OoPF Control Box

OPERATORS MANUAL

INDEX

SAFETY CRITICAL DATA - Please read carefully.

<u>To prevent fire or an electric shock, please follow the safety procedures below:</u>

Make sure the unit is installed to comply with the instructions given in this manual.

The cover of the unit carries a "danger" warning message instructing the operator to isolate the mains supply before attempting to remove the cover. For your own safety, make sure that the moulded plug is removed from the mains socket before you attempt to remove the lid.

Do not install the unit in hot, humid or excessively dusty places.

Do not install the unit where it will be subject to mechanical vibration.

Install the unit so that there is a minimum of 10 cm. clearance on all sides and the front, between it and any other object.

A moulded plug complying with BS1363 is fitted to this equipment for your safety and convenience. Should the fuse in the plug supplied need to be replaced, a 5 AMP fuse approved to BS1362 must be used. To replace the fuse, open the fuse compartment with a blade screwdriver.

In the exceptional circumstance where the plug supplied is not suitable for the socket outlets available, it should be cut off and an appropriate plug fitted in accordance with the following instructions: The wires in this mains lead are coloured in accordance with the following code.

Blue - Neutral   Brown - Live   Green/Yellow - Earth

Any alternative mains connection must allow the operator to isolate the supply effectively. The plug which has been cut off from the mains lead must not be inserted into a socket outlet.

The unit contains no user serviceable parts with the exception of three fuses. See the instructions above relating to the mains plug fuse. The other fuses are as follows:

An input fuse located on the left hand side of the power card. This must be replaced with a 20 x 5mm. 1 AMP Quick-blow (Type F) fuse.

An output fuse located on the right hand side of the power card. This must be replaced with a 20 x 5mm. 500mA Quick-blow (Type F) fuse.

If the unit can not be made to function correctly by replacing fuses as outlined above, the unit should be returned to the manufacturer for repair and test.

If you are unsure about any aspect of safety, ring the manufacturers help line. Always ask the person to whom you are speaking, how they are qualified to answer your questions.

Mains power should be isolated before any work is carried out on feed dispensers connected to the system. This is necessary to ensure that the dispensers will not be activated accidentally.

Safety critical components:

Description	Manufacturers Part No.
20 x 5mm. 1 AMP Quick-blow (Type F) fuse	FUSE 20MM 1A
20 x 5mm. 500mA Quick-blow (Type F) fuse	FUSE 20MM 500MA
Moulded plug fuse.	FUSE MAINS 5A

1.0   Switching on the Control Box for the first time.

Before switching on the control box for the first time, you should ensure that the battery switch on the rear of the electronics panel has been switched on. The switch is located almost directly behind the "right arrow" key. Slide the switch in the "ON" direction as indicated by the arrow symbol on the printed circuit board.

Whenever the control box is switched on, it performs a memory check to ensure that the control box data has not been lost or corrupted. If there is a problem, the control box will display the message "POSSIBLE MEMORY FAILURE" and ask you to check all data. This message will always be displayed when the unit is powered for the first time. You should press the "Enter" key to enter a password. In this manual the sequence "1234" will be used as a password, though you may use any four digit combination. The password can also be changed at a later stage.

After the "Enter" key has been pressed, the control box will display the "New Password" screen and you will be asked to enter a password. Press the keys "1" "2" "3" "4" in sequence and verify that the numbers appear correctly on the display. If you have made a mistake, press the "Delete" key to remove the incorrect digit and then press the appropriate key to enter the correction. When the display shows "Enter new password 1234", press the "down arrow" key to confirm your password. Press the keys "1" "2" "3" "4" in sequence and verify that the numbers appear correctly on the display. If you have made a mistake, press the "Delete" key to remove the incorrect digit and then press the appropriate key to enter the correction.

As soon as the new password and the confirmation password are the identical four digit sequence, the control box will accept the password and the "Welcome" screen will be displayed. Please note that if you choose a password other than "1234", you must remember your sequence otherwise you will not be able to program the control box.

2.0   Program and Non-program modes.

The control box has two modes of operation. In program mode, you are able to view and change all the settings including how much feed a cow is to receive. In non-program mode, you are able to view the settings and look up a particular cow, but you are not able to make any changes. You can enter program mode by going to the "Welcome" screen and entering your password. Please note that the control box will revert to the non-program mode 60 seconds after you last pressed any key. If you are entering date, the unit will therefore remain in program mode (providing you do not stop entering data for 60 seconds or more). We suggest that you experiment with the "left arrow" and "right arrow" keys to familiarise yourself with the various screens. From the "Welcome" screen, pressing the "right arrow" key will take you to the "Feed Allocation" screen. Pressing it again will take you to the "Feed Parameters" screen. Pressing it again will take you to the "Time and Date" screen. Pressing it again will take you to the "Restricted Times" screen. Pressing it again will take you to the "Printer Options" screen. Pressing it again will take you to the "Stock Control" screen. At any time you can move back through the sequence of screens by pressing the "left arrow" screen.

2.1   Entering "Program" mode.

To enter program mode, use the "left arrow" key to move back to the "Welcome" screen and enter your four digit password. Press the "1" key and verify that the number appears correctly on the display. The control box displays the "Verify password" screen and asks you to enter the three remaining digits. If you have made a mistake, press the "Delete" key to remove the incorrect digit and then press the appropriate key to enter the correction. Press the "2" "3" "4" keys in sequence. As soon as the correct password is entered, the control box confirms that this is the case and asks you to select whether you wish to delete a cow or program. In this case we will press the "Enter" key to program data. Deleting a cow will be described later in this manual.

3.0   Programming data.

When you have entered your password and pressed "Enter" as described above, you are now ready to begin making changes. The "left arrow" and "right arrow" keys can be used as in the non-program mode to move though the screens. The "up arrow" and "down arrow" keys can be used to select lines within individual screens. Before attempting to enter any cow data, certain parameters must be set, so it is recommended that you follow the sequence of screens as listed below:

3.1   "Feed Parameters".

First of all, the OoPF control box needs to know how many feed stations you have. This is done be pressing the appropriate numeric keys followed by the "Enter" key. The cursor will now move down to the "portion size" window. You need to enter the size of the portion dispensed by the feeder, in grams. The process to arrive at this value is described later in this manual. However, in order to carry out this procedure, you need a value entered, and a value of 125 grams is a good starting point. Remember that this is the amount of feed that will be dispensed to an animal visiting the station (providing she has a feed entitlement). Larger portion sizes can be programmed, but if you set a portion size of say, 250 grams, this gives a greater incentive for a bully cow to eject a timid cow and steal her feed.

The next parameter to be set is the "portion delay" in seconds. At any visit to the station, a cow can receive several portions of her entitlement. When the first portion is dispensed, the control box will stop scanning that particular station for the time set in "portion delay". The setting should therefore represent the time it takes a cow to eat most of the portion. If she wishes to stay for another portion, the control box will begin scanning the station again, and dispense another portion if the cow is entitled. Setting the "portion delay" too low will mean that the cow may not be able to keep up, and there will be a build up of feed in the manger. This would encourage a bully cow to eject a timid cow and steal her feed.

At this point, it is appropriate to explain how the OoPF control box regulates the dispensing of feed. If cow 23 is programmed for say, 12 kgrms per day, the control box will convert this into a number of portions per day. If the portion size is set to 125 grams, 12 kgrms would be calculated as 96 portions per day. The control box allows you to set the time at which a 24 hour period begins. Let us assume that the new day has been set to begin at 8.00 a.m. If cow 23 visits a station at 11.00 a.m., she will be recognised, and the control box will calculate her entitlement at that time. Entitlement is proportional to the number of hours into the 24 hour period. At 11.00 a.m., three hours have elapsed, so her entitlement will be 3/24ths. of 96 portions, which is 12 portions. Since an animal can not be relied upon to keep perfect time and visit the station just before 8.00 a.m. to receive the last of her feed, the control box will add 20% to the calculated entitlement at any time. At 11.00 a.m., cow 23 is therefore entitled to receive 14.4 portions. This would be automatically rounded down to 14 portions. If she has already received 6 portions on a previous visit, this would be subtracted from her entitlement which would then go down to 8 portions. In this way, the control box can regulate the amount of feed dispensed and spread it out during the 24 hour period.

A problem arises if cow 23 has not had access to the stations for several hours. For instance, she may have been in an A.I. pen between 8.00 a.m. and 4.00 p.m. At this time, she would be entitled to 8/24ths. of 96 portions, plus 20 %, which is 38 portions, or 4.75 Kgrms. This may be considered an excessive amount, so the control box provides a second control mechanism in such circumstances. The fourth line of the "Feed Parameters" screen allows you to set a maximum number of portions that the cow can receive in one visit to a station, in other words, in one meal. Say we wish to restrict cow 23 to a maximum of 2 kgrms in one meal. This can be accomplished by setting the "Maximum Meal Portions" to 16. If we do not want cow 23 to be able to return for additional feed within say, 2 hours, this can be accomplished by setting the "Full Meal Delay - Mins." to 120. Care must be taken to ensure that these values are not set in such a way that it is impossible for a cow to receive her full allocation in a 24 hour period.

3.2   "Time and Date".

Use this screen to enter the time of day and the date. Pressing the "Enter" key after an entry, automatically moves the cursor to the next line. The "up arrow" and "down arrow" can also be used to move between lines.

The third line of this screen is used to enter the time at which you wish the 24 hour feeding period to begin - the "Period Start Time". The selection of this parameter needs some thought. If cows are to use their full allocation, the few hours just before the change over time should be a period of high activity.

3.3   "Restricted Times".

If you are feeding a small amount in the milking parlour, you may wish to restrict access to the out of parlour feeders just before milking so that the cows are hungry and therefore encouraged to come into the parlour.
If your morning milking begins at say 5.00 a.m., you may wish to set the "Period 1 - Begin " time to 04.30 and the "Period 1 - End " time to 05.00.
Up to three restricted periods can be set. Going back to the Time and Date screen will allow you to see the effect of your restricted period settings. For instance, setting two half hour restricted periods will result in the feeders available figure being reduced to 23.0 hrs. If the current time is within a restricted period, then the control box will show that the "Feeder Status" is "inactive". At all other time, the status will be shown as "Active".

3.4   "Feed Allocation".

This screen is used to enter cow line numbers, ear tag numbers and feed allocation. To program cow 23 for 12 kgrms and ear tag number 17252338, proceed as follows.

Ensure that the cursor is in the space to the right of "Cow Line Number". Press the keys "2" and "3". Observe that the display shows 23. If it does not, use the "Delete" key and correct as previously described. Press the "Enter" key and observe that the cursor moves to the next line.

Enter the ear tag number by pressing the keys "1" "7" "2" "5" "2" "3" "3" "8" in sequence. Verify that you have entered the number correctly and press the "Enter" key to move to the next line.

Enter the amount of feed by pressing the keys "1" "2" "0" in sequence. Note that you are required to enter the digit after the decimal point even if this is a zero. Verify that you have entered the number correctly and press the "Enter" key to move to the next line. Observe that a figure appears in the "Portions per Day" window and that the same figure appears in the "Remaining this period" window. Press the "Enter" key again and observe that all figures are cleared and that the cursor goes to the "Cow Line Number" window ready to begin entering data for the next animal.

When you have finished entering data, allow the unit to return to the non-program mode. This will occur 60 seconds after you pressed the last key. During the process of returning to non-program mode, the control box will sort the cow line numbers for all the animals you have entered into ascending numerical order. A message will appear on the screen advising you that this is happening. It is most important that the control box is not disturbed during this operation.

3.5   "Printer Options".

If you have a printer attached to the control box, a printout of all the animals programmed will be produced automatically at the "Period Start Time". Details will be given of line number, tag number, feed allocation and feed un-eaten, both in terms of portions and expressed as a percentage of the daily portions. This list will be useful, but of greater interest is a list which selects those cows with more than say, 20% of their ration remaining during the last 24 hour period. This can be accomplished, in programme mode only, by entering "2" "0" and pressing the "Enter" key.

3.6 "Stock Control".

The control box can be set to warn you when your feed supply has fallen below a minimum level. In program mode, the minimum level can be entered, say 500 Kgrms, by pressing the keys "5" "0" "0" in the "Minimum stock" window. This can be changed at a later stage if required, using the "Delete" key to remove the previous value and then keying in the new value. The control box also needs to be informed when you receive a delivery of feed. If you have received 5000 Kgrms of feed, this can be added to the stock by entering the figure in the "Stock adjust" window and pressing the "Enter" key. From time to time, you may wish to bag-off an amount of feed from the hopper. This adjustment can be made by entering the amount in the "Stock adjust" window and pressing the "down arrow" key.

At the "Period Start Time", the control box will calculate how much feed has been used during the last 24 hour period and subtract this from the stock. If the new stock is below the minimum level, a warning message will appear on the printout. A warning screen will also appear on the control box.

4.0 Changing feed allocation or ear tag number for a cow.

If you wish to change ear tag number or allocated feed , go to the "Welcome" screen and go into programming mode by entering your four digit password. Press the "Enter" key followed by the "right arrow" key. This will take you into the "Feed Allocation" screen. For example, let us say that we wish to change the ear tag number for cow 23 to 17252361, and the feed to 11.3 Kgrms. To do this, proceed as follows:

Enter the cow line number by pressing the keys "2" and "3" in sequence. Press the "Enter" key and observe that the cursor moves to the ear tag window.

Press the "Delete" key twice and observe that the "8" and "3" are removed from the ear tag number. Press the keys "6" and "1" in sequence and observe that these are added to the end of the ear tag number.

Press the "Enter" key and observe that the cursor moves to the Daily Allocation window. Press the "Delete" key twice and observe that the "0" and "2" are removed from the feed. Press the keys "1" and "3" in sequence and observe that these are added to the end of the feed. Press the "Enter" key and observe that a modified figure appears in the "Portions per Day" and in the "Remaining this period" window. Press the "Enter" key again and observe that all figures are cleared and that the cursor goes to the "Cow Line Number" window ready to begin entering data for the next animal.

When you have finished entering data, allow the unit to return to the non-program mode. This will occur 60 seconds after you pressed the last key. During the process of returning to non-program mode, the control box will sort the cow line numbers for all the animals you have entered into ascending numerical order. A message will appear on the screen advising you that this is happening. It is most important that the control box is not disturbed during this operation.

5.0   Deleting a cow record.

If you wish to delete a cow record, go to the "Welcome" screen and go into programming mode by entering your four digit password. Press the "Delete" key and observe that the control box displays the "Delete a Record" screen. Enter the cow line number you wish to delete and press the "Enter" key. The control box now asks you to press the "Delete" key to confirm the deletion. If you change your mind, press the "left arrow" key to exit.

When you have finished deleting cows, allow the unit to return to the non-program mode. This will occur 60 seconds after you pressed the last key. During the process of returning to non-program mode, the control box will sort the cow line numbers for all the animals you have entered into ascending numerical order. A message will appear on the screen advising you that this is happening. It is most important that the control box is not disturbed during this operation.

6.0 Checking that your cows are using the system.

This section assumes that you are in non-program mode. If you are in program mode, simply wait for 60 seconds. If you have a printer, you will receive daily printouts giving you information on how your cows are using the system. If you do not have a printer, you can get the same information from the "Feed Allocation" screen in non-program mode. The control box will always sort records into cow line number order, and you can step through the records using the "up arrow" and the "down arrow" keys. The screen will give you information on how many portions are remaining this period and how many were remaining in the last 24 hour period.

If you wish to step to a particular cow record, use the "Delete" key to remove the number of the current record, and then enter the line number you require. You can then use the "up arrow" and the "down arrow" keys to step through your list from this starting point.

Please note that after any interruption of the mains supply, you will need to go into programming mode and set the time and date.

7.0 Calibrating the Feed Stations.

Each feed station control box has a calibration potentiometer, which is located on the bottom side of the enclosure. The potentiometer has a hand locking nut which should be loosened before any adjustments are made. The auger motor has a self park feature which means that it will complete a full revolution after the control box has removed power. The calibration potentiometer is set at minimum which will ensure that the auger motor will complete one revolution each time the control box asks for a portion of feed. One revolution will dispense approximately 120 grams. To calibrate the feeders, all you need to do is program two spare ear tags for calibration purposes. It is recommend that you dispense 5 portions for greater accuracy. Weigh the feed as accurately as possible in grams, divide by 5 to arrive at the portion size and enter this value on the control box as described in section 3.1.

Remember that the ear tag will only dispense the number of portions you have set in the "Maximum Meal Portions" window in the "Feed Parameters" screen. It should also be noted that if another ear tag is

detected by the control box, in a particular station, the control box will assume that the cow has finished her "meal" and will not feed any further portions to your test ear tag for the time interval set in the "Full Meal Delay - Mins." window of the "Feed Parameter" screen. For calibration purposes, it is advisable therefore to set the "Full Meal Delay - Mins." to zero, and to have two ear tags programmed.

8.0   Feed Station control unit - indicator lights.

Each feed station control unit has three indicator l.e.d.'s. The first of these is a red l.e.d. which flashes when the station is being scanned. The second is a green l.e.d. which shows when an ear tag has been recognised. The third is an amber l.e.d. which indicates that the cow has been fed a portion.

The red l.e.d. will therefore flash at regular intervals. If there is an ear tag in the station, the green l.e.d. will also flash. Providing the animal is entitled to feed, the amber l.e.d. will also be illuminated. If an animal has just been fed, the station will not scan again for the time period set in the "Portion Delay - Secs." window of the "Feed Parameters" screen. At the end of this time period, the station will begin to scan again and the red l.e.d. will flash. If a cow is recognised, but she is not entitled to any feed, the green l.e.d. will flash but the amber l.e.d. will not be switched on.

Please note that the feed stations do not scan while the control box is in program mode. If the control box is in non-program mode and the red l.e.d.'s are not flashing, check the power supply fuses, "Feed Parameter", "Time and Date" and "Restricted Period" settings. If the amber l.e.d. is being switched on, but no feed is being dispensed, check the power supply fuses and the overload on the left hand side of the feed station control unit. The overload can be reset by pushing the button under the clear plastic cover.