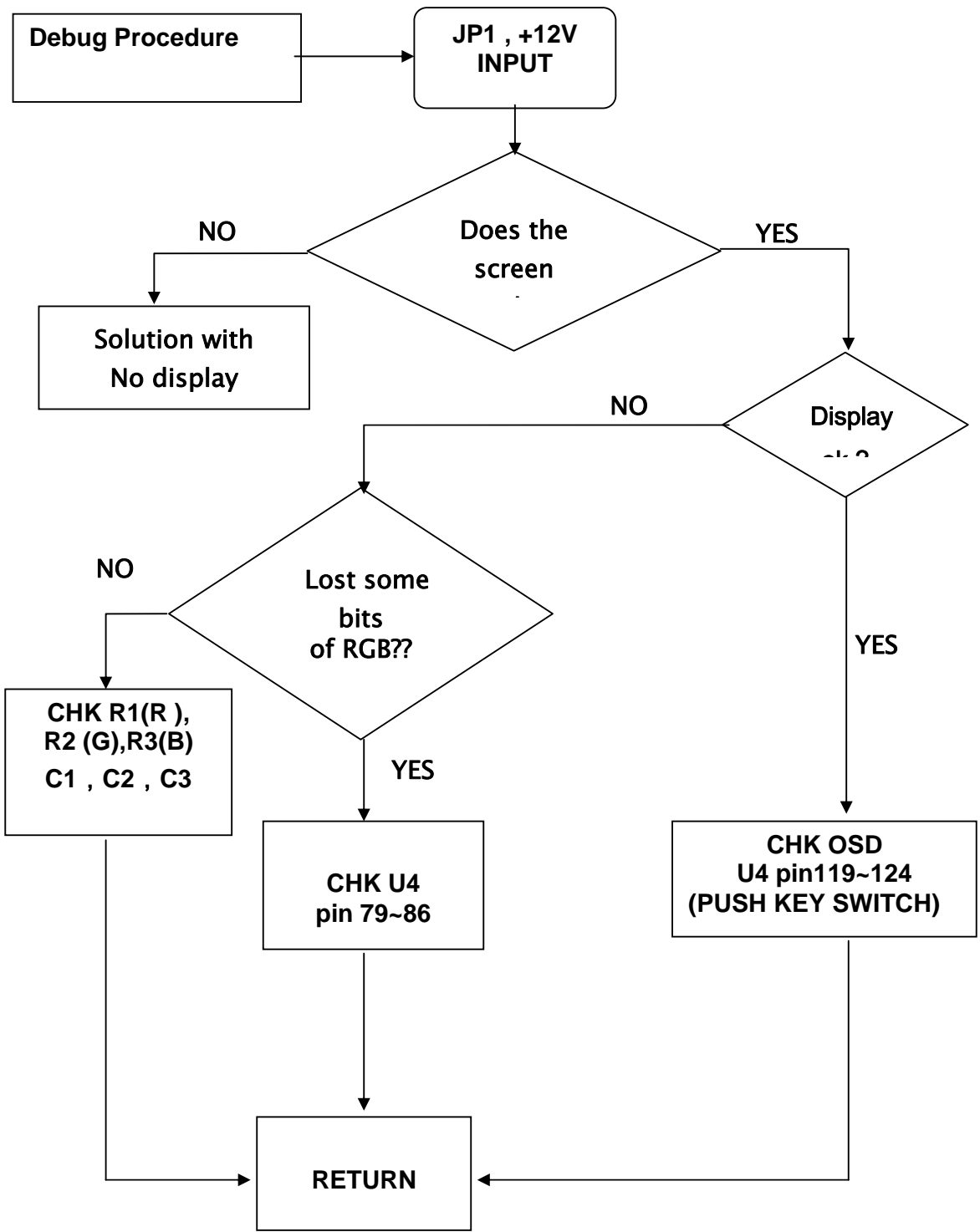
| CN1 | WIRE COLOR | | CN2 | |
|----------------|------------|--------|-----------|----|
| 1 | BLACK | | 5 | |
| 3 | BROWN | | 1 | |
| 4 | RED | | 2 | |
| 5 | ORANGE | | 3 | |
| 6 | YELLOW | | 8 | |
| 8 | twist | BLACK | twist | 12 |
| 9 | | WHITE | | 14 |
| 13 | twist | BROWN | twist | 7 |
| 14 | | WHITE | | 9 |
| 16 | twist | RED | twist | 11 |
| 17 | | WHITE | | 13 |
| 19 | twist | ORANGE | twist | 15 |
| 20 | | WHITE | | 17 |
| 22 | twist | YELLOW | twist | 19 |
| 23 | | WHITE | | 21 |
| 25 | GREEN | | 18 | |
| 26 | BLUE | | 20 | |
| 29 | PURPLE | | 22 | |
| 34 | GRAY | | 24 | |
| 35 | WHITE | | 26 | |
| 36 | BLACK | | 28 | |
| 37 | BROWN | | 30 | |
| 40 | RED | | 6 | |
| 10, 11, 15 | GND | | 10, 16 | |
| 18, 21, 24 | | | 27, 29 | |
| 28, 30, 31, 32 | | | | |
| 2, 7, 12 | NC | | 4, 23, 25 | |

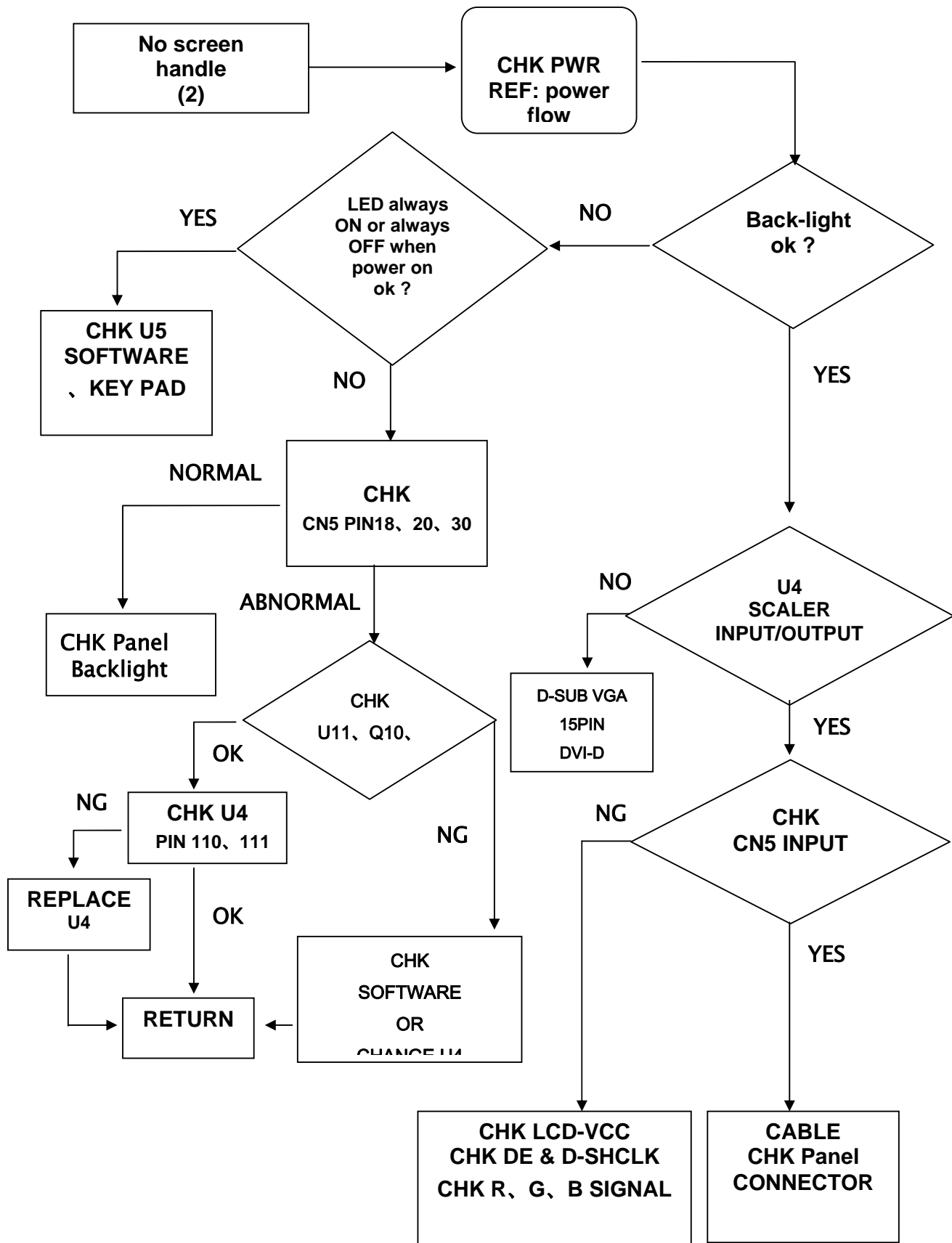


| | | |
|-------------|--|--|
| 27、33、38、39 | | |
|-------------|--|--|

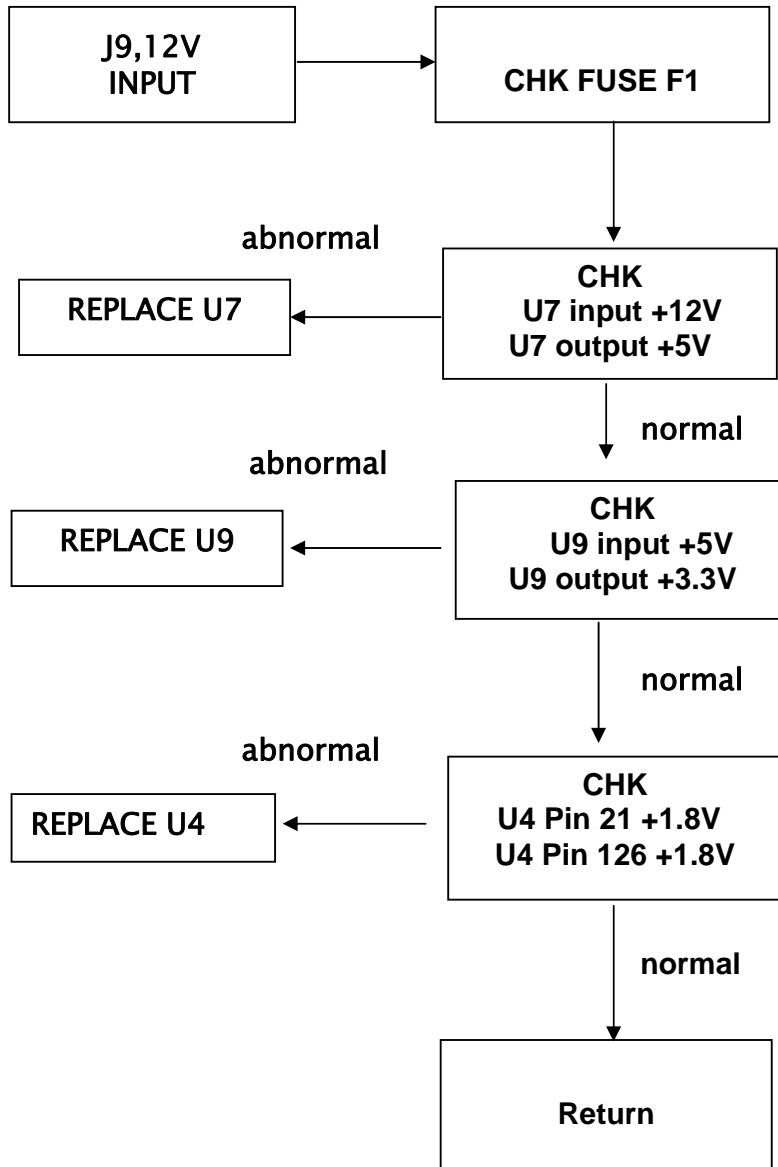
8. Trouble Shooting







POWER FLOW



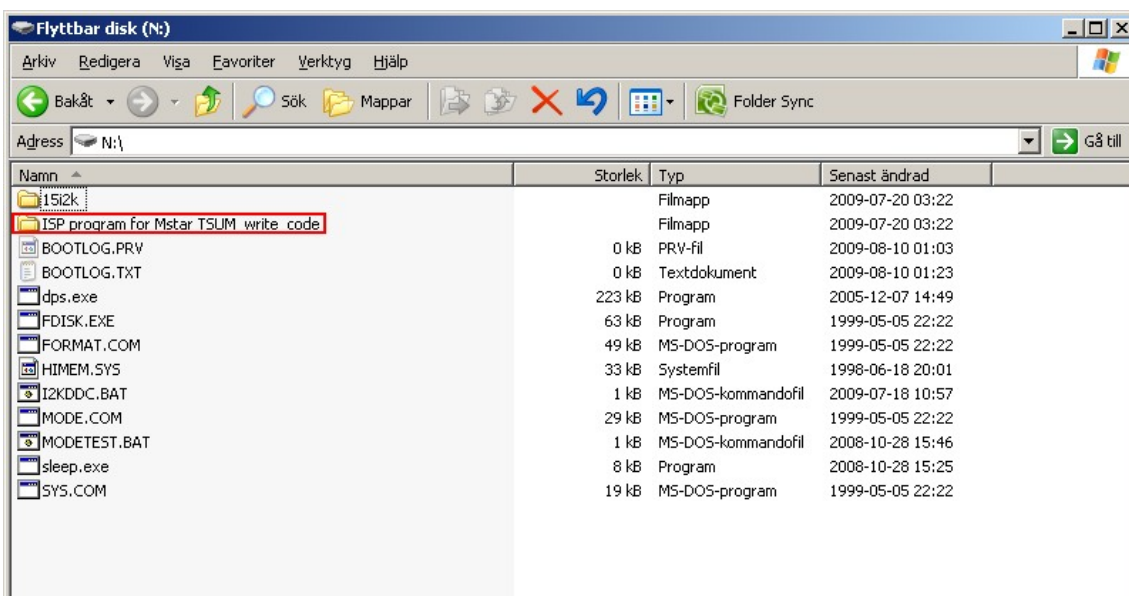
9. Upgrade software method

Instructions for flashing firmware

1. Disconnect any peripherals connected to the parallel port on the computer. Disconnect the DVI cable from the computer
2. Connect the DVI cable to the DVI to VGA adapter, and then connect the VGA side of the adapter to the ISP board. Connect the ISP board to the computer with the supplied parallel cable. (check Jumper No.4 and No.8 of SW3 to be ON at ISP board, the rest of all to be OFF). Connect the mouse and keyboard to the computer. All PC information will show on the other VGA monitor.



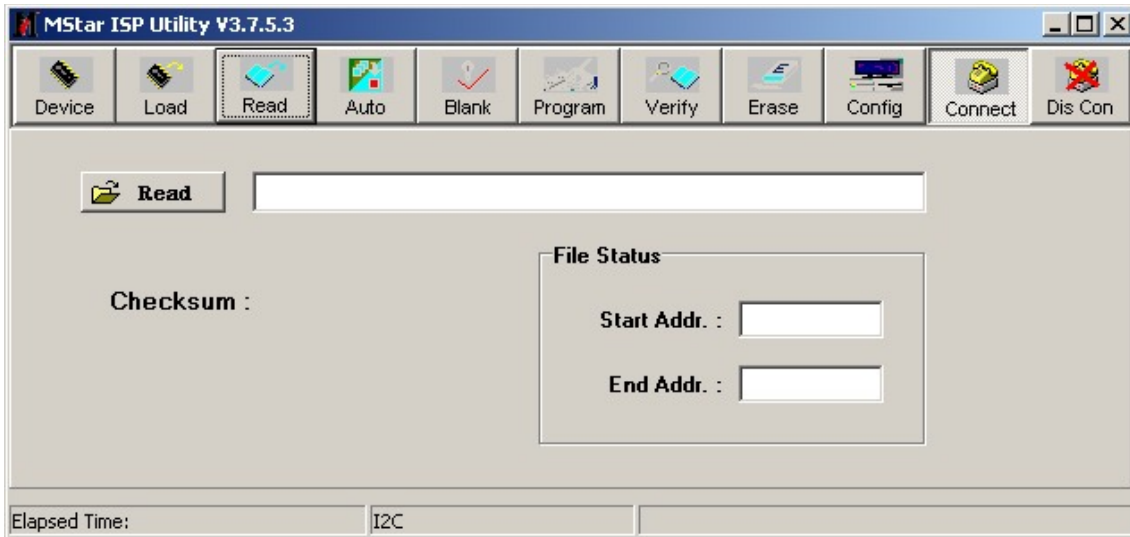
3. Plug in the USB flash drive.



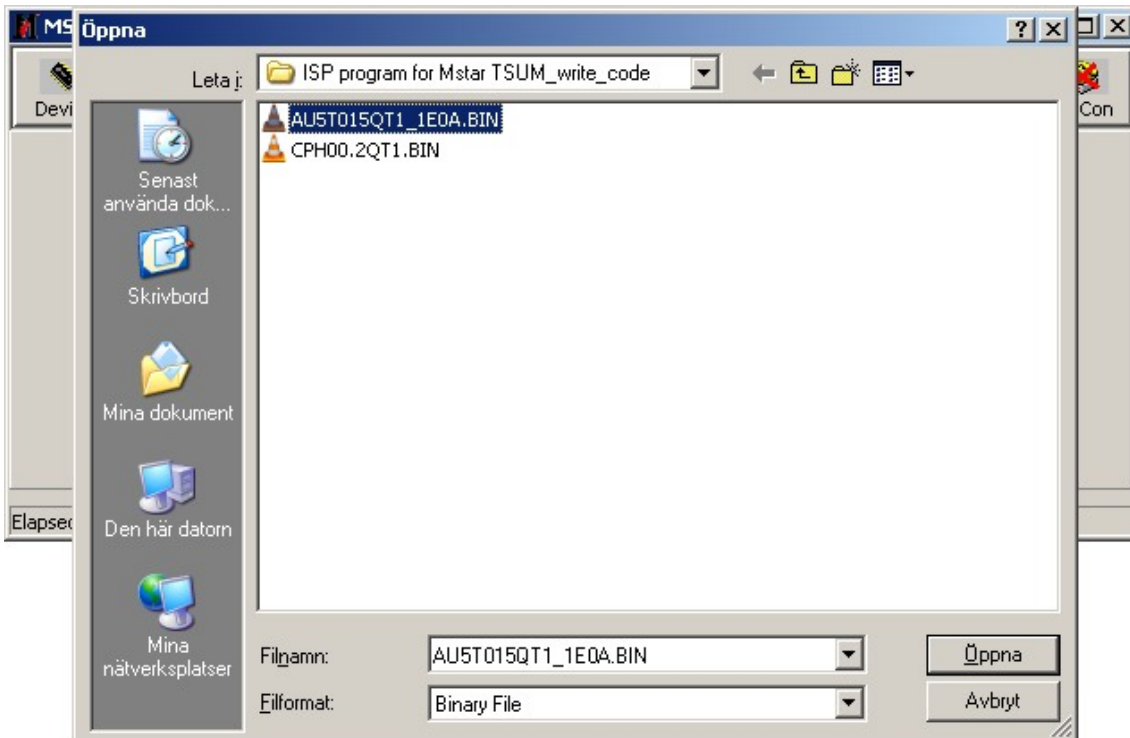
4. On the flash drive you will find a folder named “ISP program for Mstar TSUM_write_code”, open it and start ISP_Tool_3.75.3.exe



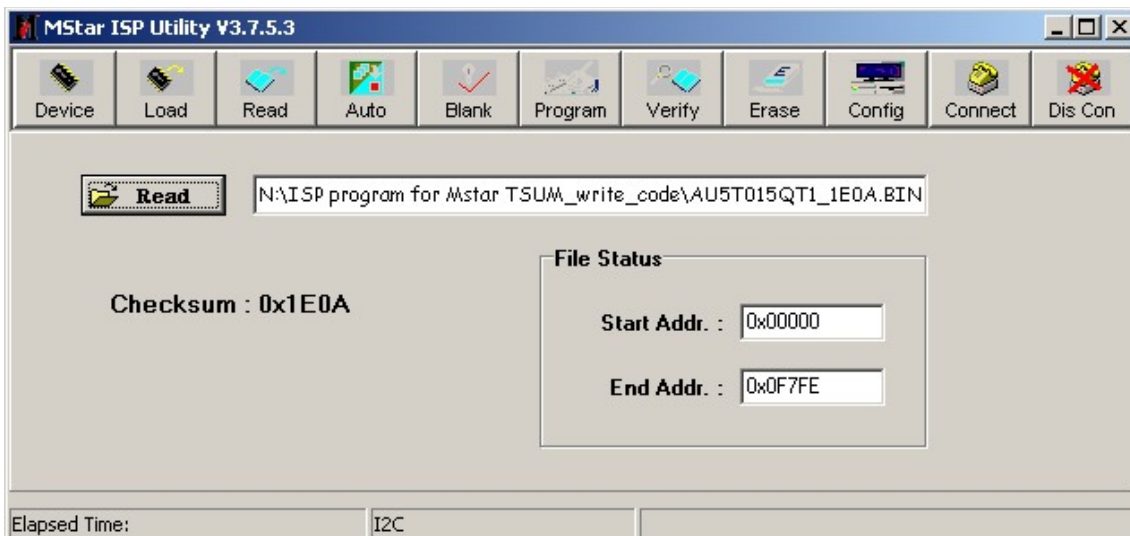
5. Press connect. A pop-up window showing “Device type is MX25L512” should appear. If the pop-up window say “Can’t entry ISP mode” recheck the cables.



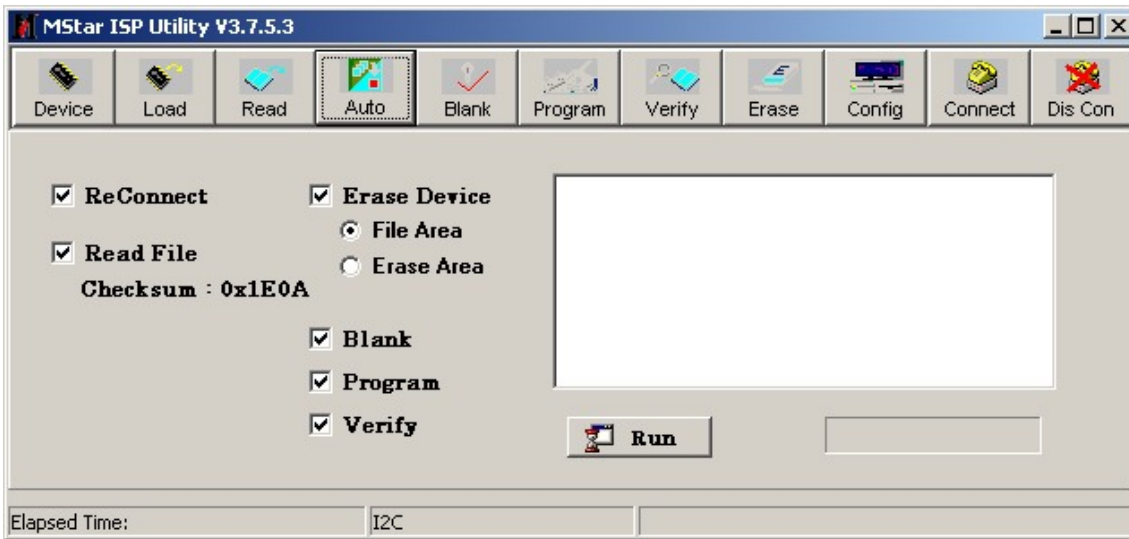
6. Next press the big red button on the top, and then press the smaller read button



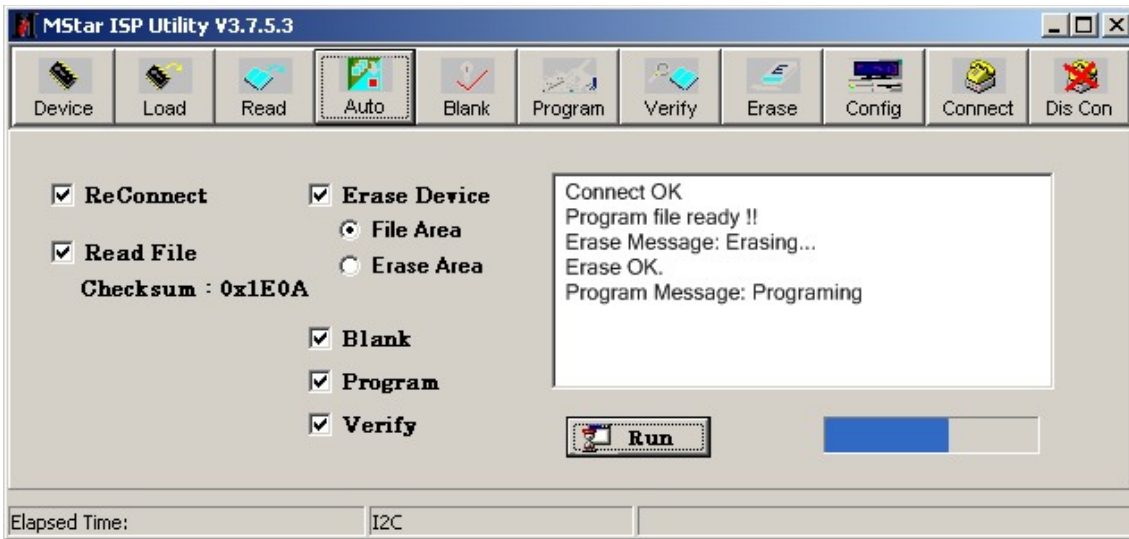
7. Select the AU5T015QT1_1E0A.BIN and open.



8. Check and re-check the Checksum. It should be 0x1E0A.



9. Press the Auto button right next to the read button. Check that the setting is according to picture above.



10. Press "Run". The program will start to erase and reprogram the firmware. Sometimes the programming fails, if that happens, just restart the process by hitting "Run" again. When the ISP board is cold this can happen a couple of times before you get a successful run.

11. Disconnect the ISP board and connect the DVI cable from the monitor to the computer again. Make sure that there's a video signal going to the screen. Locate the screens power supply. Press and hold the select button on the screen while you disconnect and reconnect AC power. The screen should show a message saying "All reset". The screen will go into burn-in mode if there's no video signal. If you have problems getting a signal to the monitor you can do the reset after step 18.

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|------------------------------|---|
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