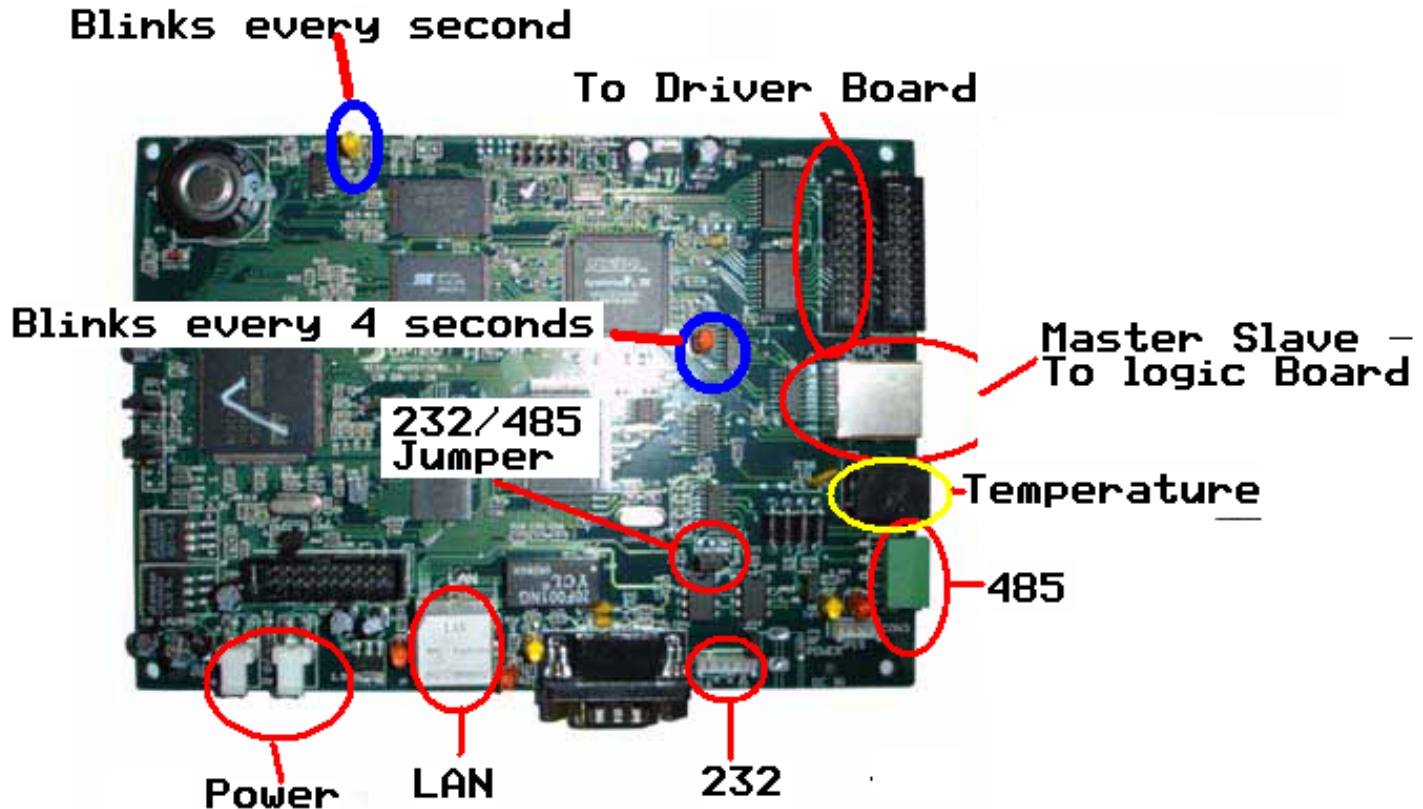


CT/GT-Series Controller & Logic Boards

CT/GT-Series Controller General Port Connection Diagram



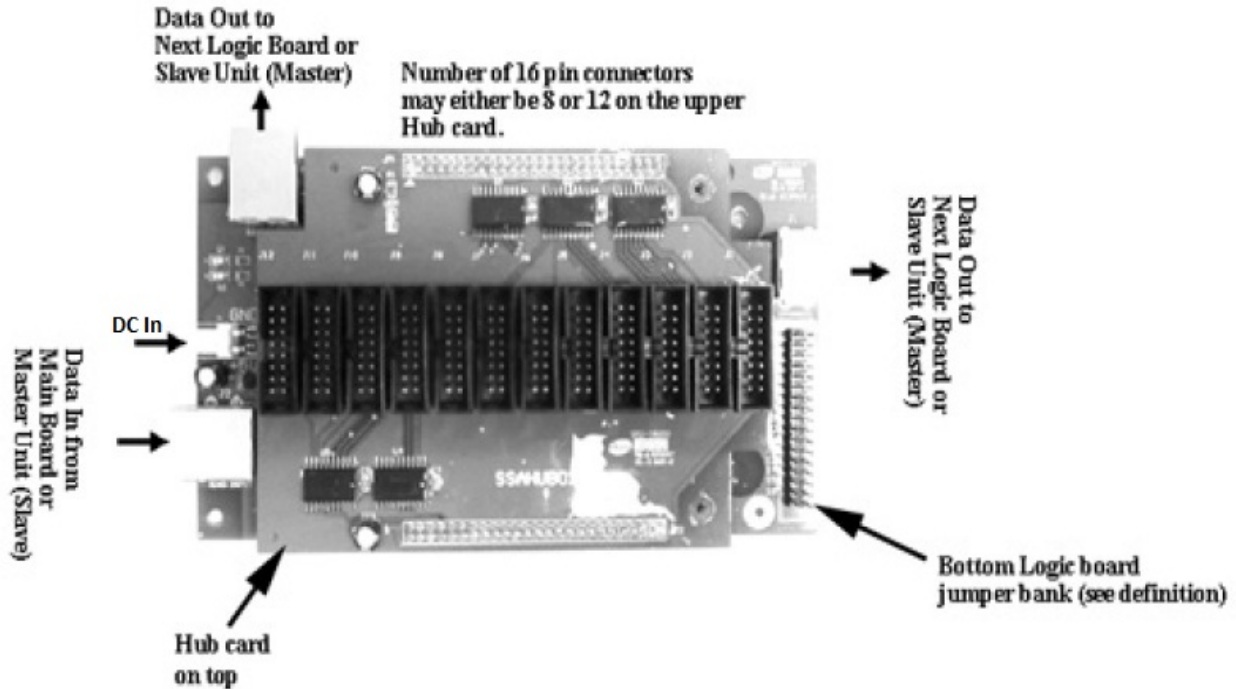
PART # 23SF-ARMSYSMB1.30903

1. For LAN communication connect the Ethernet cable from the programming PC or network switch to the "LAN" port at the bottom of the board.
2. If using RF Modem or RS232 hard wired, connect the DB9 to 4 pin RS232 cable to the 4 pin white connector (labeled "232") pictured above and make sure the "232/485" jumper is strapped on the center pin and the pin away from the "485" green block.
3. If using RS485 then match the color of the cable wires B(R+), R (R-), G (T+) & Y(T-) to the indicated pin out on the green "485" connector on the right edge of the board.
4. The temperature/dimmer sensor must be plugged into the RJ11 port immediately above the "485" green terminal labeled "Temperature" in the picture.
5. For LED section to display, connect standard cat 5 cable between the Master Slave RJ45 connector and the RJ45 input port on the first logic board in the chain of logic boards.

CT/GT-Series Display Problems & Firmware Upgrade Fixes

1. Display on the sign will freeze.
 - a. Find out what type of functions are being used in creating the messages that caused the LED sign(s) to freeze.
 - i. If Auto In and Auto Out or Frame In and Frame Out are being used: find out what firmware the CPU has. To determine this turn the display OFF and ON – the Unit will quickly flash the firmware version of the controller. The other method is to use the sign software and execute the “Get Sign Info” command.
 - ii. In “Sign Info” report, check the available Disk Free Space, if it is low or an error indicated then run the “Erase NAND and Reboot” command, this can be done in by selecting Command>Advanced Command>Erase NAND and Reboot.
2. If the main board is 1.74 or below then an upgrade is required.
 - a. The update can only be done by downloading the latest A-EDT (www.optec.com) and select Command>Advanced Command>Update Sign Firmware (once this starts it cannot be interrupted).
3. If the sign keeps going blank you will also need to verify what DC is going into the CPU board.
 - a. If a 12VDC power pack is being used to power the CPU then contact Optec Customer Support to order a 40watt 5.3vdc or 150 watt 5.3vdc so that it can safely power the CPU board without excessive heat on hot summer days.
4. If the display shows funny characters (\$@) in front of your programmed message it is very likely that you set the board to the wrong type in the software. In Setup -> Sign Setup, make sure that the correct board type is selected.
5. If there is a partial or truncated message showing on the sign display but the display is off centered or not aligned properly, then the wrong sign size was set in the software. This can be easily corrected by making sure that your sign size is correct in the software setup, and it matches the actual pixel resolution of the LED board(s). If the controller inside the display is set to the wrong sign size (“Get Sign Info” will help you verify) then you will need to call Optec Displays Customer Support to have them remote into the programming computer and correct it for you.

CT/GT-Series SSAHUB & Logic Board (ULOGIC15)



Primary function of the Logic board is to control the display of image on the section of LED display it is mapped to control.

- **Jumper Location**

Depending on its relative position in the Logic board map, its jumper setting must be set accordingly (see “Jumper Location”) and jumper setting definitions.

- **Ribbon Cable Connectors**

It also features twelve ribbon cable connectors for direct connection to LED modules or driver boards for control of different models and colors of LED modules and/or their respective driver boards.

- **Input/Output RJ45 Connectors**

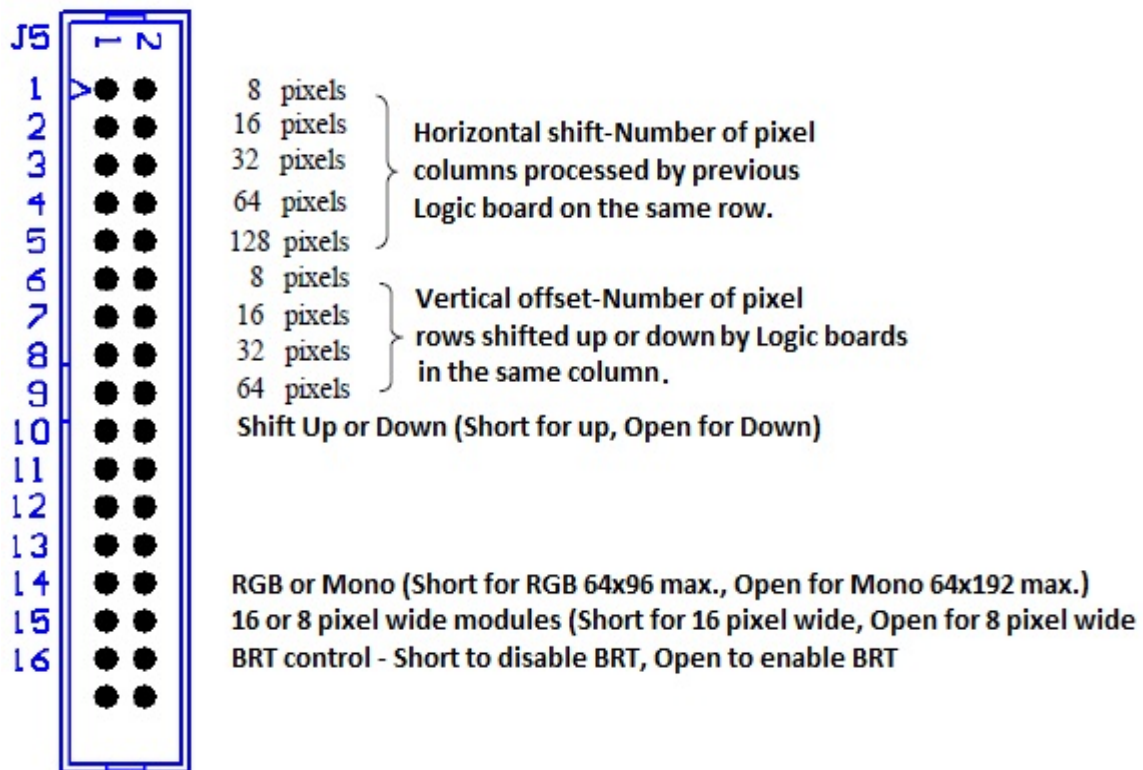
RJ45 Input/Output connectors allow Logic boards to be linked to one another to form a mapped coverage of the entire LED display area based on differentiation in individual jumper settings. The first Logic board in the chain accepts its signal data input from the CT/GT-Series Controller and the

last Logic board in the chain has one of its RJ45 outputs connected to Input RJ45 on the first Logic board inside the Slave unit.

- **Power Indicator & DC Connector**

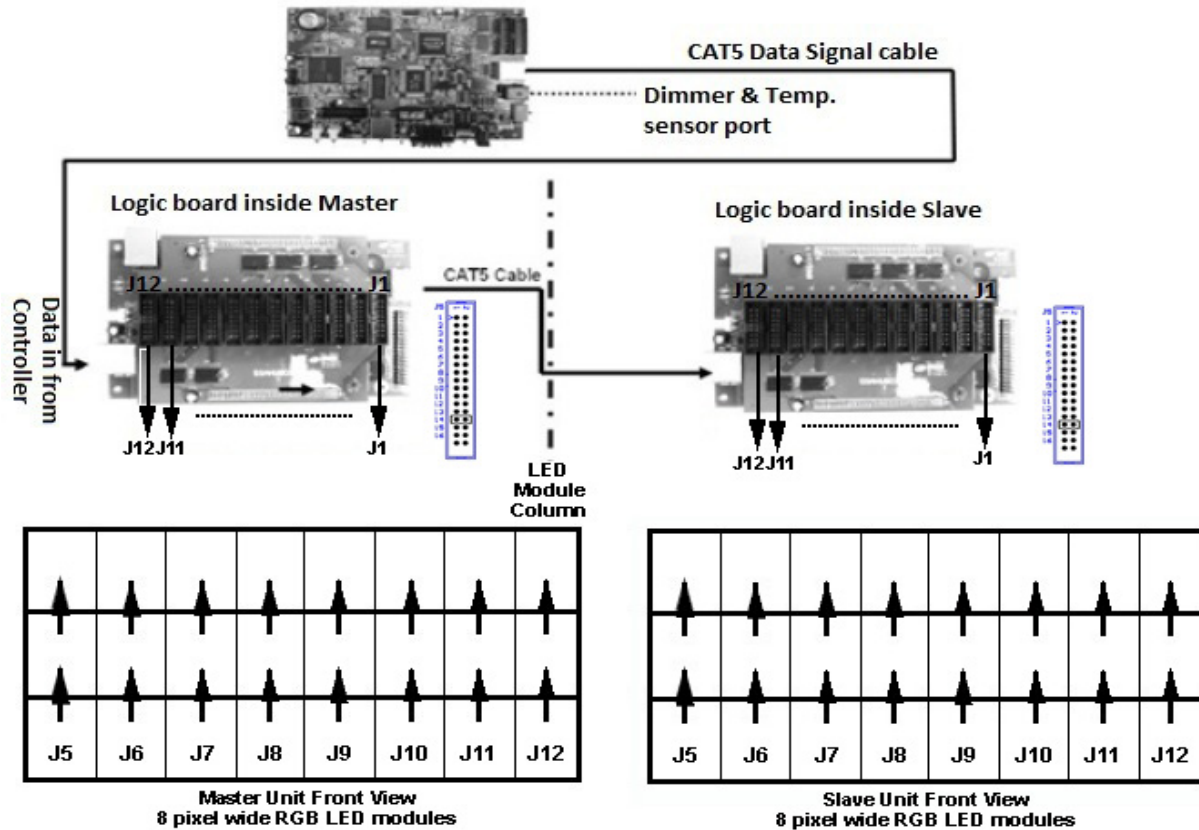
The Power Indicator also serves as the status indicator to indicate if proper signal is being received. A 40W, 5.3V DC power pack is usually being used to power one or more of these Logic boards as well as the CT/GT-Series Controller. Power packs with higher DC voltage such as 7.5V DC can also be used but any DC voltage higher than 7.5V should not be used.

Logic Board ULOG15A Jumper Setting for



ULOG15A10.POF for GT, CT system Jumper setting

Diagram below shows CT/GT-Series Controller and Logic boards inside a CT-25-24x64 Master and Slave unit respectively.



Data Flow Path

From the CT/GT controller, a straight through CAT5 cable is connected between the Master/Slave RJ45 output connector and the input connector of the Logic board as shown above. There are two RJ45 Data Out ports on the Logic board and typically the one above the jumper bank is being used to connect the CAT5 cable to the next Logic board. For a LED sign there have 48 or more LED pixels in a column, you may be able to find Logic boards arranged in two rows with each row having at least one Logic board. These logic boards together form a completed mapped area for the entire display area with each Logic board responsible for the display control of an assigned section based on their individual jumper setting.

The last Logic board in the chain inside the Master unit will have its output CAT5 cable run to the input port on the first Logic board inside the Slave unit. There should only be one such Logic board inside the Slave unit without a CAT5 cable pre-connected to its input port.

Status LED indicators

- LED1 – Power on indicator, solidly lit when there is power to SSAHUB01 Hub board
- LED Q1 – Power on indicator, solidly lit when there is power to ULOG15B
- LED Q2 – Data signal indicator, solidly lit when there is data coming into RJ45 Input from controller or other logic boards. LED flashes when data input is absent.

For 16 pixel wide modules, the logic board can support up to a maximum of 192 pixels wide. If the construction of a LED sign or sectional sign is such that it consists considerably less than 192 pixels wide, as shown in the picture above then not all output connectors will be used. If two sectional signs are joined together to form a bigger size display, then the logic board inside the end section must have its J5 jumpers set to reflect the number of pixel columns already processed by the logic board inside the main section.

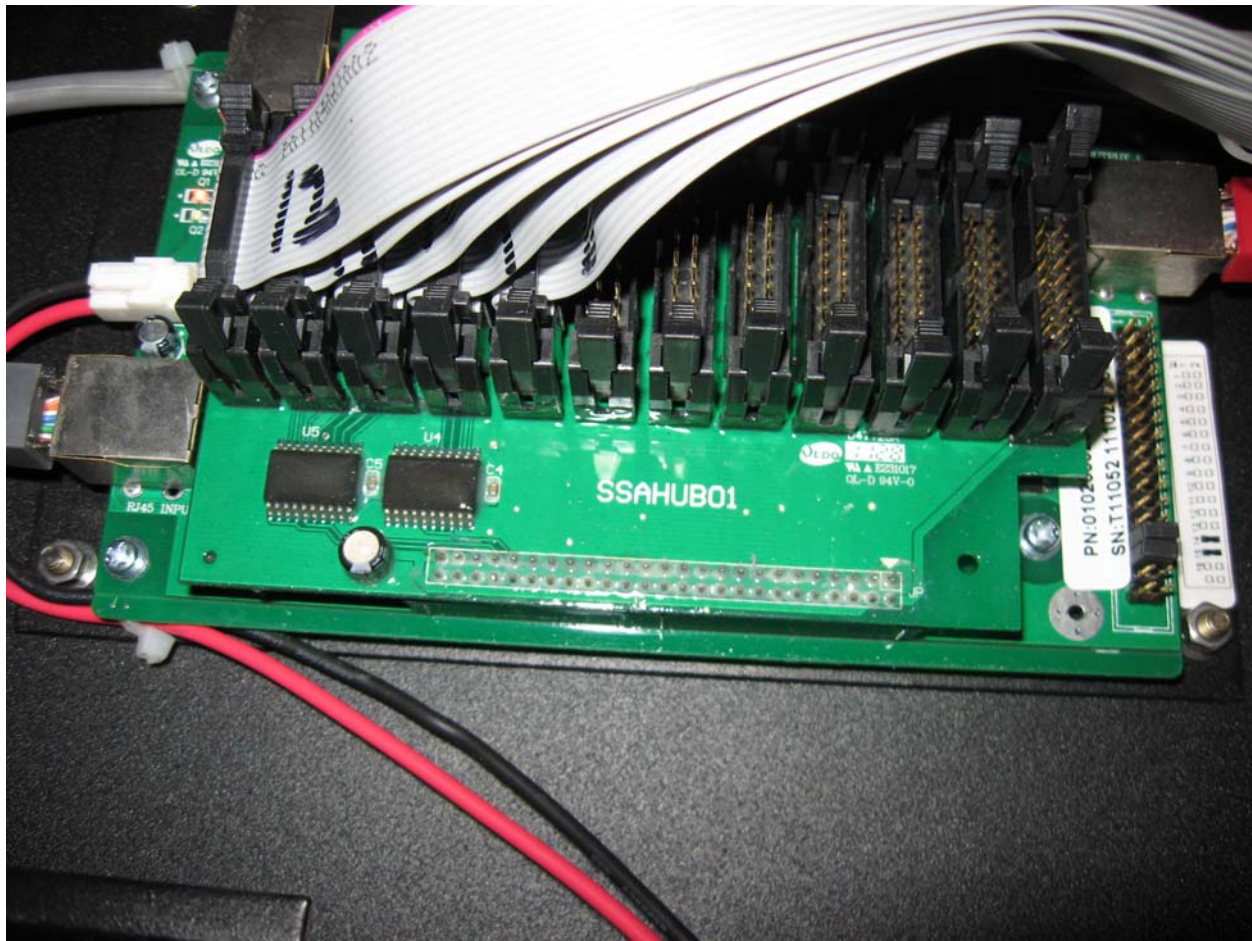
For example, if the main section has a total of 96 pixels across and each module is 16 pixels wide, then the logic board inside the end section must have the third & fourth pair of jumpers from top shorted as well as the 15th pair shorted for 16 pixel wide module and a monochrome gray scale unit . This sets the second logic board when to carry on with the displaying of data after the first logic board. For modules that are only 8 pixels wide, the 15th pair of jumpers must be shorted and the logic board now accommodates only a maximum of 96 pixel columns across.

Trouble shooting Logic board problems on CT/GT-Series Displays

1. If status LED Q2 blinks once every second then replace both the Logic board and CAT5 cable connected to its RJ45 input. If it is the first Logic board in the link then replace the controller next or the preceding Logic board.

2. If the LED1 or LED Q1 is off,
 - a. Measure the DC voltage on the Logic board DC power connector, it should read about 5V DC, correct reading should be 5.3vdc. If reading seems too low, go to b.
 - b. Disconnect the power plug from the Logic board for 5 seconds then reconnect, if the LED remains off then measure DC voltage again after recycling of AC power.
 - c. Verify if other Logic boards have the same problem with the Power LED, if not, replace the logic board.
 - d. If DC reads good then the logic board is bad, replace the logic board.
 - i. Remember to number all you ribbon cables before you remove them.
 - ii. Transfer jumpers from the old logic board to the new one in the exact same position. Failure to do so will result in image offset or repetitive image on display. A label with a picture of the proper jumper setting is attached to the Logic board mounting plate for your reference (see picture below).

CT/GT-Series U-Logic Board (with SAHUB-type HUB Board)



3. The CPU controller status LED will blink once every 4 seconds to indicate that there is proper signal going to the first Logic board. If the display is still blank with this checked, CPU controller or the CAT5 data cable between controller and first Logic board is bad.
4. Check the Hub board, this board sometimes may need to be re-seated properly due to vibration. ***If you remove or replace the HUB board, make sure the orientation and all pins are aligned and reconnected properly.*** Female headers on bottom of Hub board must not be misaligned with row connectors on the Logic board, or display will look scrambled or no display at all.
5. If the HUB board is ever replaced – make sure you number the ribbon cables accordingly with the connector designation before disconnecting the ribbon cables or it will be very difficult to identify the correct order sequence since these ribbon cables are bundled together.
6. If the LED is blinking once every second then replace the logic board.