

# Production Board (Ferrero) User Manual

## *Title Page*

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Figure 1.1 – Production Display Board.

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**LIST OF ABBREVIATIONS**

A	Units - Amperes
AC	Alternating Current
AWG	American Wire Gauge
C	Celsius
CIS	Customer Information System
DC	Direct Current
DPB	Data Protection Board
EMC	Electro Magnetic Compatibility
F	Fahrenheit
GND	Ground
Hz	Units - Hertz
in	Units - Inches
Kg	Kilograms
LDR	Light Dependent Resistor
LED	Light Emitting Diode
LK	Link
mA	Units - Milliamperes
mm	Units - Millimetre
N/A	Not Applicable
PAS	Printed Circuit Board Assembly
PCB	Printed Circuit Board
PL	Plug
REF	Reference
RX	Receive
SIL	Single In Line
TB	Terminal Block
TD	Technical Document
TX	Transmit
V	Units - Volts
V AC	Units - Volts (Alternating Current)
V DC	Units - Volts (Direct Current)

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## 1. Introduction

### 1.1. *Scope*

The scope of this document covers the LED alpha-numeric *Production Display Board* for the Ferrero manufacturing plant, Ontario, Canada.

### 1.2. *Purpose*

The purpose of the document is to provide the relevant information to enable the user to install and maintain the displays correctly.

### 1.3. Display Overview

The system consists of a *Production Display Board* connected a control PC on the users local area network (LAN). The primary function of the display is to show the comparison between actual production and target production and display general information.

The display has two separate sections. The databoard section shows the current Date, Week number, Time, *TARGET* and *ACTUAL* information. And the twenty character dataline section at the bottom of the board is used to display general text messages.

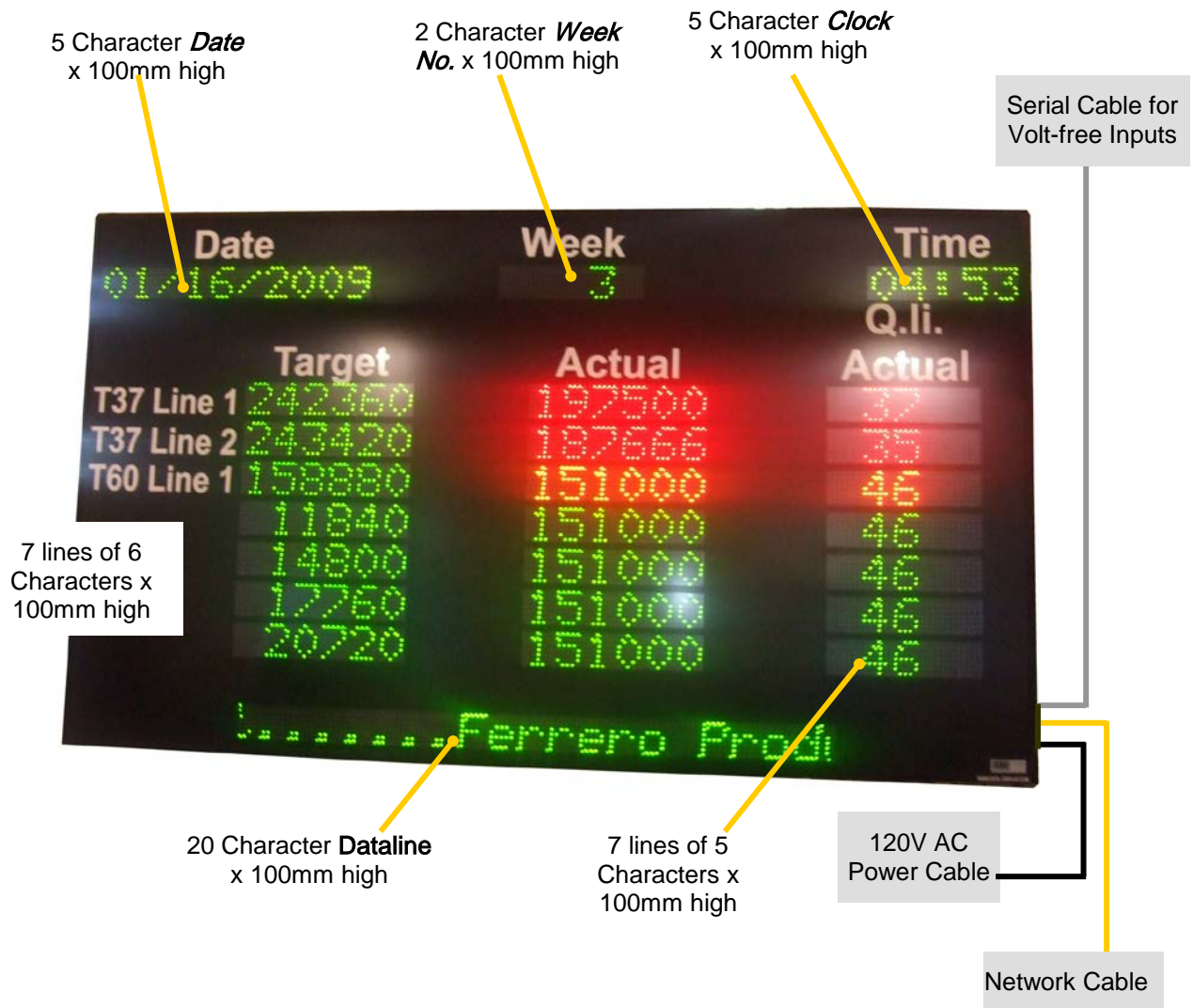


Figure 1.2 – System Configuration.

The display housing is manufactured from 2.5mm aluminium and has a matt black paint finish. The displays electronic components such as the logic boards and power supplies (PSU) etc are mounted on the display housing.

A removable 5mm polycarbonate Lexan screen that protect the LEDs is secured by removable profiles. To access the components, the right-hand side profile may be removed by unscrewing the attaching screws.

The display requires a mains power supply of 120V AC, a CAT 5 Ethernet cable with RJ45 connector at both ends and 8-core cable with 15-way connector.

Cable entry is through cable glands at the rear, bottom left-hand side of the display. The customer furnishes the external mains power supply and COMMS to the display.

*ProdnSDS*, a windows based software package is used to edit and send data to the board.

No routine or periodic maintenance is required but information for fault finding and remedial maintenance is supplied.

## 1.4. Specifications

CHARACTERISTIC	VALUE
<b>Display Features</b>	
Model	Production Display
Display Type	7 Line Target/Actual display with date, week number and clock fields. 20 Character scrolling dataline at the bottom
Character Height	4 inches
Display Panel Type	DL405NSMCG & DL405NSMCRG
LED Colour	Surface Mount Red, Green and Amber
LED per Pixel	1
Pixel Pitch	0.3in
<b>Communication</b>	
COMMs	Ethernet/RS485
<b>Electrical</b>	
Mains Power Supply	120V AC
Fuse Value	10 Amp
Power Consumption	1075 Watts
<b>Housing</b>	
Dimensions (LxHxD)	118in x 67in x 3in approx
Weight	440 lbs (Packed)
Enclosure	Single Sided
Access	Removable Side Profile
Housing Material	.08in Aluminium
Housing Colour	Black
Lens	0.2in Grey Polycarbonate Lexan
<b>Environmental Conditions</b>	
Temperature Range	-4°F to 140°F
Humidity Range	5% to 95% without condensation

**Table 1.1 – Display Specifications.**



## **2. Hardware**

### **2.1. Display Boards**

There are two types of LED display boards used in the display, DL405-NSMC-G and DL405-NSMC-RG.

These boards have a matrix array of surface-mount amber LEDs in a 7 row by 60 column form. This results in a 7 row x 120 column matrix per line.

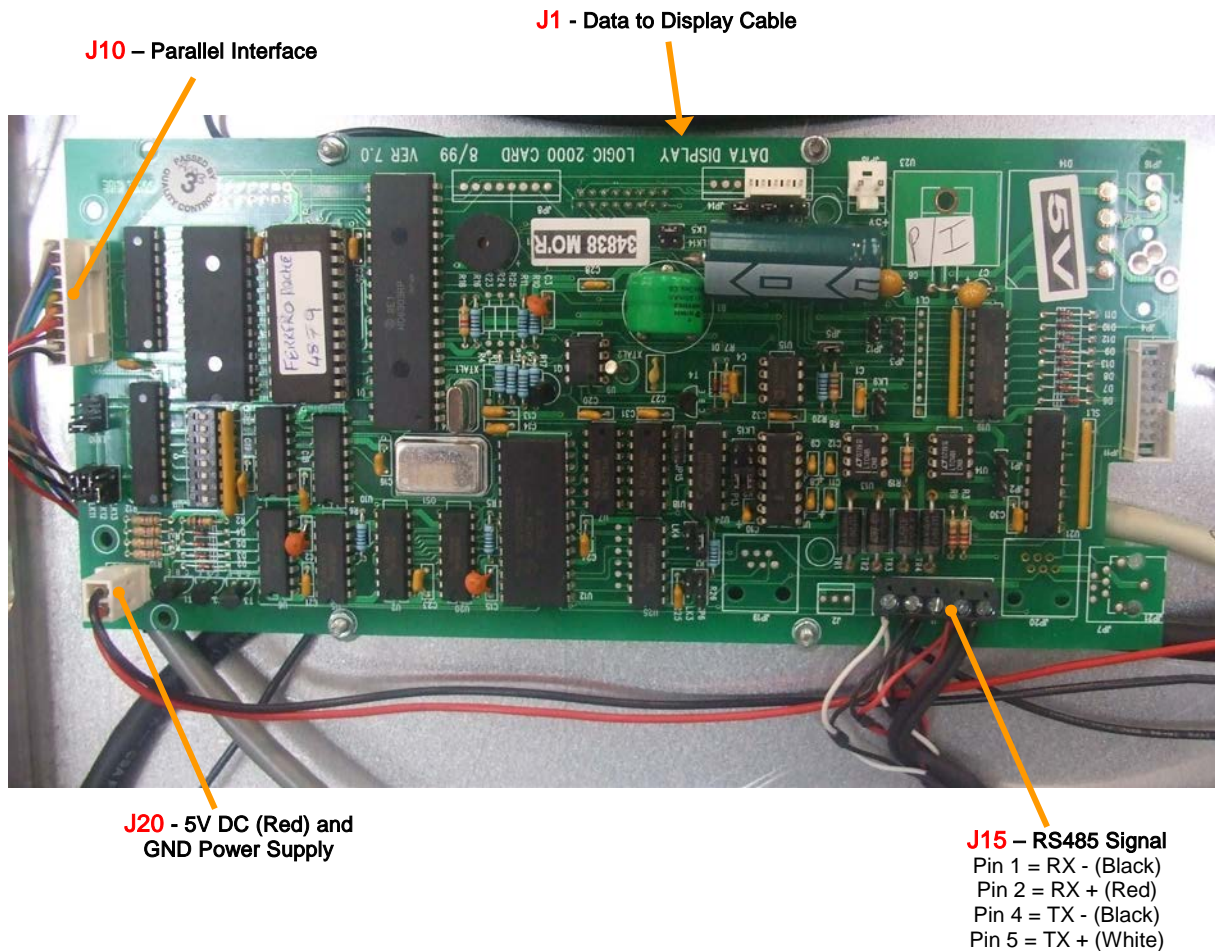
The boards are driven in a multiplex mode with the row anodes connected to the horizontal drive and the column cathodes connected to the vertical drive. They contain the display driver circuitry, which generates the multiplexing signals for illuminating the LEDs.

Data enters the display board from the Logic on 14-way screened ribbon cables with IDC connectors. The boards require a 7.5 Volt and 5V power input and 14-way data/control input/output connections.

The display boards are fixed to stand-offs attached to the display housing using 4 off M3 screws.

## 2.2. Logic Board, PCB2000

The Logic 2000 PCB Board is the principal circuit board in the display and controls the information shown on the displays. The board contains the CPU (16 bit Motorola 68HC912B32), memory (32K RAM, 32K ROM) and interface circuitry for the display system.



*Figure 2.1 - Logic Board 2000 Configuration.*

The display data and control signals are sent to the LED display boards using a 14-way ribbon cable that is connected to underside of the logic.

5V DC and GND supply for the board is connected at J20.

The RS485 signal wires are terminated by way of screw terminal connectors at the RS485 Port, J1.

There are three logic boards installed in the display. They control the various sections of the display as shown below.

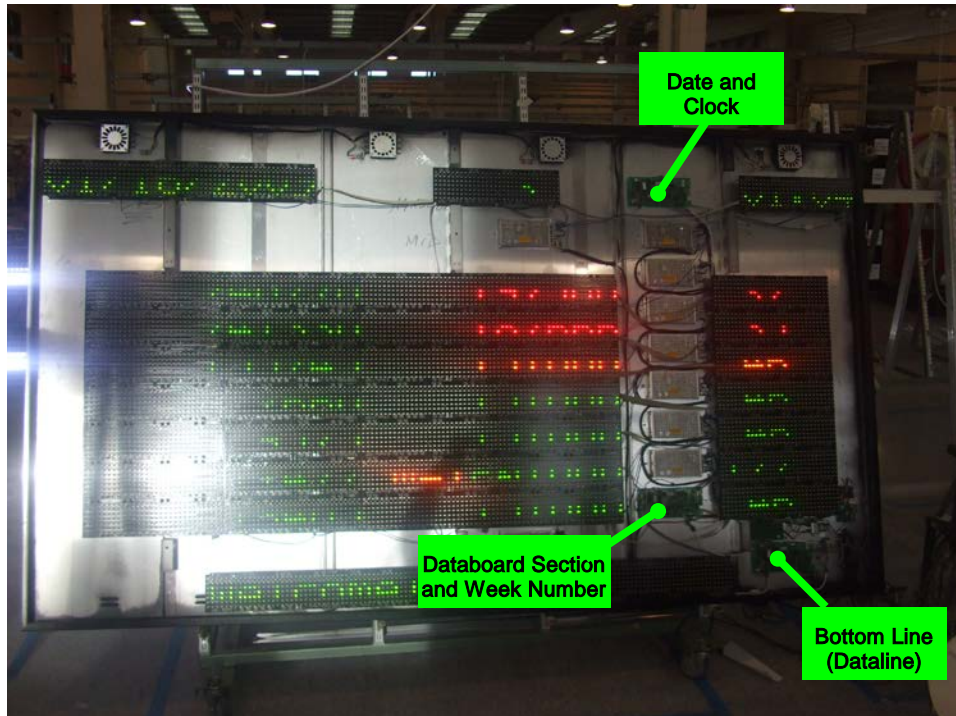


Figure 2.2 - Logic Board Layout.

### 2.3. Parallel Interface

The parallel interface board is used to detect level changes and cause appropriate responses from the display. The board has 8 inputs that can be used independently or in any combination. For this application, inputs JL1 to JL7 are used for incrementing the actual values on the databoard section, lines 1 to 7 respectively.

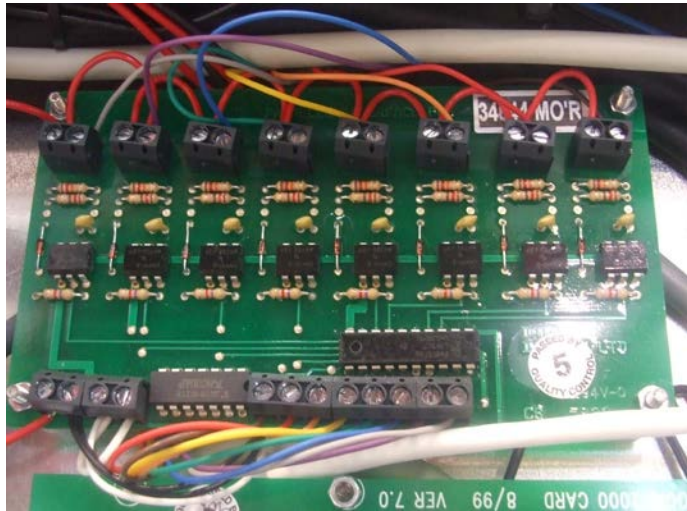


Figure 2.3 – Parallel Interface Board.

DB-15 Pin	Wire Color	Function
1	Brown	Increments the top line
2	Red	Increments line 2
3	Yellow	Increments line 3
4	Orange	Increments line 4
5	Green	Increments line 5
6	Blue	Increments line 6
7	Violet	Increments the bottom line
-	-	-
15	Black	Ground

Table 2.1 - DB-15 Pin Outs.

## 2.4. Serial Converter Board, PAS206

This board provides the IP enabling of the display by way of the Digi Connect ME embedded device server. An RJ-45 socket (SK1) is provided to connect with the management system using Ethernet cable. The Ethernet signals are filtered and high voltage transient suppression is provided prior to entering the Digi Connect ME device. The RS485 interface of the Digi Connect ME device is converted to RS485 differential signals for connection to the display Controller (PAS145-PL19). This board also provides for diode OR'ing of supplies and SmartFET control of the displays 15V supply.



*Figure 2.4 – Serial Interface Board.*

### 3. Electrical

#### 3.1. Description

The display operates from a mains power supply of 120V AC. The 3-core mains power cable is routed through a gland at the bottom left rear of the display.

The AC power is converted to DC power by 7.5 and 5V DC power supply units (PSU) mounted on the display housing.

The LIVE and NEUTRAL conductors are connected to the power supply units (PSU) via a 10 Amp fuse (LIVE) and filter as shown in the figure below.

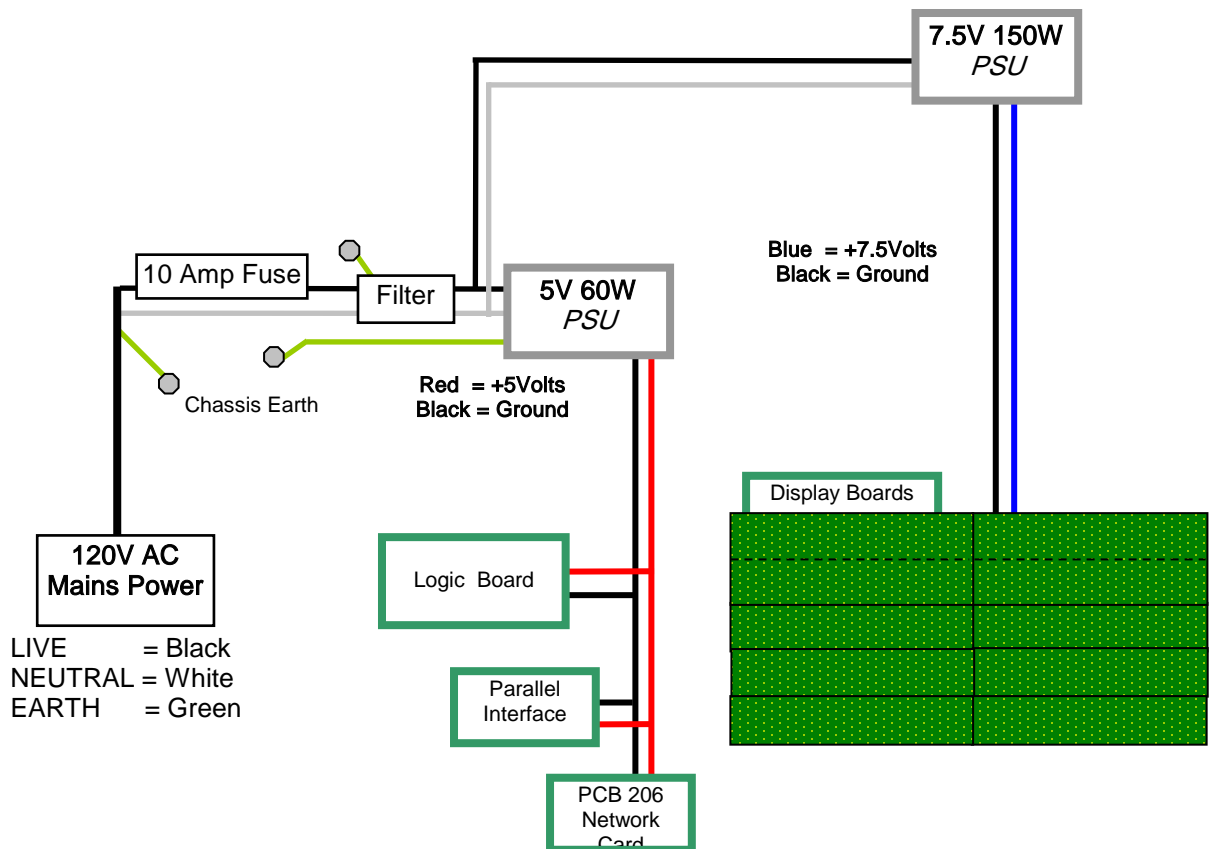


Figure 3.1 – Power Supply Block Diagram.

The AC power is converted to DC power by 5 off 5V 150W PSUs.



### 3.2. 5V DC Power Supply Units

DC power for the displays is taken from 7 off 7.5V 150 Watt PSUs and a single 5V 60 Watt PSU.

The 7.5V PSU provides the 7.5V DC supply to all the display boards. These PSUs have the following features:

- International AC input range (115/230V) with selector switch
- Built in filter
- low ripple noise
- high efficiency
- short circuit protection
- overload protection
- over voltage protection

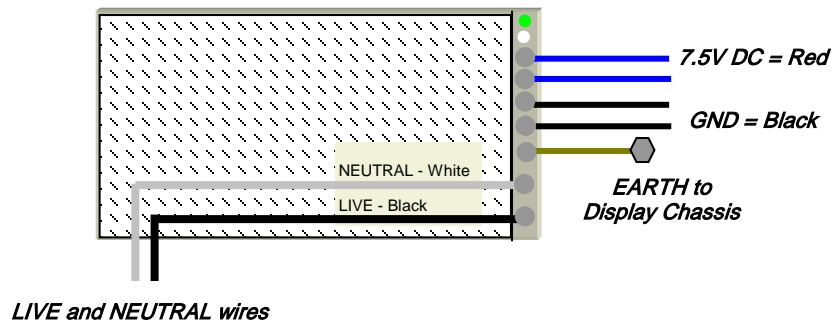


Figure 3.2 – Typical 7.5 Volt PSU Wiring.

The mains cables have crimp receptacles and are connected to the relevant LIVE, NEUTRAL and EARTH inputs on the screw terminal barrier strip.

The 5V 60W PSU provides the 5V DC supply to the logic board, the parallel interface and the network card.

## 4. Installation

There are three main tasks when installing a new display:

1. Mounting the display.
2. Provision of mains power to the display.
3. Provision of COMMs cabling.

### 4.1. Precautions

#### **WARNINGS**

Before undertaking the above tasks, note the following:

1. Displays are powered from a mains power supply of 120V AC. Before carrying out any installation work involving 120V AC mains, make sure that all connection points are dead, i.e. isolated from the source of the mains power supply. Verify the points to be worked on are dead by using appropriate test equipment.
2. All installation personnel must be familiar with good manual lifting practice. Appropriate safety measures shall be enforced while work is carried out and in particular special precautions taken when working from ladders and/or scaffold platforms. Lifting equipment must be used to position the display just prior to fixing into position at the site or if the displays are to be moved over long distances.

#### **REGULATIONS**

All personnel involved in carrying out the work must be aware of any site working regulations for the contract and must have certification for any formal training required.

Before you do any installation or maintenance task, make sure that the following safe working practices are adhered to:

- Only allow qualified personnel to do maintenance tasks
- Provide sufficient illumination for the task, especially during non-daylight hours
- Wear personal protective equipment relevant to the maintenance task
- Use insulated tools and equipment when working near or with energized parts
- Take measures to avoid inadvertent contact of conductive materials or equipment with energized parts of the display
- Take measures to establish safe working distances from energized parts

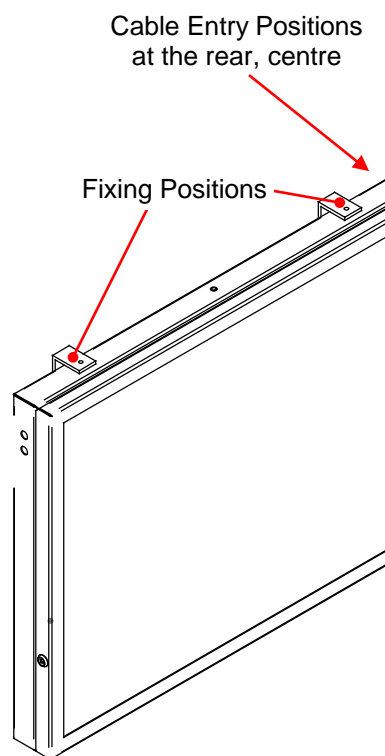


## 4.2. Mounting the Display

Type 3 brackets are supplied for the purpose of mounting some display.

Carefully mark out the 3 hole positions for each bracket and attach the brackets to the customers mounting structure. These centres must correspond with the nutserts on top and bottom of the display. Position the display to the brackets and secure at top and bottom with M10 bolts and washers.

Care should be taken so as not to damage the electronic assemblies inside the display. Also, make sure there is ample room for the routing of the mains and serial cables at the rear.



*Figure 4.1 – Location of Nutserts for Mounting and Cable Glands.*

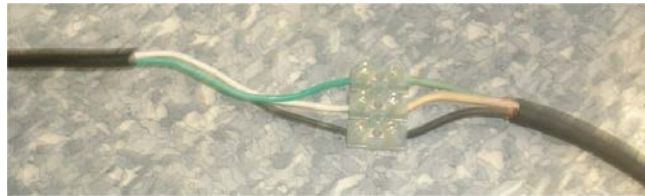
### 4.3. Mains Power Requirements and Connections

An external 120V AC single phase supply is required to power the display. The customer supplies the mains or equivalent supply cable.

**Important cable stripping note** - Only strip back enough of the mains cable sheath and braid to allow the break out of the wires for connection.

Where applicable, the three wires from the display mains cable are stripped and should be connected as shown below, i.e. Black to Black, White to White and Green to Green to the customer furnished power cable.

Attach LIVE wire (Black) to LIVE  
Attach NEUTRAL wire (White) to NEUTRAL  
Attach EARTH wire (Green) to Earth



*Figure 4.2 – External Mains Connections.*

The LIVE and NEUTRAL conductors are connected to the PSUs inside the display via a 10 Amp fuse and filter. The EARTH is connected to an earth stud on the display housing.

A suitable tester should be used to verify that the mains cabling is connected correctly between local 120V AC mains power outlet and the display.

#### 4.4. IP to RS485 COMMs Wiring

The customer supplies the external Ethernet communications network and cabling.

The display also requires an IP Address which allows the display to be connected a vacant node on the LAN with a CAT 5 type Ethernet cable. This should be obtained from your network administrator.

The Ethernet cable is routed through the cable gland and connected to the RJ45 socket on the PCB206 Card. The PCB206 Card converts the data from Ethernet to RS485. The data is then transferred to the RS485 channel of the Logic Board, J1.

COMMS			
Signal Name	Pin Number at PL2 of PAS206	Pin Number at J1 of Logic Board	Wire Colour in Display
RX+	Pin 1	Pin 2	Red
RX-	Pin 2	Pin 1	Black
GND	N/C	-	Black
TX+	Pin 3	Pin 5	White
TX-	Pin 4	Pin 4	Black

*Table 4.1 – RS485 Serial Wiring.*

## 5. Fault Finding and Diagnostics

### 5.1. Description

Faults may be broken down into 3 categories, Hardware, Communication and Power. Possible faults include:

- Flickering or blank Display Boards, (Hardware, Comms or Power)
- Spurious Information, (Comms)
- Power Supply Failure, (Power)
- Defective PCBs, (Hardware)
- Defective Cables, (Hardware)

The following test and repair equipment is recommended: Basic Toolkit, Digital Multimeter, Soldering Iron and spare cables.

**NOTE:** When the display is opened, check that all data cables are routed correctly and all connectors are attached securely on display boards and PCBs.

Reported Fault	Action
LED Fault	<p>Check if all or part of the display is faulty. If only part of the display is faulty, the display board can be located for replacement. Before replacing the display board, check that DC power to the display board is +7.5V (Blue) and +5V (Red) and that data cables are not faulty or loose.</p> <p>If power and data cables are not faulty, power down the display and replace the defective display board. Power up the display and check that the fault has been rectified. If the full display is faulty, check the PSUs.</p>
Power Supply Failure	<p>Firstly, check that the external power supply has not been disconnected or the fuse has not blown. Replace the fuse if it is blown.</p> <p>PSUs convert the AC power (Inputs) to DC power (Outputs) within the displays. Check for mains power (120V AC) at the Live and Neutral inputs on the PSUs. If the mains input is correct, check the PSU DC outputs.</p> <p>If there is no +V DC output, power down the display and replace the defective PSU. Power up the display and check that the fault has been rectified. If not, check for mains power (120V AC) at the Live and Neutral inputs and outputs on the Filter. If defective, replace the filter.</p>
Total Display Failure	<ol style="list-style-type: none"> <li>1. Check that there is no Power Supply Fault as above.</li> <li>2. If all PSU inputs and outputs are correct, check that all serial cables are connected correctly.</li> <li>3. If the Display is receiving messages and responding but incorrect messages or garbled information is appearing on the display, change the logic board to rectify the fault.</li> <li>4. If the problem has still not been rectified, please contact the Technical Support Dept. Refer to Section 5.2.</li> </ol>

**Table 5.1 – Fault Finding.**

## **5.2. Technical Support**

For technical support and spare parts, contact your nearest Data Display Customer Service Department.

***Data Display USA***

*5004 Veterans Memorial Hwy.*

*Holbrook, N.Y. 11741*

*Tel#: (631)218-2130 x 23*

*Fax #: (631)218-2140*

*E-mail: Techsupport@ddusa.com*

Make sure to quote the Serial No. of the display.

## 6. Line Replaceable Units, Removal and Installation

### 6.1. Line Replaceable Units

The following is a list of line replaceable units (LRU) contained in the display.

REF.	DESCRIPTION	PART NO.	QTY
MF1	Filter, 10A, 2 stage	D00-1670	1
PSU 7.5V	Power Supply Unit, 100W, 7.5V	D00-2221	7
PSU 5V	Power Supply Unit, 60W, 5V	D00-2219	1
-	Display Board, PCB, Green	DL405NSMC-G	22
-	Display Board, PCB, Red and Green	DL405NSMC-RG	21
PCB2000	Logic Board	AUTOPCB2000	3
PI	Parallel Interface Board	AUTOPCBP/I	1
PCB206	Network Card	PCB206	1
-	Fuse, 10 Amp	D00-3324	1

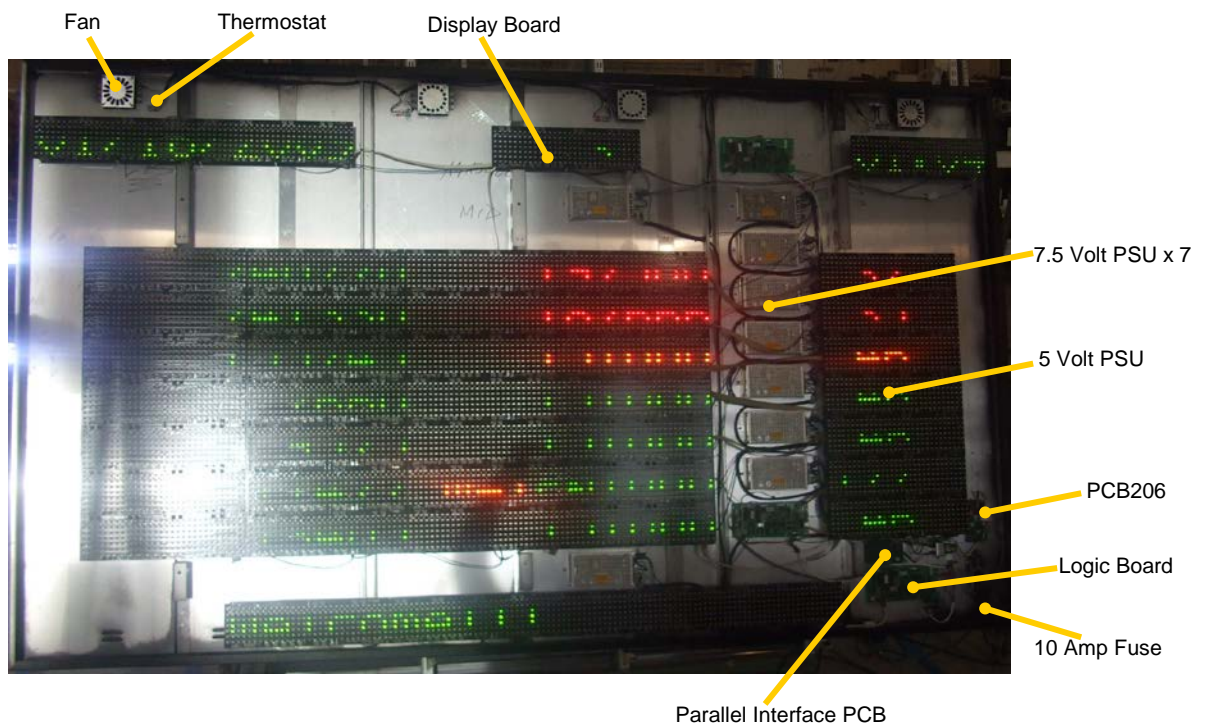


Figure 6.1 – Location of Parts.

## 6.2. Removal and Installation Instructions

When removing and installing components, do the following steps:

1. Disconnect the mains power supply to the display.  
**WARNING:** After isolating power from the display, wait at least one minute before performing the next step.
2. Unscrew the screws that attach the right-hand side profile. Remove the profile.
3. Slide out the lens and place on a clean level surface.
4. **Retain all hardware removed from the display and keep in a safe place.**

### 6.2.1. Removing a PSU

- a) Refer to **6.2.** and do steps 1 to 4
- b) Make sure that there is no mains power at the LIVE terminal on the Filter using a DMM.
- c) Locate the PSU to be removed and remove the clear plastic cover from the terminals, if necessary.
- d) Disconnect the crimp terminals and make note of their locations.
- e) Unscrew the screws holding the PSU to the display chassis and remove the PSU. Retain all screws for further use.
- f) Some PSUs may be mounted on plates. Remove the nuts and washers holding the plates to the display chassis.
- g) Unscrew the screws holding the PSU to the plate.
- h) Retain all screws, washers and nuts for further use.

### 6.2.2. Installing a PSU

- a) Spread a layer of Heat Sink Compound over the rear of the PSU. Fit the new PSU to the display chassis or plate using the screws and washers retained during removal.
- b) Connect the crimp terminals.
- c) Replace the clear cover over the terminals, if necessary.
- d) Connect the mains power to the display at the external isolator.
- e) Check the DC output of the PSU.
- f) Test the display.
- g) Clean the display after all tests are complete and fill in the maintenance report, if required.

### 6.2.3. Removing a Logic Board

- a) Refer to **6.2.** and do steps 1 to 4
- b) Make sure that there is no mains power at the LIVE terminal on the Filter using a DMM.
- c) Locate the logic board and disconnect all plugs/sockets and screw terminals. Carefully note their locations for reconnection.
- d) Remove the fasteners securing the logic board to the display chassis.
- e) Remove the board.

### 6.2.4. Installing a Logic Board

- a) Fit the new logic board securing it to the display chassis with the nuts and washers retained during removal
- b) Check all switches and links on the new board are set to the same as the defective board that was removed.
- c) Connect all plugs/sockets and screw terminals in the correct locations.
- d) Connect the mains power to the display at the external isolator.
- e) Test the display.
- f) Clean the display after all tests are complete and fill in the maintenance report, if required.



### 6.2.5. Removing a Display Board

- a) Refer to **6.2.** and do steps 1 to 4
- b) Make sure that there is no mains power at the LIVE terminal on the Filter using a DMM.
- c) Locate the faulty display board.
- d) Remove the screws that attach the display board and retain for installation.
- e) Disconnect the data and power connectors from the board and note their locations.
- f) Remove the display board.

### 6.2.6. Installing a Display Board

- a) Connect the data and power connectors in their correct locations on the new display Board.
- b) Attach the board with the screws retained during removal.
- c) Connect the mains power to the display at the external isolator.
- d) Test the display.
- e) Clean the display after all tests are complete and fill in the maintenance report, if required.

### 6.2.7. Removing a Serial Converter Board, PAS206

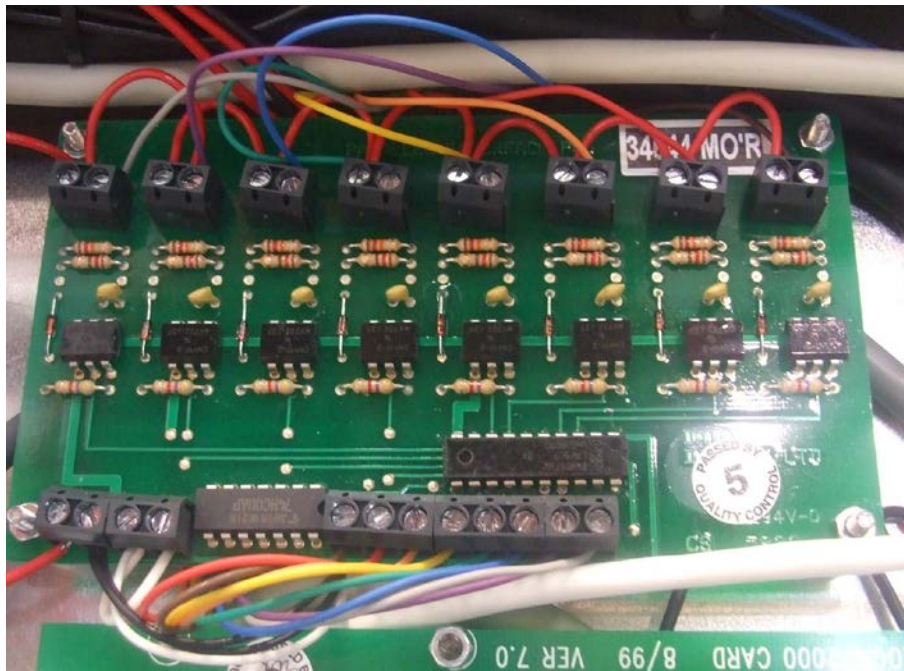
- a) Refer to **6.2.** and do steps 1 to 4.
- b) Make sure that there is no mains power at the LIVE terminal on the Filter using a DMM.
- c) Locate the faulty PCB206 Board.
- d) Disconnect the DC and Serial connectors. Disconnect the Ethernet cable.
- e) Remove the short CAT 5 cable and connect it on the replacement PCB.
- f) Unscrew the fasteners that attach the PAS206 and remove the Board.

### 6.2.8. Installing a Serial Converter Board, PAS206

- a) Attach the new PCB206 to the housing using the nuts and washers retained during removal.
- b) Connect the DC and Serial connectors. Connect the Ethernet cable.
- c) Connect the mains power to the display at the external isolator.
- d) Test the display.
- e) Clean the display after all tests are complete and fill in the maintenance report, if required.

### 6.2.9. Removing a Parallel Interface

- a) Make sure that there is no mains power at the LIVE terminal on the filter using a DMM.
- b) Locate the parallel interface.
- c) Before disconnecting the wires, identify each wire to ensure it is replaced in the same position on the replacement board.
- d) Remove the board.

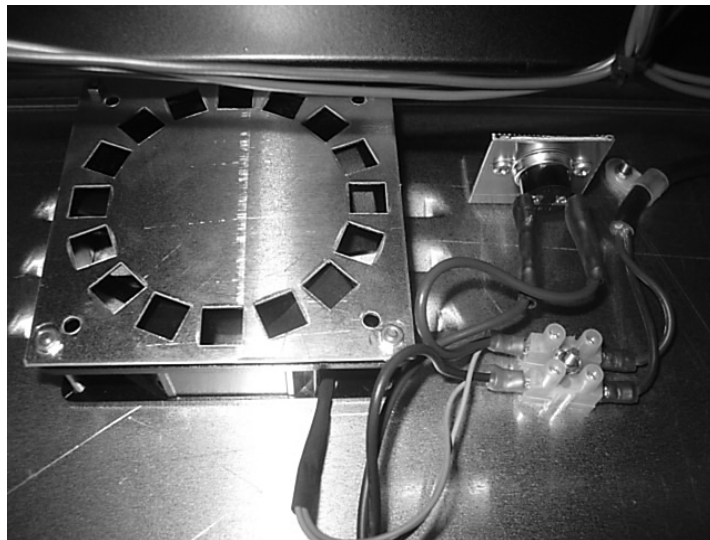


### 6.2.10. Installing a Parallel Interface

- a) Attach the new board.
- b) Connect the wires previously removed. Make sure each wire is replaced in the same position as the original board.
- c) Connect the mains power to the display at the external isolator.
- d) Test the display.
- e) Clean and lock the display after all tests are complete and fill in the maintenance report, if required.

### 6.2.11. Removing a Fan

- a) Make sure that there is no mains power at the LIVE terminal on the filter using a DMM.
- b) Remove the bracket from the chassis.
- c) Remove the faulty fan from the bracket.



### 6.2.12. Installing a Fan

- a) Attach the new fan to the Bracket.
- b) Attach the bracket to the chassis.
- c) Connect the mains power to the display at the external isolator.
- d) Use a heat-gun to increase the temperature above the ambient temperature near the thermostat and observe the fan turning.
- e) Clean and lock the display after all tests are complete and fill in the maintenance report, if required.

### 6.2.13. Removing a Mains Filter

- a) Refer to **6.2.** and do steps 1 to 4.
- b) Make sure that there is no mains power at the LIVE terminal on the filter using a DMM.
- c) Disconnect the crimp terminals noting the locations. Leave the EARTH terminal until last.
- d) Unscrew the securing nuts holding the mains filter to the case and remove the filter. Retain all nuts and washers for further use.

### 6.2.14. Installing a Mains Filter

- a) Fit the new mains filter to the housing using the nuts and washers removed previously.
- b) Reconnect the EARTH connection and crimp terminals.
- c) Connect the mains power to the display at the external isolator.
- d) Use a DMM to check the LIVE output of the filter.
- e) Test the display.
- f) Clean the display after all tests are complete and fill in the maintenance report, if required.

### 6.2.15. Replacing a Fuse

- a) Twist the cap on the fuse holder and remove the defective fuse.
- b) Replace the fuse and twist the cap back on.

## 7. ProdnSDS Software

The *ProdnSDS* software is a user interactive software package designed to receive and send real time production information to the display board. It contains features such as:

- Changeable Shift and Break Start/Stop times
- Calculates and displays Shift Efficiencies
- Incorporates Message Editor for Dataline

The *ProdnSDS* software package is supplied on CD-ROM. To install the software using Windows 2000/ME/XP etc, do the following steps:

1. Place the CD-ROM in the CD tray and wait for the autorun file to execute
2. Otherwise, click the **Start** button
3. Click on **Settings|Control Panel**
4. Double-click on the **Add/Remove Programs** icon
5. Click on the **Install** button and follow the instructions displayed the on screen.

Add *ProdnSDS* to the Start menu or desktop by creating a short-cut as described in your Windows User Manual.

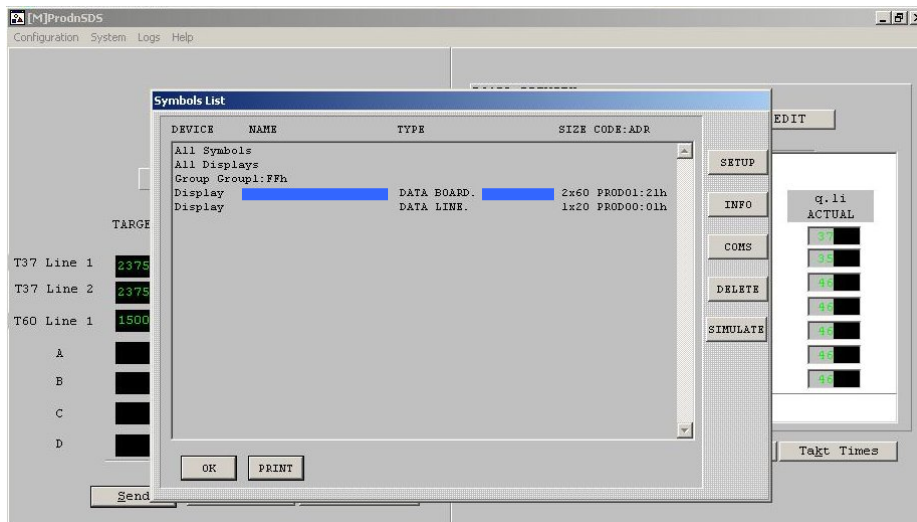
## 7.1. Setting up the Display

A network card, PCB206, is installed in the display board. This device allows the display to be networked similar to a PC or Printer on the Local Area Network (LAN). For this purpose, an IP Address must be assigned and the device must be configured through the software.

**Note:** Consult your Network Administrator and obtain a vacant IP address before doing the following steps.

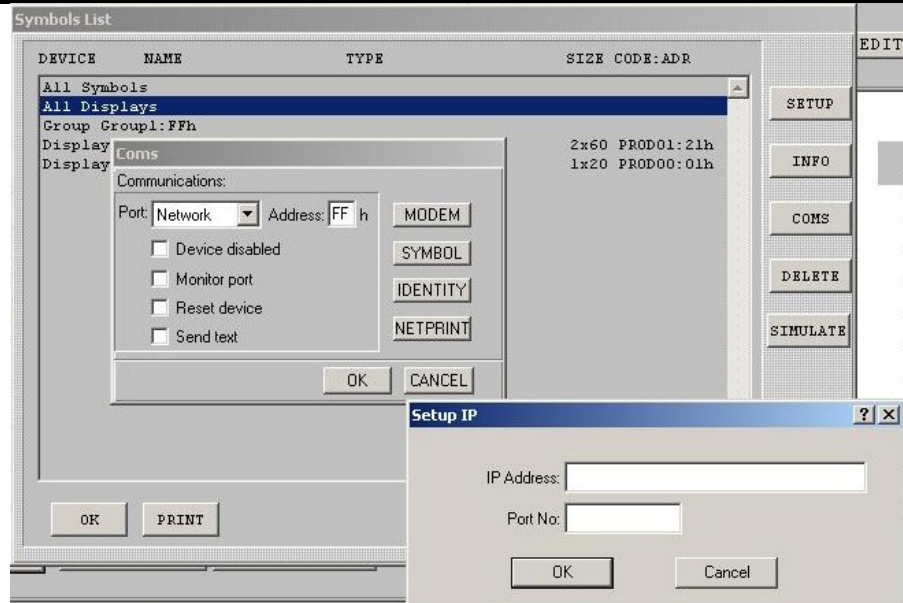
To connect the display to the network, enter the IP address as follows:

1. Run the *ProdnSDS* software
2. Go to *Systems > Symbols*



The *Symbols List* opens and shows the applicable display sections. The IP address must be assigned to both the databoard and dataline sections.

3. Click on the *DATA BOARD* line and click on the *COMS* button.



The *Coms* window opens.

4. Click on the *NETPRINT* button.
5. Enter the IP address provided by your network administrator in the *IP Address* field of the *Setup IP* window.
6. Enter **2001** in the *Port No.* field.
7. Click the OK button to complete.

Repeat the procedures 2 to 7 for the DAT LINE section of the display.

## 7.2. Sending information to the Display

Double-click on the *ProdnSDS* icon to run the program, *ProdnSDS.exe*. The software is password protected. When the Password dialog box appears, do the following:

1. For the *Username*, click on *SERVER* or *DEFAULT*
2. For the *Password*, enter **T-SET** and press the *Enter* key.



The User Interface consists of the Menu Bar, a Display Interface and a Board Preview section. For further information on the commands on the Menu Bar, refer to the SDS User Manual.

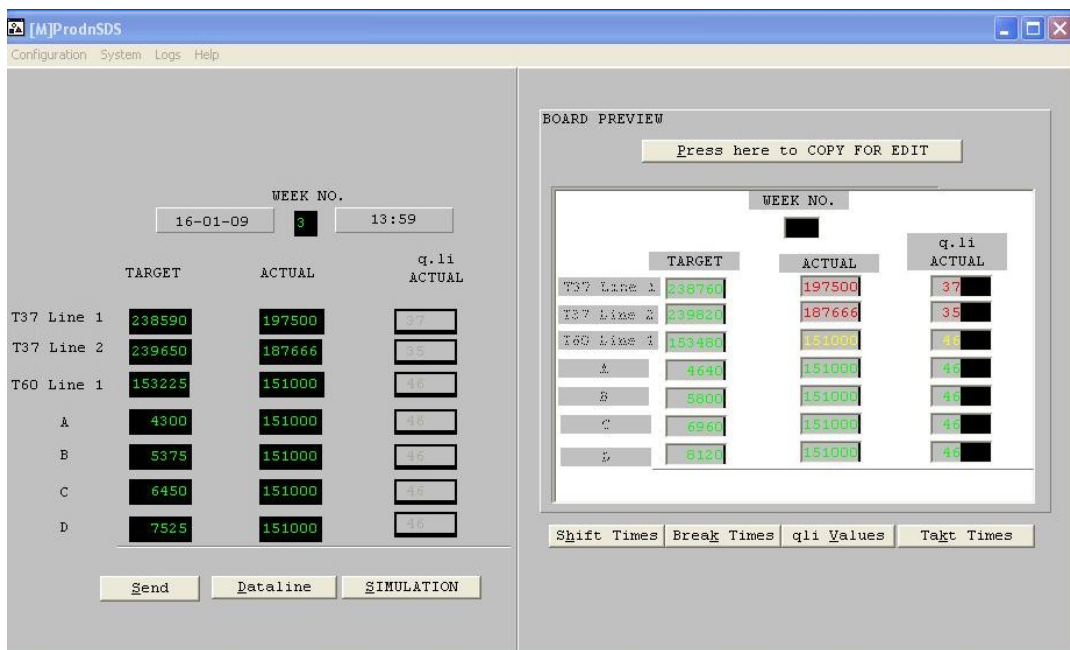


Figure 7.1 – User Interface.



To set the Shift Start and Stop Times, click on the *Shift Times* button. Enter each Shift Start and Stop Time in the appropriate fields. Up to six shift times may be entered.

To set the Break Start and Stop Times, click on the *Break Times* button. Enter each Break Start and Stop Time in the appropriate fields.

The TAKT Time value is set to provide a moving target to which the current production level may be monitored. This is set at the operators discretion and increments the display by 1 for that time period. To set the TAKT Time value and Levels, do the following steps:

1. Click on the '*Takt Times*' button on the User Interface
2. Enter the Takt value, 010 will increment the Display by 1 every ten seconds
3. Click on the '*OK*' button.

Packs Numbers	
Packs /(per)qli	
# 1 = Number 1	5420
# 2 = Number 2	5420
# 3 = Number 3	3389
# 4 = Number 4	3389
# 5 = Number 5	3389
# 6 = Number 6	3389
# 7 = Number 7	3389
Actual %	95
OK Cancel	

This screen shows the Packs/(per)qli formula used to calculate the *Qli Shift* actual.

The percentage for Actual % figure calculates the figure of the Actual relevant to the Target. If this percentage is less than the percentage specified then the Actual values will appear in red. If this percentage is greater than the percentage specified then the Actual values will appear in amber.

Enter new or edit values where applicable.

### 7.3. *Set the Time and Date*

The clock shows the *Time* in a HH:MM format and the *Date* in DD/MM format. These values are taken from the host PC, so make sure the PC is set to the correct time and date. The current *Week No.* is automatically set on the display.

## 7.4. Message Editor

To send text to the 20 character dataline section of the display, click on the 'Dataline' button to open the *Message Editor Interface*.

Enter your text message in the text box and click on the 'SELECT' button. The message is now added to the message list at the bottom.

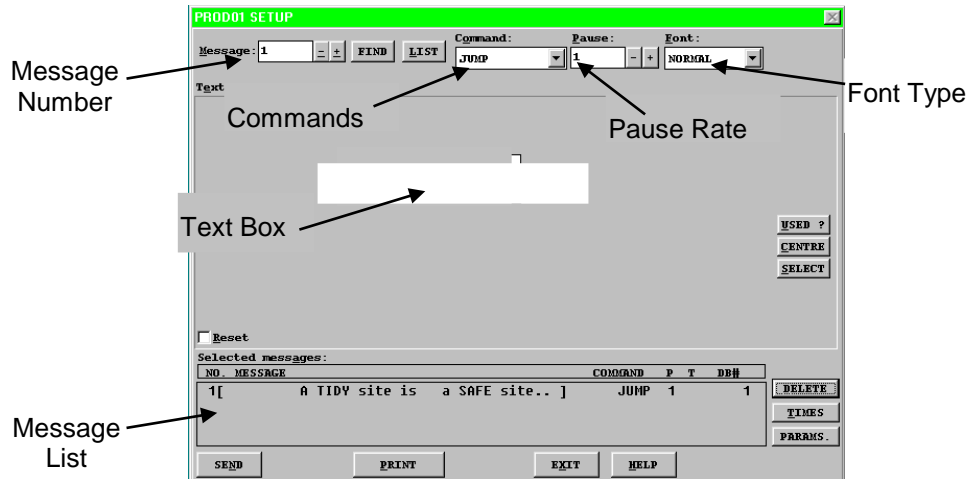


Figure 7.2 – Message Editor.

Click on the 'SEND' button twice to send the new text message to the display

To edit a text message, click the message number (+/-) to show the message in the text box. Make the changes to the text message and click on the 'SEND' button. The changes to the message are shown in the message list. Click on the 'SEND' button again to send the new changes to the display.

Various Commands, Pause Rates and Font Types can be selected from the drop down lists to give your message more effect.

When messages are sent to the display, click on the 'SIMULATION' button to view the text message currently being shown on the display.