

Production Board (CCW Ltd, UK) User Manual

Title Page

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Figure 1.1 – Display Type 1.



Figure 1.2 – Display Type 2.

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1. Introduction

1.1. *Scope*

The scope of this document covers the operation and maintenance of the Production Board Display System for CCW Ltd, UK.

1.2. *Purpose*

The purpose of the document is to provide the relevant information to enable the user to install, operate and maintain the Production Board correctly.

1.3. *System*

The Production system consists of two types of Display Boards that show production data connected to a control PC. All characters on each Display are 50mm high and use high-bright red and multi-colour LED technology. Depending on the efficiency of the production line, the data on the multi-colour boards will be shown in red, amber or green.

The primary function of the Board is to show real time production information obtained from the production line using 24V pulses.

Display Boards consist of two sections:

DATABOARD – this is the TARGET ACTUAL section of the Display that monitors the production output. Values are shown in each of the relevant 6 character fields for the following:

- *Cups / Min*, this is the Actual production amount of cups produced in the previous minute and is incremented by 24V pulses to Pin 1 of the 4 Pin Maplin at the rear of the Display.
- *Shift Total*, the total units produced for current shift or since reset
- *Down Time*, total down time of the production line excluding breaks

DATALINE – this is the 15 character scrolling section at the bottom of the Display and is used to show general information such as company notices, safety messages etc.

The Board is operated over a RS232/RS485 serial network using *ProdnSDS*, a windows based software package.

2. Installation

2.1. Unpacking

Carefully remove the items from their package and store the packaging safely. After unpacking, inspect the contents for any damage that may have occurred during shipment.

2.2. Hardware

The Display Board(s) should be located in a position where there is unrestricted viewing of the front face of the Board. Also locations where the Board is subject to bright lights or direct sunlight should be avoided. Mount the Board securely and connect the cables as shown in the figure below.

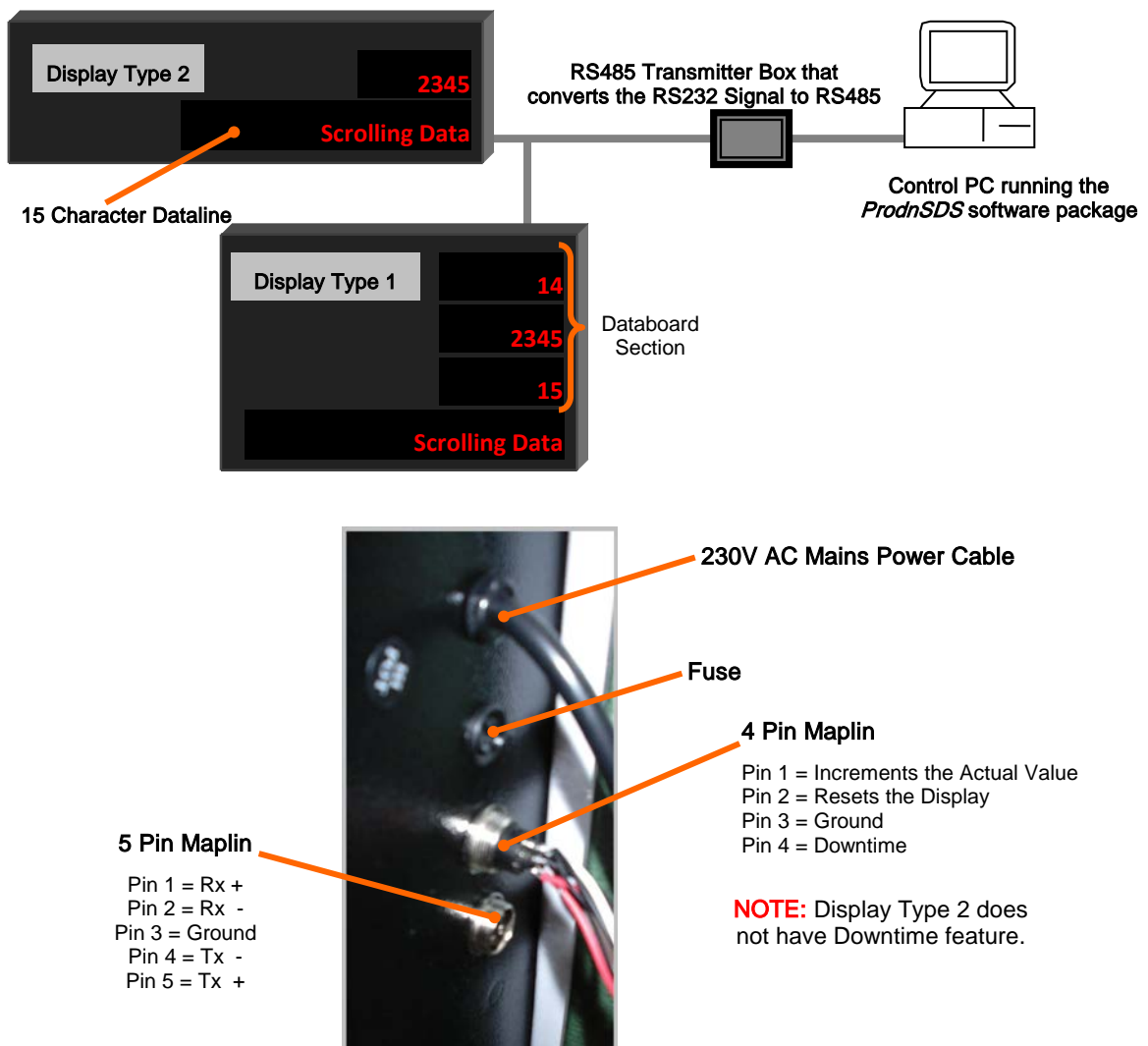


Figure 2.2 – System Configuration with Rear Connections.

2.3. Software

The *ProdnSDS* software package is contained in the installation file, *ProductionUpg.exe*. To install the software, do the following steps:

1. Place the *ProductionUpg.exe* file on your desktop.
2. Double-click on the *ProductionUpg.exe*.
3. Click on the **Next >** button to begin the installation and follow the on-screen instructions. Click the **Yes** button for destination directory/folder.

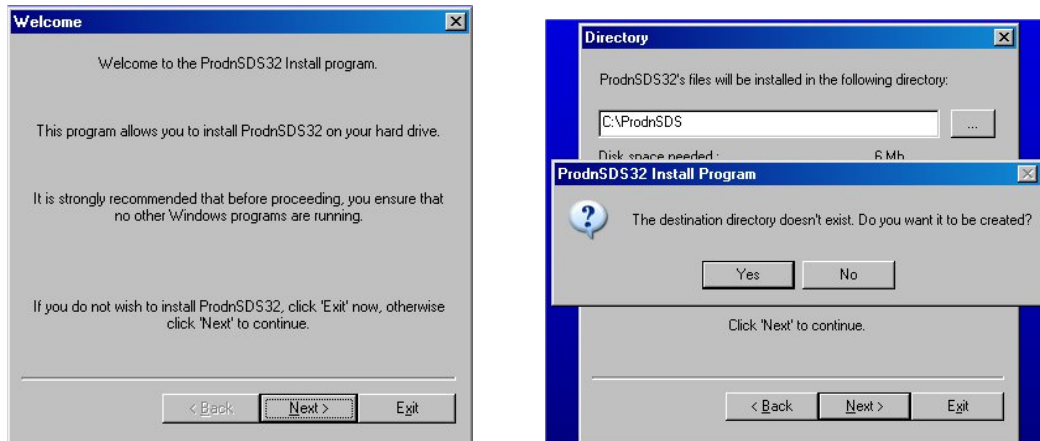


Figure 2.2 – Installation Screen.

4. When the process is complete, all files are stored in the *C:\ProdnSDS* folder unless the destination folder has been changed.

Add *ProdnSDS* to the Start menu or your Desktop by creating a short-cut as described in your Windows User Manual. The executable file to run the software package is *ProdnSDS.exe* and should be located in *C:\ProdnSDS* directory.

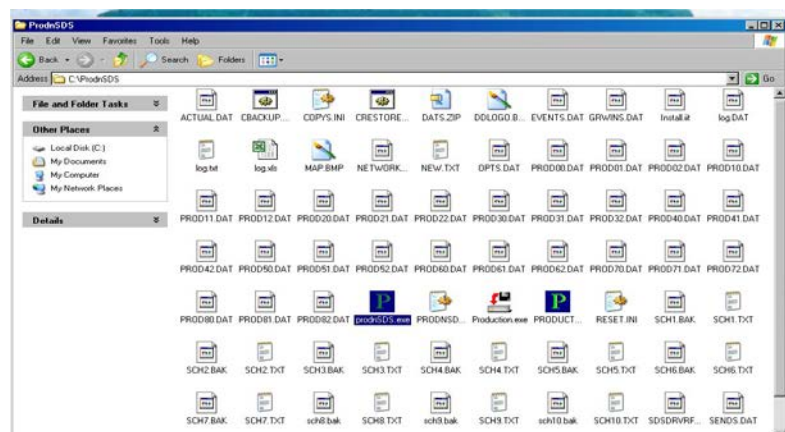


Figure 2.3 – C:\ProdnSDS Folder Files.

3. ProdnSDS Software

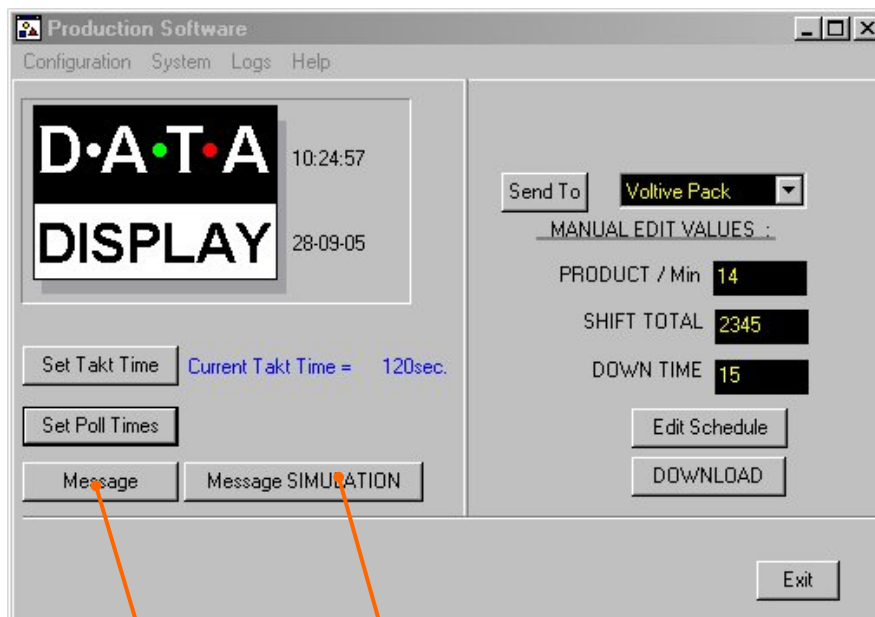
ProdnSDS software is a user interactive software package designed to send and receive real time production information to the Display Board. It contains features such as:

- Set Shift, Break and Poll Times
- Manually download production data
- Incorporates a 15 character Message Editor for Dataline

NOTE: The Displays may be reset manually or by entering a reset time in the schedule time list. Refer to section 3.4. It does not reset itself after each shift.

3.1. The User Interface

Double-click on the *ProdnSDS* icon to run the program, *ProdnSDS.exe*. The User Interface consists of the Menu Bar, a layout of the Production Board together with the various buttons and data fields that control the Displays.



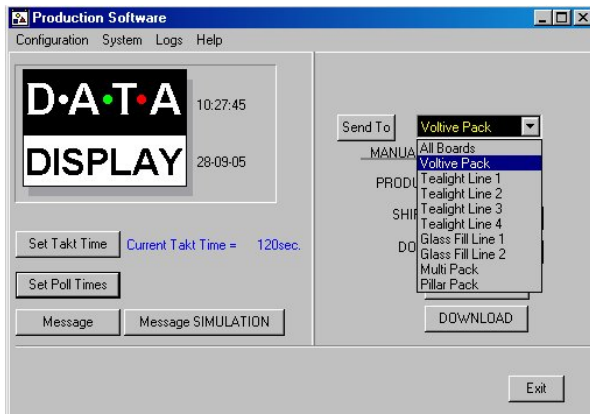
Shows current message on Dataline

Opens the Message Editor for scrolling Dataline

Figure 3.2 - ProdnSDS User Interface.

To operate the Display manually, enter the applicable values in the three fields, *Product / Min*, *SHIFT TOTAL* and *DOWNTIME*. Select the Display from the drop-down list and click on the *Send To* button. Refer to 3.4 for bottom scrolling Dataline field.

NOTE: Do not click the *Send To* button during Poll Times.



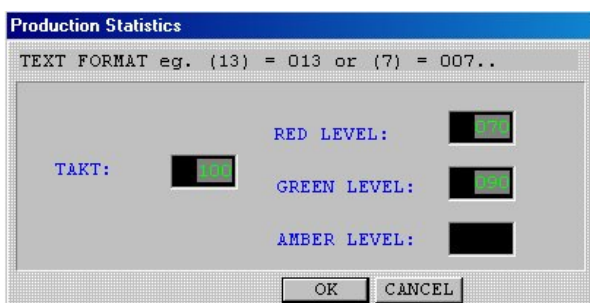
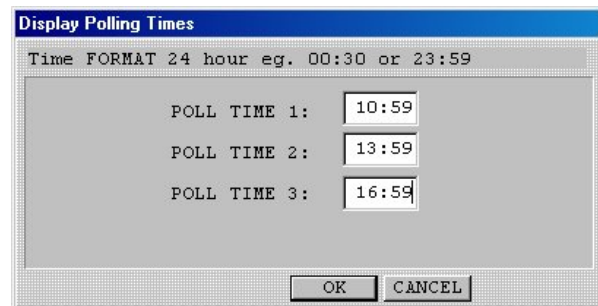
Sending to Displays

To send to an individual Display, click on the down-arrow button to show the list of the Displays available. Click on the required Display name and click the *Send To* button.

Display Poll Times

The user may poll the Displays at specific times of the day to view the current data on each Display. To set the Poll Times, do the following steps:

1. Click on the Display from the drop-down list.
2. Click on the *Set Poll Times* button on the User Interface.
3. Enter the times in HH:MM, 24 hour format.
4. Click on the *OK* button.
5. Click on the *Send To* button



In the above example, ideally the number of units to be produced per minute is 100, i.e. TAKT value. The Actual value will be shown in green so long as it remains above 90 units per minute. Should the value fall below 90, the values will change to amber and should the fall below 70, the values will change to red.

TAKT Time Settings

The TAKT Time value is set to provide a moving target to which the current production level may be monitored. This value is the amount of units produced per minute. The values are displayed in red, amber or green depending on production efficiency and are set at the operators' discretion. 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, e.g. 100.
3. Click on the *OK* button.

3.2. Exporting Data

As the days production data is being processed, the user can view the days data via a spreadsheet. The data is stored in a text file named *log.txt*, which is located in the *C:\ProdnSDS* folder. This file may be viewed using Notepad.exe or similar text editor and it may also be imported into spreadsheet format, e.g MS Excel.

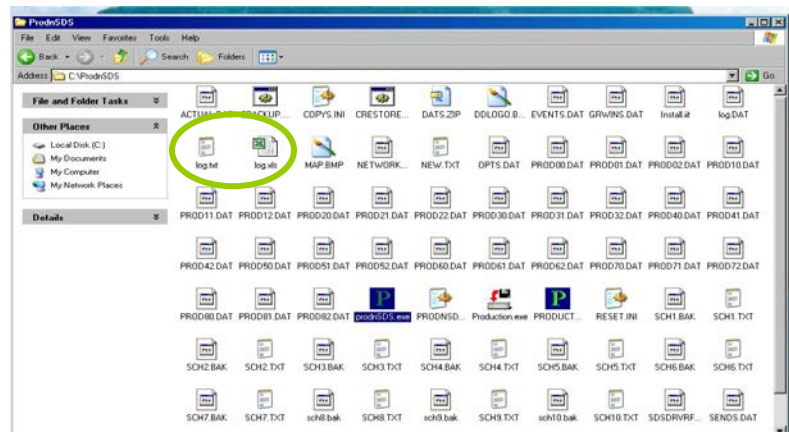


Figure 3.3 – C:\ProdnSDs Folder Files.

To import the file into MS Excel (*MS Excel version 2000*), do the following steps:

1. Open the MS Excel program on your PC.
2. This opens an empty spreadsheet.
3. Click on **Data > Get External Data > Import Text File**.

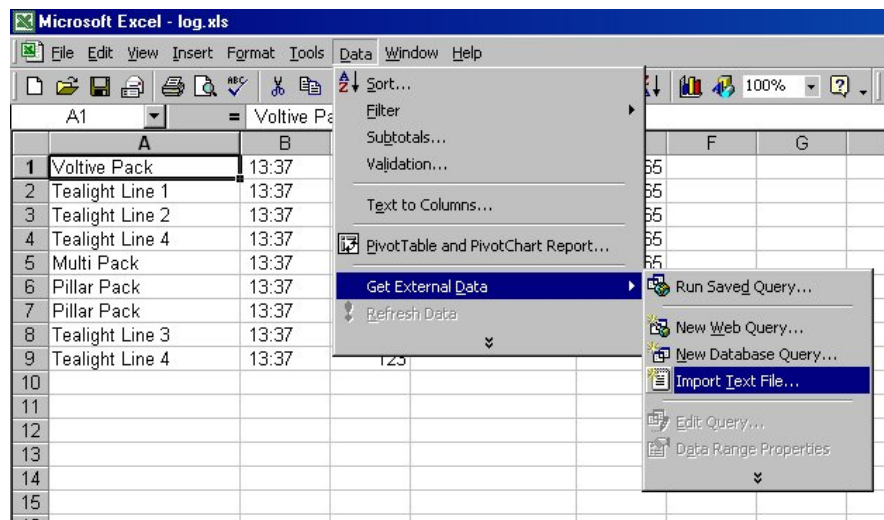


Figure 3.4 – Import Menu Command.

Click on the *log.txt* file, which is located in the *C:\ProdnSDS* folder and follow the on-screen instructions. Use the *Fixed Width* selection.

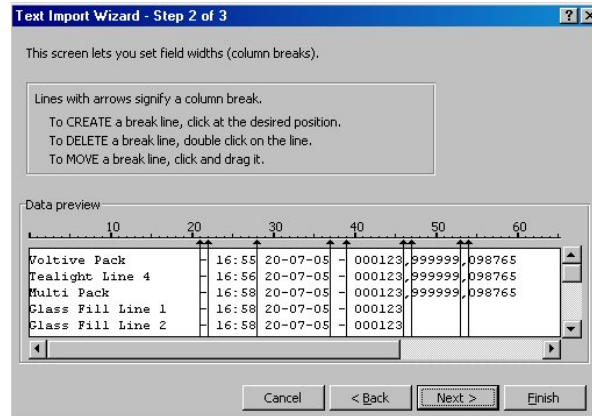


Figure 3.5 – Text Import Wizard.

Add line breaks as shown above and click the *Next >* button. Click the *Finish* button on the next screen.

	A	B	C	D	E	F	G	H	I	J	K
1	Voltive Pack	16:55	20/07/2005	-	123	999999	98765				
2	Tealight Line 4	16:56	20/07/2005	-	123	999999	98765				
3	Multi Pack	16:58	20/07/2005	-	123	999999	98765				
4	Glass Fill Line 1	16:58	20/07/2005	-	123						
5	Glass Fill Line 2	16:58	20/07/2005	-	123						
6	Pillar Pack	16:58	20/07/2005	-	123						
7											
8	Voltive Pack	17:00	20/07/2005	-	123	999999	98765				
9	Tealight Line 1	17:00	20/07/2005	-	123	999999	98765				
10	Tealight Line 2	17:00	20/07/2005	-	123	999999	98765				
11	Tealight Line 3	17:00	20/07/2005	-	123	999999	98765				
12	Tealight Line 4	17:00	20/07/2005	-	123	999999	98765				
13	Glass Fill Line 1	17:00	20/07/2005	-	123	999999	98765				
14	Glass Fill Line 2	17:00	20/07/2005	-	123	999999	98765				
15	Multi Pack	17:00	20/07/2005	-	123	999999	98765				
16	Pillar Pack	17:00	20/07/2005	-	123	999999	98765				
17											
18											

Figure 3.6 – Sample Spreadsheet Data.

The data should now appear in spreadsheet format. Select and delete the rows and columns as required.

3. Click on a line to open the **Schedule Item** window.
4. Enter the start and stop times in 24 hour format with a colon as shown in *Fig. 3.8*.

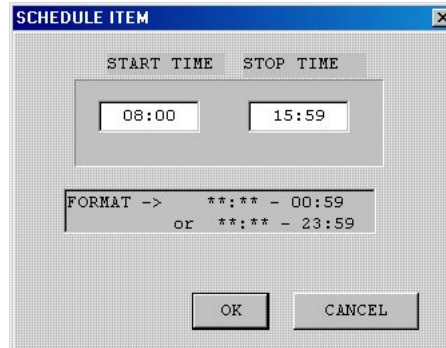


Figure 3.8 - Shift Time Entry.

5. Click on the **OK** button. Enter a Reset time, where applicable.
6. Click on the **DOWNLOAD** button to send the shift times to the Display.

3.5. Copying Similar File Details

Where the shift patterns are similar, click on the **Edit Schedule** button on the User Interface.

Click on the **COPY TIMES TO ANOTHER DAY** button to copy a selected file from one day to another.

To copy times, do the following steps:

1. Select the new day from the **Choose Day of Week Schedule** list.
2. Click on the **Copy Times to Another Day** button.
3. Select the day from the drop down list.
4. Click on the **OK** button. The times are copied to the new day file.
5. Click on the **DOWNLOAD** button to send the shift times to the Display.

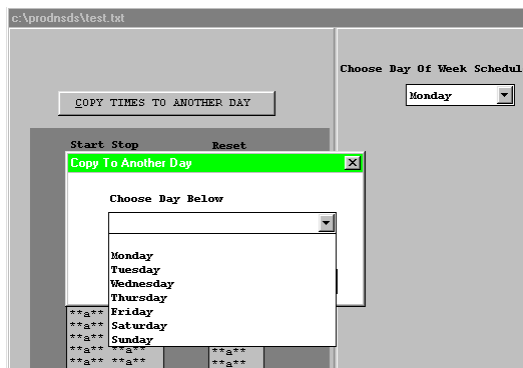


Figure 3.9 - Copying schedule times to another day.

3.6. Message Editor for Dataline

To send text to the 15 character Dataline section of the Display, click on the **Message** 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.

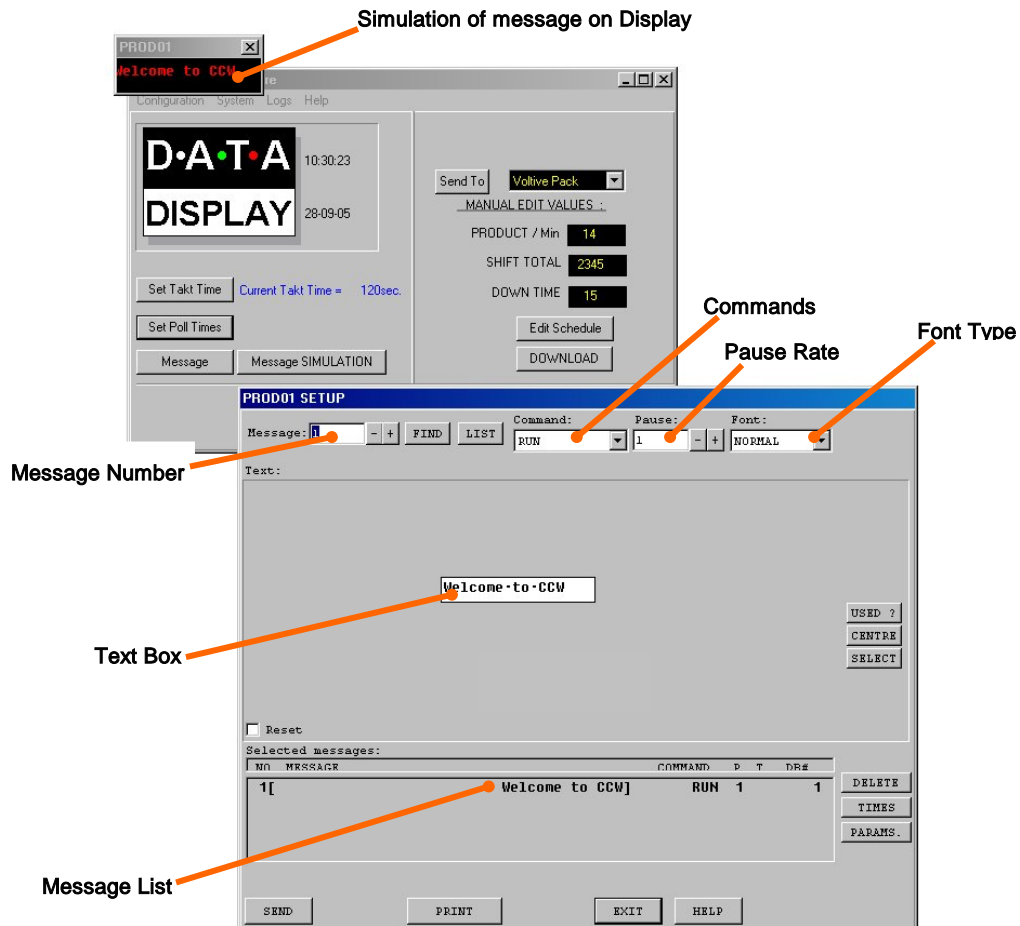


Figure 3.10 – Message Editor

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.

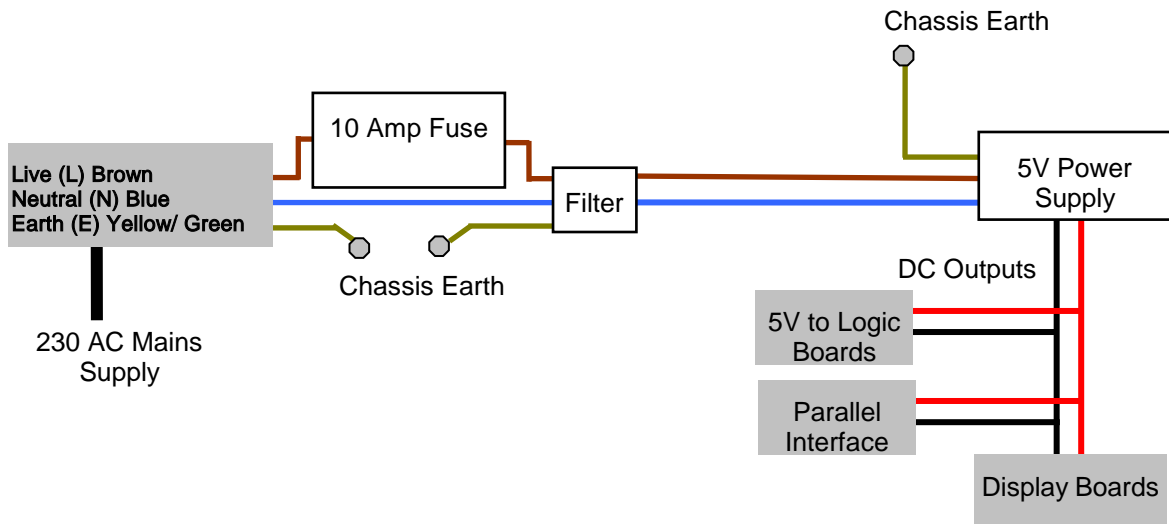
Various Commands, Pause Rates and Font Types can be selected from the drop down lists to give your message more effect.

When messages are sent to the Display, click on the **Message SIMULATION** button to view the text message currently being shown on the Display.

4. System Wiring

4.1. Display Power Block Diagram

The Display operates from an incoming mains supply of 230 Volts AC. The Live (Brown) and Neutral (Blue) wires are terminated at the PSU via a 10 Amp Fuse and Filter. The Earth (Yellow/Green) is terminated using an M5 ring crimp and is securely fixed to the main Earth point on the chassis of the Display.



4.1 - Mains Power Supply Distribution.

4.2. Power Supply Units

Power Supply Units provide the DC power for the various electronic components in the Display Board. The 5V PSU provides DC power to the Display Boards and 5V power for the Logic Board.

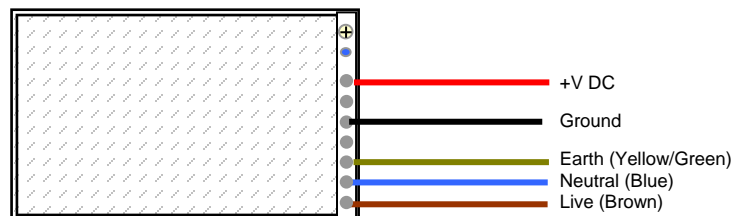


Figure 4.2 – Typical Wiring of a Power Supply Unit.

4.3. Logic Board 2000

The Logic Board is the principal circuit board in the Display. The Board contains the CPU (8 bit Hitachi 6303RP), memory (32K RAM, 32K ROM) and interface circuitry for the Display system. 12V DC power for the Logic is at connector JP17 and the RS485 signal is via connector JP21. The Parallel Interface cable is connected at JP22.

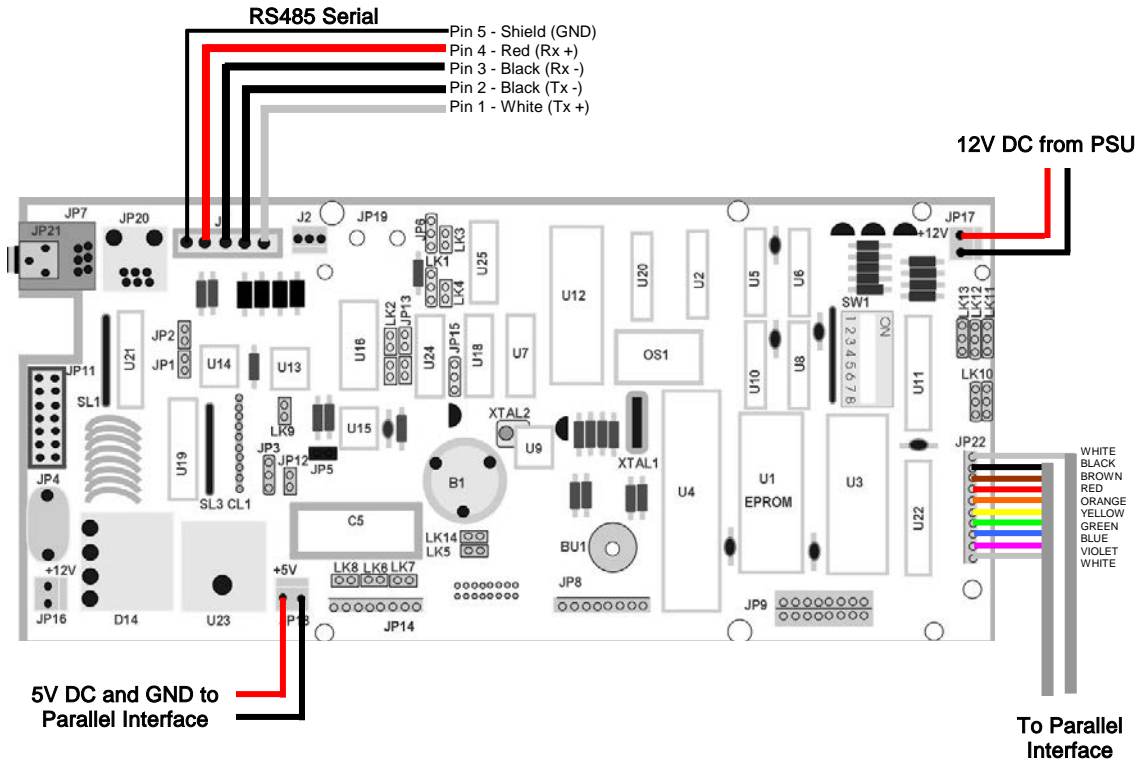


Figure 4.3 – Logic Board.

4.4. Parallel Interface

The Parallel Interface Board is used to detect level changes and cause appropriate responses from the Display. For this application, the inputs at JL1, JL2 and JL3 are used to control the production data on the Display.

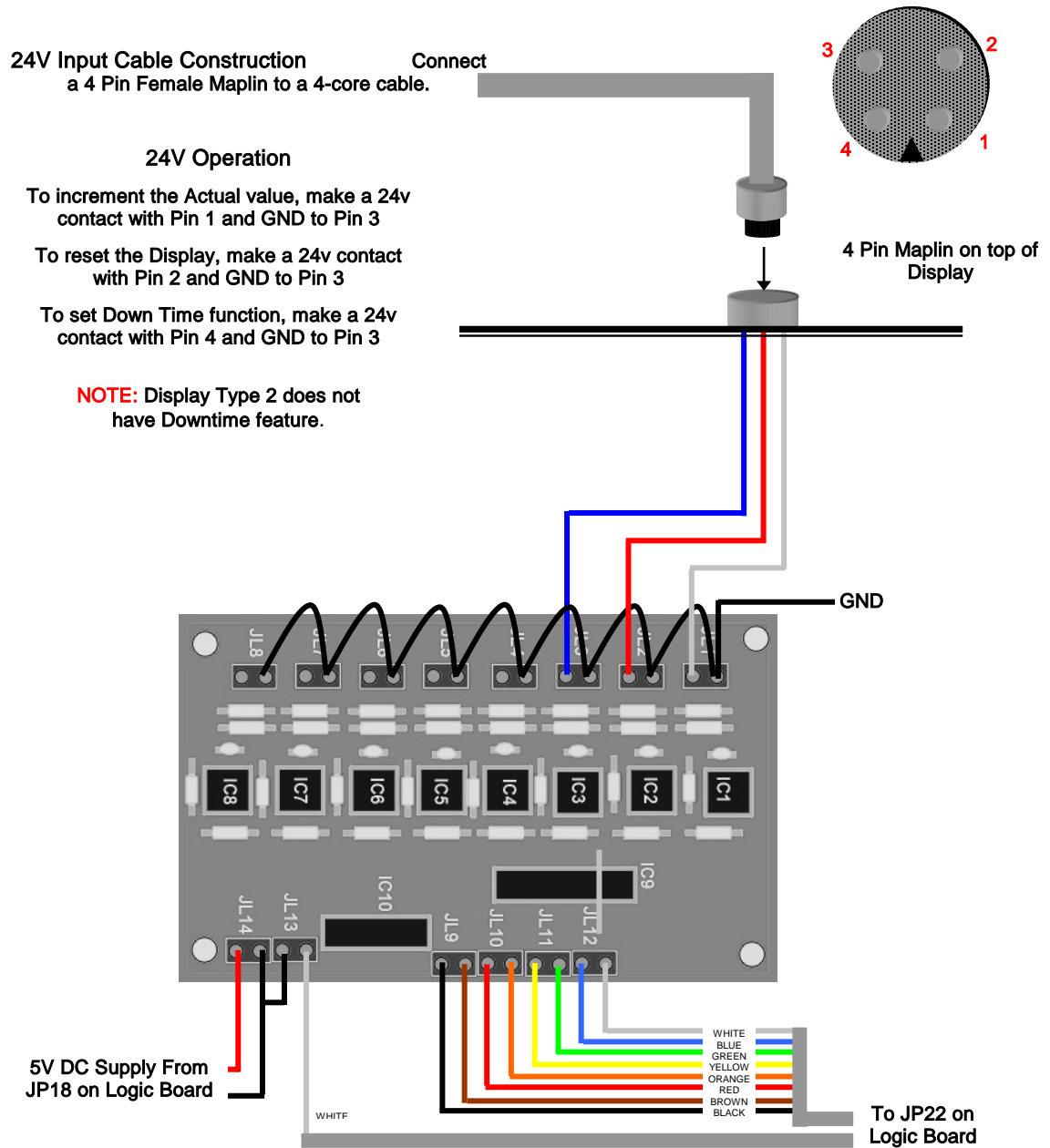


Figure 4.4 - Parallel Interface Wiring.

5. Maintenance

Warning: Disconnect the power supply before you remove any display panels. Make sure work area is clean and clear of tools and miscellaneous items of equipment after maintenance.

5.1. Maintenance Instructions

5.1.1. Preventative Maintenance

Inspect the Display for defects before each operation. Do a visual check for the following:

- Damaged or dirty Lens
- Loose Cables
- Defective LEDs

5.1.2. Cleaning the Display

Routine cleaning of the Display Board is at the discretion of the operator and subject to local conditions. Use damp non-abrasive materials such as a sponge, or lint-free cloth and a soft detergent (washing-up liquid) to clean the Display. Remove difficult stains or marks with a suitable solvent. **DO NOT USE** sharp or metal objects.

5.1.3. Corrective Maintenance

To do maintenance tasks, unscrew the screws at the side of the Display and remove the Side Profile. Remove the Lens carefully and put in a safe place.

Replacing a defective LED Display Board:

1. Unscrew the attaching screws and disconnect all relevant wiring
2. Replace the Display Board and connect all wiring.

Replacing a defective Logic Board:

1. Unscrew the attaching nuts and disconnect all relevant wiring
2. Replace the Logic Board and connect all wiring.

Carefully slide the Lens back on the Display and attach the Side Profile. Clean the Display with a damp cloth and make sure the unit is watertight after all maintenance.

Replacing a defective Fuse:

1. Use a flat-head screwdriver to open the Fuse holder on the Display
2. Replace the Fuse
3. Close the Fuse Holder.

5.1.4. Special Measures following a Stoppage

If the Display is out of service for a long period of time, carefully remove the Display and store it in a cool dry place.

5.2. Handling Equipment

- One working platform
- Standard tool kit

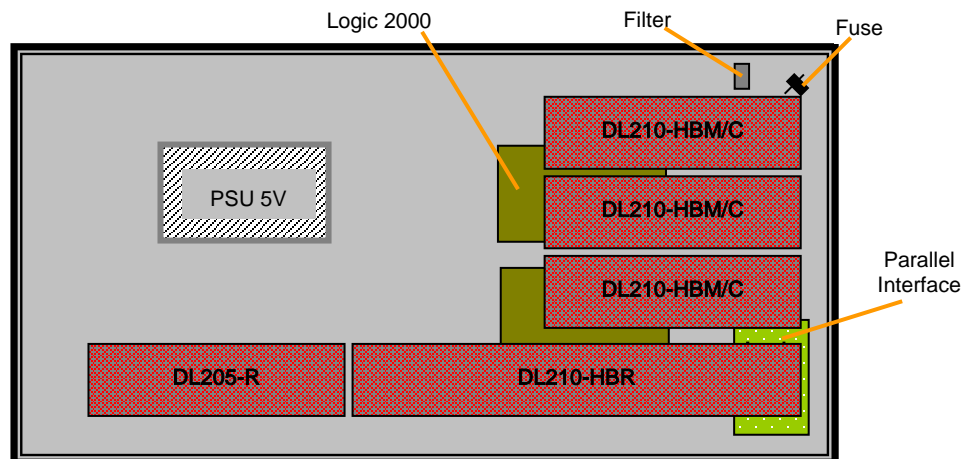
5.3. Special Tools

There are no special tools required.

5.4. Spare Parts

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

Make sure to quote the Data Display No. in the Product Specifications section of this Manual and the Serial No. of the Display.



Part Number	Description
DL205-HBR	LED Display Board, 5 Character, Red
DL210-HBR	LED Display Board, 10 Character, Red,
DL210-HBM/C	LED Display Board, 10 Character, Multicolour, 3 off
AUTOLOGIC2000	Logic Board, 2000, 2 off
AUTOP/I	Parallel Interface
D00-2216	PSU, 5 Volt, 100W
D00-1670	Filter
D00-3324	Fuse, 10 Amp

Table 5.1 - Replaceable Parts for Display Board.

6. Product Specifications

CHARACTERISTIC	VALUE
<i>Display Features</i>	
Display Type	Production Display Board
Data Display No.	J09975001
No. of Lines per Board	Type 1 = 4 Type 2 = 2
No. of Characters per Line	Databoard = 6 Dataline = 15
Character Height	50mm (2 inch)
LED Colour	High-bright Red and Multicolour
<i>Communication</i>	
EPROM	Type 1 = VOTIVE.OBJ, SCROLL15UK.OBJ Type 2 = VOTSMAL.OBJ, SCROLL15UK.OBJ
Baud Rate	9600
Data Format	8 bit, 1 stop bit, no parity
<i>Electrical</i>	
Power	220/240V AC
Fuse Value	10 Amp
<i>Housing</i>	
Dimensions (LxHxD)	Type 1 = 736mm x 440mm x 75mm Type 2 = 736mm x 245mm x 75mm
Weight	Type 1 = 11Kg Type 2 = 7Kg
Housing	Welded Aluminium, Black
Front Screen	3mm Red, Polycarbonate
<i>Environmental Conditions</i>	
Temperature Range	-5°C to 65°C
Humidity Range	5% to 80% without condensation

Table 6.1 - Product Specifications.