SELECT Dosing System

Select-380 T-Auto

Instructions for Use

Ref: 37.0 IFU 380 T-Auto Mar 18

Contents

High pressure dosing
Multiple languages
Water treatment speciality

Cambridge Agricultural

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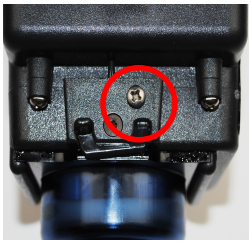
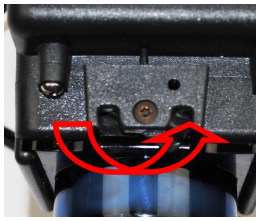
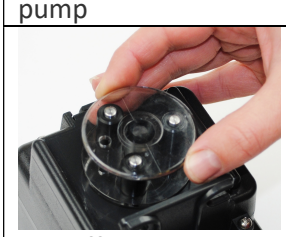
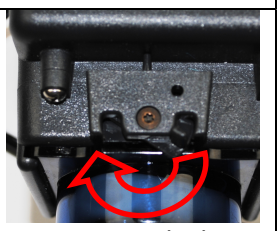
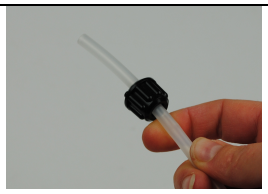
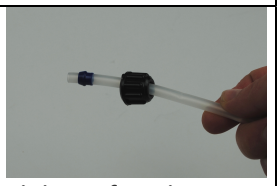
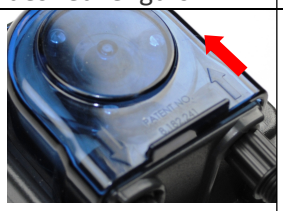
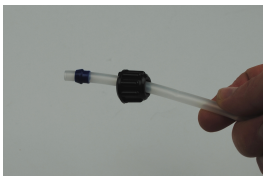
DS DOSING SOLUTIONS

Select-380 T-Auto – general layout

12V power supply

End weight

 Wall-mount the pump	 Remove cover lock screw (if present)	 To change tube, rotate cover lock	 Push up cover & remove tube
 Pull off and replace roller assembly	 Hold tube in clipped position	 Slide cover over tube	 Rotate cover lock COMPLETELY
If cover is partly open PRODUCT WILL NOT PUMP	 Cut delivery tube to desired lengths	 Slide on nuts	 Slide on ferrules, note orientation
 Attach delivery tube to pump tube BY HAND ONLY	 Note pumping direction arrows	 Push on suction end weight	 Use sealant to install T-piece, reducer & injection valve DOWNSTREAM OF THE WATER METER*
 Slide on nut and ferrule to delivery tube….	…. and attach to injection valve		

Description

The Select-380 T-Auto is a high pressure peristaltic pump designed to be used mainly for water treatment products.

The feature which differentiates this pump from other Select dosers is its Auto-Running program. This pump does not use a water flow sensor.

This doser does not need a flow sensor or water meter to operate. Each 20 seconds, the pump will turn for a user-defined number of seconds. This way a chosen pumped flow of product can be achieved.

To establish the output flow, the user chooses the number of 1/100 seconds out of a possible 1999 hundredths of a second. For example, From Table 1 (below) if you want the pump to produce a product flow of 1.81 l/hr, you will see this is too big for a White tube. If you go down the Orange list of outputs you will see that for a flow of 1.81 l/hr, you need a run time of 770. By setting 0770 and fitting the Orange tube in the 380 T-Auto, it will operate each 20 seconds and give an overall output rate of 1.81 l/hr.

The components are: the main pump unit and connections to the drinking lines. All parts inside the Select-380 T-Auto doser can be replaced.

Important

DOSE WATER ONLY FOR THE FIRST 24 HOURS WITH A NEW PUMP. USE THIS TIME TO FAMILIARISE YOURSELF WITH THE CONTROLS AND ENSURE THE PUMP PERFORMS AS EXPECTED.

FINE TUNE THE OUTPUT RATE USING THE % ADJUST FUNCTION

Installation

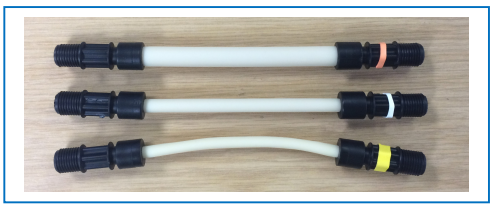
Connect the Select-380 T-Auto doser to the 12V power supply provided with the doser. Choose program options from the control screen. Ensure pump tube is fitted and connected to inlet and outlet delivery tubes. Place inlet tube weight into additive liquid. Connect delivery outlet tube into the injection assembly. Commence auto-dosing.

It is possible to power the Select-380 T-Auto doser from a 12V car battery. Normally the doser is powered from a 12V power supply delivered with the doser attached to the mains electricity supply (240 or 110V AC). Position the dosing point on the drinking lines so as to be convenient for a power source if power is to be taken via the power supply from the mains. Ensure that the Select-380 T-Auto doser is properly secured to prevent it becoming immersed in water or stock additive solution.

The injection assembly is valved. There is a duckbill valve inside the assembly that can be replaced as required by unscrewing the two halves of the assembly.

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.

Pump Tubes



In order to achieve a full range of dosing options, there are two main pump tube sizes used by the Select-380 T-Auto. These are the Orange tube (largest) and the White tube. Where very small dosing ratios are required into small water flows there is also the option of a very small pump tube (Yellow).

PUMP TUBES SHOULD BE REPLACED REGULARLY. During normal use, the pump tube is the wearing part of the pump. It is a false economy to wait until a tube bursts before replacing it. Much damage can be done to the pump by corrosive dosing products. If the tube is showing signs of wear or is starting to split – it is time to change the tube. Replacement tubes are available from your local Distributor of Dosing Solutions products.

NOTE – The Orange pump tube has to have the BLACK roller assembly installed.
The White and Yellow pump tubes have to have the WHITE roller assembly installed.

Operation

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

This is the **Welcome Screen** To see the options available press "Set" (Options) To start dosing immediately, press "Adjust" (Start)	Select Start Options
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. Press "Set" with the correct Y or N shown.	Doser options Cont at Hi Flo N
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. YOU MUST SELECT "N". The tube burst facility is not a eature of this pump. Then press "Set".	Doser options Tube Burst En. N
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.	Doser options Lang. English
The Welcome screen Press "Adjust" (Start)	Select Start Options
Use the Adjust button to change each digit to give the correct run time. Then press Set to move the cursor under the number to the next position. After the last digit is adjusted, press Set again to take you to:	Set run time 0000

Note: The maximum number that can be set for run time is 1999. This is 1/100th of a second less than 20 seconds.	
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". This function can also be used to trim the output of the pump. To increase the pumped output by 2%, choose +2% on this screen.	"Adjust" % -5%
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.	Prime pump? No Yes
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.	Priming Stop
For the first few seconds, this screen will be shown. The doser is collecting water flow information before dosing commences.	100 -5 Dosing…
To return to the Welcome screen press Adjust.	

Changing Pump Tubes

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

To install or change pump tubes – see the Quick-Fit instructions above.

Ensure that all connectors between the pump tube and delivery tubes are secure.

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-380 T-Auto dosing system to ensure accuracy of operation.

Safety

The Select-380 T-Auto 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-380 T-Auto doser in water.

Take precautions to ensure the Select-380 T-Auto 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-380 T-Auto 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-380 T-Auto 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-380 T-Auto doser uses a 12V DC power supply. A 5A maximum current power supply is recommended and is normally supplied with the doser. A 12 V car battery can also be used. Leads with battery clips are supplied by Dosing Solutions.

Water Meter

This doser does not monitor the water flow, so no water meter facility can be included.

Water Line Pressure

The Select-380 T-Auto doser will operate against a water pressure in the drinking line of up to 5 bar. (5 bar = 70 psi = 50m H_2O). Fit a pressure reduction device if necessary.

Dosing Advice

Unless there is a very good reason to do otherwise, try to avoid diluting your dosed product with water to make a stock solution.

A dosing example:
A ground water pump is operating at 10,500 l/hr. A product needs to be dosed at 1:25,000.

Divide the water flow by the ratio to arrive at the rate that product needs to be added:

10,500 / 25,000 = 0.42 l/hr

From Table 1, you will see that by using an Orange tube and setting the dose time at 0180 (run time = 1.8 seconds in each 20 second dosing period) you will achieve the desired output.

Pumping Problems / Errors

If the Select-380 T-Auto 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	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 5 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? 8. Is the correct coloured roller assembly being used for the pump tube being used?
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. The end weight that is supplied with the doser should be used. This will ensure the suction tube is submerged in the dosed product. 4. Is the product container empty?
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. 2. Check blue ferrules are fitted correctly. Replace if damaged
Error message "pump error"	1. A failure of the motor 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, corrosion and able to turn freely. Check and clean / replace if necessary.

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-380 T-Auto 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-380 T-Auto doser	Unit	380CA75
Replacement pump tube	Orange	330CA20
Replacement pump tube	White	330CA10
Replacement pump tube	Yellow	330CA05
Duckbill non-return valve	unit	385CA25
Delivery tube (3m) plus end weight	unit	340CA10
Injection assembly	unit	385CA24
Power supply 12V-DC 5.0A	unit	019CA05

Table 1

	Orange	White	Yellow		Orange	White	Yellow
Dose time	l/hr	l/hr	l/hr		ml/hr	ml/hr	ml/hr
0	0.000	0.000	0.000		0	0	0
10	0.024	0.004	0.001		24	4	1
20	0.047	0.007	0.002		47	7	2
30	0.071	0.011	0.004		71	11	4
40	0.094	0.014	0.005		94	14	5
50	0.118	0.018	0.006		118	18	6
60	0.141	0.021	0.007		141	21	7
70	0.165	0.025	0.008		165	25	8
80	0.188	0.028	0.010		188	28	10
90	0.212	0.032	0.011		212	32	11
100	0.235	0.035	0.012		235	35	12
110	0.259	0.039	0.013		259	39	13
120	0.282	0.042	0.014		282	42	14
130	0.306	0.046	0.016		306	46	16
140	0.329	0.049	0.017		329	49	17
150	0.353	0.053	0.018		353	53	18
160	0.376	0.056	0.019		376	56	19
170	0.400	0.060	0.020		400	60	20
180	0.423	0.063	0.022		423	63	22
190	0.447	0.067	0.023		447	67	23
200	0.470	0.070	0.024		470	70	24
210	0.494	0.074	0.025		494	74	25
220	0.517	0.077	0.026		517	77	26
230	0.541	0.081	0.028		541	81	28
240	0.564	0.084	0.029		564	84	29
250	0.588	0.088	0.030		588	88	30

260	0.611	0.091	0.031		611	91	31
270	0.635	0.095	0.032		635	95	32
280	0.658	0.098	0.034		658	98	34
290	0.682	0.102	0.035		682	102	35
300	0.705	0.105	0.036		705	105	36
310	0.729	0.109	0.037		729	109	37
320	0.752	0.112	0.038		752	112	38
330	0.776	0.116	0.040		776	116	40
340	0.799	0.119	0.041		799	119	41
350	0.823	0.123	0.042		823	123	42
360	0.846	0.126	0.043		846	126	43
370	0.870	0.130	0.044		870	130	44
380	0.893	0.133	0.046		893	133	46
390	0.917	0.137	0.047		917	137	47
400	0.940	0.140	0.048		940	140	48
410	0.964	0.144	0.049		964	144	49
420	0.987	0.147	0.050		987	147	50
430	1.011	0.151	0.052		1,011	151	52
440	1.034	0.154	0.053		1,034	154	53
450	1.058	0.158	0.054		1,058	158	54
460	1.081	0.161	0.055		1,081	161	55
470	1.105	0.165	0.056		1,105	165	56
480	1.128	0.168	0.058		1,128	168	58
490	1.152	0.172	0.059		1,152	172	59
500	1.175	0.175	0.060		1,175	175	60
510	1.199	0.179	0.061		1,199	179	61
520	1.222	0.182	0.062		1,222	182	62
530	1.246	0.186	0.064		1,246	186	64
540	1.269	0.189	0.065		1,269	189	65
550	1.293	0.193	0.066		1,293	193	66
560	1.316	0.196	0.067		1,316	196	67
570	1.340	0.200	0.068		1,340	200	68
580	1.363	0.203	0.070		1,363	203	70
590	1.387	0.207	0.071		1,387	207	71
600	1.410	0.210	0.072		1,410	210	72
610	1.434	0.214	0.073		1,434	214	73
620	1.457	0.217	0.074		1,457	217	74
630	1.481	0.221	0.076		1,481	221	76
640	1.504	0.224	0.077		1,504	224	77
650	1.528	0.228	0.078		1,528	228	78
660	1.551	0.231	0.079		1,551	231	79
670	1.575	0.235	0.080		1,575	235	80
680	1.598	0.238	0.082		1,598	238	82
690	1.622	0.242	0.083		1,622	242	83
700	1.645	0.245	0.084		1,645	245	84
710	1.669	0.249	0.085		1,669	249	85
720	1.692	0.252	0.086		1,692	252	86
730	1.716	0.256	0.088		1,716	256	88
740	1.739	0.259	0.089		1,739	259	89

750	1.763	0.263	0.090		1,763	263	90
760	1.786	0.266	0.091		1,786	266	91
770	1.810	0.270	0.092		1,810	270	92
780	1.833	0.273	0.094		1,833	273	94
790	1.857	0.277	0.095		1,857	277	95
800	1.880	0.280	0.096		1,880	280	96
810	1.904	0.284	0.097		1,904	284	97
820	1.927	0.287	0.098		1,927	287	98
830	1.951	0.291	0.100		1,951	291	100
840	1.974	0.294	0.101		1,974	294	101
850	1.998	0.298	0.102		1,998	298	102
860	2.021	0.301	0.103		2,021	301	103
870	2.045	0.305	0.104		2,045	305	104
880	2.068	0.308	0.106		2,068	308	106
890	2.092	0.312	0.107		2,092	312	107
900	2.115	0.315	0.108		2,115	315	108
910	2.139	0.319	0.109		2,139	319	109
920	2.162	0.322	0.110		2,162	322	110
930	2.186	0.326	0.112		2,186	326	112
940	2.209	0.329	0.113		2,209	329	113
950	2.233	0.333	0.114		2,233	333	114
960	2.256	0.336	0.115		2,256	336	115
970	2.280	0.340	0.116		2,280	340	116
980	2.303	0.343	0.118		2,303	343	118
990	2.327	0.347	0.119		2,327	347	119
1000	2.350	0.350	0.120		2,350	350	120
1010	2.374	0.354	0.121		2,374	354	121
1020	2.397	0.357	0.122		2,397	357	122
1030	2.421	0.361	0.124		2,421	361	124
1040	2.444	0.364	0.125		2,444	364	125
1050	2.468	0.368	0.126		2,468	368	126
1060	2.491	0.371	0.127		2,491	371	127
1070	2.515	0.375	0.128		2,515	375	128
1080	2.538	0.378	0.130		2,538	378	130
1090	2.562	0.382	0.131		2,562	382	131
1100	2.585	0.385	0.132		2,585	385	132
1110	2.609	0.389	0.133		2,609	389	133
1120	2.632	0.392	0.134		2,632	392	134
1130	2.656	0.396	0.136		2,656	396	136
1140	2.679	0.399	0.137		2,679	399	137
1150	2.703	0.403	0.138		2,703	403	138
1160	2.726	0.406	0.139		2,726	406	139
1170	2.750	0.410	0.140		2,750	410	140
1180	2.773	0.413	0.142		2,773	413	142
1190	2.797	0.417	0.143		2,797	417	143
1200	2.820	0.420	0.144		2,820	420	144
1210	2.844	0.424	0.145		2,844	424	145
1220	2.867	0.427	0.146		2,867	427	146
1230	2.891	0.431	0.148		2,891	431	148

1240	2.914	0.434	0.149		2,914	434	149
1250	2.938	0.438	0.150		2,938	438	150
1260	2.961	0.441	0.151		2,961	441	151
1270	2.985	0.445	0.152		2,985	445	152
1280	3.008	0.448	0.154		3,008	448	154
1290	3.032	0.452	0.155		3,032	452	155
1300	3.055	0.455	0.156		3,055	455	156
1310	3.079	0.459	0.157		3,079	459	157
1320	3.102	0.462	0.158		3,102	462	158
1330	3.126	0.466	0.160		3,126	466	160
1340	3.149	0.469	0.161		3,149	469	161
1350	3.173	0.473	0.162		3,173	473	162
1360	3.196	0.476	0.163		3,196	476	163
1370	3.220	0.480	0.164		3,220	480	164
1380	3.243	0.483	0.166		3,243	483	166
1390	3.267	0.487	0.167		3,267	487	167
1400	3.290	0.490	0.168		3,290	490	168
1410	3.314	0.494	0.169		3,314	494	169
1420	3.337	0.497	0.170		3,337	497	170
1430	3.361	0.501	0.172		3,361	501	172
1440	3.384	0.504	0.173		3,384	504	173
1450	3.408	0.508	0.174		3,408	508	174
1460	3.431	0.511	0.175		3,431	511	175
1470	3.455	0.515	0.176		3,455	515	176
1480	3.478	0.518	0.178		3,478	518	178
1490	3.502	0.522	0.179		3,502	522	179
1500	3.525	0.525	0.180		3,525	525	180
1510	3.549	0.529	0.181		3,549	529	181
1520	3.572	0.532	0.182		3,572	532	182
1530	3.596	0.536	0.184		3,596	536	184
1540	3.619	0.539	0.185		3,619	539	185
1550	3.643	0.543	0.186		3,643	543	186
1560	3.666	0.546	0.187		3,666	546	187
1570	3.690	0.550	0.188		3,690	550	188
1580	3.713	0.553	0.190		3,713	553	190
1590	3.737	0.557	0.191		3,737	557	191
1600	3.760	0.560	0.192		3,760	560	192
1610	3.784	0.564	0.193		3,784	564	193
1620	3.807	0.567	0.194		3,807	567	194
1630	3.831	0.571	0.196		3,831	571	196
1640	3.854	0.574	0.197		3,854	574	197
1650	3.878	0.578	0.198		3,878	578	198
1660	3.901	0.581	0.199		3,901	581	199
1670	3.925	0.585	0.200		3,925	585	200
1680	3.948	0.588	0.202		3,948	588	202
1690	3.972	0.592	0.203		3,972	592	203
1700	3.995	0.595	0.204		3,995	595	204
1710	4.019	0.599	0.205		4,019	599	205
1720	4.042	0.602	0.206		4,042	602	206

1730	4.066	0.606	0.208		4,066	606	208
1740	4.089	0.609	0.209		4,089	609	209
1750	4.113	0.613	0.210		4,113	613	210
1760	4.136	0.616	0.211		4,136	616	211
1770	4.160	0.620	0.212		4,160	620	212
1780	4.183	0.623	0.214		4,183	623	214
1790	4.207	0.627	0.215		4,207	627	215
1800	4.230	0.630	0.216		4,230	630	216
1810	4.254	0.634	0.217		4,254	634	217
1820	4.277	0.637	0.218		4,277	637	218
1830	4.301	0.641	0.220		4,301	641	220
1840	4.324	0.644	0.221		4,324	644	221
1850	4.348	0.648	0.222		4,348	648	222
1860	4.371	0.651	0.223		4,371	651	223
1870	4.395	0.655	0.224		4,395	655	224
1880	4.418	0.658	0.226		4,418	658	226
1890	4.442	0.662	0.227		4,442	662	227
1900	4.465	0.665	0.228		4,465	665	228
1910	4.489	0.669	0.229		4,489	669	229
1920	4.512	0.672	0.230		4,512	672	230
1930	4.536	0.676	0.232		4,536	676	232
1940	4.559	0.679	0.233		4,559	679	233
1950	4.583	0.683	0.234		4,583	683	234
1960	4.606	0.686	0.235		4,606	686	235
1970	4.630	0.690	0.236		4,630	690	236
1980	4.653	0.693	0.238		4,653	693	238
1990	4.677	0.697	0.239		4,677	697	239
2000	4.700	0.700	0.240		4,700	700	240