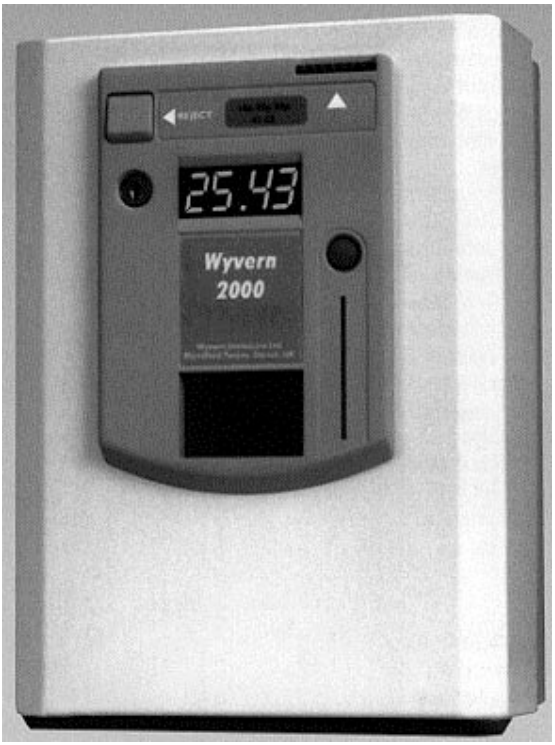
Handbook for the

Wyvern Timer 2000/2000R



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The following options are available for use with the Wyvern 2000 (non-reject) and Wyvern 2000R (reject) timers: Wyvern 2000 ▪ 7kVA switching	Wyvern 2000R ▪ 7kVA switching ▪ Key over-ride *or* panic button *or* start button ▪ Smart card (Wyvern 2000RS) ▪ PC interface (Wyvern 2000RPC) ▪ Network interface (Wyvern 2000RCN) ▪ Remote display

Introduction

Featuring a strong white epoxy covered steel case with a large capacity coin box, the Wyvern Timer 2000/2000R offers an extensive range of features to suit virtually all coin/card timer applications. Advanced electronic control provides programmable options allowing up to six different coins to be recognised, peak and off-peak timing cycles, smart card operation, together with profit sharing facilities.

Two models are available, providing the option of coin reject (2000R) or non-coin reject (2000) operation. The non-coin reject model, identified by its lack of coin return tray, has two coin recognition and shares many of the features of the coin reject model, including a 7kVA output switching option.

Both types feature voltage free switched outputs, which mean they can be used to switch a load operating from any voltage, not just mains operated equipment. A full description of load switching appears at the end of the electrical installation sub-section.

Timer Operation

Depending upon how the timer has been programmed, it operates as follows:

1. Fixed time, based upon the value of the coin entered
2. Fixed session time, requiring coins to be inserted to pay for this amount of time
3. Fixed session cost, requiring coins to be inserted to meet the cost of this session
4. Combined session cost and session time, which requires coins to be inserted until the session cost is met, at which point the timer turns on for the duration of the session time. The addition of further coins is influenced by program code 30.

Example

In this example, which uses UK currency (pounds & pence + tokens) the following values and times are assigned to the following coin types:

Coin number	Value	Time
1	10p	6 seconds
2	20p	12 seconds
3*	50p	30 seconds
4*	£1-00	1 minute
5*	£2-00	2 minutes
6*	Token	3 minutes

* available on 2000R only.

Assume these values and times are for peak sessions only.

Using a fixed time slot, no values have been entered for the session cost or session time, so the timer operates using the times allocated to the coins (options 31 to 42, page 14). So 10p will operate the timer for 6 seconds, or £1-00 will give 1 minute.

If fixed session time has been programmed (options 08 to 09, page 13), but no session cost (options 04 to 05, page 18) then the timer will only activate when coins equalling the session time have been inserted. So if the timer were programmed with a session time of 10 minutes (and £1 was set to give 2 minutes), the timer would only start when £5-00 has been inserted. The timer will flash the character 'A', and displays each additional 2 minutes for each £1-00 coin added. Upon insertion of the fifth coin, the display will show 10:00 minutes, the timer will turn ON and will start counting down.

If a fixed session cost has been programmed (options 04 to 05, page 18), but no session time (options 08 to 09, page 13), then the timer will only activate when coins equalling the session cost have been inserted. If a session cost of £5-00 were set, the timer would only start upon the insertion of coins amounting to £5-00. With £1-00=2 minutes, as soon as the first coin is inserted the display will flash an 'A' character and will display the total amount of money added. When the displayed value reaches 500, meeting the £5-00 session cost, the timer will turn ON and will start counting down.

Using a combination of session cost and session time, the timer will activate when sufficient coins have been added to meet the session cost. The timer will remain active for the programmed session time, even if this time is different from the time allocated to the coins making up the session cost. Once the initial cost is met, if program code 30 is not set, further coins will add the time set for that coin (codes 31 to 42, page 14). If the session time was 4 minutes and the session cost was £3-50, the timer would start after £3-50 has been inserted and would run for 4 minutes. If a further £1-00 were inserted the session time would be incremented by an extra 1 minute. If program code 30 is set further coins to meet the session cost must be inserted. With the previous example the insertion of £7.00 would give time of 8 minutes.
Note: Lockout time must not be set to a value less than the session time.

Mechanical Installation

The Wyvern Timer 2000/2000R should be mounted on a smooth vertical wall away from corners, so its front door can be opened fully to allow easy access to the coin box and internal components. The timer is 275mm high by 204mm wide and has a depth of 90mm, so allow at least 210mm clearance from any corner wall. Take care to mount the case level in both the vertical and horizontal axes, failure to do so may prevent the coin mechanism from operating correctly.

Choose an area where an ambient temperature of 40°C is not exceeded, away from any source of moisture, dust or direct heat.

Note, for coin reject models only: during the installation, if it is necessary to remove the ribbon cable connecting the two circuit boards, you **must** re-program the real time clock once the boards are re-connected.

Power consumption of the timer is approximately 10W (at 230V AC). Loads of up to 1kVA (3A resistive) can be switched directly by the timer. This is typically five 100W incandescent or two 100W fluorescent lamps. Adding the 7kVA option increases the capacity up to a maximum of 7kVA (30A resistive), which is typically one 7kW shower or 12 fluorescent lamps.

When used as a voltage free switch, the timer can be used with external switching contactors to control high current loads. See the notes included in the Electrical Installation section for a description of voltage free switching.

1. Lay the timer on its back and open the case using the key supplied. Remove the cash box and using a small flat bladed screwdriver remove the 3mm screw (M3 x 6) holding the safety cover in place, as shown in Figure 1. Once the screw has been removed the cover may be lifted and unhooked from the main case to fully expose the back of the case and the main circuit board.

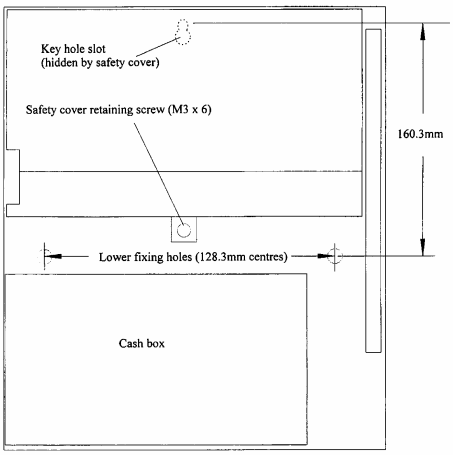


Figure 1 – Removing Circuit Board Cover

2. The timer has three fixing holes arranged in a triangular formation, pre-drilled in its back cover. Position the case on the wall and mark the position of the uppermost single fixing hole (the one in-line with the cable knockouts). Remove the timer and plug the wall and fit with No. 8 or 10 screw of not less than 22mm. Hang the timer case on this screw and tighten, use a spirit level to check the case is level both vertically and horizontally. Mark the bottom two screw positions, remove case and plug the wall.

3. Remove the required cable knockouts, and fix to the wall.

If the case is not level the coin mechanism may not work.

Electrical Installation

The timer will require a fused double pole switch for the mains input. Wire the unit as shown in Figure 2. In this configuration the total load current (the combination of main output and secondary output) is 3.15A, limited by the size of the main circuit board's track width. If you need to switch a total load current greater than 3.15A, you can overcome the circuit board track limitations by externally wiring the relays to switch 3.15A each, giving a total switching capacity of 6.3A. See Figure 3 for the circuit arrangement.

Note: each relay is fuse protected and cannot switch more than 3.15A.

Cable and fuse size: With 24V, VF (volt-free) and 1kVA loads use cable of cross-sectional area not less than 1.0sq. mm (1mm^2) and fuse with 5A. With 7kVA rated models use cable of not less than 6.0sq. mm (6mm^2) and fuse as appropriate up to a maximum of 30A.
The use of 20mm conduit is recommended (use male thread adaptor with lock-ring, for example Ega type EMA 1ZM). Alternatively fit a 20mm nylon compression cable gland to provide strain relief.

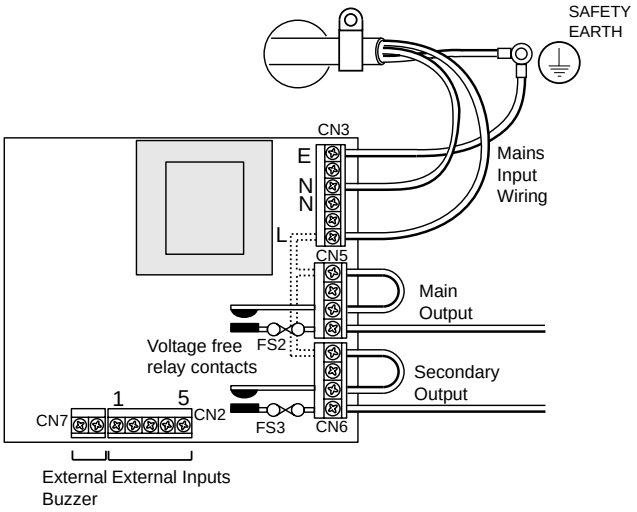


Figure 2 – Mains Wiring

Note: Early versions of the timer are fitted with a 5-way terminal block in position CN3. When using timers of this type, make an extra connection to the incoming neutral wire on CN3.

These high current connections are only required if both outputs are supplying over 3A each. Refer to the beginning of the electrical installation section for further details.

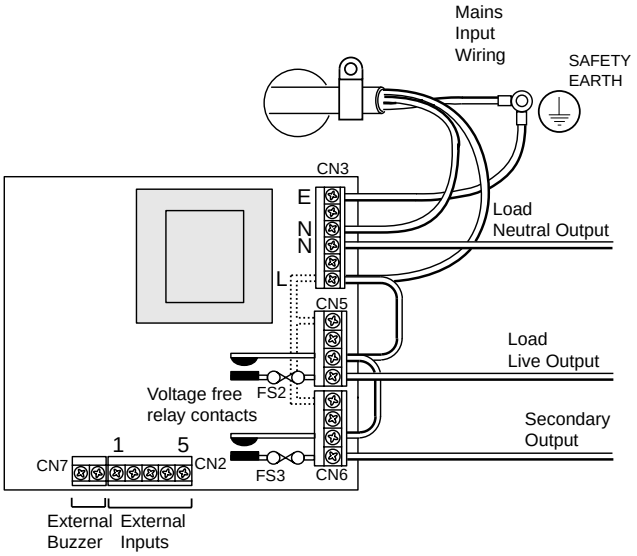


Figure 3 - High Current Connections

WARNING

THE TIMER CASE MUST BE SECURELY CONNECTED TO A KNOWN EARTH

Voltage Free Contacts

The timer controls the operation of external equipment by a relay, which turns power ON and OFF. As supplied, the timer's relay contacts are said to be 'voltage free', which means they have no connections made to them, as shown in Figure 4.

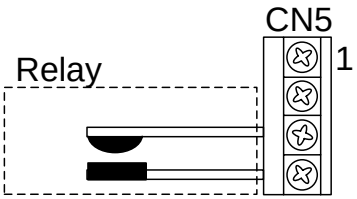


Figure 4 - Voltage Free Relay Contacts

To be able to use the relay contact to switch equipment ON and OFF, it needs to be wired as shown in Figure 5. This shows a light bulb being powered from the mains, but any source of power could be used, so long as it is wired via the timer's main output relay contact.

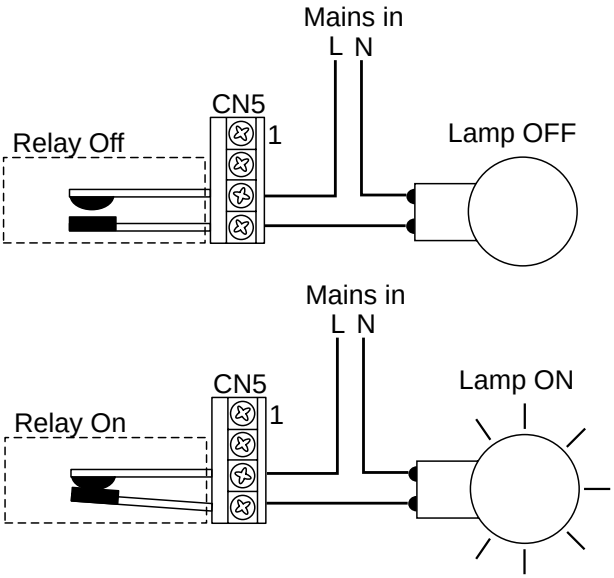


Figure 5 - Relay Contacts Wired to Control a Lamp

On the timers main circuit board connectors CN5 & 6 already have a source of mains power connected to pin1. This is supplied via a circuit board track from the mains live input on CN3. Therefore, the mains 'L' (live) wire can be taken to pin 1 of CN5. The 'N' (neutral) wire can be connected to pin 3 of CN3 (or pin 4 if CN3 is a 6-way connector) where a direct connection to the mains neutral input wire can be made. These connections are shown in Figure 6.

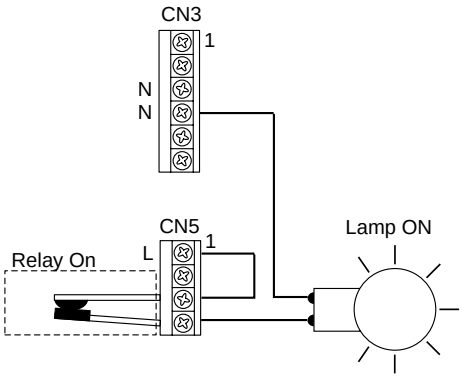


Figure 6 - CN2 and CN3 Final Wiring

Use of Voltage Free Contacts in the Wyvern 2000/2000R Timer

Using voltage free contacts, the Wyvern Timer 2000/2000R can be used to control equipment operating from a range of voltages, not just mains powered devices. For example, the timer could control +24V DC supplies just as easily as AC mains supplies. Supplying the timer with voltage free contacts does involve a slight overhead in installation wiring, but gains a greater versatility in the ways it may be used.

The relay contacts are voltage free - they have not been pre-wired to supply a particular voltage when the contacts are closed. This means you can use the contacts to turn-ON a supply of your choice.

For example, Figure 7 shows how a 24V DC supply can be controlled via the main output. This can switch up to 3.15A, which is adequate for most external contactors.

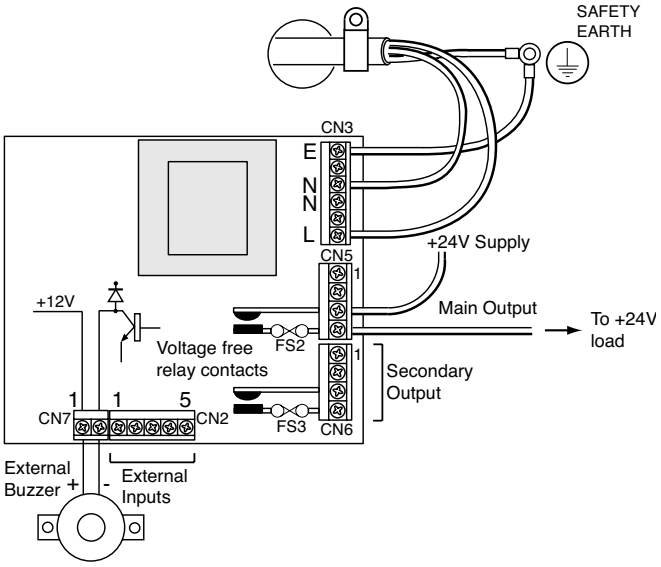


Figure 7 – Voltage Free Relay Contacts & External Buzzer Wiring

Optional 7kVA Output

Timer's fitted with the optional 7kVA output have the main output relay mounted off-board. This is wired as shown in Figure 8.

The 7kVA circuit can be used to switch currents of up to 30A (resistive load), and will require a suitable fuse to be fitted on the mains input side to protect whatever load is connected.

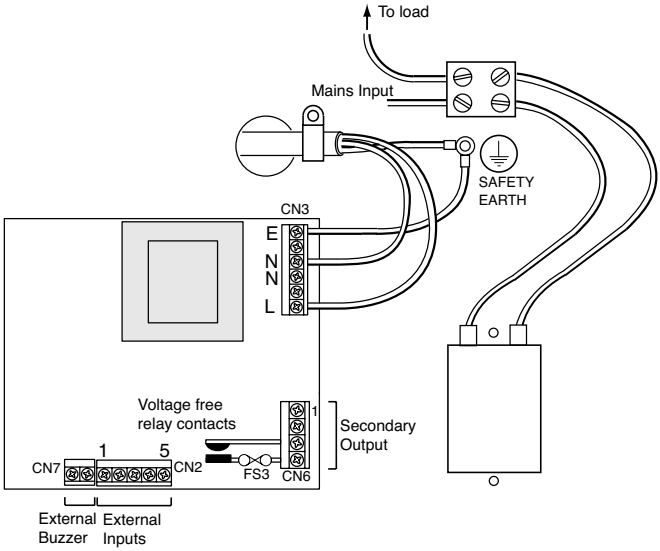


Figure 8 – 7kVA Option Wiring

External Buzzer Connections (2000R only)

You can wire an external buzzer, or relay, to the timer using connector CN7. Use a 12V piezo-electric buzzer or a relay with 12V dc coil with the positive (+) side wired to the left-hand-side (pin 1) of connector CN7. The buzzer or relay is driven from an open collector transistor mounted on the main circuit board and is wired as shown in Figure 7. In both cases maximum current consumption must not exceed 100mA.

External Input Connections (2000R only)

Where the timer is to be controlled remotely, using externally connected push-button switches; the connections available on CN2 can be used. These inputs are optically isolated and require a low current +12V supply to operate correctly. Where the external buttons are only mounted a few metres away from the timer, they can be supplied directly from the timer itself. But if mounted tens of metres away, they will require an externally generated +12V supply to operate reliably. The two possible circuit arrangements are shown in Figure 9, which also illustrates the wiring of the HOLD switch, used when selected by program code 26 (Set remote hold=ON).

When controlled from a remote location, pressing the start push-button will start the timer regardless of any pretime/start delay that may have been set. Pressing the stop push-button will immediately stop the timer. If a single ON/OFF HOLD switch is used in place of the start push-button and 'set remote hold' is selected, the timer can be turned ON or OFF from a remote location. With the switch ON the timer behaves normally, but stops timing when the switch is turned OFF, only to restart when the switch is turned ON again.

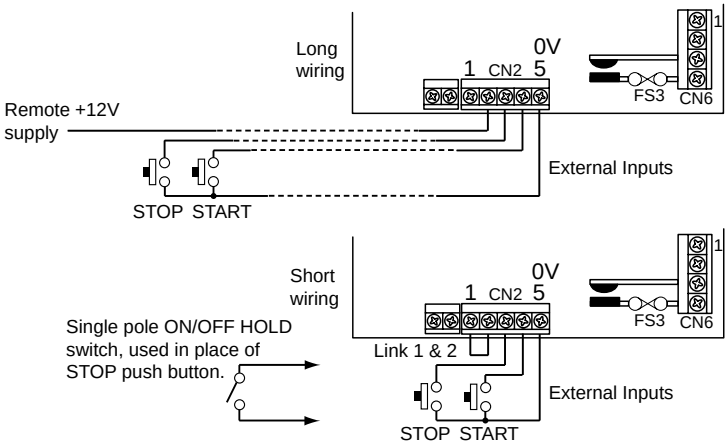


Figure 9 - External Inputs For Local and Remote Wiring

Programming The Wyvern 2000/2000R

To control the operation of the timer, for example to let it know when to charge at peak rate, or how much time to allow for each coin inserted, it needs to be programmed. This consists of entering two digit numbers or options into various empty memory locations, identified by program code numbers (00 to 63). You step forwards or backwards through the program code number to where you wish to make a change, alter the settings, then return the timer to normal operation. If you don't wish to use all the timer's facilities those code numbers can be ignored and left blank.

For example, if you wished to set the timer to wait 2 minutes before switching ON whatever was being controlled (start delay time), you would select the general programming mode, choose program code 00 and alter the two digit contents to 02. This will program the pre-time as 2 minutes. The display is as shown in Figure 10. For a complete programming example see page 11.

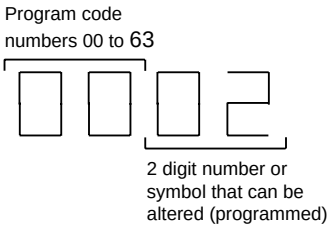


Figure 10 – Programming Start Delay Time

Selecting programming modes

Before you can change the two digit values held in each program code number setting, you need to switch the timer to programming mode. You will also require a programming template (shown in Figure 11), which is a small card placed over the timers front panel (covering the name Wyvern 2000/2000R) on which is marked the positions of three hidden programming buttons. Note: these buttons cannot be used until the programming switch is turned ON.

Together with the front panel four digit display, these three buttons allow program code numbers to be selected to customise the timer.

Two menus are possible:

1. Setup programming. Selected using the DOWN button.

2. Interrogation mode, total coin count or hours used. Selected using the UP button.

Note: If you press the wrong button, return the programming switch to its normal operating position, wait for 'Stor' to be displayed then return to the programming mode once more.

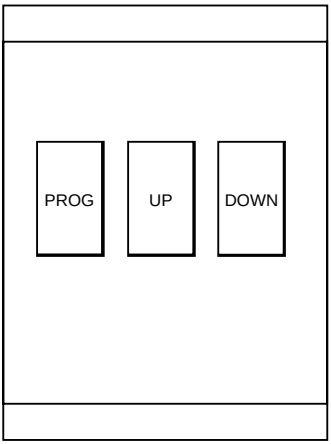


Figure 11 – Programming Template

The programming switch is mounted on a circuit board held inside the front opening part of the timer case. Open the timer case door to its full extent and look to the right hand side of the coin mechanism (attached to the back of the door), where a circuit board as shown in Figure 12 will be visible. The programming switch is marked LKSW1, this needs to be slid gently upwards to put the timer into its programming mode.

LKSW1 can be left in the programming mode position until all programming has been completed, when it can be slid down into its normal operating position. Returning LKSW1 to its normal down position will automatically store all the programming information previously entered.

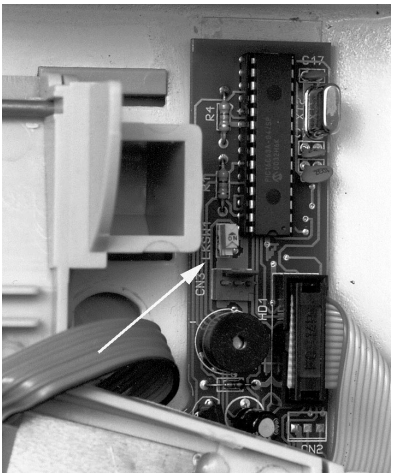


Figure 12– Position of LKSW1

To alter program settings follow the procedure described below:

Note: The UP and DOWN keys do not zoom (automatically increment when held down) and once at '9' the display remains at '9' until altered.

1. Apply power to the timer, open its front cover (using the key supplied) and set the programming switch to the ON position. The coin reject timer (2000R) should power up as normal, finally displaying the time (in 24-hour format) on its 4-digit display. The non-reject model (2000) will display all zeros. Keep the switch in this position until all programming is complete, and then return it to the normal OFF position (at step 9).

2. Close the timers front panel and lock in place.

3. With the programming template in position, a choice of programming mode can be made using the UP or DOWN buttons. Note: pressing the DOWN button will give you access to all the general programming options, while selection of the UP button gives access to the interrogation options.

Pressing DOWN will flash the message 'Prog' on the display and will select program code 00, which is the first general programming memory location. General program locations 00 to 63 on the coin reject timer can be programmed in this mode.

Pressing UP will flash the message 'Tot' on the display and will select program code 00, which is the first total money memory location. Interrogation locations 00 to 05 can be selected in this mode (see page 26).

4. To start programming, choose the program mode by pressing the DOWN key.

At this point the first two digits of the display are indicating the program code (00) and the second two digits are indicating the value stored at this location.

5. To change the contents of program locations, choose the program code you wish to alter by pressing the UP or DOWN keys. This will increment or decrement the first two digits of the display until you reach the required number.

6. At the chosen program code setting, press the PROG key, and the third digit (first digit of the stored value) will start to flash. Using the UP and DOWN keys select the required number and press the PROG button to accept it.

7. The last display digit will start to flash, indicating it is now ready for programming to the required number in a similar way to the first. Press PROG button to complete the selection.

8. To program further options repeat from step 5 onwards.

9. Once programming is complete, open the timer case (with power still applied) and return the programming switch to its normal 'run' mode (slide the switch DOWN). The display will briefly indicate the word 'Stor' (for store the settings) and will once more return to its clock display mode (2000R) or all zeros (2000), ready for timing operations.

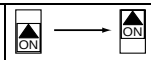
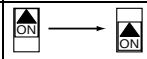
Program Example

To get an idea of how to program the timer, work through the following example:

Problem: You wish to sound the buzzer for 25 seconds.

Solution: Look for the program code that controls the buzzer duration. This is in the timing section and is controlled by code 20. You need to store the value 25 (25 seconds duration) at program code setting 20. Code setting 20 is a general programming option.

Note: If more than one option is being programmed it is only necessary to return the programming switch to normal when the last option has been programmed.

Move the program switch LKSW1 upwards to the ON position	
Press the DOWN key and the front panel display will show	Prog
Wait a few seconds and the display will change to 0000	0000
Press the UP key to increase the value of the first two digits to 20	2000
Then press the PROG key. The third digit will start flashing	2000
Using the UP key, step the value of the flashing digit up to 2	2020
Then press the PROG key to enter the value 2, the final digit will start flashing, ready for data entry	2020
Using the UP key, step the value of the flashing digit up to 5	2025
Press the PROG key to enter the data value 25 into program code setting 20	2025
To store this value, return the program switch LKSW1 downwards to the OFF position	
The display will flash STOR and will then return to its normal display	Stor

Programming Time

This section describes how all timing options are programmed within the Wyvern Timer 2000/2000R.

Selecting Hours or Minutes (program code 22)

Certain timing operations have the option of being timed in hours and minutes or minutes and seconds. Program code 22 allows the selection of hours and minutes or minutes and seconds. This option applies to all timing functions except the start delay/pre-time and fan time options which are only available in minutes and seconds.

Use the UP and DOWN buttons to change between ON and OFF options.

In the following sections the **Value Used** column can be used to note your own settings.

Program Code	Description	Maximum Value	Value Used
22	Select hours or minutes Hours & minutes=ON or Minutes & seconds=OFF	-	

Hours or Minutes Programming Codes

Setting the Time of Day (2000R only)

A real time 24-hour clock is fitted to the coin reject version of the timer. Time is set using program code 62. Once program code 62 is selected, pressing the PROG button will start to flash the very first digit of the 4-digit display. In the normal manner, the UP and DOWN buttons can be used to set the first 2 digits to the required hours and the last 2 digits to the required minutes. The clock is set following the last press of the PROG button for minute entry.

If you do not require the 24-hour clock display, set the time to 00:00. This will not change the count-down operation of the display, but once zero time has been reached the display will permanently display 00:00, with a flashing colon (:).

Program Code	Description	Maximum Value	Value Used
62	Setting the real time clock	-	

Setting the Real Time Clock

Setting Session Times and Peak/Off Peak Times

Both versions of timer (2000R & 2000) can be programmed with a peak session time (codes 08 & 09) in minutes and seconds, but **ONLY** the reject timer (2000R) can be used for off peak operation (codes 10 to 15).

Peak Time allows a premium session rate to be charged when demand is high, giving you the opportunity of maximising profits during busy periods.

Off Peak Time can be set to coincide with less busy periods where cheaper rates can be offered to attract more business.

Session times can be programmed as a time period in hours and minutes or minutes and seconds, depending on the setting of Program Code 22. The time at which peak rate starts or off peak rate starts can also be programmed, each time requiring a further two program codes – one for hours and the other for minutes.

Note: Program codes are generally programmed as a pair, the first giving a value in hours or minutes and the second, a value in minutes or seconds.

Program codes summarising all of these timing options is presented in the table below:

Program Codes	Description	Maximum Value	Value Used
08	Peak session time in hours or minutes	-	
09	Peak session time in minutes or seconds	MAX 59	
10	Off peak session time in hours or minutes	-	
11	Off peak session time in minutes or seconds	MAX 59	
12	Peak time ON in hours	MAX 23*	
13	Peak time ON in minutes	MAX 59*	
14	Off peak time ON in hours	MAX 23*	
15	Off peak time ON in minutes	MAX 59*	

* only available with the 2000R

Time Programming Codes

Note: If you program the peak and off peak times to overlap, the peak time takes precedence.

See also session cost (page18), selecting additional features (page 24) and combination of cost and time (page 2).

Coin Time

This allows a period of time to be allocated to a particular coin value. For each coin type, time can be programmed as a period in hours and minutes or minutes and seconds, depending on the setting of Program Code 22.

Remember, these options must match the coin order of the coin value and coin learn modes.

Program Codes	Description	Maximum Value	Value Used
31	Coin 1 time in minutes/hours	-	
32	Coin 1 time in seconds/minutes	-	
33	Coin 2 time in minutes/hours	-	
34	Coin 2 time in seconds/minutes	-	
35	Coin 3* time in minutes/hours	-	
36	Coin 3* time in seconds/minutes	-	
37	Coin 4* time in minutes/hours	-	
38	Coin 4* time in seconds/minutes	-	
39	Coin 5* time in minutes/hours	-	
40	Coin 5* time in seconds/minutes	-	
41	Coin 6* time in minutes/hours	-	
42	Coin 6* time in seconds/minutes	-	

* only available with the 2000R

Coin Time Programming Codes

Start Delay Time or Pre-time

This is the time between inserting money or a card into the timer and the timer turning ON. As soon as you start inserting coins or card and press the blue button, the display shows the time purchased for a period determined by option 21. Once option 21 times-out the display will show the programmed pre-time, along with a flashing 'P'.*

Inserting further coins or pressing the smart card blue button will again cause the display to show the total time purchased for a time determined by option 21.

*Note: If option 21 is set to zero pre-time is not displayed.

A further option (program code 27) allows the secondary output to be switched ON or OFF during this pre-time period.

Program Codes	Description	Maximum Value	Value Used
00	Start delay time in minutes	9	
01	Start delay time in seconds	59	
21	Time purchased display time	59	
27	Secondary output on = ON Secondary output off = OFF	-	

Start Delay Time Programming Codes

Fan ON/OFF Time

Equipment controlled by the Wyvern Timer 2000/2000R may require a fan operated cool-down period following the end of the timed operation. The fan program codes only allow you to set this time in minutes and seconds. During the cooling period the display may flash 'Cool', depending on how program code 25 has been set. Additionally by selecting program code 3002 coin lockout may be activated during cool down.

Further options include the use of program code 27 to allow the secondary output to be switched ON or OFF during the start delay or pre-time, and program code 28, which allows the keyswitch to control the fan's operation.

Program Codes	Description	Maximum Value	Value Used
02	Fan time in minutes	-	
03	Fan time in seconds	-	
25	Display of 'cool' = ON Display blank = OFF	-	
27	Secondary output on = ON Secondary output off = OFF	-	
28	When keyswitch is active, fan output is on=ON When keyswitch is active, fan output is off=OFF	-	

Fan Time Programming Codes

Lockout Time

A safety feature built into the Wyvern Timer 2000/2000R is the ability to prevent the timer from exceeding a maximum time despite a customer inserting more coins or a card. This lockout time sets a limit to the exposure of UV radiation in sun bed applications.

Lockout will activate once a defined maximum time has been exceeded. During this time, the display will flash an 'L' character to indicate lockout is active. In the Wyvern 2000R additional coins are rejected, in the Wyvern 2000 (non reject) coins are lost into the cash tray. If program codes 16 and 17 are set to zero lockout is not operative.

Important: Do not set lockout time to a value less than the session time (options 08 and 09).

Lockout can be initiated after the insertion of the first valid coin by using program code 3008 and also during cool down with program code 3002.

Program Codes	Description	Maximum Value	Value Used
16	Lockout time in hours or minutes (see program code 22)	-	
17	Lockout time in minutes or seconds (see program code 22)	59	

Lockout Time Programming Codes

Buzzer Time (2000R only)

To warn that a timed operation is coming close to ending, a buzzer may be sounded.

Buzzer ON time is the time the buzzer is sounded before the timer switches OFF.
Buzzer duration is the time for which the buzzer is sounded.

To select the buzzer duration time in minutes select program code 3001 (see page 24)

Program Codes	Description	Maximum Value	Value Used
18	Buzzer ON time in hours or minutes (see program code 22)	MAX 59	
19	Buzzer ON time in minutes or seconds (see program code 22)	MAX 59	
20	Buzzer duration time in seconds	MAX 59	

Buzzer Time Programming Codes

Programming Money Values

This section tells you how to program the cost of sessions, and the value given to each coin type. The options described are selected using the general programming mode. The amount of money collected can also be examined, using the interrogation mode, described at the end of this section.

Note: In a similar manner to time, program codes are generally programmed as a pair, the first giving a value in a particular country's base currency (such as pounds or dollars) and the second, a value in one hundredths of the base currency (such as pence or cents).

Session Costs

Peak and off-peak session costs (2000R only) can be programmed using program codes 04 to 07. This allows you to charge at two rates within any 24-hour period.

Program Codes	Description	Maximum Value	Value Used
04	Peak session cost in base currency	-	
05	Peak session cost in hundredths of base currency	-	
06	Off peak session cost in base currency*	-	
07	Off peak session cost in hundredths of base currency*	-	

* only available with the 2000R

Session Value Programming Codes

*Note: If you program the peak and off peak session costs to overlap, the overlap period will default to the peak session cost.

See also session cost (page18), selecting additional features (page 24) and combination of cost and time (page 2).

Programming Coin Values

Programming coin values gives you the means of relating a cost, in real money terms, to a particular coin type. Each coin type has two program codes that can be used to give it a value in the base currency and in one hundredths of the base currency.

A single session can have any time you like, programmed by the Coin Time Programming Codes, the cost of this session can be related to a particular coin type and therefore a particular cost. This allows you to program the timer for use with coins of any currency.

Remember, this option must match the coin order of the coin time program and coin learn mode.

Program Codes	Description	Maximum Value	Value Used
43	Coin 1 value in base currency	-	
44	Coin 1 value in hundredths of base currency	-	
45	Coin 2 value in base currency	-	
46	Coin 2 value in hundredths of base currency	-	
47	Coin 3* value in base currency	-	
48	Coin 3* value in hundredths of base currency	-	
49	Coin 4* value in base currency	-	
50	Coin 4* value in hundredths of base currency	-	
51	Coin 5* value in base currency	-	
52	Coin 5* value in hundredths of base currency	-	
53	Coin 6* value in base currency	-	
54	Coin 6* value in hundredths of base currency	-	

* only available with the 2000R

Coin Value Programming Codes

Example

For example, in the UK if coin 3 were to be a 50p piece, program code 47 is set to ‘00’ and program code 48 is set to ‘50’. This would buy the amount of time allocated to coin 3 by program codes 35 and 36. Also learn coin 3, set using program code 57, would need to be learnt using twelve different 50p coins.

Note how the coin values are programmed in pairs (47=00, 48=50) for each coin type. This allows odd value coins, such as € 1-50 to be programmed. To set coin 5 as a € 1-50 set program code 51=01 and 52=50.

Coin Learn Mode

One of the features of the Wyvern Timer 2000/2000R is its ability to learn particular coin types. This enables the timer to be used with coins from a variety of currencies and also allows tokens to be given money values.

If you know or suspect the timer has been previously programmed, it is worth using programming option 61 or 57 (depending on timer type) to identify what coins have been previously learnt. If you don't, you may find certain coins you didn't want to use are still able to operate the timer.

To program a particular coin you will need at least twelve sample coins for the timer to 'learn' that coin's particular characteristic. Consequently, a mix of old and new coins should be used and the slot entry point and speed varied as each coin is inserted*. When the first program code is selected press the PROG button once and 12 will be displayed. Insert the coins one after the other and the display will count down. Continue adding coins until the display shows the program code and 'cx' (where x represents the coin number, 1 to 6). The learn process is normally completed with 12 coins but occasionally a coin may be ignored if the learn process detects abnormal coin characteristics. To move to a new code press UP or DOWN buttons followed by PROG.

*Use coins of varying condition, or else the timer may be over sensitive and reject valid coins.

Remember, this option must match the coin order of the coin time program and coin value program.

Program Codes	Description	Maximum Value	Coin Value
55	Learn coin 1	-	
56	Learn coin 2	-	
57	Learn coin 3*	-	
58	Learn coin 4*	-	
59	Learn coin 5*	-	
60	Learn coin 6*	-	

* only available with the 2000R

Learn Coin Programming Codes

The non-reject version of the Wyvern Timer only has provision for learning the value of two coins (coins 1 & 2) and these have been given wider limits than the reject version.

Use program code 57 (Wyvern 2000, non reject) or program code 61 (Wyvern 2000R, reject) to check that coins have been learnt as required.

Attaching the Coin Label

Once you have decided what coins or tokens are to be used, these may be indicated to a user by sticking the appropriate symbol underneath the translucent window of the front panel sticker. The coin reject version of this sticker (2000R), shown in Figure 13, fits into the front panel recess just below the coin entry slot. Stick the coin symbols on the timer's front panel such that they show through the translucent window and are held in place by the front panel sticker.

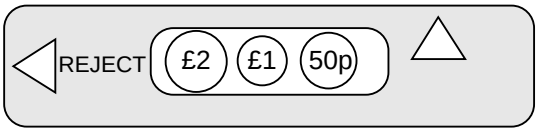


Figure 13 - Front Panel Sticker and Coin Symbols

Replacement stickers and coin symbols can be obtained from Wyvern Innleisure Ltd.

Display Coin Numbers

Program code 61 (or code 57 for non-reject version) allows you to determine the coin number already assigned to a particular coin. Note: a coin number is set by using learn coin program codes 55 to 60. Select program code 61 (2000R) or 57 (2000) using UP/DOWN buttons. Display shows '61c7' (or '57c7'). Press PROG button and display shows '_ _c'. Insert a coin and its coin number will be displayed, for example '_ _c2' or '_ _c3'. If a coin is not recognised the display shows '_ _ c0'.

Program Codes	Description	Maximum Value	Value Used
61 or 57	Display coin number, 1 or 2 for non-reject, 1 to 6 for reject. 0=coin not recognised	-	

Display Coin Numbers Programming Code

Auxiliary Programming Functions

When used for a particular purpose the Wyvern Timer 2000R can be fitted with hardware options that improve its capabilities, for example remote start or over-ride timer input.

External Input (2000R only)

The coin reject Wyvern Timer 2000R has optically coupled remote 'stop' and 'start' inputs that can be enabled/disabled by program code 23. Where no external inputs are used program code 23 can be left OFF.

The external inputs can be used to provide a timer remote start or to hold the timer OFF until it is enabled again, depending upon the setting of program code 26. This option can only be used if program code 23 is set to ON. When a push-button is used to remotely start the timer it will automatically over-ride any start delay/pretime. Pressing the button will immediately start the timer. If the start delay/pretime is set to zero, the timer will **only** start when you press the remote start push-button.

The remote HOLD option allows the timing operation to be suspended by turning the switch OFF and then later resumed by turning the switch back ON again.
Use the program UP and DOWN buttons to change between options.

Program Code	Description	Maximum Value	Value Used
23	Enable/disable external input Enable=ON Disable=OFF	-	
26	Set remote start = ON Set remote hold = OFF	-	

External Input Programming Code

Pulsed Output (2000R only)

Option 29 allows an application (for example some sunbeds) to receive a pulsed output from the timer rather than a continuous supply of power (normal operation). When enabled, this option pulses the main output relay for 250 milliseconds for every coin inserted, or for every push of the blue button. Set option 29 to ON to enable this facility.

When controlling equipment in this way, it is possible to mount the timer externally to act as a remote display. If this option is used the timer and the equipment being controlled must be programmed for the same time duration.

Program Code	Description	Maximum Value	Value Used
29	Pulsed output Pulse output=ON Normal operation=OFF	-	

Pulsed Output Programming Code

Key Switch/Panic Button (2000R only)

An optional key switch or panic button (emergency stop) can be fitted to the front panel of the timer, to the left of the display. This switch can be used to over-ride the timer function, for example during snooker competitions, or it can take the form of a panic button for immediate power turn OFF. Its use is controlled by program code 24, as shown below.

This option is factory set depending on whether a key switch or panic button is fitted. If the panic button is pressed 'E5P' is shown on the display, if the key switch is activated 'PL' is displayed.

A further option (program code 28) allows the keyswitch to control the operation of the fan output.

Use the program UP and DOWN buttons to change between options.

Program Code	Description	Maximum Value	Value Used
24	Key switch input function Play=ON Panic=OFF	-	
28	When keyswitch is active, fan output is on=ON When keyswitch is active, fan output is off=OFF	-	

Key Switch/Panic Button Programming Code

Network Control Option (2000RCN only)

Network control of the Wyvern 2000R allows the connection of multiple timers controlled from a single PC or the Sigma console. Used with commercial tanning software or the Sigma console all timers connected to the network may be controlled from a reception area. Real time information allows the status of each bed to be centrally monitored. Each timer is assigned its own unique id number and this is allocated with program code 64. The network interface module must be fitted and program code 3040 selected for network control. The remote display module (which allows the timer display to be seen in other locations) and failsafe monitor also work in conjunction with the network option.

Program Code	Description	Maximum Value	Value Used
64	Set timer id from 01 to 99	99	

PC Programming (2000RPC only)

Using the PC interface allows direct programming and interrogation of the timer without using the front panel hidden buttons. You will need to fit a PC interface module to the timer to allow connection to a PC's RS232 serial port. Instructions for the use of the Wyvern 2000 PC Interface are provided in the form of a pdf file on the CD containing the software.

The PC interface also allows use of customised software to control the timer in specific applications.

Program Code	Description	Maximum Value	Value Used
63	Select option 63, display shows 63co. Press PROG button, co on the display starts to flash.	-	

PC Interface Selection

Selecting Additional Features (2000R only)

Provision is made for additional features to be selected which effect other program codes. These features would normally only be selected at installation. To select the feature it is necessary to go to program code 30 and select the code shown in the table (for example if the buzzer duration time is required to be in minutes instead of seconds enter code 01)

These codes are additive so to select buzzer in minutes *and* lockout in cool set program code to 03 or for proportional session cost and no card data set program code to 14 and so on.

NOTE. The sum of the individual digits must not exceed 9 so for example program code 04 and program code 08 cannot be selected to give program code 12 as this represents program code 02 and program code 10.

Program Codes	Description	Maximum Value	Value Used
3000	No additional features selected	-	
3001	Buzzer duration time in minutes (code 20, Page 17)	-	
3002	Lockout coins/cards during 'Cool' (code 25, Page 16)	-	
3004	Proportional session cost/session time (Page 2)	-	
3008	Activate lockout after first valid coin (Page 17)	-	
3010	Card data not stored in interrogation menu (Page 25)	-	
3020	Door lock control	-	
3040	Enable network devices	-	
3080	Remote start & dual cycle	-	

Interrogation Menu

The interrogation menu is selected by pressing the UP programming button and allows you to view the total on time and total money collected by the timer. In normal use both coin and card data are accumulated together. If only coin data is required then card data may be ignored by using program code 30.

Time Used Interrogation

The following codes become available when the timer is set to the interrogation menu using the UP button. Note: Although codes 03 to 05 have been used in the program menu the following selection codes relate to the interrogation menu.

Total Time Accumulated Values

When you select one of these selection codes, the data values displayed 'xx' will indicate the accumulated time ON recorded by the timer.

Selection Codes	Description	Maximum Value	Value Used
03	Total time xx in hundreds of minutes	-	
04	Total time xx in minutes	-	
05	Total time xx in seconds	-	

Stored Total Time Programming Codes

To reset the total time and total money values to zero, the internal programming switch must be set to the programming mode before pressing the UP button. All the code data values must then be set to zero (selection codes 00 to 05 inclusive). The timer will only allow data values of '00' to be entered (reset), if any other value is attempted the timer reverts to the original data setting. Return the programming switch to normal for the reset to take effect. If any one data value is not set to zero the original data values are retained for selection codes 00 to 05 inclusive.

Example

Suppose the following figures were obtained:

Selection code 03 gives a value of 05 (100 X 05=500 minutes)
Selection code 04 gives a value of 33 (1 X 33=33 minutes)
Selection code 05 gives a value of 25 (1 X 25=25 seconds)

So the total time recorded by the timer (500+33+25seconds) will be 533 minutes and 25 seconds.

Money Interrogation Options

The following codes become available when the timer is set to the interrogation mode using the UP button. Note: Although codes 00 to 02 have been used in the program menu the following selection codes relate to the interrogation menu.

Money Collected Values

When you select one of these codes, the data values displayed 'xx' will indicate the accumulated money values recorded by the timer.

Selection Codes	Description	Maximum Value	Value Used
00	Total money xx in hundreds of base currency	-	
01	Total money xx in units of base currency	-	
02	Total money xx in hundredths of base currency	-	

Stored Total Value Programming Codes

To reset the total time and total money values to zero, the internal programming switch must be set to the programming mode before pressing the UP button. All the code data values must then be set to zero (selection codes 00 to 05 inclusive). The timer will only allow data values of '00' to be entered (reset), if any other value is attempted the timer reverts to the original data setting. Return the programming switch to normal for the reset to take effect. If any one data value is not set to zero the original data values are retained for selection codes 00 to 05 inclusive.

Example

Suppose the following figures were obtained from a timer set to operate with dollars and cents:

selection code 00 gave a value of 02 (100 X 02=200 dollars)
selection code 01 gave a value of 59 (1 X 59=59 dollars)
selection code 02 gave a value of 50 (0.01 X 50=0.5 dollars or 50 cents)

So the total takings reported would be (200+59+0.5) $259.50.

Smart Card Operation

Smart card operation creates a range of versatile options for the Wyvern Timer 2000R.

Card Types

The Wyvern Timer 2000R can use up to five different types of smart card divided into the following two groups:

- Control Cards
- In Use Cards

Control Cards

There are three types of Control Card:

- Reset Timer Card (standard mode, coins and cards accepted on any timer)
- Set Timer to Site Card (only cards from that site will be accepted)
- Set Timer to Profit Card (puts the timer into profit mode)

Reset Timer Card

This returns a timer to normal operation after being programmed to 'Set Timer to Site Card' or 'Set Timer to Profit Card' mode.

Set Timer to Site Card

Card security is assured by the use of an embedded Wyvern code that prevents the use of other smart cards, and a site code, which prevents the use of other Wyvern cards from another site being used. Wyvern Innleisure Limited and its authorised distributors control the site code by a user PIN number.

Set Timer to Profit Card

The Set Timer to Profit Card is used to put the timer into profit share mode and requires you to enter your user PIN number before the change can be made. See the later section on **Profit Share**.

Control Card Operation

To perform any of the above card operations, insert the Control Card into the reader and press the front panel down button. Enter the user PIN number embedded on the card as if you were entering a program code. Using the UP and DOWN buttons select each digit in turn and press PROG to confirm each selection. Upon entry of the last digit, the display will show 'Acc' until the card is removed. Entry of an incorrect PIN number will display 'Err'.

Once the card is removed the timer will be set to the mode determined by the type of Control Card used.

In Use Cards
There are two types of In Use Cards:

- User Card (issued to the user of the timer)
- Profit Card (a card that holds a pre-programmed number of session credits – see Profit Share)

User Card
Each User Card has memory locations to contain:
- Time
- Value
- Total value purchased
- Total time purchased

NOTE Both total value purchased and total time purchased cannot be programmed on the same card. Either one or the other must be chosen.

The User Card can be programmed in one of four ways:
1. Time and value stored on the card with the *total value* selected. Value on card deducted from total value.
2. Time and value set to zero on the card (timer settings used) with *total value* selected. Value stored in timer deducted from total value.
3. As value only stored on the card with *total value* selected. Value on card deducted from total value.
4. As time only stored on card with *total time* selected. Time on card deducted from total time.

Option 1 allows the card to control the time per session and the value allocated to that session. This means it is possible to program the card to give a different rate to that of the timer. For example, if the timer were set to give two minutes for £1-00, programming the card to give three minutes for £1-00 would override the timer settings. To encourage card use, the higher the cost of the card the greater the amount of discount that could be given.

Option 2 sets the value and time settings of the card to zero and uses the timer's settings. This will enable use of the card in a variety of timers all charging different rates. The timer settings used depend upon the coin number programmed on the card. For example, suppose coin 3 was programmed on the card and the timer had been set to identify coin 3 as a £2-00 coin that gave 2 minutes. The value used would be £2-00 and the time would be 2 minutes. If no coin is specified a default of 6 is used.

Discount rates can be offered on the card using option 2 by setting a non-existing coin to any value of (say) £3-00 within the timer. This non-existing coin will never be 'seen' by the timer, but exists on a card and could give a discount rate for the card user. The coin number should not be taught to learn a coin and the corresponding time needs to be set-up in the timer.

Option 3 allows programming the card as a fixed total value only with time being set to zero. The timer will deduct the value from the total value each time the card is used. The card uses the session time stored in the timer (program codes 08 and 09).

Option 4 allows programming the card as a fixed total time only with the value being set to zero. The timer will deduct the time from the total time each time the card is used.

WARNING

For all the card programming modes described above the timer session time (options 08 and 09) will take precedence over session time values stored on the card. In practice, this means that use of a card with a time value less than the session time offered by the timer will give only the time programmed on the card. Multiple presses of the timer's blue button will be required (debiting value from the card) until sufficient time has been used to equal the timer's session time. To avoid these anomalies always ensure time programmed on the card equals or exceeds any session time programmed in the timer.

User Card Operation

1. Insert the card as indicated. The timer's display will change from displaying the time to alternately flashing between the word 'cArd' and a display of total value available on the card. After approximately two seconds, the display will start to flash the amount of time available on the card. Removal of the card at this point will cancel the operation. If the card is empty, the display alternates between 'cArd' and '00:00' until removed.

2. Press the blue button to select time, further presses of the button will transfer more time from the card to the timer. Selecting too much time may cause the lockout time to be exceeded (options 16 and 17) and the display will indicate 'Loc'. Once the display indicates the required amount of time, remove the card. The display will show 'Acc' and the timer will turn-on once any pre-time has been counted down.

Note 1: If an incorrect card is inserted the display shows 'Err'.
Note 2: Insert a card at any time during a timing session to increase the session length.

Display of Total Value

The timer displays total value in complete units of base currency, there is no display of hundredths of base currency. If you debit a card with less than one complete unit of base currency (50p, for example) the display will show the total value to the nearest complete unit.

Example: Using a card with a total value of £33-00 which debits 50p for each insertion.

ACTION	TIMER DISPLAY	REAL AMOUNT
After first insertion	32	£32-50
After second insertion	32	£32-00
After third insertion	31	£31-50
After fourth insertion	31	£31-00

This continues until zero value remains on the card.

Profit Share

Profit share mode of operation can be used where a holding company leases out equipment free of charge, but expects to share the profit generated by that leased equipment. The system works using a 'Set Timer to Profit Card' Control Card to switch the timer to profit share operation.

Once set to profit share, an In Use Profit Card sets-up the timer to offer a fixed number of sessions at a certain cost per session. Once the timer has used-up all of the allocated sessions it will require another Profit Card to be inserted to provide it with another fixed number of sessions. For example, the company leasing the equipment may take the money collected by the timer and will return a certain percentage of it to the holding company in return for another Profit Card. Without another card, the timer will refuse to work and can only be programmed to allow alteration of the real-time-clock.

This method of operation does not require the holding company to collect money directly from installed timers and denies equipment operation until another In Use Profit Card is purchased.

Profit Share Operation

To operate a profit share scheme the holding company will require two smart cards:

1. Set Timer to Profit Card (Control Card)
2. Profit Card (In Use Card - the one sent to the company leasing the equipment)

The Set Timer to Profit Card is used to put the timer into profit share mode and requires you to enter a PIN code before the change can be made.

The Profit Card, as previously explained, is a card that holds a pre-programmed number of session credits. A total time or money value is held on the card and the time or cost of each session. This card is also protected with a PIN code.

Set Timer to Profit Cards and Profit Cards can be produced using a smart card programmer, available from Wyvern Innleisure Ltd. Also available from Wyvern is a third type of card (Reset Timer Card) which can be used to return a timer to normal operation.

Profit Share Setup

This is performed by following the **Control Card Operation** procedure explained previously.

Once set to profit share the timer is ready for the Profit Card. When the correct Profit Card has been inserted the timer will then work normally using coins, tokens or User Cards, but cannot be programmed to change any of the program codes other than setting the real time clock. In profit mode the timer is completely controlled by the settings applied via the Set Timer to Profit Card.

Note:
1. You do not need to select the timer's programming mode to enable profit share setup.
2. The PIN code must agree with the code used while programming the setup smart card.
3. Once a timer is set to profit mode, pressing the PROG button will display the total profit remaining within the timer.

Using the Profit Card

The following procedure applies the first time you use a Profit Card or when you need to top-up the sessions within a timer:

1. Insert the Profit Card, the timer's display will indicate the number of sessions remaining in the timer. For example, if the timer had four sessions remaining the display will show:

'P_:04' Programmed with 04 remaining sessions

2. Press the front panel DOWN button. Now enter the PIN code, as if you were entering a program code and data. Using the UP and DOWN buttons select each digit and press the front panel PROG button to confirm each digit entered.

3. Press the front panel PROG button once more and the timer's display will flash between 'Acc' and the number of sessions now loaded into the timer. For example, if the Profit Card contained another ten sessions the display would flash between 'Acc' and 'P_:14' indicating the timer now contains another ten (fourteen in total) sessions.

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Technical Specification

Input voltage	230V AC 50/60Hz or as requested at the time of ordering
Colour	White epoxy polyester powder case, blue moulded fascia
Switching capacity	1kVA standard (3.15A resistive), 7kVA option (30A resistive)
Power consumption	Less than 10W
Time intervals	Programmable minutes & seconds or hours & minutes (99.99 Max)
Display	0.6 inch high green LED
Coin	User programmable
Dimensions	H: 275mm W: 204mm D: 90mm
Weight	3.7kgm
Case	18swg mild steel
Lock	Radial 8 pin with two keys
Cash box capacity	400 coins of 23mm diameter x 2.5mm thick

Service Information

The Wyvern Timer 2000/2000R has been designed to provide reliable long-term use for a variety of timing applications. No regular servicing is required, apart from emptying of the cash box.

Repairs

When reporting any fault with the timer it is useful to quote the serial number (located on underside of the timer) and the firmware issue numbers first displayed when the timer is turned ON.

When power is first applied the display indicates 'I55' (meaning issue) followed by '7.x', followed by '4. x'. These numbers have the following meanings:

7.x is the processor firmware revision number and follows the sequence 7.0, 7.1, 7.2 etc.

5.x is the coin detection firmware revision number and follows the sequence 5.1, 5.2 etc.

IN MOST CASES IT IS NOT NECESSARY TO REMOVE THE TIMER FROM THE WALL.

WARNING

Remove all sources of power from the timer before attempting any repairs.

Fuse type and size
All circuit board fuse types are 20 x 5mm, (T) 3.15A.

Note, for coin reject models only: during the installation, if it is necessary to remove the ribbon cable connecting the two circuit boards, you must re-program the real time clock once the boards are re-connected.

If the front panel coin mechanism is replaced, ensure the top of the coin reject button does not foul against the fascia cover, as this will prevent the coin mechanism from working correctly.

If the 7kVA relay, mounted to the side of the main circuit board, fails, its loom should be disconnected, and the two M3 nuts and washers removed carefully and a new relay fitted.

Module replacement

If a particular module or part is required to be replaced within the timer's one year warranty period, Wyvern Innleisure Ltd offer a free of charge advanced module replacement service. A replacement module will be despatched in return for the damaged part. The faulty module must be returned within 14 days or a charge will be made.

IMPORTANT The Wyvern Timer 2000/2000R is designed for indoor use only.

Summary of Program Codes

General Programming Codes

Program Code	Description	Can be changed using code 22	See page number
00	Start delay or pre time in minutes	NO	15
01	Start delay or pre time in seconds	NO	15
02	Fan time in minutes	NO	16
03	Fan time in seconds	NO	16
04	Peak session cost in base currency	-	18
05	Peak session cost in hundredths of base currency	-	18
06	Off peak session cost in base currency	-	18
07	Off peak session cost in hundredths of base currency	-	18
08	Peak session time in minutes	YES	13
09	Peak session time in seconds	YES	13
10	Off peak session time in minutes	YES	13
11	Off peak session time in seconds	YES	13
12	Peak time ON in hours	-	13
13	Peak time ON in minutes	-	13
14	Off peak time ON in hours	-	13
15	Off peak time ON in minutes	-	13
16	Lockout time in minutes	YES	17
17	Lockout time in seconds	YES	17
18	Buzzer ON time in minutes	YES	17
19	Buzzer ON time in seconds	YES	17
20	Buzzer duration time in seconds	CODE 30	17 & 24
21	Time purchased display time	-	15
22	Selecting hours or minutes	-	12
23	Enable/disable external input	-	22

Program Code	Description	Can be changed using code 22	See page number
24	Key switch input	-	23
25	Cool display when fan ON	-	16
26	Enable remote start or hold	-	22
27	Secondary output control	-	15, 16
28	Key switch control	-	16 & 23
29	Pulsed output	-	22
30	Select additional features	-	24
31	Coin 1 time in minutes	YES	14
32	Coin 1 time in seconds	YES	14
33	Coin 2 time in minutes	YES	14
34	Coin 2 time in seconds	YES	14
35	Coin 3 time in minutes	YES	14
36	Coin 3 time in seconds	YES	14
37	Coin 4 time in minutes	YES	14
38	Coin 4 time in seconds	YES	14
39	Coin 5 time in minutes	YES	14
40	Coin 5 time in seconds	YES	14
41	Coin 6 time in minutes	YES	14
42	Coin 6 time in seconds	YES	14
43	Coin 1 value in base currency	-	19
44	Coin 1 value in hundredths of base currency	-	19
45	Coin 2 value in base currency	-	19
46	Coin 2 value in hundredths of base currency	-	19
47	Coin 3 value in base currency	-	19
48	Coin 3 value in hundredths of base currency	-	19
49	Coin 4 value in base currency	-	19
50	Coin 4 value in hundredths of base currency	-	19
51	Coin 5 value in base currency	-	19
52	Coin 5 value in hundredths of base currency	-	19

Program Code	Description	Can be changed using code 22	See page number
53	Coin 6 value in base currency	-	19
54	Coin 6 value in hundredths of base currency	-	19
55	Learn coin 1	-	20
56	Learn coin 2	-	20
57	Learn coin 3 (2000R) Display coin numbers 2000	-	20
58	Learn coin 4 (2000R)	-	20
59	Learn coin 5 (2000R)	-	20
60	Learn coin 6 (2000R)	-	20
61	Display coin numbers 2000R	-	21
62	Setting real time clock	-	12
63	PC Programming	-	24
64	Network id Assignment	-	23

Interrogation Menu

Selection Code	Description	See page number
00	Total money in hundreds of base currency	26
01	Total money in units of base currency	26
02	Total money in hundredths of base currency	26
03	Total time in hundreds of minutes	25
04	Total time in minutes	25
05	Total time in seconds	25

Display Messages

Message	Description	See page number
A	Add money	2
ACC	Card accepted	27
CARD	Valid card inserted	29
COOL	Fan is running	16
ESP	Emergency Stop pressed	22
L	Lockout is activated	17
LOC	Lockout time exceeded in card mode	29
P	In pretime/wait time	15
PL	In matchplay mode	22
PROG	In programming mode	9 onwards
STOR	Timer is storing information	9 onwards