Scoreboard User Manual for outdoor polo

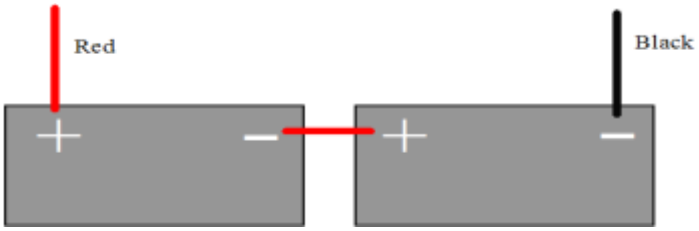
Setting up the scoreboard

The maximum range from the remote control unit to the scoreboard is about 350 meters so you can position the scoreboard wherever you want. We recommend that you position it at the ½ way line or at 45 degrees at a corner of the ground depending on your situation. This means that everyone on and around the field will be able to see it. On windy days, it is advisable to position it at an angle to the wind direction so that it cannot be blown over. You can also use guy ropes and stakes and some trailers have extendable outriggers.

If appropriate, open the top flap and secure.

If your scoreboard has internal batteries, there will be an on/off switch (later versions have ON and OFF pushbuttons). Switch on.

If your scoreboard has external batteries, connect the battery supply. The scoreboard requires 24 volts and is derived from two 12 volt car batteries in series. Be sure to connect it up correctly as shown below, red wire to +ve terminal; black wire to –ve terminal. Later scoreboards have on/off push buttons and the batteries are connected all the time.



When power is applied, the scoreboard goes through a power-up sequence:

1. All digits are shown at 888888888 so that you can see all flaps ‘on’.
2. All digits are shown as blank so that you can see all flaps ‘off’.
3. The version number is displayed on the time digits. This is typically P12 (if set for polo or A12 if set for Arena polo) or similar.
4. The scoreboard will then be set to the start position of 7:00 minutes, zero scores and chukka no 1. It is now ready to operate.

Operating the scoreboard using the remote control unit.

The maximum range of the remote control unit is approximately 300 meters. The unit has 6 buttons.
The unit has 6 buttons. **Note that most actions happen when you press and then immediately take your finger off the button**. Do not hold a button down unless you are trying to correct a mistake.

Starts the clock running. If you make a mistake, you can hold down this button for about 3 seconds to subtract 10 seconds from the time.

Stops the clock. If you make a mistake, you can hold down this button for about 3 seconds to add 10 seconds to the time. If the clock stops at less than 5 seconds in the last chukka, holding down the button for 3 seconds will set the clock at 5 seconds (The 5 second rule).

Pressing once will add one to the left hand score (as you look at the scoreboard). If you make a mistake, you can hold down this button for about 4 seconds to reduce the score by one (hold the button down until the score changes).

Pressing once will add one to the right hand score (as you look at the scoreboard). If you make a mistake, you can hold down this button for about 4 seconds to reduce the score by one (hold the button down until the score changes).

This button only works when the clock is stopped. Pressing the button will set the scoreboard for the next chukka. The time will be set to 7:00 minutes and the chukka number will be incremented by one. If you make a mistake, you can hold down the button for about 4 seconds. This will reduce the chukka number by one. After 3 minutes of the end of a chukka (5 minutes at half time), the bell will sound to denote the end of time out. Press the STOP button for a couple of seconds to prevent the bell from sounding (e.g. when a player is about to start the next chukka by a free hit and you do not want the bell sounding during the run-up)

This button only works when the clock is stopped. Pressing the reset button will set up the scoreboard for the next match. The time will be reset to 7:00 minutes, the chukka number set to one and both scores set to zero. If you make a mistake, hold down this button for about 4 seconds. In this case, the scoreboard will revert to all the values before you pressed the button.

Holding down the 

button and pressing the 

button will sound the horn whilst

you hold the buttons. This only works at the end of the match when the time is 7 minutes and the chukka number is 1. The use of this is to hurry on the players for the next match.

OFF. If the scoreboard is not used for one hour (changeable), it may automatically power off. In this case it will say OFF instead of the time (versions 30 and later blank or put all the digits to '-'). To restart it, press the 'reset' / 'on' button or disconnect the power for a moment.
Hockey Corner Time (hockey mode only). Press START and then immediately press RESET.

Changing the configuration.

To change the scoreboard operation from counting down to counting up. Counting down from 7:00 minutes is the normal mode. For informal chukkas, you can start the clock at zero and count up. This means that you can use the clock to see how long you have been playing for and then stop when you want. In this mode neither the bell nor the horn is sounded (pre V040). In versions V040 and later the bell is sounded normally at 7:30 and regularly thereafter (see the section on changeable values). The clock will continue to count up until it is stopped. Of course, some scoreboards only have 3 time digits and so the first minutes digit (tens) will not be displayed.

To change the scoreboard operation from counting down to counting up:-

1. Stop the clock by pressing the STOP button.
2. Hold down the STOP button and press the left score button.

To revert to counting down, go through steps 1 and 2 again.

To display the actual time in hours and minutes. At the end of a match (when the chukka number is 1 and the time is 7 minutes) you can display the actual time in hours and minutes by holding down the STOP button and pressing the right score button.

To correct the hours, press the left score button.
To correct the minutes, press the right score button.
To revert to normal operation, hold the STOP button and press the right score button again.
Note that some scoreboards may not have a digit for tens of hours and so will not display 10:00, 11:00 and 12:00 correctly.

To set up an outdoor polo scoreboard for Arena operation. The Arena version has different timing. Some versions of the scoreboard have a switch on the outside of the control box (inside the bottom left of the scoreboard when viewed from the back). Later versions (V17 and later) can be set up from the remote control unit. Power off the scoreboard. Power it up and during the self-test routine when all the digits are blank, press the left score increment button until the top row of digits digits show Ann (A=Arena; nn is the version number).

Changeable values (Later versions only)

There are a number of values which may be changed by the user. These values are stored permanently even if the scoreboard is powered down. It is also possible to revert to 'factory' settings which are shown in the list below under the column 'Factory'. Earlier versions of the software may not have all of these values.

To change any settings:

1. Power off the scoreboard.
2. Power up the scoreboard. When all the digits go blank, press and hold the 'NEXT PERIOD' button.
3. After a few seconds, the 3 time digits will show CHA (for change). Release the NEXT PERIOD button.

4. The first value will be shown. The left score shows the value number (1). The time digits show USE and the right score shows the number for the scoreboard use (1P=Outdoor polo; 2A for Arena; 3H for Hockey/Rugby/Soccer etc (note that later versions use 2 letters eg PO, AR, HO etc)). Press the LEFT SCORE button to go down and the RIGHT SCORE button to go up. The setting is permanently changed immediately.
5. Press the NEXT PERIOD to step onto the next value. Use the LEFT SCORE and RIGHT SCORE buttons to increment or decrement the value. See the table below for all the values.
6. Some of the timer settings are in tenths of seconds (a value of 35 means 3.5 or 3½ seconds) – see table below.
7. At any time you can power down / up the scoreboard to use the new values or continue to press NEXT PERIOD button through all the values.

Value no.	Display at top	Factory settings	Range	
1	USE	1 (PO)	See->	Scoreboard type where:- Early Later 1P PO = Outdoor polo 2A AA = Arena polo 3H HO = Hockey 41 R1 = Running race (mins/secs) 52 R2 = Running race (hrs/mins/secs) 6R RU = Rugby 7S SO = Soccer 8S SH = Show jumping --- PC = Polo Cross. --- LA = Lacrosse --- NE = Netball --- CR = Cricket (only if RN1100 present)
2	CHU	4	4-6	Number of chukkas. Only used to get the time between chukkas for polo correct.
3	BEL	30	0-99	Time (in tenths of seconds) the bell sounds for towards the end of a chukka. (30 = 3.0 seconds)
4	HOR	30	0-99	Time (in tenths of seconds) the horn sounds for at the end of a chukka / period. (30 = 3.0 seconds)
5	DIS	1	0-1	Display time to end of time-out (1=Yes; 0=No)
6	BE2	30	0-99	Time (in tenths of seconds) the bell sounds for at the end of time-out between chukkas.
7	APO	10	0-99	Time before scoreboards powers down if idle. In tenth's of hours (10=1.0 hours)
8	PS1	7	0-99	Start time (minutes) for chukkas for outdoor polo to start.
9	PSS	0	0-50	Start time (seconds) for chukkas for outdoor polo to start.
10	AS1	6	0-99	Start time (minutes) for chukkas for arena polo to start.
11	ASS	30	0-50	Start time (seconds) for chukkas for arena polo to start.
12	EN1	7	0-50	First bell time (minutes) when in count up mode
13	EN2	30	0 / 30	First bell time (seconds) when in count up mode
14	ENR	0	0 / 30	Repeat bell time (0 means every minute; 30 means every 30 secs) when in count up mode

Value no.	Display at top	Factory settings	Range	
15	FL1	100	100 +	Flap ON pulse time (ms). 100 is subtracted so 00 means 100; 99 means 199. Only adjust on instructions from Sporting Designs. (Later are *10)
16	FL0	5	5 +	Flap off gap time. There is a minimum of 5 ms. Only adjust on instructions from Sporting Designs.
17	HS1	35	5-95	Start minutes for Hockey/Rugby/Soccer (may also be adjusted by holding down the START button before the match starts)
18	BEE	0	0-99	Beep time. Beeps the horn when the operator start/stops/increments a score. 0=Off. 40 is approx 1/2 second
19	HS2	0	0-30	Stop minutes for Hockey/Rugby/Soccer. If > 0 will automatically stop the clock at this so that the umpire can use his own clock to decide when to say the match is over. If 0, does not stop.
20	SEC	50	0-99	Time correction in seconds to adjust timer accuracy. Subtract a value of 50 to get the actual adjustment value. A resultant of +9 means add 1 second every 9 minutes. A value of 45 (means -5) means subtract 1 sec every 5 mins. See also parameter nos 24 and 25.
21	POF	1	0-9	Flap position when scoreboard does auto-power off. 0 means set to all - - - - - - . 1 means set to all black.
22	POB	0	0-1	Power off beep. If set to 1, the scoreboard beeps every hour (whatever the timer is) if no power off circuit exists and the scoreboard should have powered off (parameter 7 (APO) > 0).
23	SPC	6	1-8	Start minutes for Polo Cross (mode 9(PC)). Start seconds are always zero.
24	SE2	0	0-99	Time correction in 10 times seconds to adjust timer accuracy. A value of 9 means add 1 second every 90 minutes
25	SE3	0	0-99	Time correction in 100 times seconds to adjust timer accuracy. A value of 9 means add 1 second every 900 minutes
26	FLE	0	0-99	Flap exercise time. A value of 24 means exercise all the flaps every 24 hours (assuming power is on). This timer gets reset whenever the clock is running.
27	SOU	0	0-3	Sounds. 0=normal; 1=always sound horn; 2=always sound bell; 3=always alternate bell/horn.
28	RCD	0	0-1	Real time clock counts down if = 1 and sounds bell if gets to 0 then counts up.
29	LS1	15	0-35	Lacrosse start time – Minutes
30	LSS	0	0-30	Lacrosse start time - Seconds
31	12B	0	0-50	Beep horn ½ way through each chukka/period for this time (30 = 3.0 seconds). 0 means don't sound.
32	PUL	0	0-20	Pulse sounds on/off time. 5=1/2 sec on & 1/2 sec off.

Value no.	Display	Factory settings	Range	
33	LE1	20	0-99	LED minimum brightness (in %) where 99=full brightness. For LED scoreboards only
34	LE2	50	10-99	ADC value divided by 10 where LED is at maximum brightness. Typical value is 540/10 = 54.
35	LE3	0	0-99	ADC value divided by 10 where LED is at minimum brightness. Typical value is 0.
36	HC1	40	0-99	Hockey corner time (secs)
37	HC8	10	0-99	Bell time (*10) at end of corner time. (15 = 1.5 seconds)

To revert to Factory settings (Later versions only):

1. Power off the scoreboard.
2. Power up the scoreboard. When all the digits go blank, Press and hold the RESET button.
3. After a few seconds, all the digits will show 888888888. Release the RESET button. Factory settings will have been stored.

Powering off the scoreboard (Later versions only):

Some versions of the scoreboard (version 21 and later) have the optional auto-power-off function when the scoreboard powers off if not used for one hour (the time is changeable – see above). Versions 31 and later may also be powered off via the remote control (or the manual buttons). Hold down the STOP button then hold down the NEXT PERIOD button, then press the RESET button. The digits will all go blank or '-'. Release all the buttons. Note that the scoreboard must be RESET (ready for the start of a new match) for this to work.

Resetting the scoreboard (Later versions only):

Versions 36 and later may also be reset (the scoreboard will go through the power-up sequence) via the remote control (or the manual buttons). Hold down the STOP button then hold down the NEXT PERIOD button, then press the RIGHT SCORE button. The digits will all go blank. Release all the buttons. Note that the scoreboard must be RESET (ready for the start of a new match) for this to work. You can then change any of the user-changeable settings once the digits have gone past 8888888888 and are blanked again (hold down the NEXT PERIOD button).

Show Jumping mode:

Later versions only have a 'Show Jumping' mode (User configurable parameter no 1 = 8S / (SH)). This is where an EG Timing Show Jumping control unit sends the time to the scoreboard. Please contact Sporting Designs for further information.

Batteries

External batteries

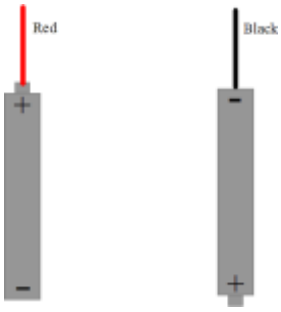
The scoreboard is operated from two 12 volt car-type batteries connected in series to provide 24 volts. These batteries are normal lead-acid 'leisure' batteries and can be re-charged with a 24 volt charger or individually one at a time with a normal 12 volt car battery charger. You may have a solar panel – see below.

The batteries will provide enough power for quite a few days without having to be re-charged.

If your scoreboard is powered from internal batteries:

Make sure the batteries are fully charged. The unit will be supplied with a 24 volt battery charger with a multi-colour LED. RED means that the charger is not connected; ORANGE means that the batteries are being charged and GREEN means that the batteries are fully charged. The charger can be left connected and charging permanently without damaging the batteries. Fully discharged batteries will take around 6-8 hours to fully charge.

Remote control unit



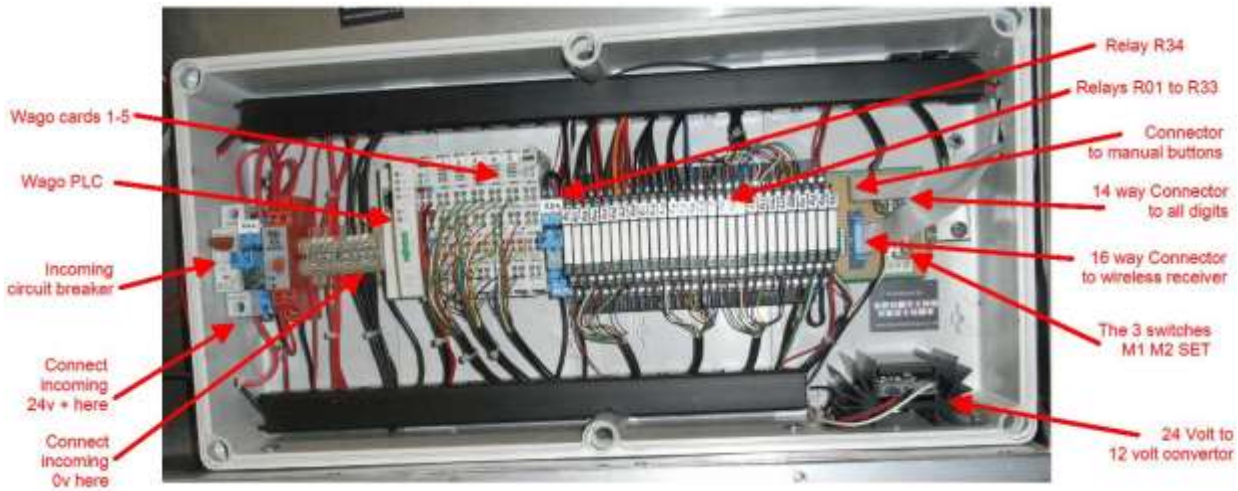
The remote control unit uses two AAA batteries. These are non-rechargeable and are widely available from DIY shops, supermarkets and petrol stations. When changing these batteries, be sure to insert then the correct way with the positive terminal facing the mark +. This has a red wire. The negative terminal faces the mark -. This has a black wire. See layout above.

If your scoreboard has a solar panel controller:

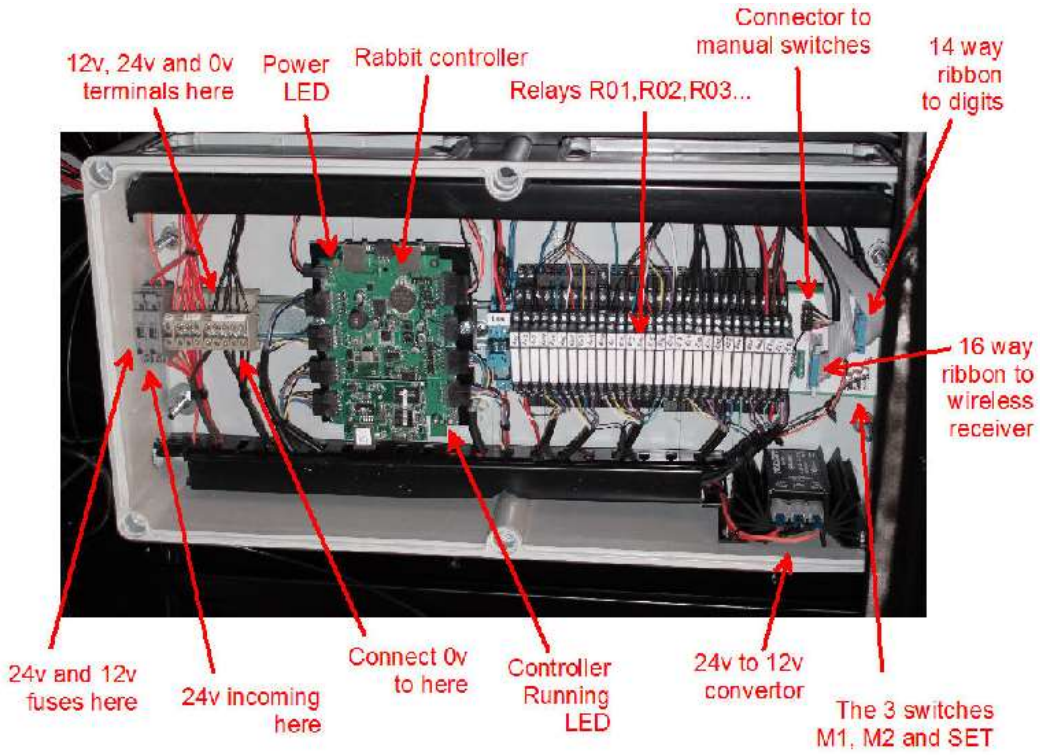
There are 3 lights on the controller (from the top left as shown above). There may be a sight window to see the lights inside the scoreboard.

1. Over temperature alarm
2. Solar charge indicator. Green ON when the solar panel is charging the battery. Green flashes when the system is overvoltage.
3. Battery indicator. Green ON when the battery charge level is in the correct range. Yellow ON when the battery charge is low. Red ON when the load has been disconnected.

The Control box



Control box pre 2010 (Wago)



Control box post 2010 (Rabbit)

Registering a new remote wireless control unit.

1. Power off the whole scoreboard. Wait for 10 seconds for the power to decay.
2. Un-screw the bottom left back section from the scoreboard (when looking from the back)
3. On the receiver interface module, set the 3 switches to:-

Switch	Setting
M1	OPEN (UP)
M2	OPEN (UP)
SET	GND (DOWN)

4. Power up the scoreboard
5. After 5 seconds, press any key on the new remote control unit for one second.
6. Wait 5 seconds.
7. Power off the scoreboard. Wait for 10 seconds for the power to decay.
8. On the receiver interface module, set the 3 switches to:-

Switch	Setting
M1	GND (DOWN)
M2	GND (DOWN)
SET	OPEN (UP)

9. Power up the scoreboard.
10. After the power-up sequence is complete (it takes about 25 seconds), test the new remote control unit.

Erasing all remote control units.

11. Power off the whole scoreboard. Wait for 10 seconds for the power to decay.
12. Un-screw the bottom left back section from the scoreboard (when looking from the back)
13. On the receiver interface module, set the 3 switches to:-

Switch	Setting
M1	OPEN (UP)
M2	GND (DOWN)
SET	GND (DOWN)

14. Power up the scoreboard
15. Wait 10 seconds.
16. Power off the scoreboard. Wait for 10 seconds for the power to decay.
17. On the receiver interface module, set the 3 switches to:-

Switch	Setting
M1	GND (DOWN)
M2	GND (DOWN)
SET	OPEN (UP)

18. Now you can register a new remote control unit as per the previous section, (start at item 3).

Troubleshooting

The remote only works very close to the scoreboard. The antenna in the receiver (normally within a small box in the top of the scoreboard or near the two dots for the time digits) has either been damaged or has pulled out of the receiver module. The antenna is a small black wire about 10 cm long. It is a push fit into the receiver module

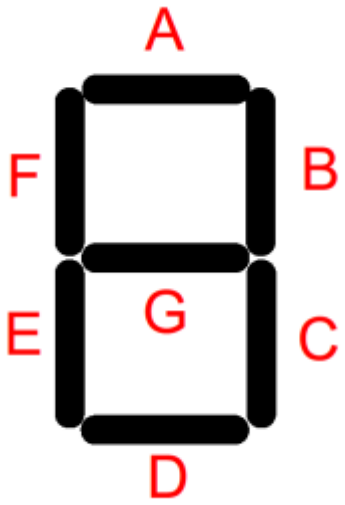
The remote only works after a 15 second delay. If you have two remote control units, you must leave a 15 second delay before using a button on a second unit.

The flaps on some digits are not working. Check exactly what the problem is by powering off the scoreboard and powering it up again. Watch the self-test sequence when all flaps show on (all digits are 8) followed by all off (all digits are blank). There are a number of reasons why the flaps may not operate properly:

1. Can you see a mechanical reason why the flaps cannot move (is a flap fouling the border or the Perspex? fouling something else?)
2. Is the battery voltage sufficient? Normally two 12 volt batteries are used to make 24 volts. The scoreboard **may** work when the voltage is as low as 21 volts but certainly will **not** work correctly if the voltage is as low as 18 volts.
3. Is the same flap on all digits not working? In this case it is likely to be a faulty relay or possibly the 14 way ribbon cable which goes from digit to digit has broken. If the same flap on all digits is set on then try replacing the 'reset' relay (and vice versa). Look at the drawings to see which relay.

   If your scoreboard has a Wago controller - The relays used to drive individual flaps are R16 to R33. You can normally swap the relay with R06 which is not normally used. R07 drives the lamp to say when a button is pressed.

   If your scoreboard has a Rabbit controller - The relays used to drive individual flaps to on (white) are R3 to R9 for A to G and to drive the flaps off (black) are R11 to R17 for A to G. You can normally swap the relay with R32 or a spare at the end which is not normally used. R33 drives the lamp to say when a button is pressed (if present). Relays R18 onwards are used to select each digit 1,2,3,4,,, - see below.



One digit is not working at all, Check that the single black wire going to the digit is still connected. If it is, check which is the relay used to drive the digit and replace this.

If your scoreboard has a **Wago** controller :- The relays used to drive individual digits are R01, R02, R03 and R08 to R15 or test by swapping with R06 or R07 or a spare.

If your scoreboard has a **Rabbit** controller :- The relays used to drive individual digits are R18, R19, R20 onwards or test by swapping with R32, R33 or a spare.
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Digits are numbered:-

1. Seconds Units
2. Seconds Tens
3. Minutes Units
4. Minutes Tens (optional)
5. Left score Units
6. Left score Tens
7. Right score Units
8. Right score Tens
9. Period number (if exists)

The remote control unit is not working at all (but the scoreboard goes through its self-test ok). Try replacing the batteries. It takes two AAA batteries but be sure to place them + to the red wire and – to the black wire. If still faulty, check that the switches in the control box have not been changed (M1 down M2 down, SET up). Check that no wires are loose. If still not working you will have to contact Sporting Designs.

If the scoreboard does not do anything when you power it up, check that:-

1. The two, 12 volt batteries are charged. The voltage should be at least 23 volts.
2. The circuit breaker (or fuse) inside the scoreboard control box has not tripped. This is normally in the bottom left of the scoreboard when looking from the back. It should be in the up position. Your scoreboard may have an external isolator (mains powered versions only). Make sure this is on.
3. On units pre 2010 with a Wago controller:- Look at the lights on the white WAGO 'brain' The DSR light at the bottom of the left module should be flashing green once per second. Note that it only starts to flash once the startup sequence is complete.
   On units post 2010 with a Rabbit controller:- Look at the Power LED and the Controller Running LED. Both should be on.
4. Check that no wires are loose coming from the battery.

Suggestions

We are very pleased to receive **any** suggestions from you as we want to improve the operation of the scoreboard and make it easier to operate. Please contact Paul Girdham, Sporting Designs Ltd. Thank you.

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