



WESTERN SCALE CO. LIMITED

# MODEL WRD2-6 2" SCOREBOARD

Version D - Alphanumeric Display



## OPERATION MANUAL

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## **SECTION 1 - GENERAL INFORMATION**

## 1.1 INTRODUCTION

The purpose of the 2" Scoreboard is to display a weight from a scale indicator. This manual will lead you through all steps required to set up and operate the scoreboard.

## 1.2 FEATURES

- Extra-super bright LEDs.
- Displays weight from any scale string.
- Alphanumeric capabilities ( letters and numbers )
- Kilograms, Pounds, Gross and Net mode indicators.
- Micro controller unit running and data receiving indicators.
- Seven segment digits plus decimal point.
- Two serial baud rates.

## 1.3 GENERAL DESCRIPTION

The WRD2-6 scoreboard is equipped with a number of features that make it possible to extract the weight from almost any string a scale indicator may send out. To guarantee the proper weight is being displayed, the start of the weight within the string and the length of the weight must be set correctly. Keep in mind that if a decimal point is part of the weight, it must be counted to determine the weight length. If a minus sign is present, it will be detected anywhere in the string and is, therefore, not to be included with the weight length. *(See section 'SWITCH SETUP' for more detailed descriptions)*

After Power-Up the WRD2-6 scoreboard will be running in "continuous update mode". Unless serial strings are received continuously, the display will show a row of dashes after about 2 seconds. *(See section 'CONTROL CHARACTERS')*

The WRD6-2 scoreboard has four indicators visible from outside the box. If the serial string contained a letter "K", the **kg** indicator will light up. A letter 'L' in the serial string will activate the **lb** indicator. If either one of the units indicators is lit up, then the weighing mode is also indicated. The **net** indicator will be on, if the serial string contained an "N". If no "N" was in the serial string, then the **gross** indicator will be lit up. If neither a "K" nor an "L" were in the serial string, then both **net** and **gross** indicator will also remain dark. *(See section 'CONTROL CHARACTERS')*

Two more indicators are located inside the box. MCU RUN always flashes, showing that the microcontroller unit is running. The RCV DTA indicator flashes every time a serial string is received.

## 1.4 COMPONENTS

The 2" Scoreboard consists of the following components:

- Scoreboard circuit board with enclosure.
- 9VDC power supply.
- 4 spacing washers.
- 2 #8 wood screws.

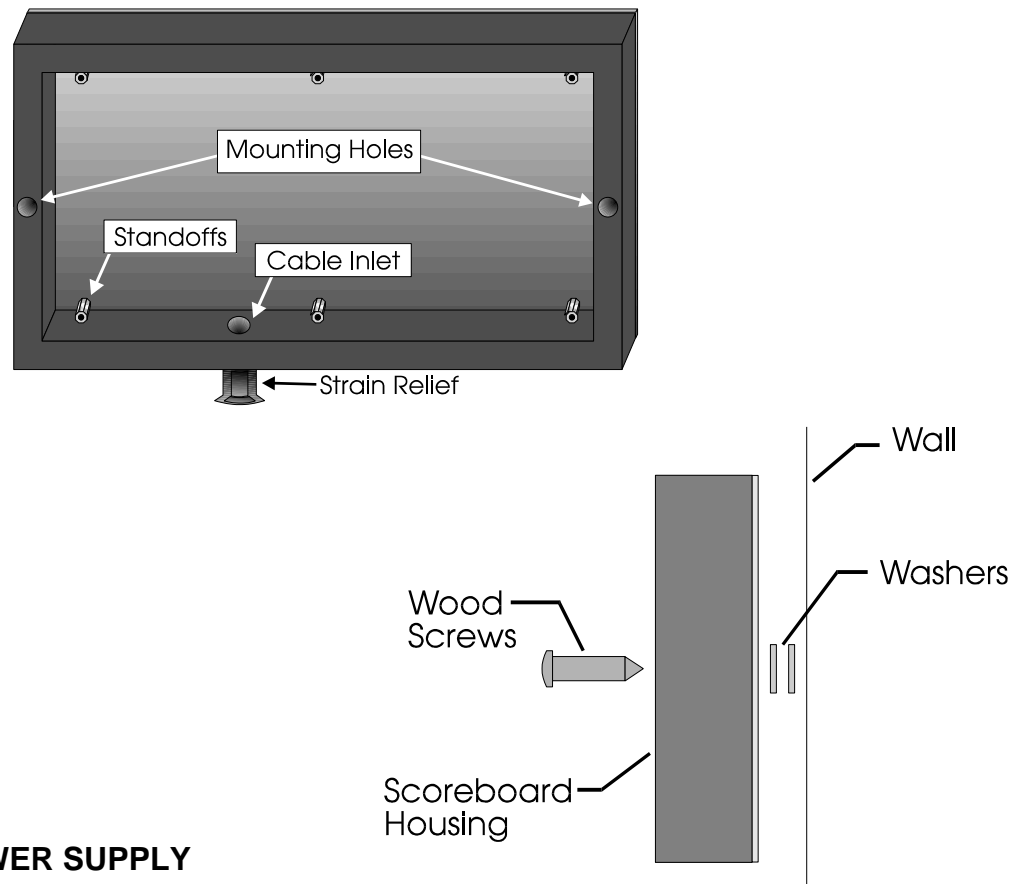
## 1.5 TECHNICAL DATA

WRD2-6 SPECIFICATIONS	
CHARACTERISTIC	SPECIFICATION
Dimensions: Width Height Depth	10.75" 5.75" 1.5/16"
Power Requirements	9VDC @ 750 mA
Serial Port: Connection Baud Rate Char Format Distance	2 wire 1200/9600 Baud, continuous RS232 8 bit/no parity/1 stop distance of up to 250ft
Relative Humidity	0 to 90% non-condensing
Operating Temperature	-20°C to +40°C
LED's: Colour Brightness	Red 30 mcd
Viewing: Angle Distance	90 degrees up to 100ft
Number of digits	Six

## **SECTION 2 - INSTALLATION GUIDE**

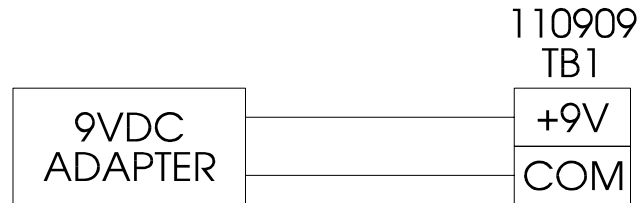
## 2.1 INSTALLATION

1. Insert the #8 wood screws included into the mounting holes. Place two washers on each screw and mount the scoreboard housing on the wall.
2. Insert the cable for power and data via the strain relief. Use Belden cable #8723 or equivalent for data connection.
3. Connect cable leads to TB1 on the scoreboard as shown in section 2.2 and 2.3.
4. Attach the circuit board to standoffs in the scoreboard housing using the 6-32 phillips head screws included.
5. To set the scoreboard display options, refer to section OPERATING INSTRUCTIONS.
6. Put on the front plate with gasket using the 6-32 truss head screws.



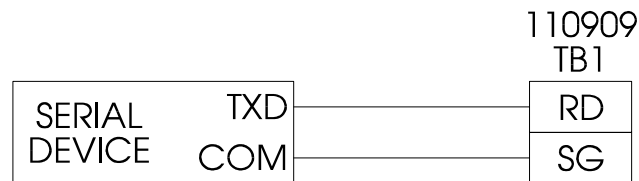
## 2.2 POWER SUPPLY

The WRD2-6 scoreboard comes with a 9VDC adapter which plugs into a 120VAC power outlet.



## 2.3 SERIAL PORT

A two wire cable from the data source is required and must be connected to terminal block TB1 on the scoreboard. 0



SERIAL CABLE CHART			
<u>Serial Device</u>	<u>TXD</u>	<u>COM</u>	<u>Tie Together</u>
DF1000(151/166)	37	20	
DF2000 (174)	TX	SG	
DF2500	3	5	
DF3000	TXD	COM	
DT1200	3	5	
PC-DB25	2	7	4, 5, 6, 8
PC-DE9	3	5	1, 6, 7, 8
DF1500 (110877)	TXD	GND	

## 2.4 SERIAL MODE

The scoreboard's receive baud rate is 1200 or 9600 Baud, continuous RS232 output. The word format to be: 8 bit, no parity, 1 stop



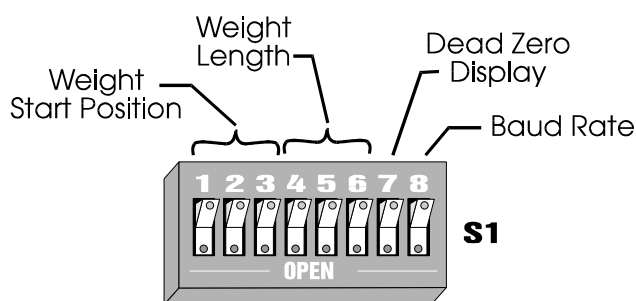
## **SECTION 3 - OPERATING INSTRUCTIONS**

### 3.1 POWER UP

On power up, the string '1234567890 Western Scale' is displayed starting in the right-most digit and scrolled through the display. If the scoreboard is receiving data and the baud rate is set correctly, then the weight is displayed according to the configuration of the setup switches. If no data is being received or the set baud rate does not match the baud rate of the scale indicator, all digits will display a minus.

### 3.2 SWITCH SETUP

All of the scoreboard display options are selectable through settings of the switch bank S1 on the circuit board. Switch settings are as follows:

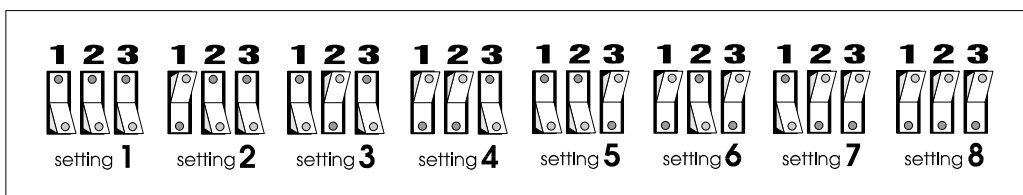


### 3.3 WEIGHT START POSITION

The position in the weight string where the weight starts is selected with Switches 1, 2 and 3. Possible selections are 1 through 8. Use the setting from the table below that corresponds to the number of the start character.

Example: Weight string: '^123.5^KG' (^ = blank)

Use switch setting 3 to set the weight start to the third character in the weight string. If the weight starts in the fourth position, use setting 4 etc.

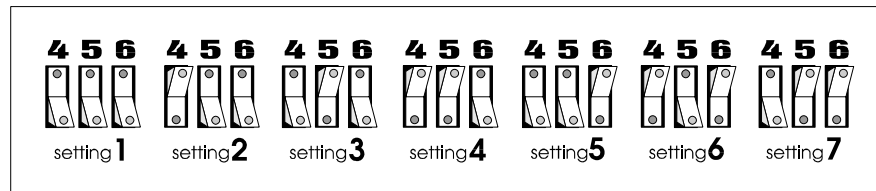


### 3.4 WEIGHT LENGTH

The weight length is selected with switches 4, 5, and 6. Possible selections are 1 through 7. Use the setting from the table below that corresponds to the length to be displayed.

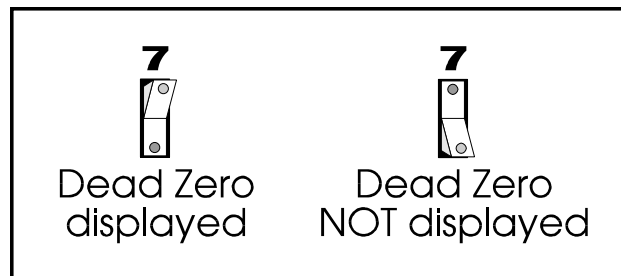
Example: Weight string: '^123.5^KG' (^ = blank)

Use switch setting 5 to set the weight length to five digits. For a weight length of 4, use setting 4 etc.



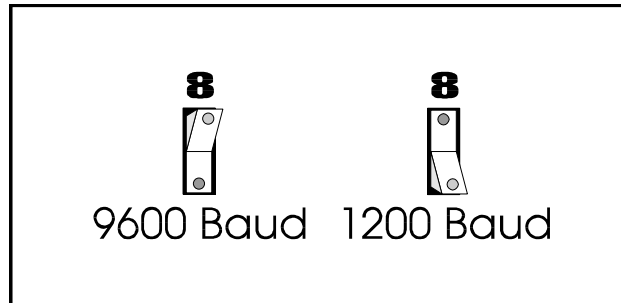
### 3.5 DEAD ZERO DISPLAY

The scoreboard is capable of displaying a so called 'Dead Zero'. If this feature is activated, the displayed string is shifted one digit to the left and the right-most digit displays a 0 (zero). Use switch 7 to select the dead zero option.



### 3.6 BAUD RATE SELECTION

The scoreboard can be operated in a baud rate of either 1200 or 9600. The rate selection is determined by the baud rate of the device sending the data to the scoreboard (i.e. if the sending device is set to 1200 baud, the scoreboard must be set to 1200 baud). Use switch 8 to select the desired baud rate.



### 3.7 CONTROL CHARACTERS


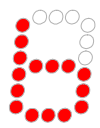
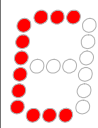
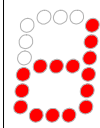
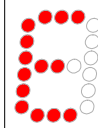
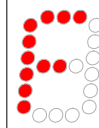
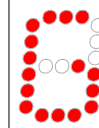
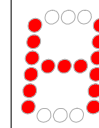
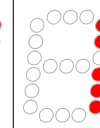
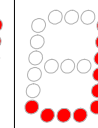
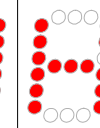
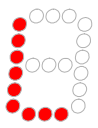
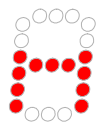
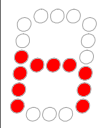
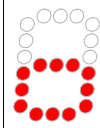
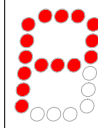
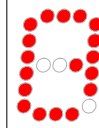
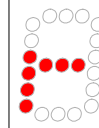
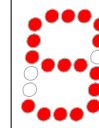
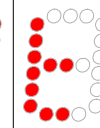
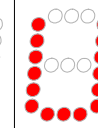
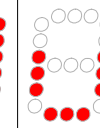
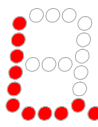
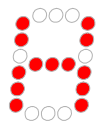
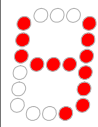
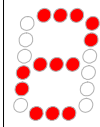
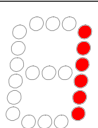
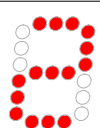
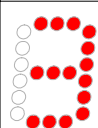
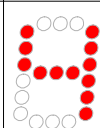
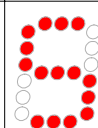
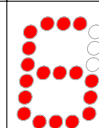
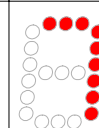
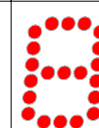
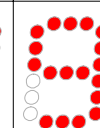
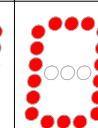
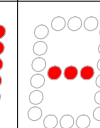
The WRD2-6 scoreboard recognizes the following control characters within a serial string to turn some features on or off:

control char.	name	decimal value	hex value	function	default
^F	acknowledge (ACK)	06	06	continuous update ON	*
^U	neg. acknowledge (NAK)	21	15	continuous update OFF	
^N	shift out (SO)	14	0E	units, mode LEDs ON	*
^O	shift in (SI)	15	0F	units, mode LEDs OFF	

### 3.8 CHARACTER SET

The WRD2-6 is capable of displaying all numbers and all letters of the english alphabet. Due to the limits imposed by the physical and electrical layout of the digits, some letters will be displayed as capitals and others as small letters. For the same reason, some letters may not look exactly like their printed version would. However, in most cases the words displayed can be easily recognized by the viewer. With one exception, all letters are displayed using one digit. Since it is impossible to create anything even remotely looking like the letter “W” using only one digit, the WRD2-6 is displaying only the first half of this letter. Sending a letter “J” immediately after a “V” will produce an acceptable result in most cases.

The table below shows the scoreboard’s character set starting with the letters in alphabetical order followed by the numbers and the minus sign.

## **SECTION 4 - TROUBLESHOOTING**

#### 4.1 TROUBLESHOOTING GUIDE

SYMPTOM	CAUSE / SOLUTION
Display dark, MCU RUN not flashing.	No Power / Check all power connections, power supply, cable, terminal, wall outlet.
'-----' displayed, RCV DTA not flashing.	No Data / Check data path, scale indicator, cable terminal.
'-----' displayed, RCV DTA flashing.	Wrong Baud Rate / Set right baud rate.
Weight display offset.	Wrong setup / Check switch setting.