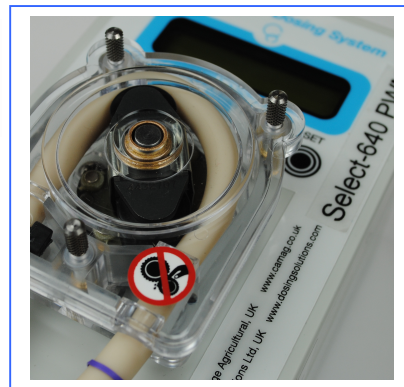


SELECT Dosing System

Select-640 - Proportional



Instructions for Use

Ref: 20.8 April 2021
640-191

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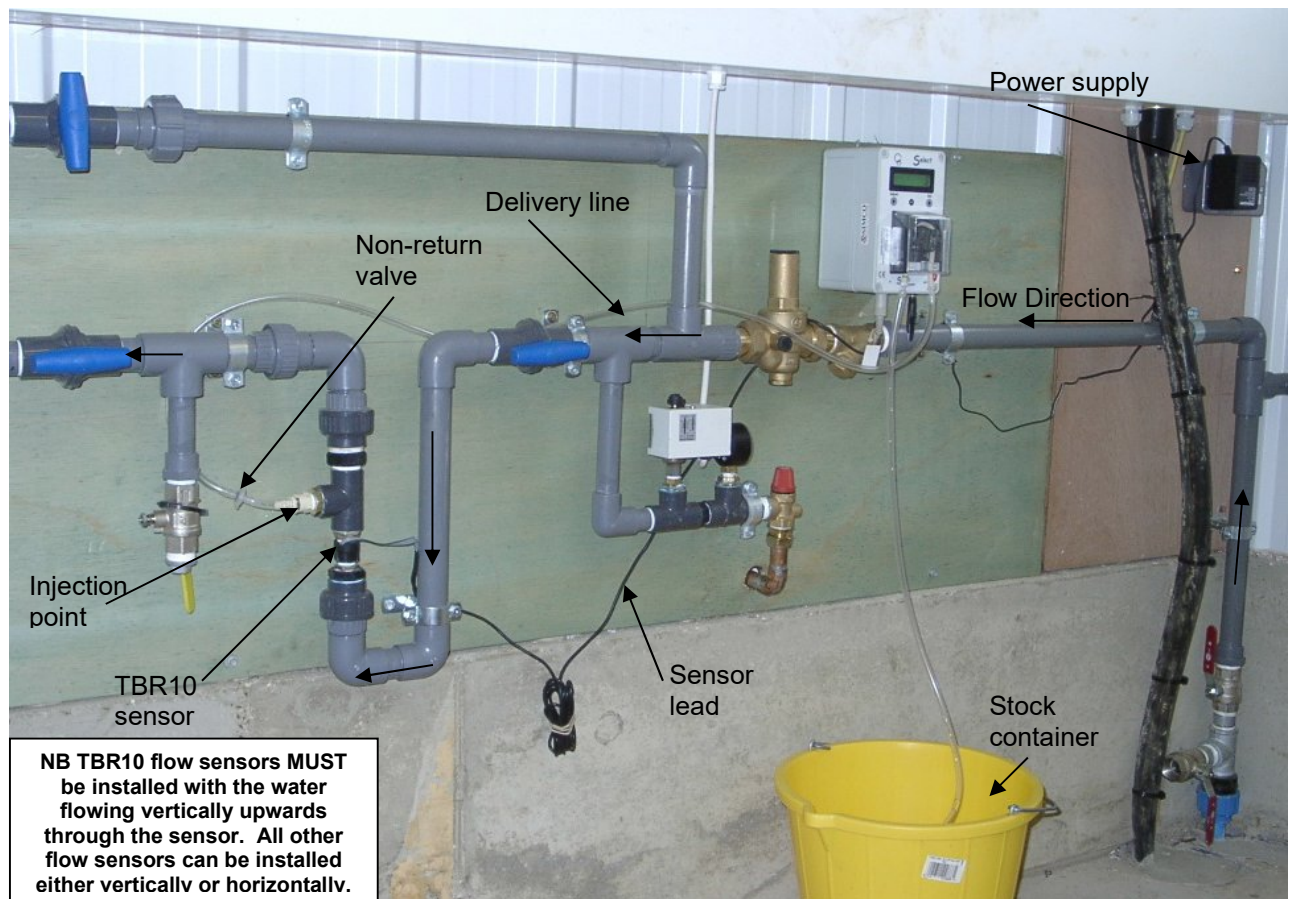
For Video Instructions go to:
www.dosingsolutions.com

Single tube possibility for all ratios
Multiple languages
Heavy duty motor and gearbox

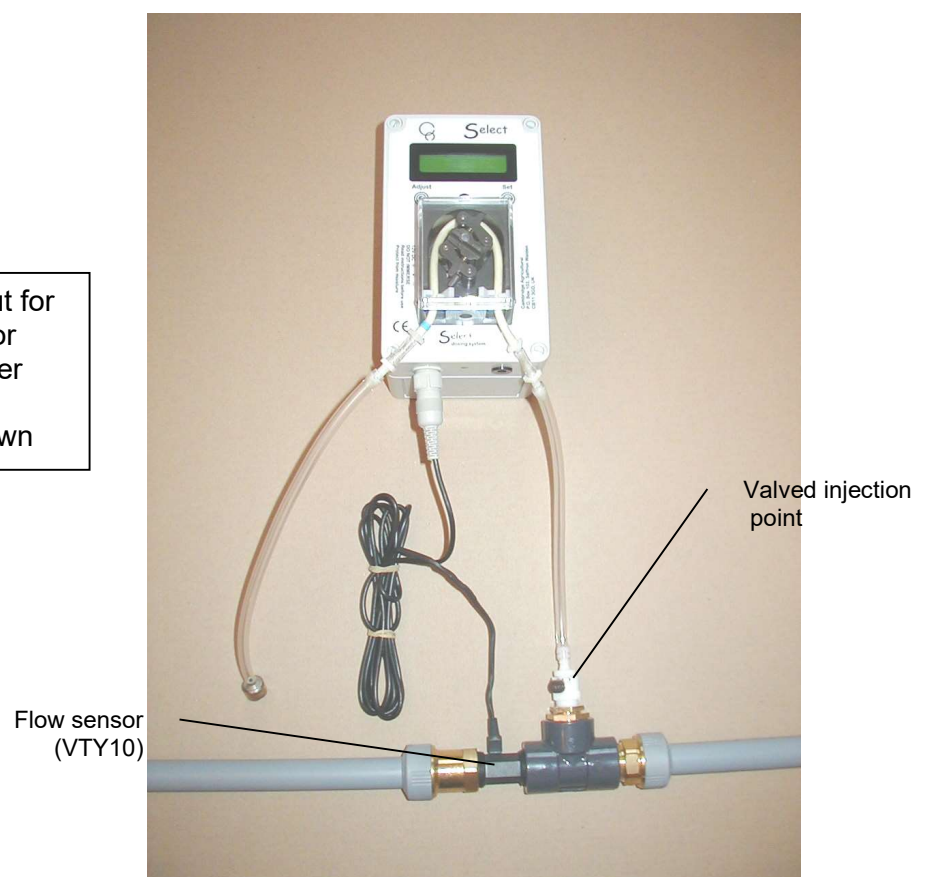


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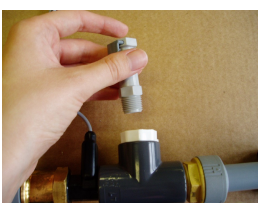

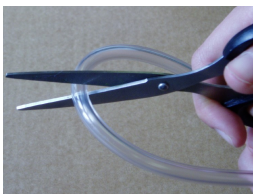
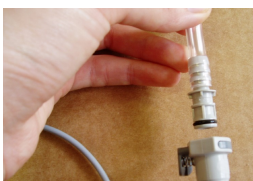

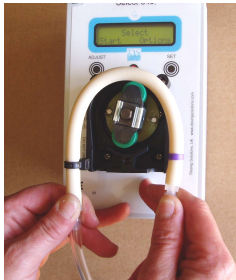
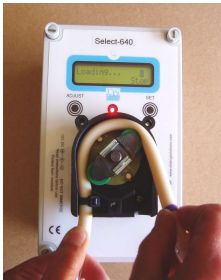

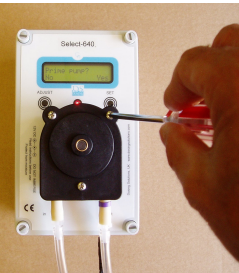
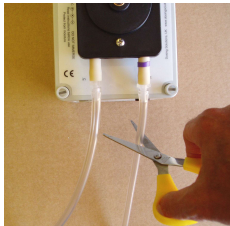
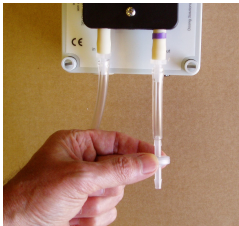
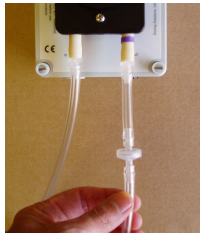
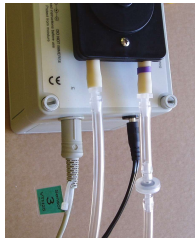




Schematic Layout for
VTY10 Sensor
(similar for other
sensors)
Select-480 shown



Quick-fit Instructions

| | | | |
|---|---|---|--|
|  <p>Install flow sensor in water line. Ensure arrow marked on sensor corresponds to direction of flow.</p> |  <p>Assemble the T-piece and reducer.</p> |  <p>Install after the flow sensor.</p> |  <p>Insert female coupling into reducer. This is the point of product injection.</p> |
|  <p>Unpack the 3m delivery tube.</p> |  <p>Cut to convenient lengths for doser to product container, and doser to injection point.</p> |  <p>Fit the male injection piece into the end of the delivery tube going to the water line.</p> |  <p>Remove the 3 screws holding the pump cover in place and remove cover.</p> |
|  <p>Using the tube connectors provided, connect the pump tube as shown.</p> |  <p>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.</p> |  <p>With the rotor turning, feed in the pump tube so that it lies horizontally in the tube guides and fully into the tube guides. CARE – MIND YOUR FINGERS</p> |  <p>Replace the pump cover and the 3 screws. The tube can be primed using the on-screen controls once the cover is re-fitted.</p> |
|  <p>To fit the non-return valve, cut the delivery tube on the OUT side of the pump.</p> |  <p>Push-fit the non-return valve ensuring correct direction of flow by blowing through the valve.</p> |  <p>Finish connecting the delivery tube as shown.</p> |  <p>Connect the flow sensor plug along with the electric power supply.</p> |

Description

The Select-640 dosing system is a proportional additive pump designed to incorporate medications, vaccines, nutritional products acidifiers, and sanitizers into water lines. 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.

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 in.

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.

| | |
|---|---|
| <p>This is the Welcome Screen To see the options available press "Set" (Options) To start dosing immediately, press "Adjust" (Start)</p> | <div> <div>Select</div> <div>Start Options</div> </div> |
| <p>If the Options button is pressed, the first option is to choose if the doser will continue to dose in a situation when the water flow is out of range (too high). Press "Adjust" until Y (yes) or N (No) is shown. With Y the doser will run constantly at high water flow. With N the doser will stop dosing and return to the welcome screen at high water flow.</p> <p>Press "Set" with the correct Y or N shown.</p> | <div> <div>Doser options</div> <div>Cont at Hi Flo Y</div> </div> |
| <p>Where tube fracture alarm option is fitted, press "Adjust" to Select either Y to enable (activate) the tube burst function, or N to cancel it</p> <p>Then press "Set".</p> | <div> <div>Doser options</div> <div>Tube Burst En. Y</div> </div> |
| <p>The third option is the selection of operating language. Press "Adjust" repeatedly until the desired language is shown. Then press "Set" to return to the Welcome Screen.</p> | <div> <div>Doser options</div> <div>Lang. English</div> </div> |

| | |
|--|---|
| <p>The Test Mode starts a process where the doser issues itself with a stream of pulses. This tests if the doser operates normally with these pulses. If it does, then any fault is likely to be with a flow sensor.</p> <p>Use the Adjust button to change N to Y, then press Set.</p> <p>Go through the normal menu (see below) to get to the dosing screen. The doser will sel-operate showing a flow of 650 L/hr for 5 minutes. To cancel, press Adjust.</p> | <div>Doser options</div> <div>Test Mode?N</div> |
| <p>The Welcome screen</p> <p>Press “Adjust” (Start)</p> | <div>Select</div> <div>Start Options</div> |
| <p>IF ONLY WATER METERING (NO DOSING) IS DESIRED</p> <p>Press “Adjust” (Meter)</p> | <div>Select</div> <div>Meter Dose</div> |
| <p>Press “Adjust” repeatedly until the correct flow sensor number (the one to be connected to the doser) is shown. Not all flow sensors will be offered. You will know which to select from the tag that is on the flow sensor plug.</p> <p>Then press “Set”.</p> | <div>Sensor Type</div> <div>3</div> |
| <p>The Select-640 doser is also a water meter. If you wish to reduce the water total to zero, press “Set”. If you wish to keep the water total already recorded, press “Adjust”.</p> <p>The water total is updated each 5 minutes. Short recording times may lose a small amount of water data.</p> | <div>Zero water tot?</div> <div>No Yes</div> |
| <p>This is the metering screen. The water flow rate is 4,740 litres per hour, Sensor 3 has been selected, and the total on the water meter is 108 litres.</p> <p>By pressing the “Adjust” button, you will return to the Welcome screen.</p> | <div>Meter only 4740H</div> <div>00000108T S3</div> |
| <p>This is the Welcome screen.</p> <p>Press Start (“Adjust”)</p> | <div>Select</div> <div>Start Options</div> |
| <p>TO DOSE PRODUCT USING THE SELECT-640 DOSER</p> <p>Press “Set” (Dose) to start the dosing process.</p> | <div>Select</div> <div>Meter Dose</div> |

| | |
|---|---|
| <p>First choose the flow sensor that is to be connected to the doser (it will be written on a tag attached to the sensor plug).</p> <p>Then press "Set".</p> | <div>Sensor Type?</div> <div>3</div> |
| <p>By pressing "Adjust" repeatedly the available ratios are shown. When the desired ratio is shown, press "Set".</p> | <div>Ratio 1:?</div> <div>1K</div> |
| <p>Ratio of 1:1000 will be shown as on this screen where K is the abbreviation for thousand. 12K5 is 1:12,500, 20K is 1:20,000.</p> | <div>Ratio 1:?</div> <div>12K5</div> |
| <p>Once the desired ratio has been selected, the correct tube to fit is displayed. Fit the correct colour pump tube as described in the Quick-fit Instructions on Page 3.</p> | <div>1:50</div> <div>Use tube: Purple</div> |
| <p>Pump tubes may be slightly too large or too small after manufacture. The correction for this is shown as % "Adjust" on the packet that the tube was supplied in. Press "Adjust" to scroll from -20% to +20% until the correct tube "Adjust" is shown. Then press "Set".</p> | <div>"Adjust" %</div> <div>-5%</div> |
| <p>The Select-640 doser is also a water meter. If you wish to reduce the water total to zero, press "Set". If you wish to keep the water total already recorded, press "Adjust".</p> <p>The water total is updated each 5 minutes. Short recording times may lose a small amount of water data.</p> | <div>Zero water tot?</div> <div>No Yes</div> |
| <p>To load a new tube in the pump head, press Yes to start the rotor turning to assist in the loading procedure. See Quick-fit Instructions on Page 3 for details.</p> | <div>Load tube?</div> <div>No Yes</div> |
| <p>Once the tube is loaded and level, press Stop.</p> | <div>Loading...</div> <div>Stop</div> |
| <p>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.</p> | <div>Prime pump?</div> <div>No Yes</div> |
| <p>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.</p> | <div>Priming...</div> <div>Stop</div> |

| | |
|--|---|
| For the first few seconds, this screen will be shown. The doser is collecting water flow information before dosing commences. | <div>1K Ppl -5 0H</div> <div>Dosing... S3</div> |
| This is the normal dosing screen. A ratio of 1:1000 has been selected, the water flow rate is 420 litres per hour, the water meter is showing a total of 106 litres, and Sensor 3 has been chosen. | <div>1K Ppl -5 420H</div> <div>00000106T S3</div> |
| If the water flow is too high for the doser to be able to dose correctly, this screen is shown each 5 seconds alternating with the normal dosing screen to show the water total. If "Cont at Hi Flo?" is "Set" at Yes (in Options), the doser will run continuously, but will return to normal dosing when the water flow reduces to a manageable level. Press "Adjust" for a short time to return to the Welcome Screen and clear the "High Flow!" message. | <div>1K Ppl -5 1420H</div> <div>High Flow! S3</div> |

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:

| | |
|--------------|-----|
| Grey | GRY |
| Purple | Ppl |
| Yellow/Green | YG |
| Brown | Brn |

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, the physical condition of the roller assembly 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 5A 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.

A selection of flow sensor sizes are available. See chart below.

Water Meter Total and Zero

Note: the maximum quantity of water that is shown on the water total quantity is 100,000,000 litres. After this the meter will return to zero, and water metering will re-commence as normal.

The water total can be returned to zero at any time from the dosing screen by pressing “Set” and holding for 3 seconds.

Flow Sensor Capacities

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

| | |
|--------------------------------|--|
| TBR 10 (Sensor 1) DISCONTINUED | 400 l/hr (MagFlo sensors for very low flows available) |
| VTY 10 (Sensor 2) | 1,500 l/hr (minimum flow 20 L/hr) |
| VTY 20 (Sensor 7) | 3,600 l/hr (minimum flow 30 L/hr) |
| VTH 25 (Sensor 3) | 10,000 l/hr (minimum flow 200 L/hr) |
| VTH 40 (Sensor 5) | 25,000 l/hr (minimum flow 400 L/hr) |

Water meters for higher flows

Proportional Dosing

A feature of the Select-640 doser is that, due to upgraded software, a single pump tube can be used for all dosing ratios. However, for small water flows and/or very fine dosing ratios, a range of small pump tube sizes is available.

The dosing ratios in each Select-640 doser are specified by the code number either on the smaller of the two computer chips on the PCB inside the doser.

During proportional dosing, the Select-640 doser constantly monitors the water flow in the drinking line. Each 5 seconds the doser injects exactly the right amount of additive into the drinking line or tank according to the ratio of administration selected.

When water flows are low, it is possible that the rotor may not turn in one or more of the 5 second periods. In this state, the doser will store accumulated flow information until it is possible to make a minimum turn of the pump rollers.

Complete mixing of additive into the drinking water is achieved by turbulent flow in pipe work.

Maximum Water Flows for Each Dosing Ratio

The maximum water flow for any ratio is: priming rate of the particular pump tube x ratio

E.g. with a dosing ratio of 1:200, the maximum water flow that can be dosed with a Purple tube is $36 \times 200 = 7,200$ l/hr.

If the Select-640 doser is turning for almost the full 5 seconds of each 5 second dosing period, this is the maximum output of the pump. If the water flow rises then "High Flow" will be shown on-screen.

Note: The actual maximum water flow allowable will be the lower value of the calculation above, or the sensor flow capacity shown above (Flow Sensor Capacities).

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 an absolute maximum of 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. Note: in practical terms, a water line pressure of 2 bar max is preferable.

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":

| Pump Tube Colour | Priming pump rate | Note: |
|------------------|-------------------|--|
| Grey | 72 litres / hour | Used for low pressure, large volume dosing |
| Purple | 36 litres / hour | Normal proportional dosing tube |
| Yellow/Green | 17 litres / hour | For low flows and fine ratios |
| Brown | 4.8 litres / hour | For very low flows and very fine ratios |

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)

| Problem | Solution |
|--|---|
| Error message "High Flow" showing on screen | <ol style="list-style-type: none"> 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. 4. A dead spot on the motor commutator caused by chemical damage. |
| Incorrect dosing | <ol style="list-style-type: none"> 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. Aim for 2 bar max. 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 | <ol style="list-style-type: none"> 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) | <ol style="list-style-type: none"> 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" | <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 1. Check that the rotors are free of debris and able to turn freely. Check and clean if necessary. Replace if necessary. |
| Proportional dosing does not commence | <ol style="list-style-type: none"> 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

| Item | | Code |
|---|--------------|-----------|
| Select-640 doser unit with VTY10 sensor | Unit | 010CA10 |
| Select-640 doser unit with VTY20 sensor | Unit | 010CA20 |
| Select-640 doser unit with VTH25 sensor | Unit | 010CA25 |
| Select-640 doser unit with VTH40 sensor | Unit | 010CA75 |
| | | |
| Flow sensor (VTY10) | unit | 160CA03 |
| Flow sensor (VTY20) | unit | 160CA20 |
| Flow sensor (VTH25) | unit | 160CA05 |
| Flow sensor (VTH40) | unit | 160CA08 |
| | | |
| Replacement pump tube pack – 5 tubes | Grey | 011CA63/R |
| Replacement pump tube pack – 5 tubes | Purple | 011CA48/R |
| Replacement pump tube pack – 5 tubes | Yellow/Green | 011CA32/R |
| Replacement pump tube pack – 5 tubes | Brown | 011CA16/R |
| | | |
| Non-return valve | unit | 156CA00 |
| Delivery tube (3m) plus end weight | unit | 152CA05 |
| Delivery tube – roll of 30m | unit | 155CA48 |
| | | |
| Quick-fit male/female connector | unit | 153CA02 |
| | | |
| Power supply 12V-DC 5A | unit | 019CA00 |
| | | |