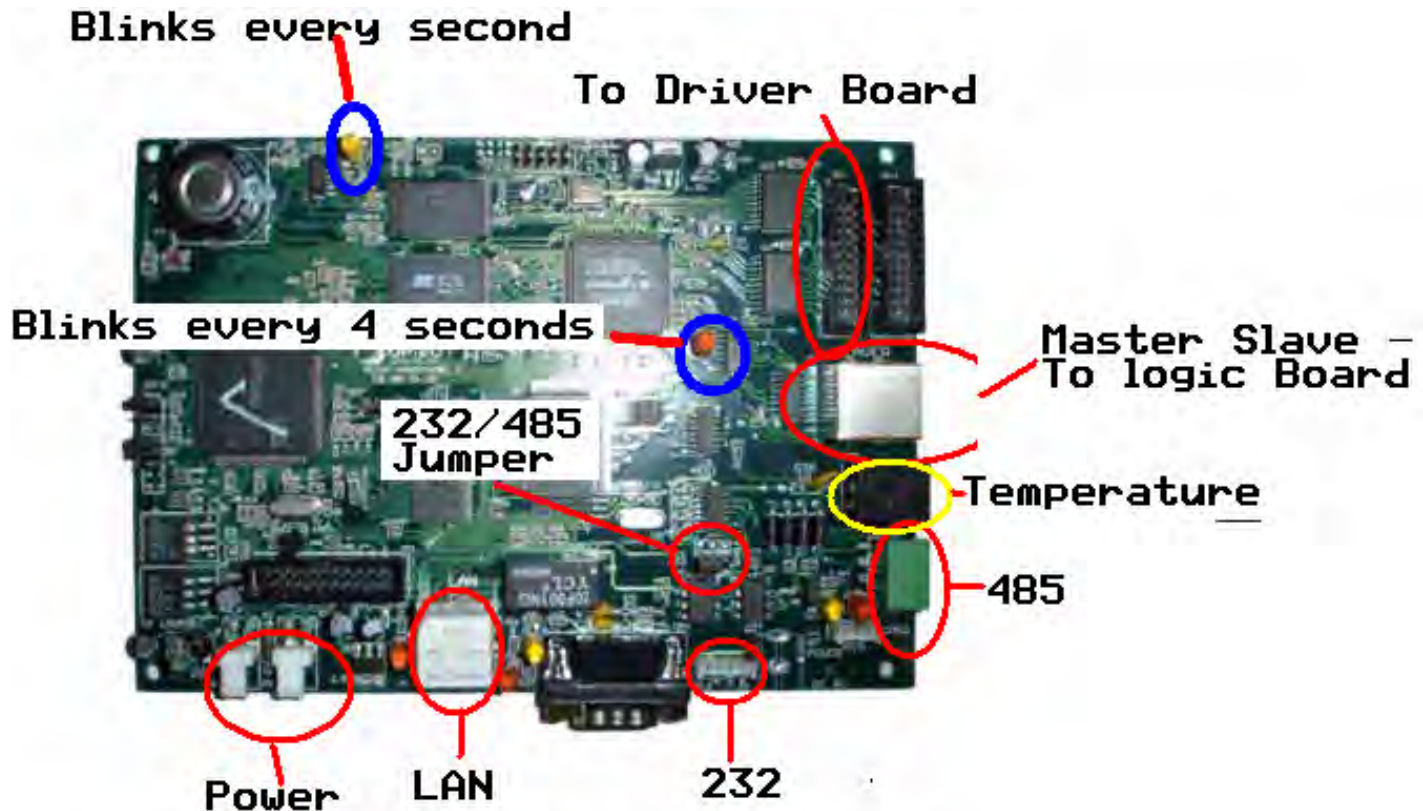


A-Series Controller & Logic Boards

A-Series Controller General Port Connection Diagram



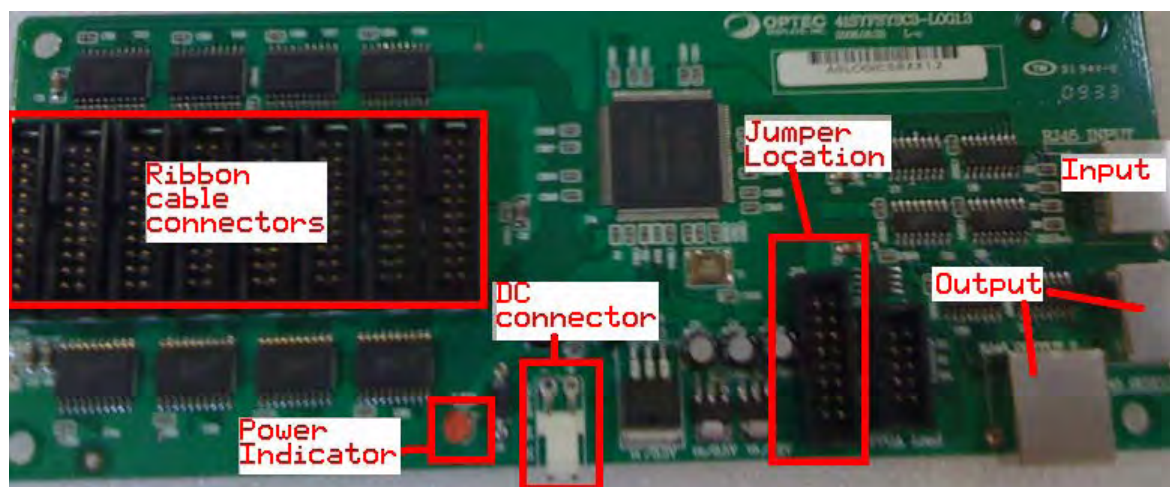
PART # 23SF-ARMSYSMB1.30903

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.

A-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.

A-Series Base Logic Board (No HUB Board)



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 settings must be set accordingly (see “Jumper Location”) and jumper setting definitions.

- **Ribbon Cable Connectors**

It also features eight ribbon cable connectors for direct connection to LED modules or driver boards, or these ribbon cable connectors can be fitted with an add-on HUB board (L type or S type) to control different models of LED modules and/or their respective driver boards.

- **Input/Output RJ45 Connectors**

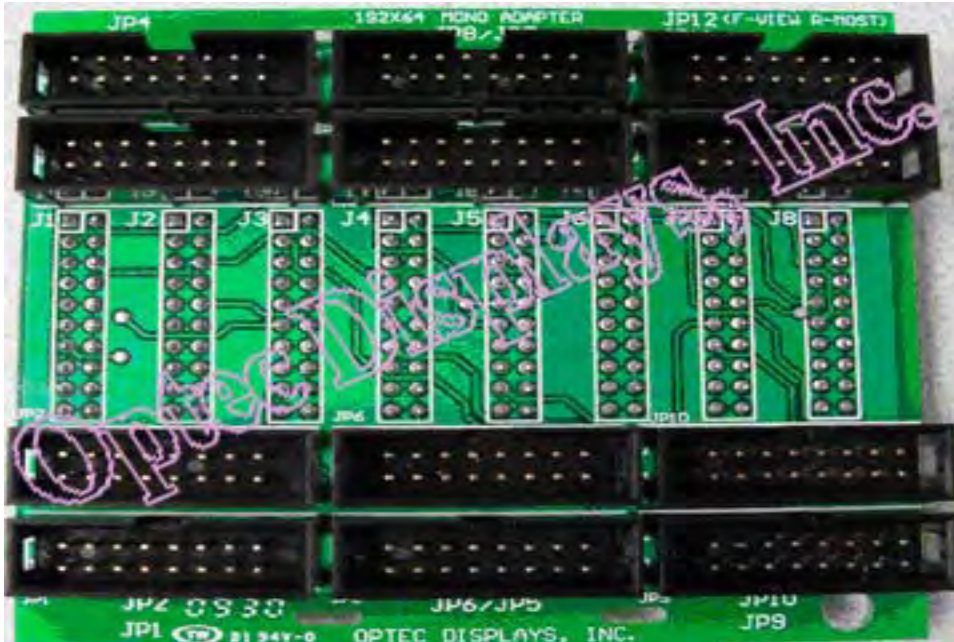
RJ45 Input/Output connectors allow Logic boards to be linked together to form a mapped coverage of the entire LED display area based on differentiation in individual jumper settings. The first Logic board in the chain accepts its Input from the A-Series Controller and the last Logic board in the chain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

S-type Logic Board

There is only one type of S-type add-on card currently in use with the base logic board. A picture of the S-type add-on card is shown below.



The S-type logic board operates differently from a L-type logic board in that data flow between modules occurs vertically from bottom to top along the same column of LED modules and from right to left (rear view) between different columns of LED modules. A complete type-S logic board is shown below.

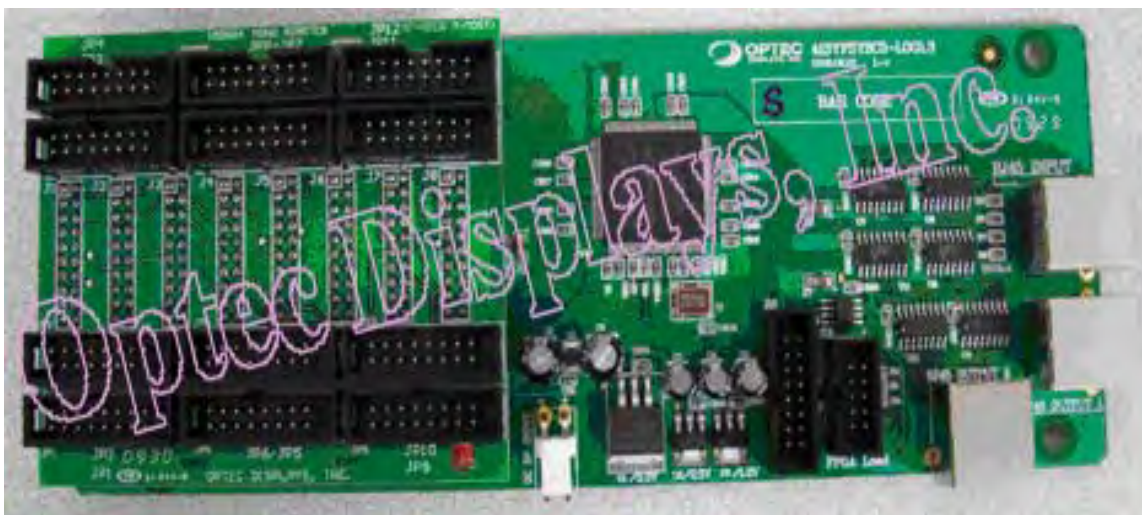
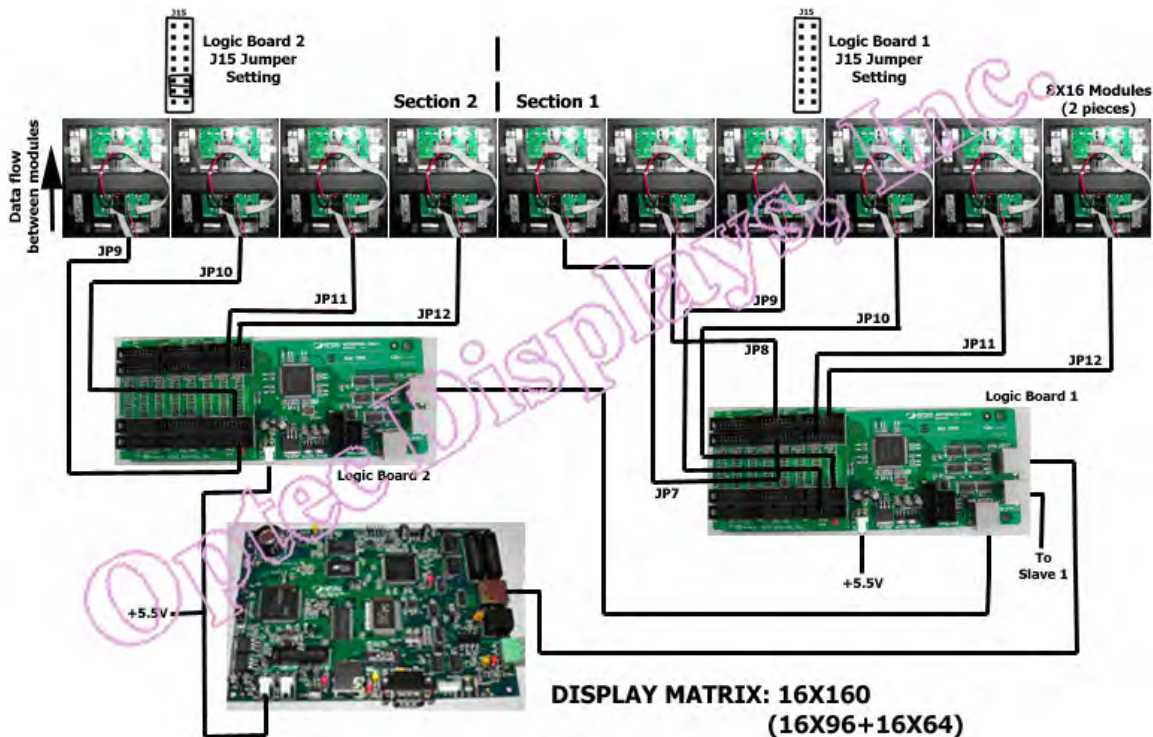


Diagram below shows A-series S-type Logic boards for display matrix of 16x160 constructed in two sections.



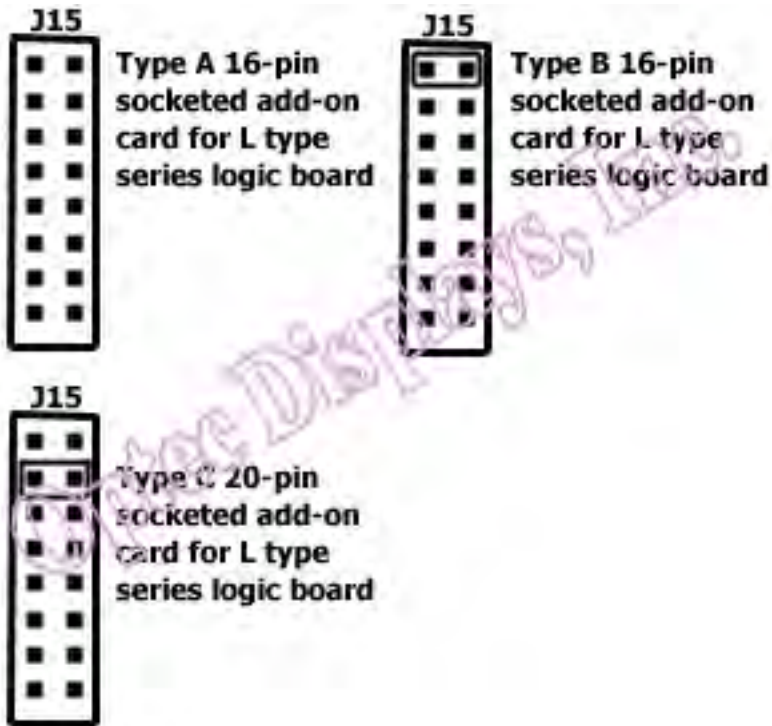
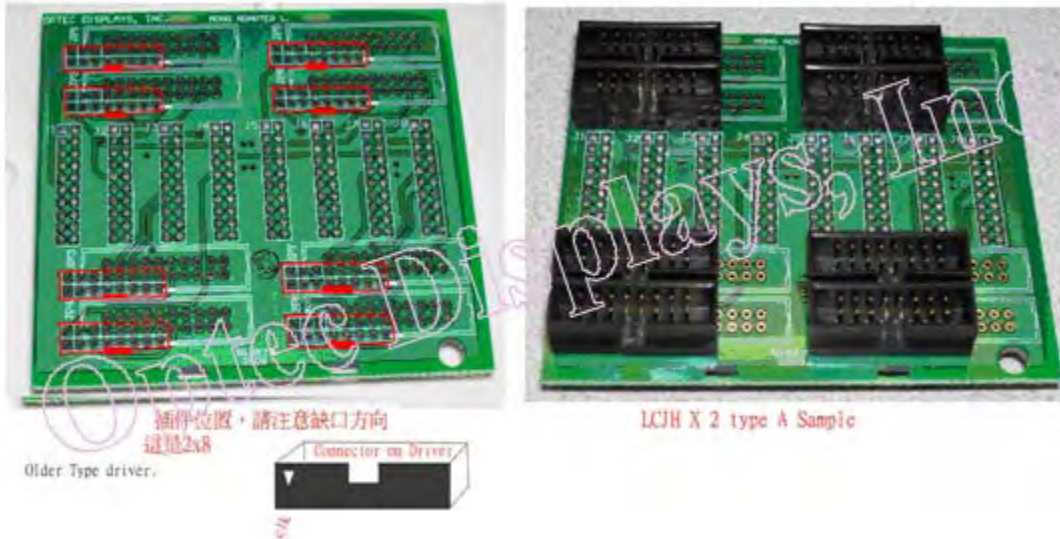
For 16 pixel wide modules, the S-type logic board can support up to a maximum of 192 pixels wide. If the construction of a section is such that it consists considerably less than 192 pixels wide, as shown in the picture above then not all output connectors will be used. If two sectional signs are joined together to form a bigger size display, then the logic board inside the end section must have its J15 jumpers set to reflect the number of pixel columns already processed by 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 second and third pair of jumpers from bottom shorted as indicated in the above picture. This sets the second logic board when to carry on with the displaying of data after the first logic board. The bottom pair of jumper represents 128 pixel columns being processed by the first logic board, second pair from bottom represents 64 pixel columns and so forth. Please see J15 pin assignment diagram for S-type Logic board below.

For modules that are only 8 pixels wide, the top pair of jumpers must be shorted and the logic board can now accommodate only a maximum pixel width of 96 pixels across. Jumper pin definitions for J15 differ between L and S-type logic boards due to the difference in firmware in the programmable IC.

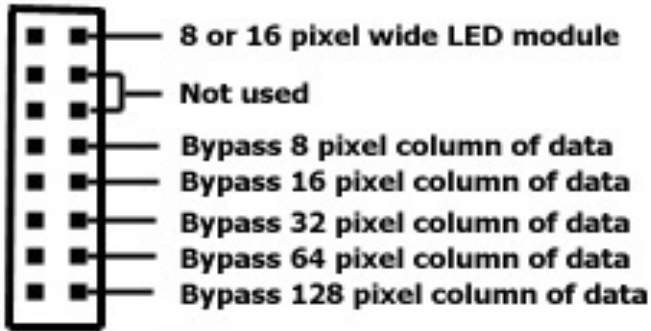
Detailed drawings on J15 jumper settings for Logic boards with L or S-type Add-on HUB board

L-series logic board with types A, B or C add-on cards and their respective J15 jumper settings shown below:



S-series logic board with J15 jumper settings shown below:

J15



Short - selected

Open - not selected

Examples:

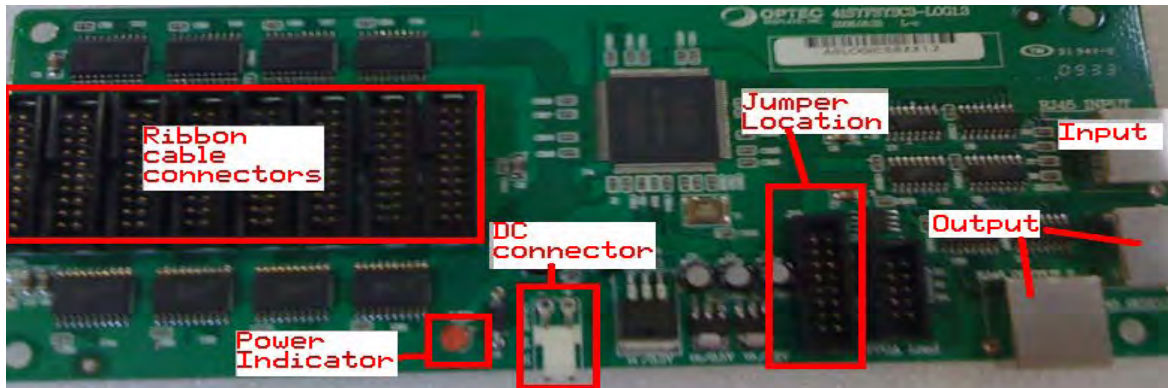


16 pixel wide LED modules
bypassing 96 pixel columns
of data from previous S-type
logic board



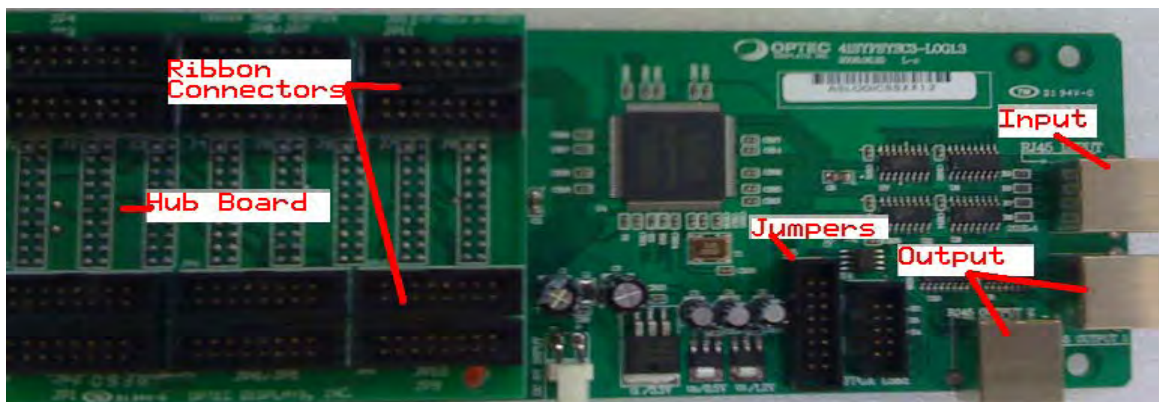
8 pixel wide LED modules
bypassing 192 pixel columns
of data from previous S-type
logic board

Trouble shooting Logic board problems on A-Series Displays



1. The status led will blink every 4 seconds. This will indicate that there is proper signal from the CPU.
2. If the LED is blinking every second then replace both the controller and the Logic board if it is the first Logic board in the link or the CAT5 cable the connects the two boards.
3. If the LED 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-Series S-type Logic Board (with S-type HUB Board)



4. The status led will blink once every 4 seconds. This will indicate that there is proper signal from the CPU controller. If the display is blank with this checked, CPU controller or the CAT5 data cable between controller and first Logic board is bad.
5. Check the Hub board, this board sometimes starts to shift and needs to be re-seated. If you remove or replace the HUB board, make sure the orientation and all pins are reconnected properly. It must not be misaligned with connectors on the Logic board, or display will look scrambled or not show at all.
6. 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 since these ribbon cables are bundled together.
7. If the LED is blinking once every second then replace the logic board.