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Single tube possibility for all ratios
Heavy duty motor and gearbox
NB TBR10 flow sensors MUST be installed with the water flowing vertically upwards through the sensor. All other flow sensors can be installed either vertically or horizontally.

Schematic Layout for VTY10 Sensor (similar for other sensors) Select-480 shown
### Quick-fit Instructions

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Install flow sensor in water line. Ensure arrow marked on sensor corresponds to direction of flow.</td>
</tr>
<tr>
<td>2</td>
<td>Assemble the T-piece and reducer. Install after the flow sensor.</td>
</tr>
<tr>
<td>3</td>
<td>Insert female coupling into reducer. This is the point of product injection.</td>
</tr>
<tr>
<td>4</td>
<td>Unpack the 3m delivery tube. Cut to convenient lengths for doser to product container, and doser to injection point.</td>
</tr>
<tr>
<td>5</td>
<td>Fit the male injection piece into the end of the delivery tube going to the water line.</td>
</tr>
<tr>
<td>6</td>
<td>Remove the 3 screws holding the pump cover in place and remove cover.</td>
</tr>
<tr>
<td>7</td>
<td>Using the tube connectors provided, connect the pump tube as shown.</td>
</tr>
<tr>
<td>8</td>
<td>Place the tube restraint (black zip tie) in the left hand (IN) side restraint of the pump-head as shown. Select “Load tube? Yes from the screen controls.</td>
</tr>
<tr>
<td>9</td>
<td>With the rotor turning, feed in the pump tube so that it lies horizontally in the pump-head and fully into the tube guides. <strong>CARE – MIND YOUR FINGERS</strong></td>
</tr>
<tr>
<td>10</td>
<td>Replace the pump cover and the 3 screws. The tube can be primed using the on-screen controls once the cover is re-fitted.</td>
</tr>
<tr>
<td>11</td>
<td>To fit the non-return valve, cut the delivery tube on the OUT side of the pump.</td>
</tr>
<tr>
<td>12</td>
<td>Push-fit the non-return valve ensuring correct direction of flow by blowing through the valve.</td>
</tr>
<tr>
<td>13</td>
<td>Finish connecting the delivery tube as shown.</td>
</tr>
<tr>
<td>14</td>
<td>Connect the flow sensor plug along with the electric power supply.</td>
</tr>
</tbody>
</table>
Description

The Select-640 Livestock dosing system is a proportional additive pump designed to incorporate products into the drinking water of domestic livestock, particularly cattle. The components are: the main pump unit, a water flow sensor, and connections to the drinking lines. All parts inside the Select-640 doser can be replaced.

The doser will dose specific quantities of product (ml) per head of cattle per day. Any variations in water intake will not affect the intake of product per head as each day a new dosing ratio will be set automatically taking into account yesterday’s water consumption.

Installation

Connect the plug from the flow sensor into the Select-640 doser unit. Connect the Select-640 doser to either battery or transformer. Choose program options from the control screen. Ensure pump tube is fitted and connected to inlet and outlet delivery tubes. Place inlet tube weight into additive liquid. Connect delivery outlet tube into quick-fit connector clamp. Commence proportional dosing.

The Select-640 doser can be powered from a 12V DC battery or via a transformer from the mains electricity supply. Position the dosing point on the drinking lines so as to be convenient for a power source if power is to be taken via a transformer from the mains. Ensure that the Select-640 doser is properly secured to prevent it becoming immersed in water or stock additive solution.

The flow sensor is fitted with standard fittings which will need to be adapted to fit into existing pipe work. Use PTFE tape as necessary to ensure leak-free fitting. Avoid undue strain on the flow sensor during fitting as damage to the sensor may result. The use of a water filter immediately upstream of the flow sensor is recommended. Ensure flow is in the direction as indicated on the flow sensor.

The female connector is valved. The valve is opened once the male end on the delivery tube is pushed on.

Note: The pump will self prime. The pump can also be run dry without damaging any parts although it is not recommended to run the pump dry for extended periods.

Operation

When the electric supply is first connected, the version of the programming will be shown.

| 1 | This is the Welcome Screen  
To see the options available press “Set” (Options)  
To start dosing immediately if no changes are required, press “Adjust” (Start). See Screen 18 below for further instructions. |
| 2 | If the “Options” button is pressed, the first option is to enter the number of livestock units to be dosed (see below for definitions)  
Press Adjust to enter the Livestock units |
| 3 | The change each digit in turn, with the cursor under the first digit  
press Adjust repeatedly until the correct digit is shown, then press Set to move to the next digit.  
For less than 1000 Livestock Units, ensure the first digits are zeros e.g. 0576 for 576 Livestock Units.  
Press Set after the final digit is chosen. The following screen will be shown: |
Press Adjust to re-enter Livestock Units, or Set to move to the next Option.

Pressing Set will show:

The dose per head is the amount to be dosed per Livestock Unit. Pressing Set will move to the next option.

Press Adjust to enter the dose per head. The following screen will be shown:

There are 15 choices of dose per head (normally ml per head) programmed into the doser. Press Adjust repeatedly until the correct dose per head is shown, then press Set to accept this choice. If the required dose per head is not listed, please contact your Distributor.

The following screen is shown after pressing Set:

In normal working the Livestock doser will record yesterday's water total and use that figure to accurately dose the required amount of product over the full 24 hours today. On initial set-up, there will not be an accurate value stored for yesterday's water total, so an estimate can be entered.

Press Adjust to enter a value for yesterday's water total. The following screen is shown:

If the total is left as 0000, the Livestock doser will not dose during the first 24 hours, but the water flow will be recorded and the doser will commence dosing at the end of the first 24 hours using the correct value of water total (see Screen 21)

If it is possible to enter an estimation of yesterday's water total (e.g. 10% of the bodyweight of the stock being dosed), adjust each digit when it has the cursor under it by pressing the Adjust button repeatedly. Press set when each digit is correct.

**NOTE:** The units are in 100 litres. So, a water total of 50,000 litres is shown as 0500 (ensure the initial digit is a zero)

When Set is pressed after the final digit is selected the following screen is shown:

To re-enter yesterday's water total press Adjust. Otherwise press Set to show the following screen:

If no changes are required to be made to the sensor number press Set. To enter or change the sensor number press Adjust to show the following screen:
The flow sensors supplied with the Livestock doser have a tag on the connection plug showing the number of the sensor. To change the sensor number, press Adjust repeatedly to show the correct number.

Then press Set to show the following screen:

If the Livestock doser is fitted with an alarm system to indicate that a pump tube has burst, the alarm system can be enabled by pressing Adjust to change the N (no) to Y (yes). If this alarm system is not required or not fitted, N has to be shown. Then press Set to show the following screen: (Tube burst sensing is no longer fitted (Aug ’18)

Options are now complete. This is the Welcome Screen. To make further changes to the Options, press Set.

To start dosing press Adjust and the following screen will be shown:

The Purple pump tube needs to be fitted. See the section above – Changing Pump Tubes.

Press Set to see the following screen:

To take account of inaccuracies in the extrusion of the pump tube, we recommend that a digital adjustment is made to correct the accuracy of the Livestock doser. The Adjust % is shown on the packet containing the pump tube as supplied with the doser. Press Adjust repeatedly to show the correct Adjust %. (Note – The digits will scroll 0 to +20 to -20 to 0 again.

When the correct Adjust % is shown press Set to show the following screen:

This is the tube loading facility. In order to have the rotor turning slowly to either load a new tube (or remove an old tube), press Set. The rotor will be turning for 0.3 secs and stationary for 1.0 sec. Press Stop when required.

In order to fill up the delivery tube with the product to be dosed, press Set (Yes). The pump will run constantly to fill the delivery tube. Press No if tube filling is not required.

This screen will be shown while the pump is running to fill the delivery tube. Press Stop once the tube is full up to the injection assembly.
For the first 20 seconds, the doser will collect information on the flow of water. The rotor will not turn in this period.

After 20 seconds, the following screen will be shown:

This is the dosing screen shown during the normal operation of the G5 Livestock doser. The screen will change every 20 seconds to reveal more information. This is the screen shown during the first 5 seconds.

The doser is dosing at a ratio of 1:15151
The tube #2 is fitted with an Adjust % of +0%
The total water used in the present 24 hour period is 6700 litres - (0067T)
The water flow at the present time is 8,900 litres per hour (89H) -(changes each 20 seconds)

At the start of the next 24 hour period (when 23.59/24 on the timer changes to 0.00/24) a new dosing ratio will automatically be adopted to reflect a new 24 hour water record.

This is the screen shown during the following 20 second period. The total water used yesterday was 50,000 litres (0500Y)
1100 Livestock Units are being dosed (C is the number of stock)
The dose per Livestock Unit is 3.00ml
We are 1 hour and 29 minutes into the present 24 hour period

At the start of the next 24 hour period (when 23.59/24 changes to 0.00/24) a new dosing ratio will automatically be adopted to reflect a new 24 hour water record.

If yesterday’s water total was zero, the dosing screen will show these details. This is the first screen showing 0000Y as yesterday had a zero total. The doser will not be dosing, but water data is being collected.

The following 20 seconds this screen will be shown.
R0 is shown as no dosing ratio is available until 24 hours of water data has been collected.
Data is shown as data is being collected on water consumption during the present 24 hour period (we are only 3 hours and 24 minutes through the present 24 hour period).

If, during normal dosing, the Livestock Doser recognises that dosing has been completed before the end of a 24 hour period due to water consumption being higher than yesterday, the doser will stop operating to avoid over-dosing. For the remainder of the 24 hour period this screen will be shown (dosing is Done), water data will continue to be collected until the end of the 24 hour period.

If stock numbers or product per head rate have been entered incorrectly, or unexpected very high water flow rates have been encountered, the pump will still be turning at the end of the 20 second dose period. The software will recognise this as an error situation and will display the “Underdose!” message on the screen.
Pressing and holding the Adjust button for 0.5 secs will return to the Welcome Screen.

To make any adjustments to settings, return to the Welcome Screen and progress through the options. To return to the Welcome Screen, press and hold “Adjust” from the Operational Screen.

On the Operational Screen, the following colour abbreviations are used for pump tubes:

<table>
<thead>
<tr>
<th>Colour</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grey</td>
<td>GRY</td>
</tr>
<tr>
<td>Purple</td>
<td>Ppl</td>
</tr>
</tbody>
</table>

**Changing Pump Tubes**

ENSURE EITHER THE POWER SUPPLY OR FLOW SENSOR LINE IS DISCONNECTED BEFORE CHANGING THE PUMP TUBE. OTHERWISE ROTOR TURNING IS POSSIBLE.

Removal of pump tube – Remove the pump cover (3 screws). Unclip the pump tube at the inlet. Lift out the pump tube whilst rotating the pump rotor by hand in a clockwise direction (or use Load Tube facility). When the pump tube is clear of the rotors, completely remove the tube. Pull the old (soft) pump tube from the tube connectors.

Push the new pump tube onto the tube connectors WITH THE BLACK TUBE RESTRAINT (CABLE TIE) ON THE INLET SIDE. See instructions on Page 3 to install new tube in the pump head.

Ensure that all connectors between the pump tube and delivery tubes are securely fitted. If necessary warm the delivery tube with warm air or water to soften it to make fitting more easy.

**Pump Tube Life**

The life of the pump tube will depend on many factors including the product being dosed, the back pressures under which the pump is working, and the amount of time the pump needs to run to perform correctly. It is suggested that, in order to maintain dosing accuracy, the pump tube is replaced on a MONTHLY BASIS or sooner if wear or disfiguration of the tube is apparent. Spare tubes are available from your pump supplier. Note: Only tubes supplied by Dosing Solutions Ltd are recommended for use in the Select-640 dosing system to ensure accuracy of operation.

**Safety**

The Select-640 doser is an extremely safe unit. However, the following points should be observed:

Normal electrical safety precautions apply. Avoid water contact with any pump parts apart from the pump tube in normal working. Do not immerse the Select-640 doser in water.

Take precautions to ensure the Select-640 doser can not fall into the stock solution. Consider extra fastening if necessary. Cover stock solution at all times. If immersion does happen accidentally, isolate the Select-640 Doser from the electrical supply immediately.

The use of safety circuit breakers is recommended. If in doubt seek advice from a qualified electrician.

**Accuracy**

The Select-640 doser is factory set to give accurate dosing. If, during normal operation, the output needs to be increased or decreased slightly, this can be achieved via the screen command “Adjust” %.

**Electrical Supply**

The Select-640 doser uses a 12V DC power supply. This can either be supplied from a 12V battery or via a transformer power supply from the mains electricity supply. A 3.8A maximum current power supply is recommended. The Select-640 doser normally runs below 2A although starting currents are larger and dependant on the pumping conditions encountered.
The Water Flow Sensor
The standard water flow sensor (VTY10) records water flow from 20 litres/hour to 1500 litres/hour. Over 500 electrical pulses are sent from the sensor to the Select-640 doser per litre of water flow. The standard VTY10 sensor will withstand pressures up to 6 Bar. Ensure that the flow sensor is installed in the water line up-stream of the point at which the Select-640 doser injects the additive into the drinking line. Water flow should be in the direction of the arrow on the sensor.

Several flow sensors can be pre-installed in different drinking lines along with connection points for the additive delivery tube. Lines can then be individually medicated.

Flow Sensor Capacities
There is a maximum limit on the flow of water permissible through each flow sensor. The maximum flows are:

<table>
<thead>
<tr>
<th>Sensor Code</th>
<th>Maximum Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBR 10 (Sensor 1)</td>
<td>400 l/hr</td>
</tr>
<tr>
<td>VTY 10 (Sensor 2)</td>
<td>1,500 l/hr</td>
</tr>
<tr>
<td>VTY 20 (Sensor 7)</td>
<td>3,600 l/hr</td>
</tr>
<tr>
<td>VTH 25 (Sensor 3)</td>
<td>10,000 l/hr</td>
</tr>
<tr>
<td>VTH 40 (Sensor 5)</td>
<td>25,000 l/hr</td>
</tr>
</tbody>
</table>

Alarms and Warnings
If a high water situation is detected where the doser is unable to keep pace, the doser will either continue to dose and display “High Water Flow” on-screen (If the “Cont.at Hi. Flo? Option is answered Yes under Options) or a warning will be shown on-screen and the doser will stop operation (If the “Cont.at Hi. Flo? Option is answered No under Options).

If, for some reason the rotor becomes jammed or there is a mechanical fault within the pump drive system a warning – “Pump Error” may appear on-screen. If the fault is not immediately apparent and rectifiable, PLEASE CONTACT YOUR DISTRIBUTOR.

Water Line Pressure
The Select-640 doser will operate against a water pressure in the drinking line of up to 3 bar. (3 bar = 43.5psi = 99ft H2O = 30.6m H2O). Fit a pressure reduction device if necessary. The flow sensor is rated to 6 bar.

Constant Pumping
If the priming option is selected from the menu on the control screen, the pump rotor will turn continuously regardless of the flow in the drinking line. This can be useful for filling the suction and delivery lines before proportional dosing. It can also be used if a particular product needs to be dosed quickly within a given period. The following pumping rates will be achieved when the Select-640 doser is set to “prime”:

<table>
<thead>
<tr>
<th>Pump Tube Colour</th>
<th>Priming pump rate</th>
<th>Note:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grey</td>
<td>72 litres / hour</td>
<td>Used for low pressure metering</td>
</tr>
<tr>
<td>Purple</td>
<td>36 litres / hour</td>
<td>Normal proportional dosing tube</td>
</tr>
</tbody>
</table>

It is not recommended to use the Select-640 doser for more than 2 hours at a time in the priming mode, as tube and motor life will be reduced.

Encoding
Under the rotor assembly, there is a magnet holder plate that turns with the rotor on the drive shaft. This plate should be fitted so that the magnets are facing upwards.

There is a nylon washer under the magnet holder plate.
**Pumping Problems / Errors**

If the Select-640 doser fails to operate correctly, check the following: (If the problem cannot be resolved contact your Distributor)

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
</table>
| Error message “High Water” showing on screen | 1. Problem may have passed. check if max. water flow is still being exceeded  
2. Consider using more concentrated stock solution at a lower inclusion ratio.  
3. Possible pump fault. Contact your Distributor. |
| Incorrect dosing | 1. Check for low battery power (if external battery is in use).  
2. Pump tube should be replaced regularly. Replace if necessary.  
3. Flow sensor could be entangled with debris. Check and clean if necessary. NOTE: clear carefully – delicate mechanism. Fit filter up-stream of sensor and clean regularly.  
4. Is correct dosing ratio selected?  
5. Water pressure in the drinking water line should not exceed 3 bar. Fit pressure reduction device if necessary.  
6. Incorrect Tube “Adjust” Factor entered on the control screen. Check and re-enter.  
7. Incorrect pump tube fitted. Are screen details correct? |
| Medication not being pumped from stock container | 1. Check all tube connections are firmly in place.  
2. Inlet tube could be blocked. Clear as necessary.  
3. If a knife has been used to free a tube connector on the inlet side of the pump, the connector could be damaged and letting air into the suction line. |
| Sudden loss of pumping pressure (with possible return of fluid into stock container) | 1. Check that non-return valve is fitted correctly (arrow facing down or by blowing in it) and that the delivery line is not being blocked. |
| Error message “pump error” | 1. A failure of the motor or data encoder is indicated. Check that connections to circuit board from motor are in place. Consult Distributor. |
| Tubes wearing down quickly | 1. Check that the rotors are free of debris and able to turn freely. Check and clean if necessary. |
| Proportional dosing does not commence | 2. Check flow sensor connected  
3. Check there is water flow  
4. Is power supply sufficient? |

**Maintenance**

**Weekly**
Flush out filters protecting the flow sensor.  
Inspect the pump tube for signs of wear.  
Check doser output. Adjust as necessary via the control screen.

**Monthly**
Replace pump tube monthly or sooner if any of the following occur:  
- Sharply increased rate of dosing  
- Split tube  
- Make sure rotor is free of debris and running freely

**Each 6 Months**
After disconnecting from electric supply, remove cover from Select-640 doser and inspect interior of pump enclosure. Ensure that there is no moisture or other contaminant. In case of difficulty, contact your supplier.
## Spare Parts and Accessories

<table>
<thead>
<tr>
<th>Item</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select-640 doser unit with VTY10 sensor</td>
<td>010CA10</td>
</tr>
<tr>
<td>Select-640 doser unit with VTY20 sensor</td>
<td>010CA20</td>
</tr>
<tr>
<td>Select-640 doser unit with VTH25 sensor</td>
<td>010CA25</td>
</tr>
<tr>
<td>Select-640 doser unit with VTH40 sensor</td>
<td>010CA75</td>
</tr>
<tr>
<td>Select-640 doser unit with TBR10 sensor</td>
<td>010CA50</td>
</tr>
<tr>
<td>Flow sensor (VTY10)</td>
<td>160CA03</td>
</tr>
<tr>
<td>Flow sensor (VTY20)</td>
<td>160CA20</td>
</tr>
<tr>
<td>Flow sensor (VTH25)</td>
<td>160CA05</td>
</tr>
<tr>
<td>Flow sensor (VTH40)</td>
<td>160CA08</td>
</tr>
<tr>
<td>Replacement pump tube pack – 5 tubes</td>
<td>011CA63/REP</td>
</tr>
<tr>
<td>Replacement pump tube pack – 5 tubes</td>
<td>011CA48/REP</td>
</tr>
<tr>
<td>Non-return valve</td>
<td>156CA00</td>
</tr>
<tr>
<td>Delivery tube (3m) plus end weight</td>
<td>152CA05</td>
</tr>
<tr>
<td>Quick-fit male/female connector</td>
<td>153CA02</td>
</tr>
<tr>
<td>Power supply 12V-DC 3.8A</td>
<td>019CA00</td>
</tr>
</tbody>
</table>