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NELSEN CHIP RO Controller System Controller Documentation Instruction Manual

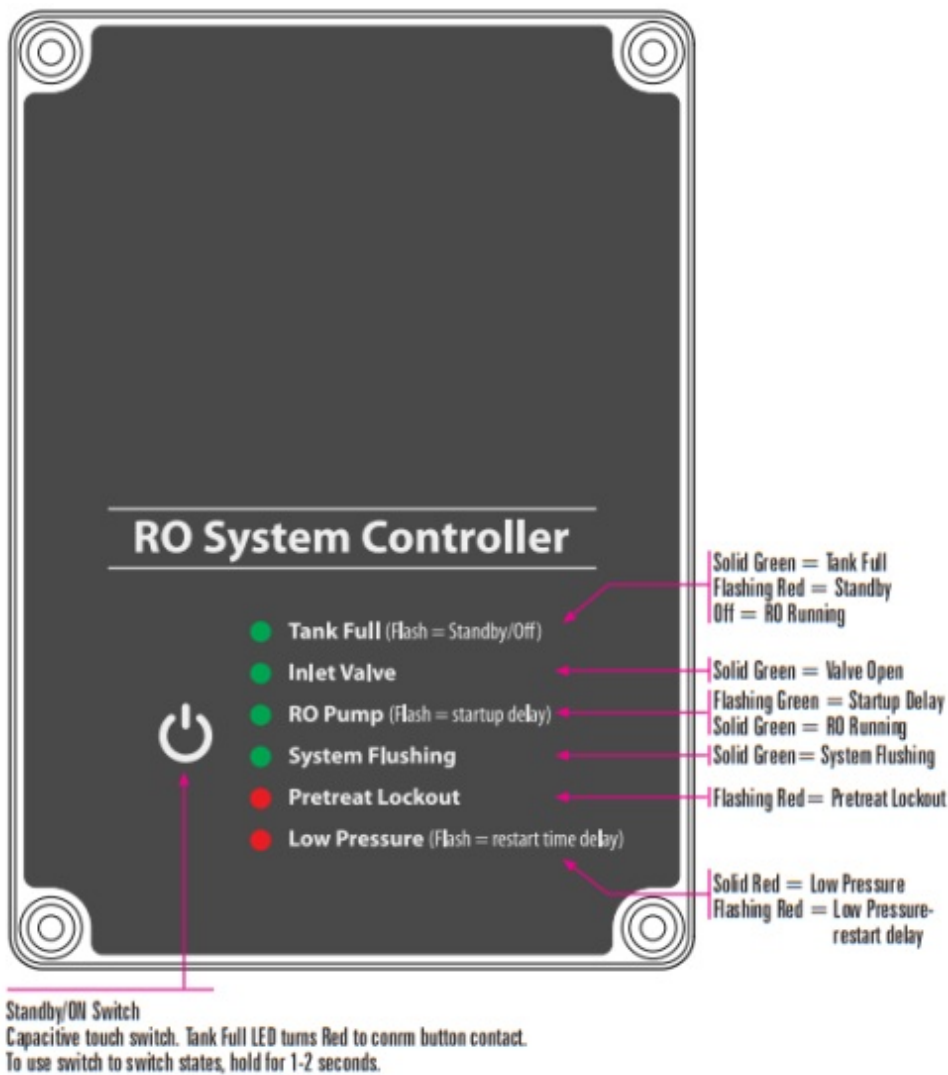NELSEN CHIP RO Controller System Controller Documentation Instruction Manual

Contents

Table 1 – Specifications

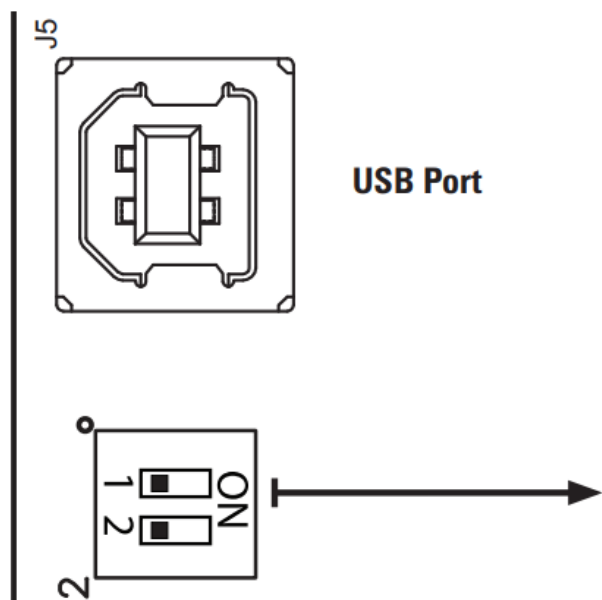| Inputs			
Tank level switch	(1) Normally-Closed. RO Runs on switch closure.		
Inlet pressure switch	Normally-Open. Switch opens on low pressure.		
Pretreat lockout switch	Normally-Open. Pretreat lockout active with switch closure		
	NOTE: All switch inputs are dry contacts. Voltage applied to the switch inputs will damage the controller		
Controller Power	120/240 VAC, 60/50Hz (Range: 96-264 VAC)		
	The switching power supply automatically adjusts to supply voltage. Voltage applied to the input is the same voltage the motor and valves will operate on.		
Output Relay Ratings			
Feed Solenoid	12A. Output Voltage is the same as motor/supply voltage.		
Flush Solenoid	12A. Output Voltage is the same as motor/supply voltage.		
	The solenoid relay ratings above reflect the capacity of the relays only. The current capacity of each circuit is 2A.		
Motor	1.0 HP @ 120V 2.0 HP @ 240V		
Circuit Protection			
Controller Power Fuse	F1 5x20mm	1/4 (0.25) Amp	Little Fuse 0218.250MXP
	Branch circuit protection, motor and valve protection must be provided externally		
Other			
Dimensions	7" tall, 5" wide, 2.375" deep. Nema 4X Polycarbonate Enclosure		
Weight	1.1 lb.		
Environment	0-50°C, 10-90%RH (non-condensing)		

Figure 1. Controller Overview

RO System Controller

Tank Full (Flash = Standby/Off) — Solid Green = Tank Full | Flashing Red = Standby | Off = RO Running

Inlet Valve — Solid Green = Valve Open

RO Pump (Flash = startup delay) — Flashing Green = Startup Delay | Solid Green = RO Running

System Flushing — Solid Green = System Flushing

Pretreat Lockout — Flashing Red = Pretreat Lockout

Low Pressure (Flash = restart time delay) — Solid Red = Low Pressure | Flashing Red = Low Pressure- restart delay

Standby/ON Switch
Capacitive touch switch. Tank Full LED turns Red to conrm button contact.
To use switch to switch states, hold for 1-2 seconds.

Figure 2 – Controller Detail

Switching Power Supply
Operates on 96-264VAC, adjusts automatically to line voltage. Voltage at the supply terminals is the voltage for the pump and valves.

Programming Port
Standard USB port for connection to computer for programming.

DIP Switches
Select RO Program

Switch
System ON/Standby

Figure 3

Pump/Motor 110-240 VAC

Supply Power 110-240 VAC

Inlet Valve 110-240 VAC

Flush Valve 110-240 VAC

Pressure Switch

Pretreat Switch

Tank Switch

Switch Inputs Dry Contact Only

USP Port

DIP Switch
RO Program Selection

System ON/Standby
Captive touch sensor

Figure 4:

RO Program Settings

Switch 1	Switch 2	Program
OFF	OFF	1
ON	OFF	2
OFF	ON	3
ON	ON	4

Table 2 – Controller Programming: CHIP Program Selections

The controller has 4 separate user-selectable sets of settings for configuring the RO. The factory default settings are shown below. The settings are identical except for variations in the flush behavior.

- **Program 1:** High Pressure Flush
- **Program 2:**No Flush
- **Program** 3: Permeate Flush, (low pressure, inlet valve closed)
- **Program 4:** Low Pressure, Feed Water Flush
- See the previous page for instructions on how to select these programs.
- See Appendix A for a detailed explanation of the Parameters and their affect on the RO's operation.
- See Appendix B for information on the programming interface for use in modifying these settings.

Parameter	Value	Program 1	Program 2	Program 3	Program 4
Tank Level Switch delay (actuation and de-actuation)	Seconds	2	2	2	2
Pressure Switch delay (actuation and de-actuation)	Seconds	2	2	2	2
Pretreat Switch delay (actuation and de-actuation)	Seconds	2	2	2	2
Pump start delay	Seconds	10	10	10	10
Inlet Solenid stop delay	Seconds	1	1	1	1
Pump start retry interval (restart delay after LP fault)	Seconds	60	60	60	60
Low pressure fault shutdown, # of faults	Faults	5	5	5	5
Low pressure fault shutdown, time period to count faults	Minutes	10	10	10	10
Low pressure fault shutdown, reset after shutdown	Minutes	60	60	60	60
Low pressure time out fault	Seconds	60	60	60	60
Flush Behavior	–	High Pressure	No Flush	Perm Flush	Low Pres Flush
Startup Flush: Minutes from last flush	Minutes	0	0	0	0
Startup Flush: Duration	Seconds	0	0	0	30
Periodic Flush: Interval	Minutes	60	0	0	0
Periodic Flush: Duration	Seconds	30	0	0	0
Shutdown Flush: Time from last flush	Minutes	10	0	0	0
Shutdown Flush: Minumum operation	Minutes	30	0	0	0
Shutdown Flush: Duration	Seconds	60	0	60	60
Idle Flush: Interval *	Minutes	0	0	0	0
Idle Flush: Duration *	Seconds	0	0	0	0

- These features are disabled by default due to the potential for confusion on the part of end-users in the field. They can be enabled when needed via the OEM PC programming interface which allows changes to all of the values shown above.

Appendix C – Controller Limited Warranty

What the warranty covers:
The CHIP is warranted to be free from defects in materials and workmanship during the warranty period. If a product proves to be defective during the warranty period, Nelsen Corporation will at it's sole option repair or replace the product with a like product. Replacement product or parts may include remanufactured or refurbished parts or components.

How long the warranty is effective:
The CHIP is warranted for one (1) year for parts and labor from the date of the first consumer purchase or 15 months from ship date, whichever comes first.

What the warranty does not cover:

1. Damage, deterioration or malfunction resulting from:
    1. Accident misuse, neglect, fire, water lightning or other acts of nature, unauthorized product modification or failure to follow instructions supplied with the product.
    2. Repair or attempted repair by anyone not authorized by Nelsen Corporation.
    3. Any damage of the product due to shipment.
    4. Causes external to the product such as electric power fluctuations.
    5. Use of supplies or parts not meeting i-Controls' specifications.
    6. Normal wear and tear.
    7. Any other cause which does not relate to a product defect.
2. Transportation costs necessary to obtain service under this warranty.
3. Labor other than factory labor.

How to get service:

1. To obtain warranty service, contact your selling dealer for a Return Material Authorization (RMA).
2. You will be required to provide:
    1. Your name and address
    2. A description of the problem
3. Package the controller carefully for shipment and return it to your, freight prepaid.

Limitation of implied warranties:
There are no warranties, expressed or implied, which extend beyond the description contained herein including the implied warranty of merchantability and fitness for a particular purpose.
Exclusion of damages:
Liability is limited to the cost of repair or replacement of the product. Nelsen Corporation shall not be liable for:

1. Damage to other property caused by any defects in the product, damages based upon inconvenience, loss of use of the product, loss of time, loss of profits, loss of business opportunity, loss of goodwill, interference with business relationships or other commercial loss, even if advised of the possibility or such damages.
2. Any other damages, whether incidental, consequential or otherwise.
3. Any claim against the customer by any other party.

Effect of state law:
This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow limitations on implied warranties and/or do not allow the exclusion of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

Documents / Resources

NELSEN CHIP RO Controller System Controller Documentation [pdf] Instruction Manual
CHIP RO Controller System Controller Documentation, CHIP RO, Controller System Controller
Documentation

References

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