

LOGIX 764

Operation Manual Twin Alternating and Twin Parallel



Supplement for the models :
255, 278 (Performa Cv), 298 (Magnum IT)

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Introduction

The 764 Logix control is very similar to the previous controls of the 700 series. This manual is brief help to place the conditioner into operation and to properly program the controller. In order to properly place your conditioner into operation, please follow the following procedure:

- Connect the 764 Logix to the secondary unit (the system is shipped with the controller already mounted and connected on the main unit). See p. 4.
- Perform the initial start-up (see p.6):
 - Input valve and system type;
 - Input system size (or 'F' if it is a filter);
 - Finish the level I programming (see p.7);
- Perform a first regeneration for each tank, it will synchronize the camshafts if not already synchronized (see p.5).
- Fill the system with water.
- Start again a regeneration (for each tank) and advance through the cycles, from C1 to C8. Leave about 2 minutes per cycle, in order to purge air from the system, apart from C8 that has to be fully completed in order to fill regenerant tank. It will also allow you to check that there is no leak in the regenerant or drain line. The aim is not to regenerate the resin, which is already ready for the service, so there is no need to leave every cycle to be completed.

Your conditioner will be placed into operation. Perform the Level II and III programming if you wish to fully optimize your system.

1. CONNECTING THE LOGIX 764 TWIN ALTERNATING OR PARALLEL CONTROLS (HOW TO CONNECT THE SECONDARY UNIT)

To properly connect the secondary unit to the main one, please carefully read the instructions below and the following schemas (figure 1 to 4).

The twin sensor and extension cables are used for twin unit parallel and alternating applications. Four standard connections are required for operation; the power transformer, the flow sensor, motor/optical sensor, and the connection between tank 1 and tank 2 controls. The twin systems are delivered with the controller already mounted and connected to the main unit, so just the secondary unit has to be connected (P2 and P4).

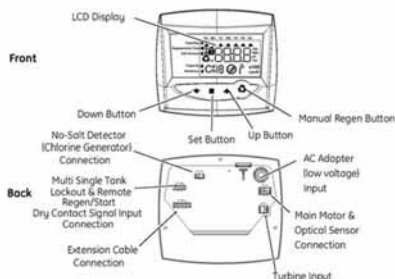


Figure 1 764 Controller Identification



Figure 2 Twin Sensor Cable P/N 3016715



Figure 3 Twin Cable Extension P/N 3016775

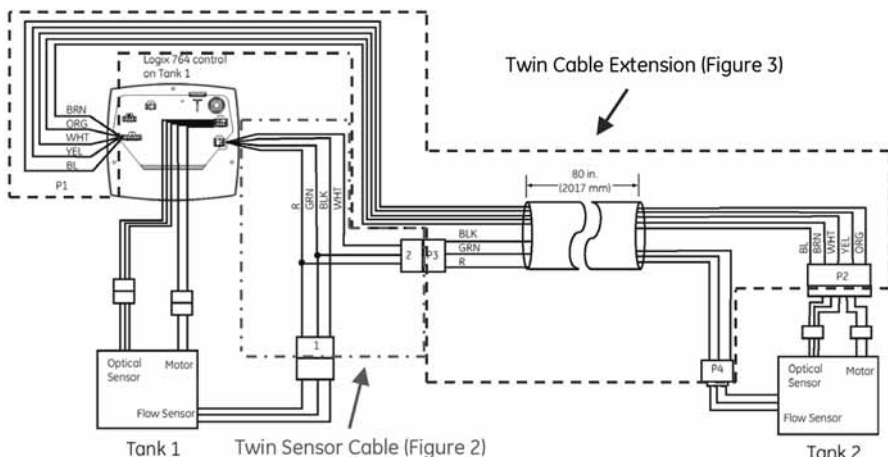


Figure 4 Wiring Diagram

2. PROGRAMMING THE 764 LOGIX

2.1 Initial Power-up

Note: For the 298 valves, please check that the camshaft is aligned to service position before starting the procedure.

Plug the transformer into a non-switched outlet.

- The display will show the valve type that was loaded from memory. If this is the first time the control is powered up the display will show 255A (flashing). Use the UP (▲) or DOWN (▼) buttons to increment through the available selections (see Table 1). Select the proper preprogrammed program according to your system type by pressing the SET button (■).

- Then you have to input the system size (media volume): three flashing dashes will appear. Use UP and DOWN buttons to increment through the available volume and select the nearest volume to your actual system size. Press SET to accept the system size you have selected.

- Finish to program the Level-I parameters (see figure 5 p. 6)

In most of the case, after the Level-I programming, the camshafts will synchronize themselves automatically. Nevertheless, by security you should always initiate a first regeneration (for each tank) and advance through the cycles.

For an Alternating system:

- Tank 1 will move to standby.
- Tank 2 will move to service.

Err3 will be displayed when the Tank 1 cam is moving. Err4 will be displayed when Tank 2 cam is moving.

For a parallel system:

- Tanks 1 and 2 will move to service if not already in service.

Err3 will be displayed when the Tank 1 cam is moving. Err4 will be displayed when Tank 2 cam is moving.

These cam movements may take up to 5 minutes.

Note: please carefully check that the camshafts and optical sensors are properly mounted.

Type	Valve		
255A	255	Twin Alternating	8-cycle conditioner
273A	273		3-cycle filter
278A	278		5-cycle conditioner
293A	293		3-cycle filter
298A	298		5-cycle conditioner
255P	255	Twin Parallel	8-cycle conditioner
273P	273		3-cycle filter
278P	278		5-cycle conditioner
293P	293		3-cycle filter
298P	298		5-cycle conditioner
255L	255	Single Tank Remote Regeneration or Multi-Single Tank Lockout	8-cycle conditioner
273L	273		3-cycle filter
278L	278		5-cycle conditioner
293L	293		3-cycle filter
298L	298		5-cycle conditioner

Table 1 Preprogrammed configurations

2.2 Finishing to Program (Level I Parameters)

The rest of the programming procedure is very similar to the 762 controllers. Please report to the 762 operation manual if more information are required.

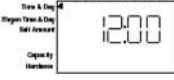
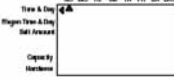
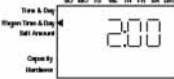
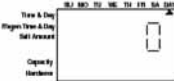
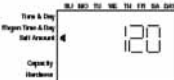
Screen	Buttons to Press	Description	Range
	then  or  press 	1. Select Valve and System Type	Initial power up
	then  or  press 	2. Resin Volume — Select correct resin volume (Liter)	
	press  then  or  press 	3. Time of Day — Set to time of day	
	press  then  or  press 	4. Day of Week — Set to actual day of the week	
	press  then  or  press 	5. Time of Regeneration — Set to desired time of regeneration	
	press  then  or  press 	6. Days Override — Leave at 0 to disable or — Set to desired days override	Days: .5 to 99
	press  then  or  press 	7. Salt Dosage — Set to desired dosage (gram per liter of resin)	
	press  to override press  then  or  press 	8. Capacity — Capacity calculated by Logix control — Use to OVERRIDE calculated capacity as CaCO ₃	
	press  then  or  press 	9. Hardness — Set to actual water hardness (mg/L as CaCO ₃)	

Figure 5 Level I Programming

2.3 Level II parameters

Note: If no button is pushed for thirty seconds, the controller returns to normal operation mode. Pushing the REGEN () button immediately returns the controller to normal operation.

Note: The control must be in the home position to change settings. See Table 2 below for Level II parameters. Typically the Level II parameters will not need to be adjusted as the default settings accommodate most applications. Contact your Water Treatment Professional before attempting any programming.

The level II parameters are accessible by pressing and holding the UP and DOWN buttons until the control displays a "P" value.

Note: All parameters can be locked out when the control is in Level II programming. Simply press the REGEN button during Level II programming and a Lock Icon will appear indicating that the specific setting has been locked out. When locked out, the setting cannot be adjusted. To disable the Lock Out Feature, press the REGEN button when in Level II. The lock icon will not be displayed.

P Values	Parameter Description	Range	Default	Units	Notes
P1	Time	00:00-23:59	-	HH:MM	-
P2	Day of Week	-	-	Days	-
P3	Time of Regen	00:00-23:59	02:00	HH:MM	-
P4	Forced Regen interval	0-99	0	Days Interval	-
P5	Not used with 764	-	-	-	-
P6	Salt amount	50-290	110	pounds if P9 = 0 ; g/L if P9 = 1	-
P7	Capacity			kilograms if P9 = 0 ; kg if P9 = 1	-
P8	Hardness	30-2000	250	grains if P9 = 0 ; mg/L if P9 = 1	-
P9	Unit of measure	0-1	1	-	0 = English ; 1 = Metric
P10	Clock Mode	0-1	1	-	0 = 12h ; 1 = 24 h
P11	Service interval	0-250	0	months	Uses 30 days for each months, 0 = off
P12	Remote regen sw. Delay	3-250	60	s	-
P13	Chlorine generator (Use on 255 and 278 L configured valves only with .33 refill and chlorine generator kit)	0-2	0	-	0 = none 1 = Salt check only 2 = Generate chlorine and Check salt
P14	Refill rate	1-700		gpm x 100	-
P15	Brine draw rate	1-700		gpm x 100	-
P16	Reserve type (not used with Alternating systems)	0-3	0	-	0 = variable reserve, Delayed regen 1 = Fixed reserve, Delayed Regen 2 = Variable reserve 3 = Fixed reserve, immediate Regen
P17	Reserve percentage for fixed reserves	0-70	30	% of exchange capacity	(not used with Alternating systems)
P18	Flow sensor select	0-5	0	-	0 = internal turbine, Magnum IT NHWB 1 = 1" Autotrol turbine 2 = 2" Autotrol turbine 3 = User defined K factor 4 = User defined pulse equivalent 5 = Magnum IT HWB
P19	K factor or pulse equivalent	1-99.99 0-9999	0.01 1	-	pulses/gallons (P18=3 AND P9=0) gallons/pulses (P18 = 4 AND P9=0) pulses/Liters (P18=3 AND P9=1) Liters/pulse (P18=4 AND P9=1)

Accessible in Level I and II

Accessible only in Level II

Table 2 Level II Programming (P Values)

2.4 Level III Cycle Time Programming

Pressing and holding the Up and SET keys for 5 seconds when the control is not in regeneration will enter cycle time programming. A small "C" with a number next to it will be displayed indicating the control is in cycle time programming. The number indicates the cycle being viewed or changed. Cycle times are programmable from 0 to 200 minutes.

C1-Backwash	C5-Fast Rinse
C2-Brine Draw	C6-2 nd Backwash
C3-Slow Rinse	C7-2 nd Fast Rinse
C4-Re-pressurize	C8-Refill

Note: the 2nd Backwash and 2nd Fast Rinse cycles are not present on the 273, 278, 293, or 298 valves. The Re-pressurize cycle is not present on the 293, or 298 valves.

Softener Mode:

The brine draw time (C2) can be viewed, but not changed in cycle time programming. The brine draw time is changed with the salt setting and the brine draw rate. The refill time (C8) can be viewed but not changed in cycle time programming. The refill time is changed with the salt setting and the refill rate in the Level 2 programming.

Note: on 255 valves, Flappers / Cam position is identical on C2 and C3. The value of cycle times stored for C2 and C3 are added so that the cam stays on position C2 / C3 during the overall length of cycles C2 and C3.

Filter Mode:

All cycle times including refill and brine draw may be programmed in minutes in 3 cycles filter mode.

The table below sums up the cycles that can be modified in Level III programming:

	Valve Type	255	278	273	298	293
			Performa Cv		Magnum	
C1	Backwash 1	M	M	M	M	M
C2	Draw	N.M.	N.M.	M	N.M.	M
C3	Slow Rinse	M	M	M	M	M
C4	Repressurize	M	M	M	N.A.	N.A.
C5	Fast Rinse 1	M	M	M	M	M
C6	Backwash 2	M	N.A.	N.A.	N.A.	N.A.
C7	Fast Rinse 2	M	N.A.	N.A.	N.A.	N.A.
C8	Refill	N.M.	N.M.	M	N.M.	M

M = Modifiable

N.A. = Not Available

N.M. = Not Modifiable

Table 3 Level III Programming (C Values)

2.5 Level IV- Accessing History Values

Historical information can be viewed by pressing the SET and DOWN buttons simultaneously, with the 764 controller in the home position. Release both buttons when the control displays an "H" value. Press the UP or DOWN buttons to navigate through the settings.

H#	Description	Range
H0	Initial Setting Value	Cubic Feet or Liters (Resin Volume)
H1	Days since last regeneration	0 - 255
H2	Current Flow Rate	Depends on turbine used
H3	Water used today in gallons or/m3 since Time of Regeneration	0-131,070 or 0-1,310.70 m3
H4	Water used since last regeneration in gallons or/m3	0-131,070 or 0-1,310.70 m3
H5	Total water used since reset in 100s	0-999900 gallons or 0-9999 m3
H6	Total water used since reset in 1,000,000	4,294 x 106 gal or 4264 x 104 m3
H7	Average usage for Sunday in gallons or m3	0-131,070 gallons or 0-1,310.70 m3
H8	Average usage for Monday in gallons or m3	0-131,070 gallons or 0-1,310.70 m3
H9	Average usage for Tuesday in gallons or m3	0-131,070 gallons or 0-1,310.70 m3
H10	Average usage for Wednesday in gallons or m3	0-131,070 gallons or 0-1,310.70 m3
H11	Average usage for Thursday in gallons or m3	0-131,070 gallons or 0-1,310.70 m3
H12	Average usage for Friday in gallons or m3	0-131,070 gallons or 0-1,310.70 m3
H13	Average usage for Saturday in gallons or m3	0-131,070 gallons or 0-1,310.70 m3
H14	Average service cycle	0-255 days
H15	Peak Flow Rate	0-200 gpm or 1000 Lpm
H16	Day and Time of Peak Flow Rate	Time and day that peak flow occurred
H17	Months since service	0-2184 months
H18	Water used since last regeneration - Tank 1	0-131,070 gallons or 0-1,310.70 m3
H19	Water used since last regeneration - Tank 2	0-131,070 gallons or 0-1,310.70 m3

Table 4 Level IV: History Values

2.6 Re-initialization (reset)

Press and hold the SET and DOWN button to enter the History values. H0 will be displayed. Press and hold the SET button for three seconds while H0 is displayed. Release the button. All settings except for Time of Day and Day of Week will be reset. The 764 Logix control will now display the valve and system type. Refer to Level I Programming.

Note: After any control reset (valve type or system change, etc.) it is necessary to initiate a manual regeneration and quick cycle through it. This will ensure the control and cam are synchronized. If not synchronized Err3 will display and the control will drive cams to the correct position for valve and system type programmed.

3. IN SERVICE DISPLAY

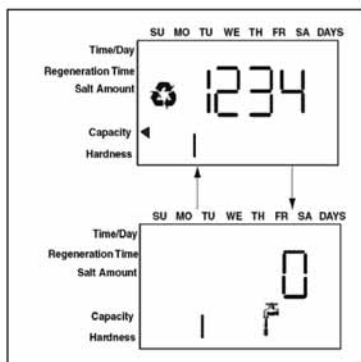


Figure 6 In Service Display

Logix 764 Electronic Multi-Tank - "A" Alternating Control:

Service display — The number of the Tank in Service (small digit next to CPH position) and Alternating Capacity Remaining and Flow Rate with Faucet icon of Tank in Service

Logix 764 Electronic Multi Tank - "P" Parallel Control:

Service Display — alternating three items:

- Capacity remaining for Tank 1 with digit "1" displayed
- Capacity remaining for Tank 2 with digit "2" displayed
- System Flow Rate (Tank 1 + Tank 2 added) with Faucet icon

Note: The faucet icon is displayed on all the Logix 764 controls when there is flow. The 764 will show the faucet icon when the flow rate is displayed, even if the flow rate is zero. If the flow rate is zero, the faucet will turn off when the capacity is displayed.

4. MANUAL REGENERATION OPTIONS

Note: The tank in service (on-line) cannot be regenerated while the other tanks are isolated. Water for backwash would not be available. The 764 control features several options that offer additional flexibility for manually regenerating the conditioner.

4.1 Delayed Manual Regeneration

Press and release the REGEN button starts a delayed manual regeneration. The Regeneration icon on the display will flash indicating a regeneration will start when the time of day reaches the programmed time of regeneration. On alternating systems the tank in standby will move through regeneration to service. The tank in service will move through regeneration to standby. On parallel systems, the tank with the lowest remaining capacity will regenerate. Pressing the REGEN button again will turn off the regeneration icon and cancel the delayed regeneration.

4.2 Immediate Manual Regeneration

Pressing and holding the REGEN button for three seconds starts an immediate manual regeneration. A solid regeneration icon will be displayed. The control will immediately begin a regeneration on the tank in service.

4.3 Delayed Second Regeneration

Pressing and releasing the REGEN button while the control is in regeneration will program the control for a delayed second regeneration. A flashing x2 icon next to the regeneration icon will appear indicating a second regeneration will start when the time of day reaches the programmed time of regeneration. The delayed second regeneration will be performed on the new tank in service. For alternating and parallel systems, each tank will regenerate once.

4.4 Double Immediate Manual Regeneration

Back-to-Back manual regenerations are initiated by pressing and holding the REGEN button for three seconds while the control is in the regenerating mode. A solid x2 icon next to the regeneration icon will appear indicating a second manual regeneration will start immediately after current regeneration is complete. For alternating and parallel systems each tank will regenerate once. Single tank systems will regenerate twice back-to-back.

4.5 Advancing through regeneration cycle

To advance through regeneration cycle, push SET and UP. If you want to cancel the regeneration, push and hold SET and UP for five seconds.

5. AUTOMATIC REGENERATION MODES

5.1 Alternating Systems

The parameters P16 and P17 are not accessible with alternating systems. The regeneration mode is an immediate regeneration without reserve, since a tank will be regenerated as soon as its resin is exhausted (the other becomes the tank in service).

5.2 Parallel Systems

Parameter P16 is used to determine the method for demanded initiated regeneration. Four regeneration modes are possible.

- P16 = 0, Delayed Regeneration with a Smart Reserve

Regenerations will start only at the Time of Regeneration entered in P2. A tank is regenerated if the capacity remaining in that tank is below the minimum required capacity needed to meet the next days calculated water usage requirement. The next days water usage number is based on the daily average water usage held in memory plus a 20% reserve. If necessary both tanks will be regenerated sequentially beginning with the most exhausted tank. This option allows the control to vary the reserve, and therefore the decision to regenerate, based on the actual daily water usage pattern for the location at which it is installed (See Table 5).

- P16 = 1, Delayed Regeneration with a Fixed Reserve

Regenerations will start only at the Time of Regeneration entered in P2. A tank is regenerated if the capacity remaining in that tank is below the percentage entered in P17. If either tank's capacity is overrun by 50% a regeneration will take place. The control will also cause both tanks to be regenerated sequentially the next Time of Regeneration regardless of how much water is used during that 24 hour period. This feature is to help recover a severely exhausted bed (See Table 6).

- P16 = 2, Immediate Regeneration – Fixed Reserve/Delayed Regeneration – Smart Reserve

This option uses the features of both option 0 and option 3. This is the most versatile of regeneration options. Option number 2 provides all the advantages of variable reserve based on the actual amount of water that is used each day plus the capability to react to the excessive water usage days that occur occasionally (See Table 7).

- P16 = 3, Immediate Regeneration - Fixed Reserve

Regenerations are started immediately when a tank reaches zero or when the system capacity remaining (capacity remaining in both tanks) drops below the reserve capacity programmed in P17. To prevent hard water this reserve should be set large enough to provide conditioned water during the regeneration of the most exhausted tank (See Table 8).

Table 5
P16=0

Priority	Flow Rate	Continuous Soft Water	Efficiency
High	•		
Ave		•	•
Low			

Table 6
P16=1

Priority	Flow Rate	Continuous Soft Water	Efficiency
High	•		
Ave		•	
Low			•

Table 7
P16=2

Priority	Flow Rate	Continuous Soft Water	Efficiency
High		•	
Ave	•		•
Low			

Table 8
P16=3

Priority	Flow Rate	Continuous Soft Water	Efficiency
High		•	•
Ave	•		
Low	•		

6. REGENERATION SEQUENCES

6.1 Alternating Systems

Note: After the initial start-up, tank 1 is in stand-by position while tank 2 is in service position. The schemas below explain the regeneration sequences with the tank 1 in stand-by position while tank 2 is in service position. If it is not the first regeneration, and if the tank 2 is in stand-by position while tank 1 is in service, the tank 2 will behave like the tank 1 in our example below and the tank 1 will behave like the tank 2 in our example below.

6.1.1 With 255 or 278 valves

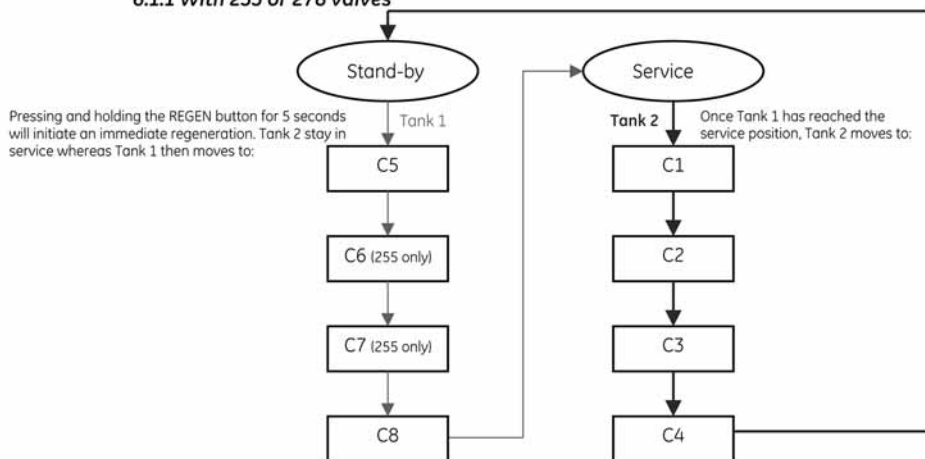


Figure 7 Regeneration sequences for 255 or 278 alternating systems

- C1: Backwash 1
- C2: Brine draw
- C3: Slow rinse
- C4: Repressurization/stand-by (only for 255 and 278 valves)
- C5: Fast rinse 1
- C6: backwash 2 (only for 255 valves)
- C7: Fast rinse 2 (only for 255 valves)
- C8: Refill

Note: At initial start-up, before filling the system with water, press and hold the REGEN button for 5 seconds. This will initiate the first regeneration. Tank 1 moves from stand-by position to C5, while tank 2 stays in service position. Press then SET and UP buttons, it will advance to C6 (or C8 with 278 valves). Advance through cycles until the tank is in service position (see schemas above). Once tank 1 has reached the service position, tank 2 moves from service position until C1. Advance through cycles until the tank is in stand-by. Fill then the system with water and do again the previous operation for each tank.

6.1.2 With 298 (Magnum) valves

Pressing and holding the REGEN button for 5 seconds will initiate an immediate regeneration. Tank 2 stay in service whereas Tank 1 then moves from stand-by to:

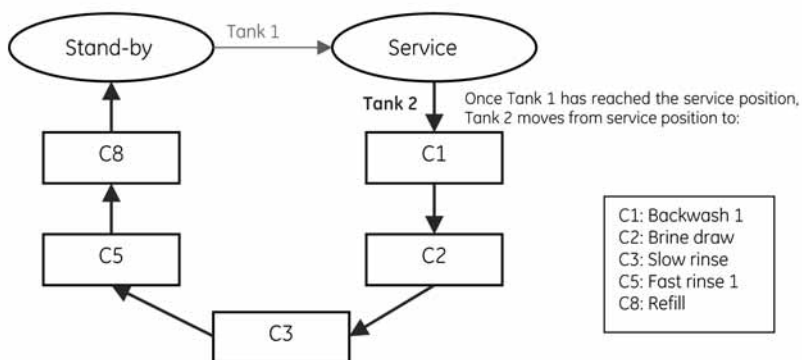


Figure 8 Regeneration sequences for 298 alternating systems

Note: At initial start-up, before filling the system with water, press and hold the REGEN button for 5 seconds. This will initiate the first regeneration. Tank 1 moves from stand-by position to service, while tank 2 stays in service position. Once tank 1 has reached the service position, tank 2 moves from service position until C1. Advance through cycles until the tank is in stand-by. Fill then the system with water and do again the previous operation for each tank.

6.2 Parallel Systems

For parallel systems, tank 1 and 2 are both in service position. Depending on the chosen reserve type (see section 5, Regeneration Modes for Parallel Systems), tank 1 or 2 will initiate first a regeneration. Then this tank moves from service position to C1, then to C2, ... until C8 and come back in the service position. The other tank will not initiate a regeneration while the first tank is not back in service.

Note: At initial start-up, press and hold the REGEN button for 5 seconds. This will initiate the first regeneration. Tank 2 moves from service position to C1 (tank 1 stays in service). Press then SET and UP buttons, it will advance to C2. Repeat this until the tank is back to service position. Initiate again a regeneration. Tank 1 will this time move from service position to C1 position. Advance through cycle until the tank is back in service. Repeat that for each additional tank. Fill then the system with water and do again the previous operation for each tank.

Note: After any control reset (valve type or system change, etc.) it is necessary to initiate a manual regeneration and quick cycle through it. This will ensure the control and cam are synchronized. If not synchronized Err3 will display and the control will drive cams to the correct position for valve and system type programmed.

6.3 'L' Systems

The 'L' configuration allows the valves to be controlled by two different manners:

- Like a single system, similarly to a 762, but with the additional capacity to receive an external signal to initiate a regeneration.
- Like a multi-single system: many valves (each is controlled by its own controller) are electrically interconnected so that there is never more than one tank in regeneration.

7. PARTS LISTS

Note: Only parts that are different from those used with the previous Logix series will be referenced in this section. For complete parts list, please report to the appropriate installation manual according to the valve type.

7.1 Logix 764, Twin configuration

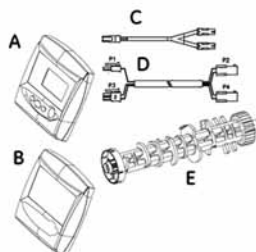


Figure 9 Specific parts Logix 764

n°	ref	Description	Qté
A	3022346	764 Series Control	1
B	1254886	Secondary Faceplate (blank)	1
C	3016715	Assy, Sensor Cable Logix Twin	1
D	3016775	Assy, Cable Extension 3 m (9.8 ft), Logix Twin	1
E	1236251	Cam 255 Logix Valve, Twin Tan	2
	1237406	Cam, 278 Logix Valve, Twin	*
	1001751	Camshaft, 298 Logix Valve "A", "P", or "L" Types	*

Tableau 9 Specific parts list Logix 764

7.2 Interconnecting Kits

7.2.1 255-764 Systems

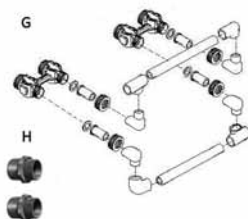


Figure 10 255-764 alternating or parallel interconnecting kit exploded view

n°	ref	Description
G	3019931-2532	Deluxe interconnecting Kit 278Twin, DN25 mm, Female 32mm (includes 2x bypass 1265, 1 x interconnecting piping elements, 2 x Kit-PV)
H	KIT-P10	Mounting Kit (2 connections) DN25,32mm ext x 1" BSP

Tableau 10 Interconnecting kit 255-764 parts list

7.2.2 278-764 Systems

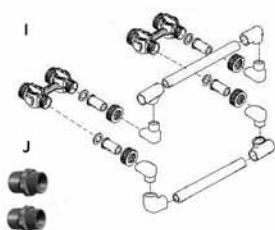


Figure 11 278-764 alternating interconnecting kit exploded view

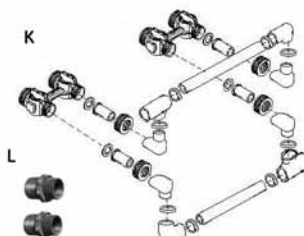


Figure 12 278-764 parallel interconnecting kit exploded view

n°	ref	Description
I	3019933-2532	Deluxe interconnecting Kit 278Twin, DN25 mm, Female 32mm (includes 2x bypass 1265, 1 x interconnecting piping elements, 2 x Kit-PV)
J	KIT-P10	Mountig Kit (2 connections) DN25,32mm ext x 1" BSP
K	3019933-3240	Deluxe interconnecting Kit 278 Twin HighFlow, DN25 mm, Female 40mm (includes 2x bypass 1265, 1 x inteconnecting piping elements, 2 x Kit-PV)
L	KIT-P11	Mountig Kit (2 connections) DN32,40mm ext x 1.25" BSP

Tableau 11 Interconnecting kits 278-764 parts list

7.3 Accessories

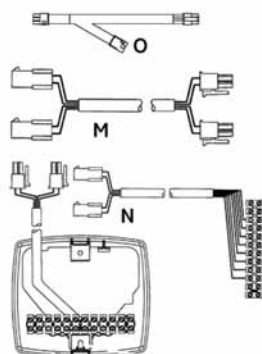


Figure 13 Accessories

n°	ref	Description
M	1242410	Cable extension, 3m
	1263718	Remote mount kit with the 3m cable M
N	1256257	Remote mount kit without the 3m cable M
O	3020228	Assy, Cable Remote Start/Multi-Tank Lockout, 3 m (9.8 ft)

Tableau 12 Accessories parts list

8. TROUBLESHOOTING

8.1 764 Controller Troubleshooting

Problem	Possible Causes	Solution
ERR 1 is displayed	Program settings have been corrupted.	Press any key and reprogram Level I settings.
ERR 3 is displayed	Controller on tank 1 does not know the position of the camshaft. Camshaft should be rotating to find Home position.	Wait for two minutes for the controller to return to Home position. The hourglass should be flashing on the display indicating the motor is running.
	Camshaft on tank 1 is not turning during ERR 3 display.	Check that motor is connected. Verify that motor wire harness is connected to motor and controller module. Verify that optical sensor is connected and in place. Verify that motor gear has engaged cam gear. If everything is connected, try replacing in this order: 1. Wire Harness, Motor, Optical Sensor Assy. 2. Controller.
	Camshaft on tank 1 is turning more than five minutes to find Home position:	Verify that optical sensor is in place and connected to wire. Verify that camshaft is connected appropriately. Verify that no dirt or rubbish is clogging any of the cam slots. If motor continues to rotate indefinitely, replace the following components in this order: 1. Wire Harness, Motor, Optical Sensor Assy. 2. Controller.
	Regeneration starts but control shows Err3 before completing regeneration.	Verify that the correct valve is selected in the Logix controller.
ERR 4 is displayed	Controller on tank 2 does not know the position of the camshaft. Camshaft should be rotating to find Home position.	Wait for two minutes for the controller to return to Home position. The hourglass should be flashing on the display indicating the motor is running.
	Camshaft on tank 2 is not turning during ERR 4 display.	Check that motor is connected. Verify that motor wire harness is connected to motor and controller module. Verify that optical sensor is connected and in place. Verify that motor gear has engaged cam gear. If everything is connected, try replacing in this order: 1. Wire Harness, Motor, Optical Sensor Assy. 2. Controller.
	Camshaft on tank 2 is turning more than five minutes to find Home position.	Verify that optical sensor is in place and connected to wire. Verify that camshaft is connected appropriately. Verify that no dirt or rubbish is clogging any of the cam slots. If motor continues to rotate indefinitely, replace the following components in this order: 1. Wire Harness, Motor, Optical Sensor Assy. 2. Controller.
	Regeneration starts but control shows Err4 before completing regeneration.	Verify that the correct valve is selected in the Logix controller.
Check Salt Light is displayed - Press the regen button to turn off the check salt light	No regenerant draw or insufficient regenerant detected during regeneration.	Ensure salt/ regenerant is available. Check for regenerant draw. Inspect regenerant line for leaks

Table 13 Troubleshooting 764 Controller

8.2 System Troubleshooting

Problem	Possible Causes	Solution
Regenerant tank overflow	a. Uncontrolled refill flow rate. b. Air Leak in regenerant line to air check. c. Drain control clogged with resin or other debris. d. Aircheck ball on 255 valve prematurely seating due to air leak.	a. Remove refill flow control to clean ball and seat. b. Check all connections in regenerant line for leaks. c. Clean drain control. d. Check all connections in regenerant line for leaks.
Flowing or dripping water at drain or regenerant line after regeneration	a. Valve stem return spring weak. b. Debris is preventing valve disc from closing.	a. Replace spring. (Contact dealer). b. Remove debris.
Hard water leakage after regeneration	a. Improper regeneration. b. Leaking of external bypass valve. c. O-Ring around riser pipe damaged. d. System capacity too low due to incorrect resin volume setting.	a. Repeat regeneration after making certain correct regenerant dosage was set. b. Replace bypass valve. (Contact dealer). c. Replace O-ring. d. Reset control and program resin volume to correct setting.
Control will not draw regenerant or intermittent or irregular regenerant draw	a. Low water pressure. b. Restricted drain line. c. Injector plugged. d. Injector defective. e. Valve disc 2 and/or 3 not closed. f. Air check valve prematurely closed.	a. Make correct setting according to instructions. b. Remove restriction. c. Clean injector and screen. d. Replace injector and cap. (Contact dealer). e. Remove foreign matter from disc and check disc for closing by pushing in on stem. Replace if needed. (Contact dealer). f. Put control momentarily into brine refill. Replace or repair air check if needed. (Contact dealer).
Control will not regenerate automatically	a. AC adapter or motor not connected. b. Defective motor.	a. Connect power. b. Replace motor. (Contact dealer).
Control regenerates at wrong time of day	a. Controller set incorrectly.	a. Correct the time setting according to instructions.
No conditioned water after regeneration	a. No regenerant in regenerant tank. b. Injector plugged. c. Air check valve closes prematurely.	a. Add regenerant to regenerant tank. b. Clean injector and screen. c. Quick cycle control into regenerant draw/slow rinse. Replace or repair air check if needed. (Contact dealer).
Backwashes or purges at excessively low or high rate	a. Incorrect drain controller used. b. Foreign matter affecting valve operation.	a. Replace with correct size controller (Contact dealer). b. Remove drain controller and clean ball and seat.
Control displays 1 - x (1 thru 4)	a. Control is in test mode.	a. Press control keys in order from left to right.

Table 14 System Troubleshooting

Notes

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