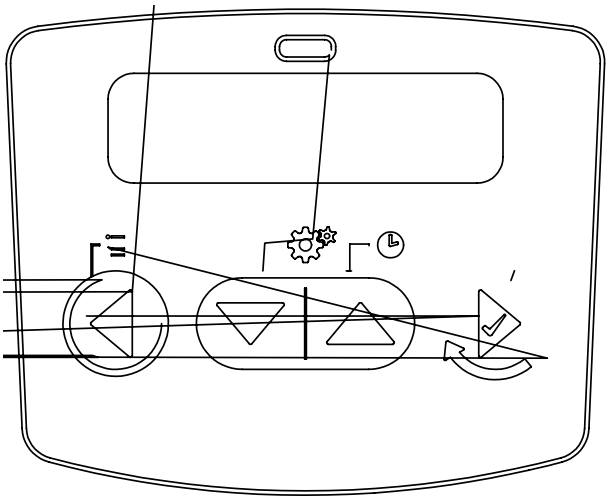
PENTAIR

FLECK NXT2 TIMER
SERVICE MANUAL



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IMPORTANT PLEASE READ:

7 -/41ALIFORNIA PROPOSITION 65 WARNING

⚠ WARNING: This product contains chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

FEATURES

- On-screen multilingual support: English, Francais, Deutsch, Italiano, Espanol, Nederlands, Portugues
- Time of day super capacitor backup for 12-hour power loss
- 2 to 4 line scrolling text OLED display, high contrast easy to read in low light conditions and at a distance
- Full functional user interface with easy programming allowing forward and backwards menu navigation
- Network two to eight valves via CAT5 or better cables
- LED Status Indicator
  - Blue: In Service
  - Flashing Blue: Regeneration Queued
  - Green: Regeneration
  - Flashing Green: Standby
  - Red: Error condition present
-

System Type	4 - Single Unit
	5 - Parallel Interlock (2-8 Unit)
	6 - Parallel Series Regeneration (2-8 Units)
	7 - Alternating Interlock (2 Units)
	8 - Alternating Delayed (2 Units)
	9 - Alternating with Standby Units (2-8 Units)
	14 - Demand Recall (2-8 Units)
Valve Type	2510
	2750
	2815
	2850
	2900
	3150
	3900
Regeneration Type	Softener/Filter Meter Delayed
	Softener/Filter Meter Immediate
	Time Clock
	Day of the Week
	Remote Regeneration
Regeneration Flow	Downflow Upflow Filter
Electrical Rating	24V DC

TIMER OPERATION

Setting the Time of Day

NOTE: Set Time of Day on any unit and the rest of the units in the system will update the Time of Day automatically.

1. Press and hold the Up button for 2 seconds. The "Time" value is displayed. Press the Up or Down buttons to adjust as desired.
2. Press the Extra Cycle button to advance to the "Year" field. Press the Up or Down buttons to adjust as desired.
3. Press the Extra Cycle button to advance to the "Month" field. Press the Up or Down buttons to adjust as desired.
4. Press the Extra Cycle button to advance to the "Calendar Day" field. Press the Up or Down buttons to adjust as desired.
5. Press the Extra Cycle button to return to the normal display screen.

NOTE: Press and hold the Left button to exit without saving.

Manually Initiating a Regeneration

1. When timer is In Service or Standby, press and hold the Extra Cycle button on the main screen.
2. The timer advances to Regeneration Cycle Step #1, and begins programmed time count down.
3. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #2 (if active).
4. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #3 (if active).
5. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #4 (if active).
6. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #5 (if active).
7. Press the Extra Cycle button once more to advance the valve back to In Service.

NOTE: A manually initiated or queued regeneration can be cleared by pressing and holding the Back button. A system queued regeneration can only be cleared by stepping through a manual regeneration. If regeneration occurs for any reason prior to the delayed regeneration time, the manual regeneration request shall be cleared. Pressing the Extra Cycle button while in regeneration will cause the upper drive to advance to the next step immediately.

Timer Operation During Regeneration

In the Regeneration Cycle step display, the timer shows the current regeneration cycle name the valve is in, or has reached, and the time remaining in that step. Once all regeneration steps are complete, the timer returns to In Service and resumes normal operation.

Remote Lock

The timer does not allow the unit/system to go into Regeneration until the Regeneration Lockout Input signal to the unit is cleared. This requires a contact closure to activate the unit. The recommended gauge wire is 16 AWG with a maximum wire length run of 50 feet.

Regeneration Day Override Feature

If the Day Override option is turned on and the valve reaches the set Regeneration Day Override value, the Regeneration Cycle starts if no other unit is in Regeneration. If other units are in regeneration, it is added to a regeneration queue. This occurs regardless of the remaining volume available.

Lock Settings (access to Master Programming)

Lock Settings prevents the user from accessing Master Programming. In Master Programming, select the desired Lock Settings option (Off, Time Based, Delayed, or Enter Code).

Time Based - User must set clock to 12:01 pm to unlock

Delayed - User must press and hold the Left and Down buttons for 60 continuous seconds to unlock

Enter Code - User must input code "1201" to unlock

Capacitive Buttons

Capacitive button entry warrant different consideration than tactile button entry. Do not wear gloves. Be sure to keep your hands and the capacitive buttons free of debris, grease, rqwt(t)5 (e)805 (. Butt)5.1 (ona ma)5 (yb(ec)15 (o(e t)5 empoer)10 (rtil)30.1 yo uir)30 (ep(onsiv)10 (e if)]TJTf envsir)30 onm(ent)5 nal codiatiois hagBe tasure hagBsn. If buttonsb(ec)15 (o(e uir)30 (ep(onsiv)10.1 (,qwt)5 (it5r)]TJ0 -1.167 TD[(t)5 (o 0 mmiunt)5.1 (s (f)15 (or the butt)5.1 (ons(t)5 (oir)30 (o ed- ErPrrG withec de.

Auxiliary Relays

The NXT2 has two auxiliary relays available based on cycle, time, or volume.

AUX.1: CYCLE BASED SP BW BD RR RF SB	Activates during selected cycle step
	Activates upon selected start time (Range: 0-91 minutes)
	Deactivates upon selected end time (Range: Start Time plus 1 minute)
	Activates when selected volume (gallon) is reached (Range: 0-99999)
	Selected Duration in Seconds (Range: 0-9999 seconds)

SYSTEM DEFINITIONS

Syste m 4 - Single Unit

Single Tank configurationTime Clock: No MeterImmediate: One MeterDelayed: One MeterRemote Signal Start

Syste m 5 (2-8 Units) Parallel Interlock)

All tanks in parallel supplying treated water. Each unit in the system will have its own flow meter/sensor input. The control will delay the start of Regeneration if another unit is already in Regeneration. Once that unit has completed a Regeneration cycle, and has returned to Service, the unit with the longest regeneration queue time will begin Regeneration.No more than one unit will be in Regeneration at at time.

Syste m 6 (2-8 Units) Parallel Series Regeneration

All tanks in parallel supplying treated water. Only #1 control will monitor flow meter/sensor input. When a regeneration is required for the system, it will regenerate valve address #1 first, immediately followed by #2, then #3, then #4 if installed. No more than one unit will be in Regeneration at a time.

Syste m 7 (2 Units) Alternating I m mediate

One tank online supplying treated water, one tank in Standby. Only #1 control will monitor its flow meter/sensor input. Regeneration of a unit will begin after the other control has left Standby and returned to Service. When the Regeneration cycle is complete, the regenerated unit will enter Standby. Standby on each tank is controlled by the relay on the NXT2 circuit board.

Syste m 8 (2 Units) Alternating Delayed

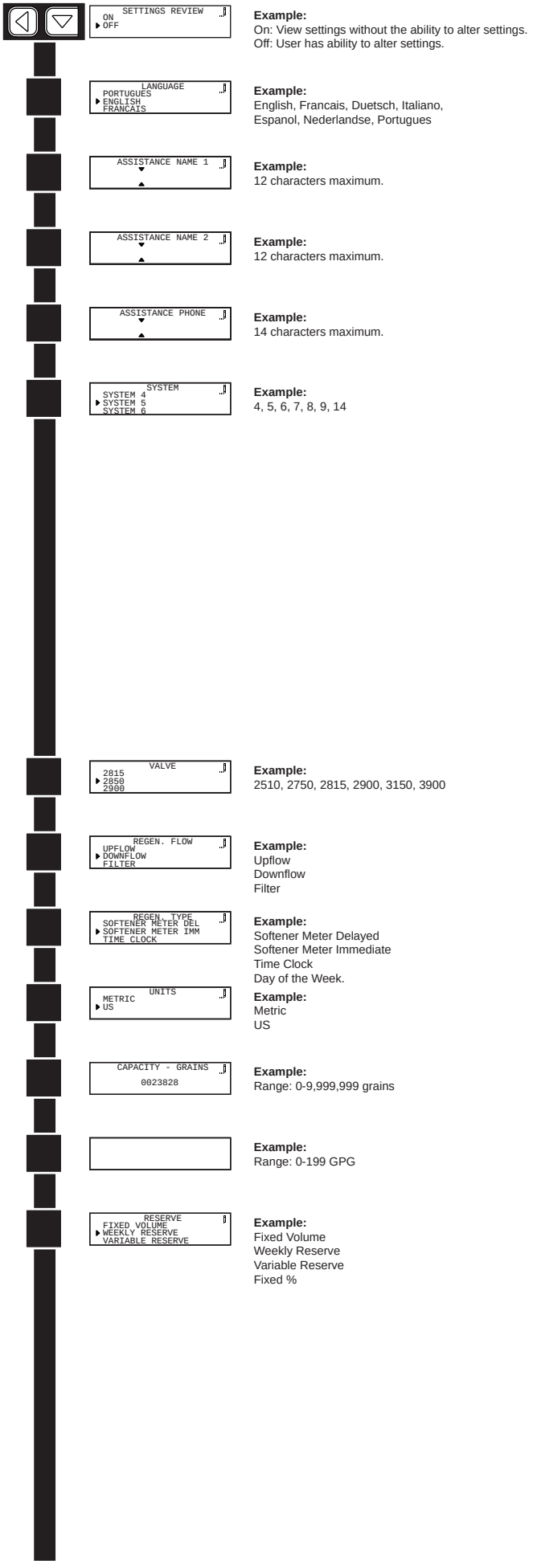
Immediate Transfer Delayed RegenerationOne tank online supplying treated water, one tank in Standby. Only #1 control will monitor its flow meter/sensor input. Online unit depletes its volume. Once this occurs the offline unit comes online. The previously online unit goes offline and delays its regeneration until the programmed regeneration time has been reached.

Syste m 9 (2-8 Units) Alternating with Standby Units

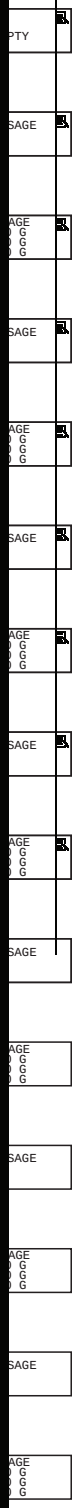
Up to 7 tanks online supplying treated water, one tank in Standby. Meter/sensor input is required on each tank. Regeneration of a unit will begin after the other control has left Standby and returned to Service. When the Regeneration cycle is complete, the regenerated unit will enter Standby. Standby on each tank is controlled by the relay on the NXT2 circuit board.

Syste m 14 (2-8 Units) De mand Recall

Meter input is required on each tank. Unit #1 will begin In Service with #2, #3, and #4 (if installed) will begin in Standby. At least one unit is In Service at all times. When flow rate to the Primary Service Unit increases to a user specified rate, the next unit in sequence will move from Standby to Service. As the flow rate falls below the user specified rate, subsequent tanks will return to Standby. When the Primary Service Unit regenerates, the next unit in sequence will becomethe new Primary Service Unit. As each units capacity is reached, the controller will initiate a Regeneration of that unit. Depending on the number of units in the system and flow rate demand, the regenerated unit will then be placed either into Standby or Service. Only one unit will be in Regeneration at a time.


SETTINGS REVIEW
ON
OFF
Example:
On: View settings without the ability to alter settings.
Off: User has ability to alter settings.
LANGUAGE
PORTUGUES
ENGLISH
FRANCAIS
Example:
English, Francais, Duetsch, Italiano,
Espanol, Nederlandse, Portugues
ASSISTANCE NAME 1
Example:
12 characters maximum.
ASSISTANCE NAME 2
Example:
12 characters maximum.
ASSISTANCE PHONE
Example:
14 characters maximum.
SYSTEM
SYSTEM 4
SYSTEM 5
SYSTEM 6
Example:
4, 5, 6, 7, 8, 9, 14
VALVE
2815
2850
2900
Example:
2510, 2750, 2815, 2900, 3150, 3900
REGEN. FLOW
UPFLOW
DOWNFLOW
FILTER
Example:
Upflow
Downflow
Filter
REGEN. TYPE
SOFTENER METER DEL
SOFTENER METER IMM
TIME CLOCK
Example:
Softener Meter Delayed
Softener Meter Immediate
Time Clock
Day of the Week.
UNITS
METRIC
US
Example:
Metric
US
CAPACITY - GRAINS
0023828
Example:
Range: 0-9,999,999 grains
Example:
Range: 0-199 GPG
RESERVE
FIXED VOLUME
WEEKLY RESERVE
VARIABLE RESERVE
Example:
Fixed Volume
Weekly Reserve
Variable Reserve
Fixed %

MASTER PROGRAMMING MODE
FLOW CHART *continued...*



Example:
Record of error events chronologically.

Example:
Average usage from past Sunday.

Example:
Average usage from past 3 Sundays.

Example:
Average usage from past Monday.

Example:
Average usage from past 3 Mondays.

Example:
Average usage from last Tuesday.

Example:
Average usage from past 3 Tuesdays.

Example:
Average usage from last Wednesday.

Example:
Average usage from past 3 Wednesdays.

Example:
Average usage from last Thursday.

Example:
Average usage from past 3 Thursdays.

Example:
Average usage from last Friday.

Example:
Average usage from past 3 Fridays.

Example:
Average usage from last Saturdays

Example:
Average usage from past 3 Saturdays.

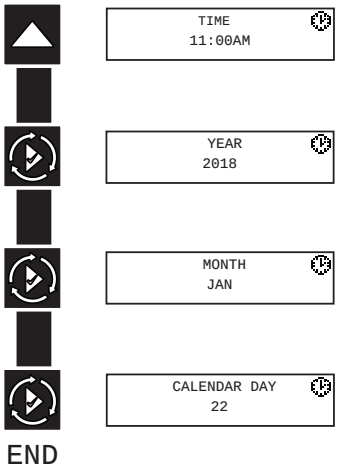
TIME OF DAY PROGRAMMING MODE FLOW CHART

Setting the Time of Day

NOTE: Set Time of Day on any unit and the rest of the units in the system will update the Time of Day automatically.

1. Press and hold the Up button for 2 seconds. The "Time" value is displayed. Press the Up or Down buttons to adjust as desired.
2. Press the Extra Cycle button to advance to the "Year" field. Press the Up or Down buttons to adjust as desired.
3. Press the Extra Cycle button to advance to the "Month" field. Press the Up or Down buttons to adjust as desired.
4. Press the Extra Cycle button to advance to the "Calendar Day" field. Press the Up or Down buttons to adjust as desired.
5. Press the Extra Cycle button to return to the normal display screen.

NOTE: Press and hold the Left button to exit without saving.



Example:
12 or 24 hour formats available

Example:
Set current year

Example:
Set current month

Example:
Set current day

						Series	Alternating	Alternating	Alternating	Demand Recall			
											US	Metric	
Settings Review	x	x	x	x	x	x	x	x	x	x		On, Off	
Language	x	x	x	x	x	x	x	x	x	x		English Francais Deutsch Italiano Espanol Nederlands Portugues	
Assistance Name 1, 2	x	x	x	x	x	x	x	x	x	x		Custom	
Assistance Phone	x	x	x	x	x	x	x	x	x	x		Custom	
Regen Type	x	x	x	x	x	x	x	x	x	x		Time Clock Day of the Week Softener/Filter Metered Immediate Softener/Filter Metered Delayed	
Valve	x	x	x	x	x	x	x	x	x	x		2510 27En5En8n1n2En7En8n(En8	
Regen Flow	x	x	x	x	x	x	x	x	x	x		Upflow, Downflow, Filter	
Units	x	x	x	x	x	x	x	x	x	x		US, Metric	
Remote Regeneration	x	x	x	x	x	x	x	x	x	x		Off, Immediate, Delayed	
Auxilliary 1,2	x	x	x	x	x	x	x	x	x	x		Off, Alarm Based, Cycle Based, Time Based,	
Lock Window 1,2	x	x	x	x	x	x	x	x	x	x		On, Off	
Meter Type			x	x	x	x	x	x	x	x		Paddle (0.75", 1", 1.5", 2", 3") Turbine (0.75", 1.25", 1.5") Generic	
Continuous Flow Detect			x	x	x	x	x	x	x	x		On, Off	
Save as Non Factory	x	x	x	x	x	x	x	x	x	x		On, Off	
Lock Settings	x	x	x	x	x	x	x	x	x	x		Off, Delayed, Enter Code, Time Based	
Day Override/Time Driven	x		x	x	x	x	x	x	x	x		Off-99 Days	
Regen Time	x	x		x		x		x				Any	
Day of the Week		x				x						SU, MO, TU, WE, TH, FR, SA	
Capacity			x	x	x	x	x	x	x	x	0-9,999,999 Grains	0-9,999,999 Grams, 0-560,287 Lx°DH,	0-1,000,000 Lx°FTH, 0-701,557 Lx°EH
Hardness			x	x	x	x	x	x	x	x	0-199 GPG	0-19,999 mg/L, 0-1,402 °EH,	0-199.9 °FTH, 0-112 °DH
International Hardness Units			x	x	x	x	x	x	x	x		mg/L, °EH, °FTH, °DH	
Reserve				x		x						Weekly Reserve, Variable Reserve, Fixed %, Fixed Volume	
Number of Tanks (Max)	1	1	1	1	8	8	2	2	8	8		2, 3, 4, 5, 6, 7, 8	
Push Settings					x	x	x	x	x	x		On, Off	
Trip Point #1-7 GPM										x	0-1,999 GPM	0-7,569 LPM	
Trip Point #1-7 SD										x		1-90s	
Trip Point #1-7 STBD										x		60-300s	

NXT2 TIMER ASSEMBLY
(2510, 2750, 2850, 2900, 3150, 3900 VALVES)

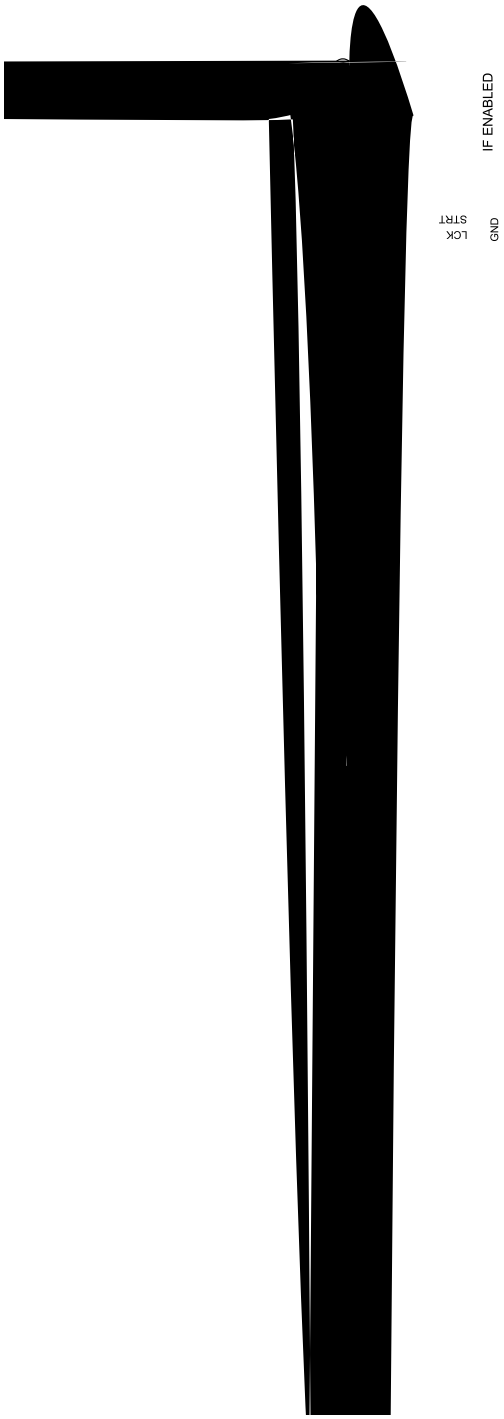
Item No.	QTY	Part No.	Description
1	1	62115	Timer Assy, NXT2
Service Assemblies			
2	1	62120	Control Panel Assy, NXT2, Programmed
3	1	40941	Wire Harness, Upper Drive

NXT TO NXT2 CONVERSION KITS

Item No.	QTY	Part No.	Description
	1	62121-01	Conversion Kit, NXT2, US
	1	62121-02	Conversion Kit, NXT2, Euro
	1	62121-03	Conversion Kit, NXT2, Aust
	1	62121-04	Conversion Kit, NXT2, Japan

NOTE: Conversion Kits do not include wiring harness; save and reuse existing NXT wiring harness. Region-specific power supply is included.

NXT2 WIRING DIAGRAM



POWER SUPPLY CONNECTIONS

Installing the Power Supply:

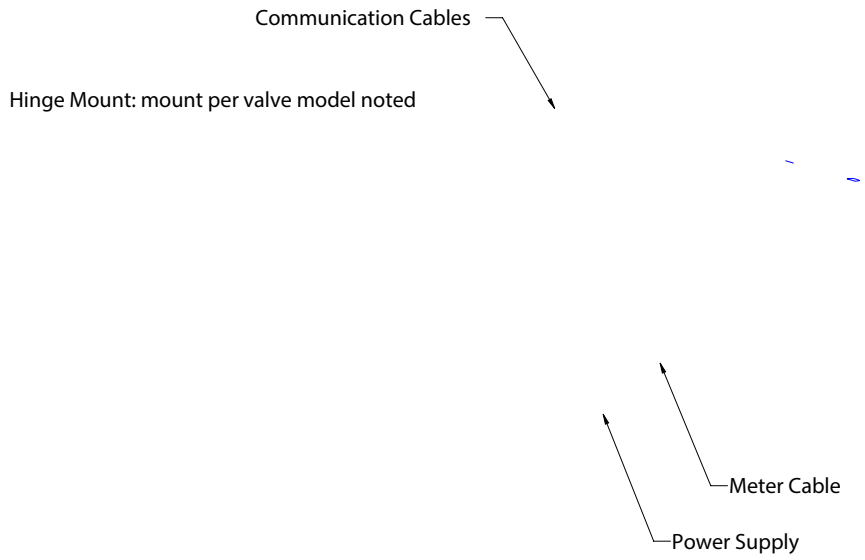
NOTE: Power Supply includes a harness with 2 black wires that connect to circuit board, see page 15.

1. Insert black and black transformer wires into 24VDC input of control.

2510/2750/2815/2850/2900 Valves:

44404 Rev A

3150/3900 Valves:



44403 Rev A

ERROR CODES AND TROUBLESHOOTING

Detected Errors

If a communication error is detected, an Error Screen will appear.

- All units In Service remain in the In Service position.
- All units in Standby go to In Service.
- Any unit in Regeneration when the error occurs completes Regeneration and goes to In Service.
- No units are allowed to start a Regeneration Cycle while the error condition exists, unless they are manually forced into Regeneration.
- When an error is corrected and the error no longer displays (it may take several seconds for all of the units in a system to stop displaying the error message), the system returns to normal operation.

NOTE: During the error condition, the control continues to monitor the flow meter and update the volume remaining. Once the error condition is corrected, all units return to the operating status they were in prior to the error. Regeneration queue is rebuilt according to the normal system operation. Or, if more than one unit has been queued for regeneration, then the queue is rebuilt according to which one communicates first.

Message Displayed	Cause For Error	Correction
Error Valve Count Mismatch	Number of NXT2 detected does not match selected system type in Master Programmins	

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44381 REV A JL18