

SDP Tank Kit



User Guide

Low Volume
0.5 - 6 litres per minute

Supplied:

In-cab speed control box
175, or 250 litre Tank with filter basket
Tubing (to be cut to required lengths)
Cable set
1m drain tube

Before turning the control box on:

Always make sure the 12 volt supply and the applicator are connected to the correct side of the control box and that the RED terminal is connected to plus (+) and the BLACK terminal is connected to negative (-) and that the bare wires of the cables do not touch the case of the control box

Please read the instructions in full and always follow the guidelines set out by the additive manufacturer with regard to safety, mixing and application rates. Do not use with sulphuric acid or diesel

Always use with a filter in line on the inlet side of the pump

Always flush with clean water after use

Any damage caused by failure to follow the above instructions could void the warranty

The applicator tank

The tank is translucent so the level of additive can be seen. Level guide stickers at the front of the tank show approximately how many litres of liquid are in the tank. These can be viewed from the front and the side.

The pump assembly is housed in the pump chamber. This has a stainless steel cover fitted to prevent the ingress of water and dust. The applicator should not be used, other than for testing with this removed.

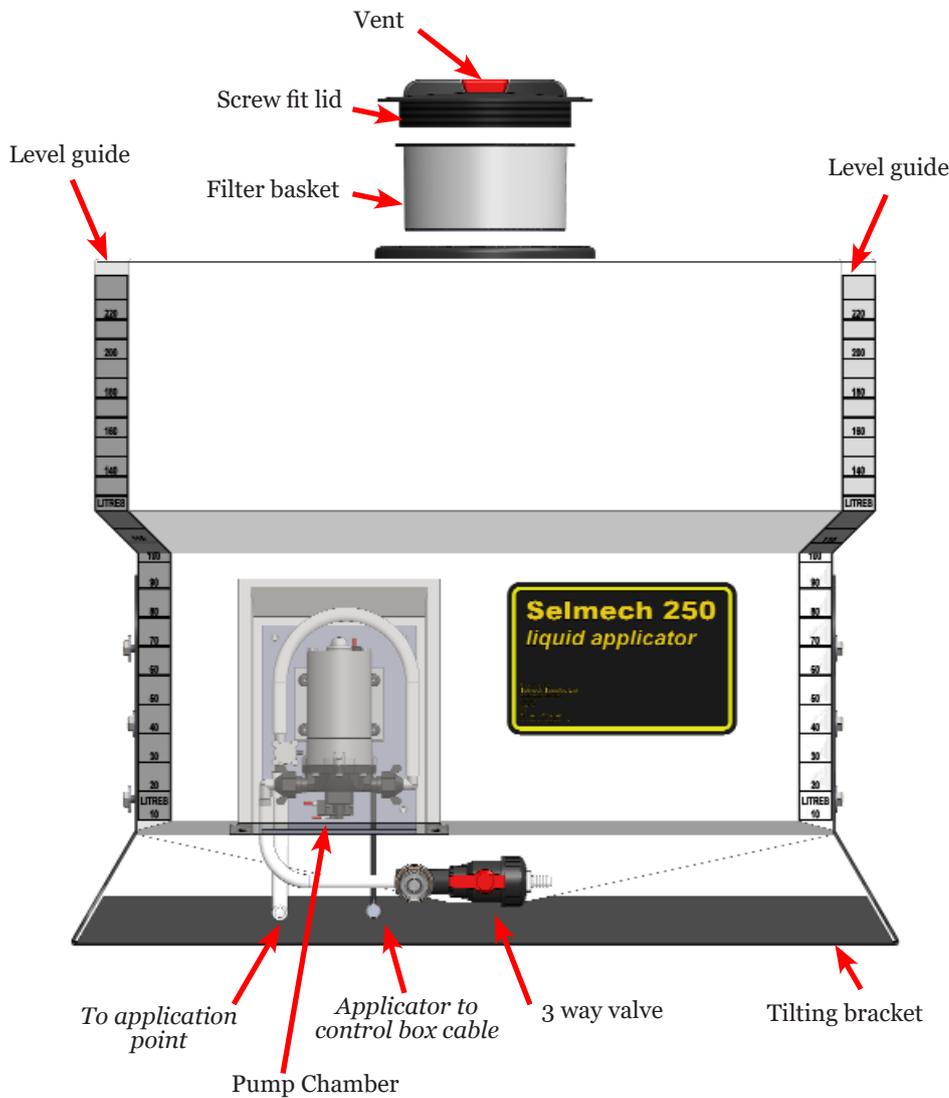
There is a 3 way valve at the bottom of the tank and its operating handle will point in the direction of flow.

When turned to the left, flow from is the tank to the pump. (Run position)

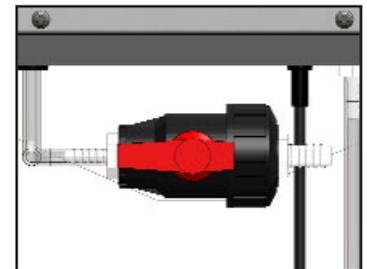
When turned to the right, liquid can be drained from the tank.

When in the upright position flow is stopped.

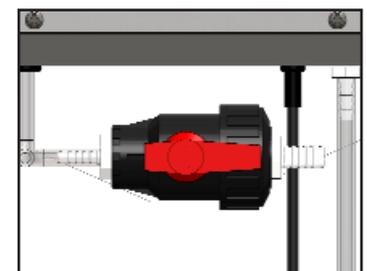
There is a 200mm opening at the top of the tank with a screw fit lid with vent. In the neck of the tank is a removable filter basket, always keep this in place when filling to prevent debris from entering the tank.



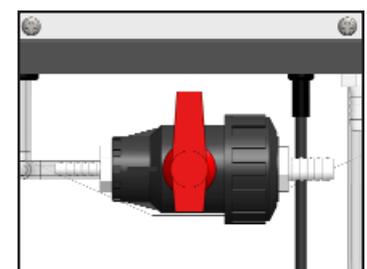
3 way valve



Tap set to run position



Tap set to drain position



Tap set to stop flow

Mounting the applicator

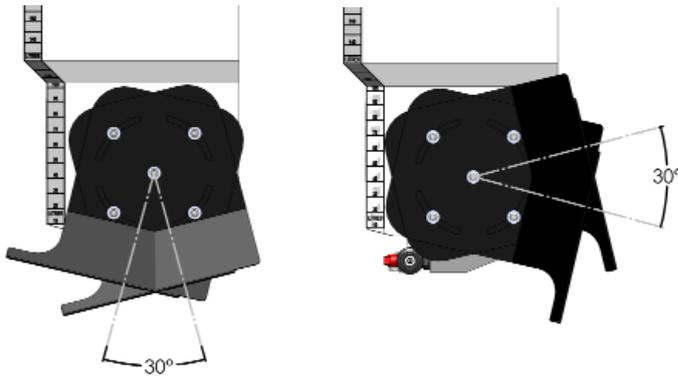
Mount the tank upright using the steel mounting brackets, this can be attached in the horizontal positions or vertical position depending on how you want to mount the tank on to your forage harvester or wagon. The brackets are held in place with M10 x 12 bolts. The tank can be fitted in the bracket over a 30 degree radius to allow it to be mounted upright on an angle surface.

! Always ensure the mounting surface is secure, spans the full width of the bracket and will support the weight of the tank when full. 300kg

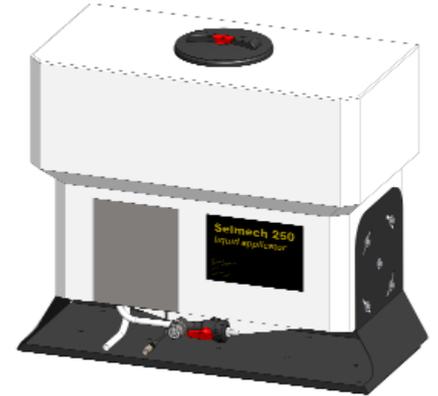
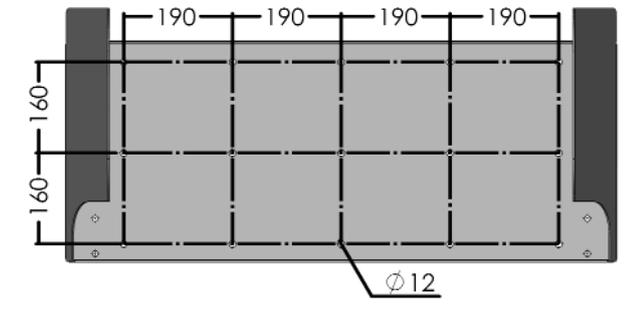
Mounting bracket positioning options

Tilting bracket

The mounting bracket tilts and can be switched to give multiple mounting positions



Mounting holes



Connecting the pvc hose

The pump is self priming and is secured into the pump chamber on a mounting plate held in place by 4 off M6 x 16mm screws The pump is secured to the mounting plate with 4 off 30mm No. 10 self tapping screws through the rubber mounting feet.

The pressure switch on the pump **SHOULD NOT** be adjusted under normal circumstances. Small degrees of movement on the grub screw will alter the cut out pressure considerably and consequently may lead to application problems.

The Optional Flowmeter, if supplied, should be fixed to a place within sight of the driver (but not within the cab).

There is one length of braided PVC hose which should be cut to suitable lengths to connect to the bottom hose tail of the Flowmeter (if supplied) and then from the top hose tail of the Flowmeter to application point.

Application point

The application point will depend on the machine you are fitting to. Typically for a forage harvester this would be the base of the chute behind the accelerator or over the feed rollers. Delivery of the additive can be open flow, or through a fan jet. Please note that the if application point is at the back of the blower of a self propelled harvester NO spray jet should be used as it would block easily - application should be open flow)

If fitting to forage wagon or baler the application is normally delivered through 2, 3 or 4 jets either over the transfer rotor or over the pick-up reel.

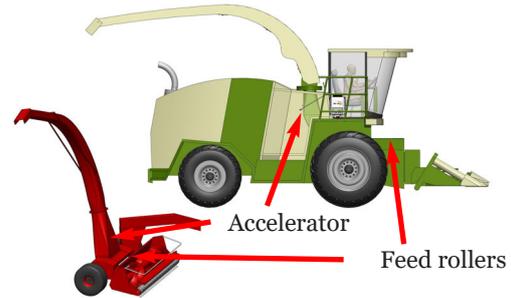
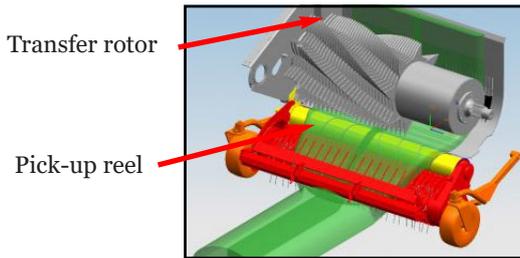
Route the tubing from pump housing to the application point. Avoid sharp edges and hot spots and leave enough slack around and pivot points for turning.

Flowmeter

If fitting a Flowmeter this should be positioned in view of the cab between the output of the pump and the spray nozzles. Flow in at the bottom, flow out at the top. A calibration chart can be found on the back of the Flowmeter.



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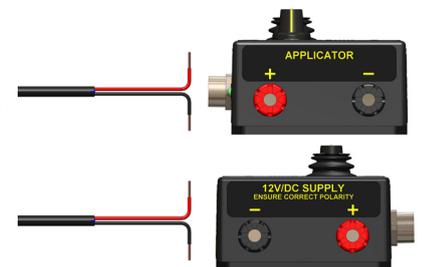
Connecting to the in-cab speed controller (control box)

1. Mount the control box in an accessible location in the vehicle cab.
2. Using the applicator to control box cable (Long cable with 4 pin socket and bare ends) connect the socket end to the applicator. Route to the control box avoiding hot spots and pinch points.

When making connections to the control box:-

!Make sure of correct polarity as damage to the control box and or applicator will occur if this is not correct, Make sure that the bare wires of the cable do not touch the case of the control box.

3. Connect the bare ends RED + and BLACK - to the "APPLICATOR" terminals on the control box.
4. Using the short cable with both ends stripped back, connect one end to the "12V/DC SUPPLY" terminals of the control box. RED + and BLACK -
5. Connect the other end of this cable to your fused 12 volt DC supply RED + and BLACK -. !If using a connector check the polarity is correct in this RED + and BLACK -.



!The connection to your supply should be secure and clean and the correct polarity.

DO NOT connect the two negative terminals together. **DO NOT** connect the pump negative to the ground of the tractor as this will prevent the applicator operating correctly

Finally - Check all connections for correct polarity before turning the control box on.

Operating the SDP Tank Kit

In-cab speed controller (control box) If using a thru beam crop detector refer to the additional instructions.

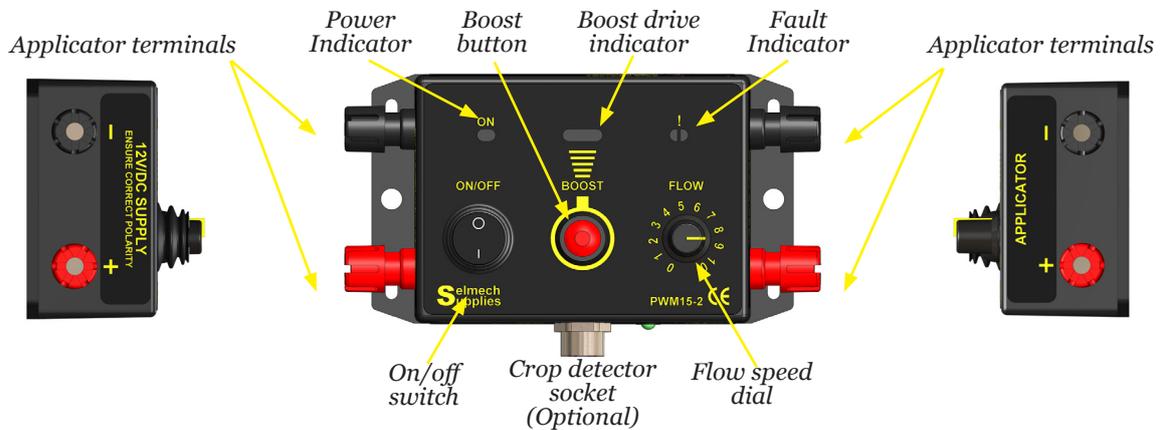
Use the flow speed dial to adjust and set the application rate. If there is extra heavy crop or an area of crop that has a higher moisture content the boost button can be pressed and released to run the motor at full speed for 10 seconds. The Boost indicator will illuminate when in this mode. To stop boost sooner press the button again. This can be repeated as often as required.

The “!” fault indicator warns of a power supply problem (refer to Fault Diagnosis).

Connect the control box directly to a fused 12-volt DC supply via the red and black terminals marked “12V/DC SUPPLY”.

Connect the applicator directly to the terminals marked “APPLICATOR”. **!Always ensure correct polarity before turning the control box on.**

DO NOT connect the two negative terminals together. **DO NOT** connect the applicator negative to the ground of the tractor



Calculate your application rate (This guide can be used for forage harvesters, forage wagons and balers.)

It is important to know how much of your additive should be applied per ton of forage (Application rate). Consult the supplier of your additive.

1. Work out how many tonnes per hour (t/hr) of forage is being treated. (example: - 120 t/hr)
2. Multiply that by the litres per tonne (l/t) of additive to be applied. (example: - 1 l/t x 120 t/hr = 120 l/hr)
3. Divide that by 60 to give you the application rate in litres per minute (l/m). (example: - 120 l/t / 60 = 2.0 l/m)
4. Refer to the calibration chart and use this figure to set the flow speed dial on the control box or if using a Flowmeter refer to the calibration chart for that and set the drive to match that.

For Your Figures

Tonnes of forage to be treated per hour	X	Additive application rate per tonne	=	litres of additive per hour	/	Divide by 60 to convert to minutes	=	litres of additive to be applied per minute
120		1		120		2		2 l/m

Jet Selection

Jet selection is important for the performance of the applicator. Each jet provides a 110 degree spray pattern but it is important to use the correct jet for the output required to achieve the optimum spray pattern. Also an anti siphon check valve is fitted to the jet body that requires pressure from the pump to open correctly. Use the same size jet in each jet body do not mix as this will provide an uneven output across the application point.

All nozzles should spray evenly. If one nozzle is being favoured over another fit smaller jets to increase the pressure to even up the output between each.

If the output is pulsing on and off the pressure is probably too high causing the pumps pressure switch to cut in. Fit a larger jets or add another jet body to reduce the pressure. If the jets are too small for the required output will not be achieved.

Setting the application rate

Refer to the calibration guide and set the flow speed dial on the control box to the number relating to your calculated application rate.



If using a Flowmeter refer to the calibration chart supplied with that.



Adjust the flow speed dial to align the top of the weight to the number on the scale that relates to you calculated application rate.

Calibration guide in Litres per Minute

Control Box Setting	Single Jet				Twin Jet			4 Jets			Single
	Yellow	Red	Light Blue	Black	Yellow	Red	Light Blue	Green	Yellow	Red	
3	0.6	1	1.2	-	1	1.2					1.5
4	0.8	1.2	1.8	-	1.3	1.9		2	1.5		2
5	0.9	1.4	2.2	2.5	1.5	2.2	2.8				3
6	1	1.5	2.8	3	1.6	2.7	3	2.5	2.0	3.5	3.5
7	-	1.6	3	4		2.9	4				4.5
8	-	1.7	3.5	4.5		3	4.5	3		4	5
9	-	1.8	-	5			5				6.5
10	-	-	-	6			5.1			5	5.1

The calibration guide assumes that the electrical supply is adequate. Poor connections and long cables can reduce the drive voltage to the motor.

! ALWAYS do your own calibration check with the additive you are using.

Monitor the flow - Make adjustments if necessary

Safety

1. Read and follow any warnings or guidance supplied with the additive.
2. Wear protective clothing when handling additive or any pump that is being used with additive.
3. Switch off the pump before removing tubing, nozzles or filters.
4. Do not contaminate skin, clothing, ponds or waterways with additive.
5. Do not allow the tubing to become kinked or blocked.
6. Never use a higher rated fuse than the one fitted.
7. Make sure all electrical connections are clean, secure and of the correct polarity before turning on the control box.
8. This pump **SHOULD ONLY** be used for spraying liquids recommended by the suppliers. **DO NOT** use with **SULPHURIC ACID** or **DIESEL**.
9. Always use with a filter in line on the inlet side of the pump

Maintenance

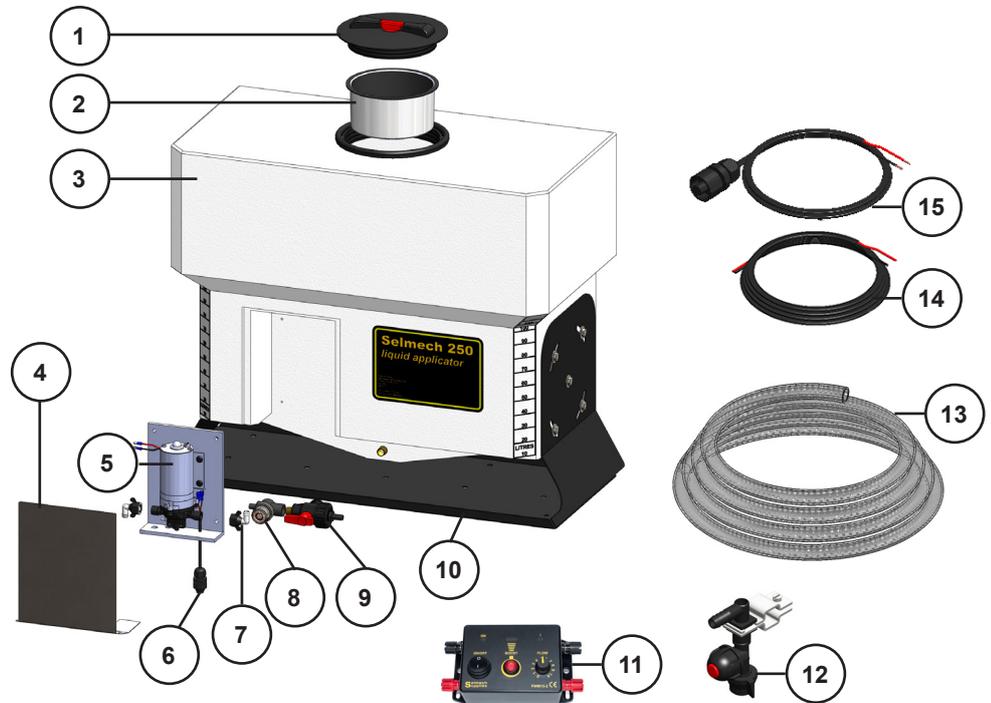
10. Always flush out the system with clean water after use.
11. Store in a clean dry place with the motor end upright. Never allow the pump to stand for long periods while filled with additive.

Internal fuse



15 AMP fuse Mini Blade type

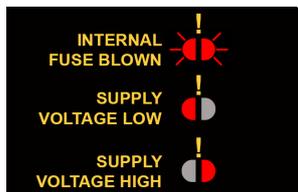
Parts Diagram



ITEM	DESCRIPTION	QTY	PART NO.
1	TANK LID	1	SSX251
2	TANK FILTER BASKET	1	SSX250
3	TANK (250L / 175L)	1	SSX299 /SSX298
4	PUMP CHAMBER COVER	1	SSX303
5	PUMP LV 0.5-6 L/M	1	SS21
6	PUMP MODULE CABLE	1	SSX304
7	PUMP HOSE TAIL	2	SSX156
8	FILTER ASSEMBLY	1	SSX94A
9	3 WAY VALVE	1	SSX197
10	TANK MOUNTING BRACKET	1	SSX305
11	CONTROL BOX (without crop detector/with crop detector)	1	SS83/SS92
12	JET BODY AND JETS (twin jet pack)	1	SSX207
13	TUBING 3/8" 10M	1	SSX9
14	POWER TO CONTROL BOX CABLE	1	SSX284
15	APPLICATOR TO CONTROL BOX CABLE	1	SSX302

Fault Diagnosis Label

The control box fault indicator will alert you if there is a problem with the supply or if the internal fuse is blown.



If the internal fuse has blown check for reasons why this may have happened before replacing and turning the control box on. **!Never use a higher rated fuse than 15 Amps.**

If the supply voltage is low check your supply and all connections. **! This could be caused by inadequate cable or poor connections.**

If the supply voltage is high. **! This could be caused by faulty tractor regulator or unregulated power supply.**

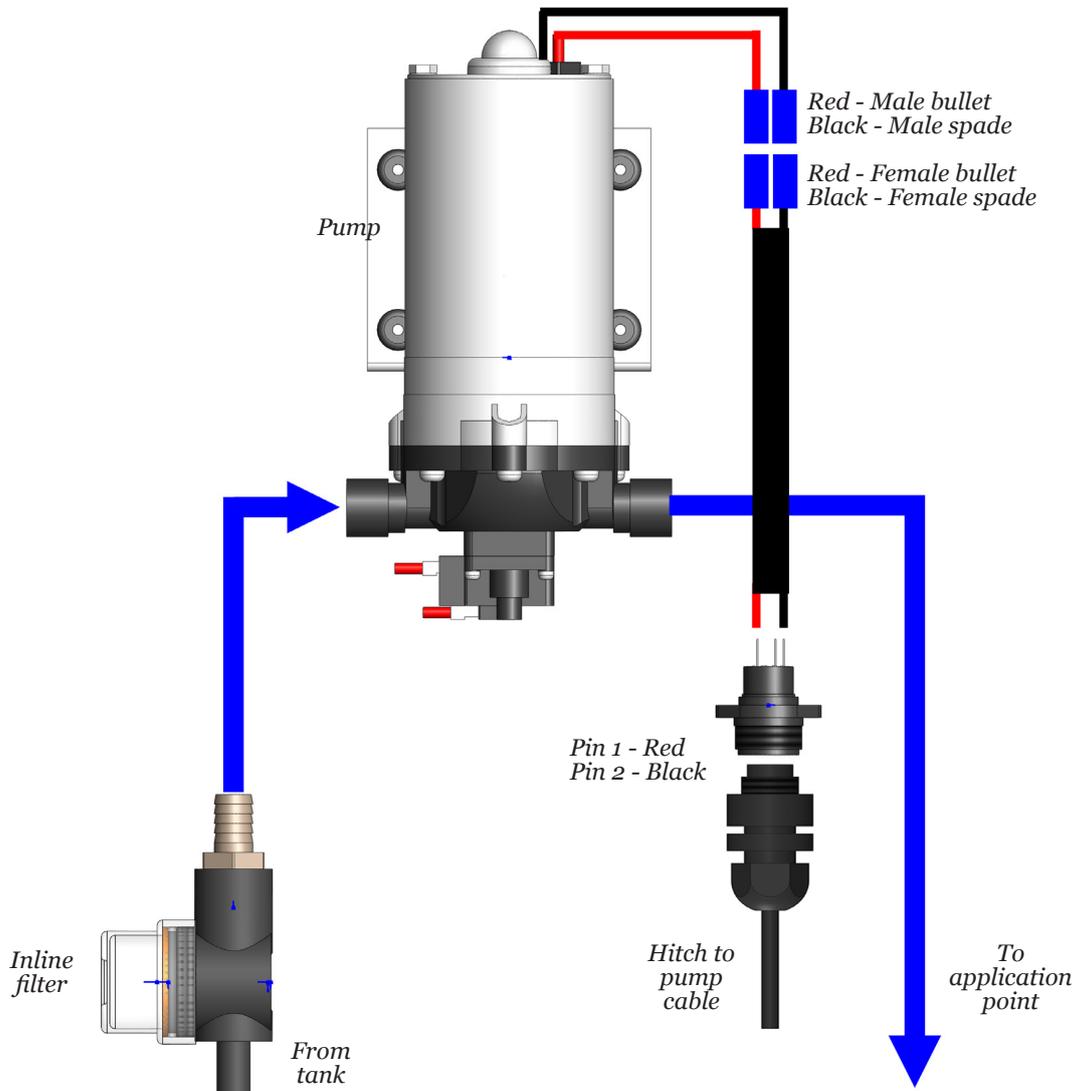
Cleaning the Strainer

The strainer should be cleaned at the end of each season or if a blockage is suspected.

1. Unscrewing the clear bowl and removed the filter gauss.
2. Clean the gauss, body and bowl in clean water
3. Re-assemble and re-fit.
4. Make sure the filter bowl is tightly screwed on.



Connection schematic diagram



Technical Data

Supply Voltage	12V/DC (10.6v DC to 16.4 V DC)
Current Consumption	5 Amps
Fuse Rating	15 Amps
Output Range	Low Volume 0.5 - 6 Litres per minute open flow

Fault	Diagnosis	Remedy
Pump will not run	Fuse blown	Check the internal control box fuse and for reasons why it has blown before replacing.
	Supply Low voltage indicator illuminated	Check supply and wiring connections
	Wires incorrectly connected or damaged	Check the wiring is connected correctly
	Seized or damaged pump motor	Contact your agent or Selmech Supplies
Pump runs but poor or no output. Pump will not prime.	Air getting in the system	Check all pipe clips are secure and the filter bowl is tight and there are no splits in the pipe work.
	Filter Blocked	Clean Filter
	Tubing kinked or split	Check tubing/remove kink and re-route tubing
	Jet blocked or wrong size jet	Clean jet or fit bigger jet
	Pump diaphragms worn out	Contact your agent or Selmech Supplies
Incorrect application rate	Tank level low or empty	Refill tank
	Incorrect calibration setting	Refer to calibration chart
	Spray jet too small	Fit larger spray jet

Warranty

Provided installation is carried according to these instructions a warranty of 1 year from date of delivery applies. This covers faulty parts/manufacture only and does not cover wear and tear through normal use or mechanical or chemical damage that has occurred to parts through misuse or unauthorised attempts to repair the unit. In the case of faulty manufacture, claims are limited to repair of the unit and its return to the customer.

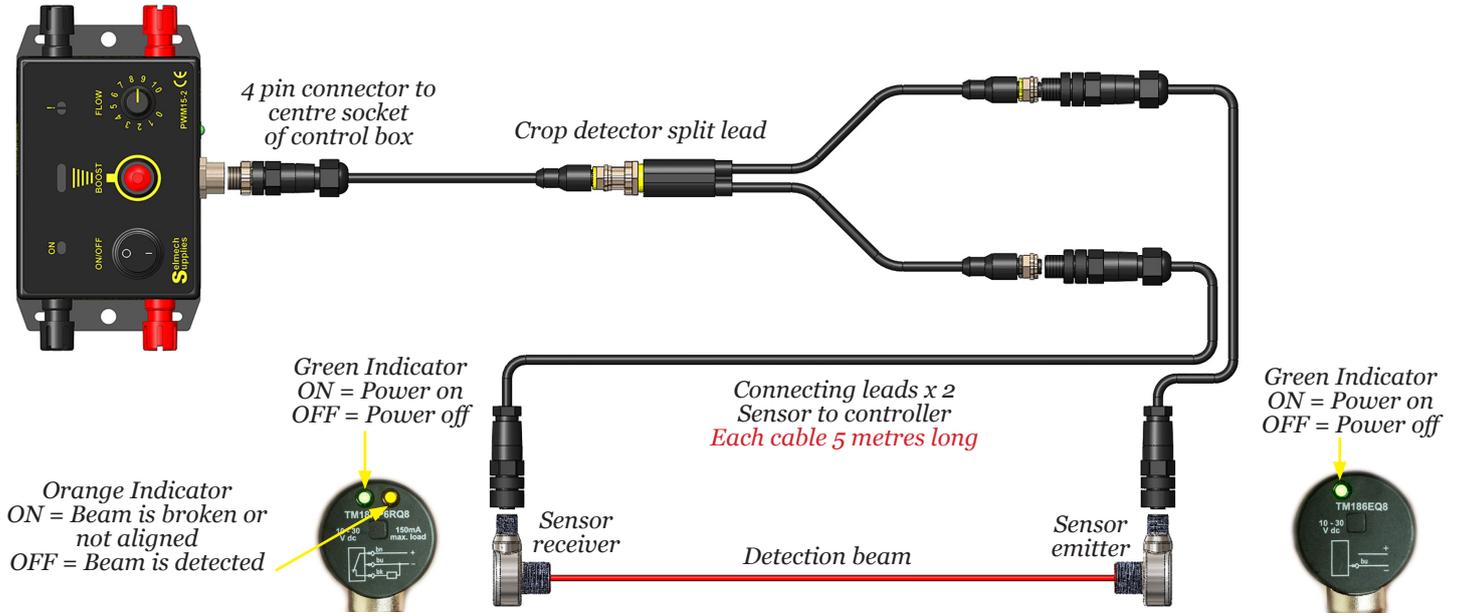
The thru beam crop detector (Optional extra)

The thru beam detector kit is designed to be used in conjunction with a Selmech Supplies in cab speed controller that is fitted with a 4 pin socket between the supply and applicator connectors.

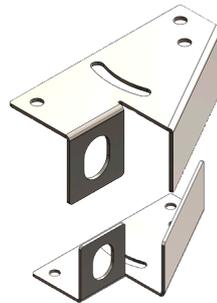
When connected it will automatically turn the applicator on when crop is detected by breaking the beam at the point of pick-up. When there is no crop (beam not broken) the applicator will be turned off.

There is an LED lamp, that displays green, or red this will show if there is crop or no crop. If there is no crop detector kit plugged in the lamp will not be illuminated and the control box will work normally.

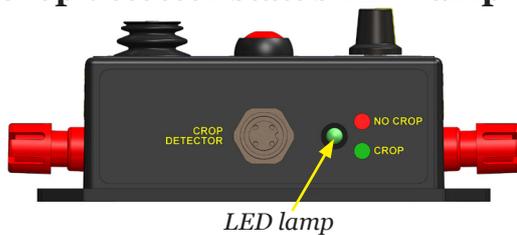
Crop Detector connections



The mounting position of the sensors will vary depending on the make and model of the baler. In some cases an adaptor bracket may need to be fabricated by the end user.



Crop detector status LED lamp



When the LED lamp is RED - NO CROP is being detected and the applicator will not dispense additive.

When the LED lamp is GREEN - CROP is being detected and the applicator will dispense additive.

If no crop detector kit is plugged the LED lamp will not be illuminated and the control box will work normally.

If crop is present but the LED lamp is RED check all connections and for any damage to cables or the sensors.