

# LINX<sup>®</sup> 160

## Drinking Water System

*with LINX Technology*

*and Dial-a-Taste<sup>®</sup> Mineral Level Control*

(Software 20.082)

## Owner's Manual



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Certified by WQA against NSF/ANSI Standard 53 as verified and substantiated by test data for the reduction of nitrate/nitrite.



## Section 1. Safety Precautions

- The LINX 160 system should be installed, serviced and maintained by an Authorized Dealer to assure that they comply with state and local laws and regulations as well as providing optimum performance. Massachusetts requires a licensed plumber to install the product according to plumbing code 248-CMR of the Commonwealth of Massachusetts. A Supplement to the Owner's Manual for Installation and Maintenance is available for qualified technicians.
- Read and follow all instructions carefully before using the LINX 160 Drinking Water System.
- DO NOT open the cell lid or outer enclosure when the LINX 160 system is powered. There is a risk of electrical shock.
- If the detachable power cord is damaged it must be replaced.
- Install the LINX 160 systems upright (not on their side). Use with cold feed water ONLY (33-100°F; 1-40°C).
- DO NOT use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the systems.
- The systems are designed to operate with supply water pressure in the range of 20-100 psi (130-690 kPa). If the pressure exceeds 100 psi (690 kPa), a pressure regulator must be installed.
- These systems are not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the systems by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the systems.
- Systems must be served by a GFCI outlet in Wisconsin.
- Grounding Instructions: These systems must be properly grounded. In the event of a malfunction, grounding will reduce the risk of electric shock. These systems are equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is installed and grounded in accordance with all local codes and ordinances.

**Warning:** Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician if you are in doubt whether the systems are properly grounded. Do not modify the plug provided with the systems. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

## Section 2. Overview of the LINX 160 System

The LINX 160 anDrinking Water System employs an ion exchange process which uses electricity rather than chemicals for operation. LINX technology does not release chemicals to the environment and it conserves water compared to other drinking water systems that provide similar water quality.

LINX technology provides several important benefits:

- High flow rates: up to 0.75 gallons/minute (gpm), or 2.7 liters/minute, delivered from the tank
- Wastes 90% less water than reverse osmosis drinking water systems under typical usage conditions.
- The Dial-a-Taste control allows adjustment of product water mineral level for optimum taste.

The LINX 160 and LINX 160M systems include:

- One LINX 120 Sediment pre-filter
- One LINX 50 TDS cartridge to reduce contaminants for improved health and total dissolved solids (TDS) for taste.
- One LINX 120 Carbon (GAC) post-filter.
- Space for an optional third LINX 120 filter (eg. a second carbon filter)
- Operation on either 100-120VAC or 200-240VAC
- An internal leak sensor and shut-off valve
- An optional external leak sensor for monitoring remote leaks in other locations

### Specification:

<b>Feed Water Quality:</b>	Potable water with maximum TDS of 1000 ppm, <20 grains of hardness (340 ppm hardness as CaCO <sub>3</sub> ), pH 4 – 10; microbiologically safe
<b>Feed Water Pressure:</b>	20-100 psi (130-690 kPa)
<b>Feed Water and Operating Temperature:</b>	33-100°F (1-40°C)
<b>Regeneration:</b>	30 minutes
<b>TDS Rejection (Maximum Dial):</b>	≥85% TDS reduction
<b>Flow Rate to Faucet (from Tank):</b>	0.75 gpm (2.7 liters/minute), maximum
<b>Water Output Volume per Cycle:</b>	0-500 ppm TDS feed: 1.5 gallons (6.0 liters) per 30 min regen cycle 501-1000 ppm TDS feed: 1.0 gallons (4.0 liters) per 30 min regen cycle
<b>Rated Capacity:</b>	1.0 gallon/cycle (4.0 liters/cycle)
<b>Rated Life*:</b>	650 gallons (2500 liters) for all replaceable components: LINX 50 TDS cartridge, LINX 120 Sediment filter, LINX 120 Carbon filter
<b>Warranted Water Output per Day:</b>	≤25 gallons (100 liters; if product exceeds 25 gallons per day on average, the warranty is no longer valid)
<b>Water Recovery:</b>	0-500 ppm TDS feed: 70%; 501-1000 ppm TDS feed: 61%
<b>Operating Voltage, Current:</b>	100-120 VAC or 200-240VAC, 50/60 Hz
<b>Outside Dimensions:</b>	13 in (330 mm; depth) x 6.6 in (168 mm; width) x 14 in (356 mm; height)

\* LINX 50 TDS cartridge and LINX 120 Sediment/Carbon filter lifetimes are based on extensive testing by the manufacturer.

### Section 3. Installation

The LINX 160 system should be installed and serviced by an Authorized Dealer to assure that it complies with state and local laws and regulations, and to provide optimum performance.

If a system is to be disconnected for any reason, **FIRST** ensure that the feed water is turned off, the valve to/from the tank is closed, and the faucet is opened to depressurize it (open the faucet until water stops flowing). Then **DISCONNECT THE POWER** to the systems by detaching the power cord at the rear.



**Figure 1:** Connections for feed, drain, tank and product water

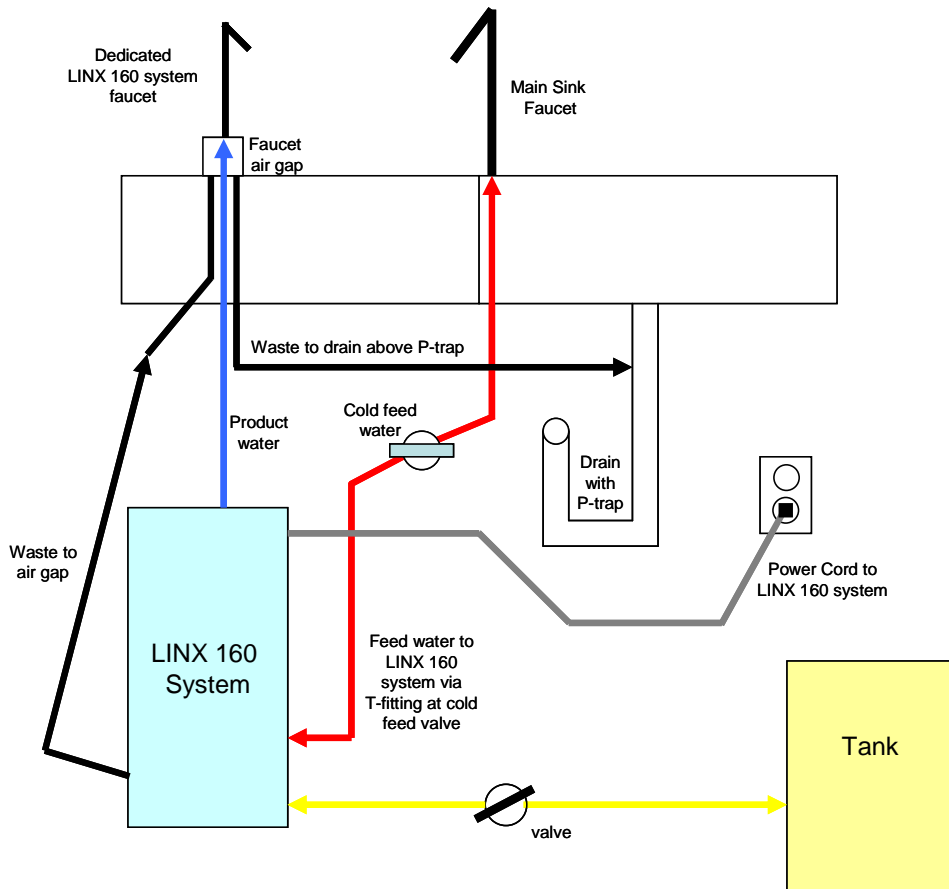
The new hose-sets supplied with the system are to be used rather than reusing old hose sets (if replacing another system, do not use the old hose-sets). The LINX 50 TDS cartridge, LINX 120 Sediment filter and LINX 120 Carbon filter are inserted during installation, and occasionally replaced, by an Authorized Dealer.

Plumbing connections as seen from the back of the LINX 160 System (Figure 1) are:

- Feed water (cold water only) to the left connector (red)
- Drain line (to the air gap, then the drain) is connected to the second-from left connector (black)
- Tank to the second from right connector (yellow)
- Dedicated faucet is connected to the right connector (blue)

A diagram illustrating plumbing connections is shown on the following page. Feed water is provided from the cold water supply under the sink via a T-fitting on the cold water valve. Do not use a saddle valve with puncturing needle because it will not provide sufficient flow. Your Authorized Dealer will supply the faucet and tank. The plumbing diagram shows installation with a dishwasher air gap. Actual installation will vary depending on local plumbing codes.

## LINX 160 Drinking Water System Installation Diagram



### Section 4. Operation

The LINX 160 system operations are automatic. The system employs two flow sensors to measure and control product and waste water volumes and to indicate when it is time to replace filters and/or cartridges. **The user only has to open and close the faucet to operate the systems.**

#### Input Voltage Selection (120VAC or 240VAC)

As received, the LINX 160 system is ready for operation on 100-120VAC input power. For operation on 200-240VAC input power, your Authorized Dealer needs to remove the top enclosure and replace the “120VAC” connector with the “240VAC” connector in the “Voltage Selection” receptacle on the side of the power supply. These two connectors are tethered together.

#### Selecting Feed Water TDS Level

The LINX 160 system must be set to your incoming feed water quality. Two settings are available: a first level for 0-500 ppm, and a second level for 501-1000 ppm TDS feed waters. The factory setting is for  $\leq 500$  ppm TDS feed water which provides 1.5 gallons (6.0 liters) of drinking water prior to regeneration, yielding 70% water recovery. Selecting the 501-1000 ppm TDS feed level provides 1.0 gallons (4.0 liters) of drinking water with 61% recovery. Your Authorized Dealer will determine the TDS of your feed water as part of the installation.

## Conditioning the LINX 50 TDS Cartridge, and LINX 120 Sediment and Carbon Filters

When a new LINX 160 system is installed or the LINX 50 TDS cartridge and LINX 120 filters have been replaced, the system must undergo three steps to ready it for drinking water production: 1) a 90 minute conditioning of the LINX 50 TDS cartridge, 2) filling the tank (empty it if full at the start), and 3) emptying the tank from the faucet to rinse the carbon filter (automatically triggering tank refill). Your Authorized Dealer will initiate the 90 minute LINX 50 TDS cartridge step during service. The LINX 160 system will not produce water during this period.

## System Operation

After the service volume has been delivered, 1.5 gallons (6.0 liters) on the low TDS feed setting and 1.0 gallons (4.0 liters) on the high setting, a 27 minute regeneration takes place. After regeneration a “clicking” noise will be heard for 10 seconds during which the LINX 160 system is cleaning its valves.

**Note:** While drinking water is always available, the LINX 160 and 160M systems are designed for intermittent, not continuous, use. To obtain the specified  $\geq 85\%$  TDS reduction, the systems must be configured as described in the Specification section. To maintain the 3 year Warranty, the average daily usage must be  $< 25$  gallons (100 liters).

## Indicator Lights

Above the Dial-a-Taste control knob is a green light indicating that the unit is powered and functioning. The four other indicator lights, labeled A, B, C and D (see image below) are used to signal system status as shown in the following table. When the system is producing water, blue light A flashes. When in regeneration, red light B flashes. For the four “alarms” at the bottom of the table, repowering will reset the system; if the alarm re-occurs, call your Authorized Dealer.

## Indicator Status Table

LINX System Status	Light A (Blue)	Light B (Red)	Light C (Blue)	Light D (Red)
TDS Reduction	Blinking	Off	Off	Off
Regeneration	Off	Blinking	Off	Off
Conditioning LINX 50 TDS Cartridge (90 min)	All 4 lights blink in sequence (left-to-right-to-left)			
End of Life of Sediment and Carbon components**	Off	Solid	Off	Off
LINX 50 TDS Cartridge Life End**	Off	Off	Solid	Off
Top Enclosure not installed correctly	Off	Blinking	Blinking	Blinking
Drain Line/Valve Blocked Alarm/Low feed Pressure	Blinking	Blinking	Blinking	Blinking
External Leak Alarm (audible buzzer)*	Blinking	Blinking	Off	Blinking
No Power to LINX Cells (poor TDS reduction)	Blinking	Off	Blinking	Blinking

\*to turn off the leak sensor buzzer, unplug the LINX system

\*\*Indicator lights remain solid on when the system is idle only.

## Dial-A-Taste® Mineral Level Control (LINX 160 model only)

The mineral level of the product water can be changed by turning the Dial-a-Taste control at the front of the unit. Turning the dial clockwise increases mineral content. As the dial is turned, the blue and red LEDs will light-up for several seconds to indicate the mineral level selected. None of the four LEDs will light-up when the dial is set to the full counter-clockwise position.

indicating that the highest mineral content is selected (~70% TDS reduction). One LED means the second highest mineral level, two LEDs mean the middle level, three LEDs mean the second lowest level, and all four LEDs mean the lowest mineral level is selected (>85% TDS reduction, full clockwise dial position). After the dial has been set, the LEDs indicating mineral level will turn off and resume their normal display. The tank must be emptied and refilled to observe the change.

When treating water comprising regulated contaminants, the Dial-a-Taste control should be set fully counter-clockwise to maximize reduction of the regulated contaminant.

### **External Leak Sensor (Optional)**

The LINX 160 system comes equipped with an internal leak sensor to detect leaks and shut off the feed water supply to the entire system to prevent the risk of water damage. If a leak is detected, the A, B and D lights blink and the buzzer sounds. To stop the buzzer, unplug the LINX 160 system.

Optionally available are external leak sensors which may be battery powered or connected by cable to the rear of the LINX 160 system to detect leaks from other appliances or pipes, such as beneath the sink drain plumbing. When powered by the LINX 160 system; leak detection causes the LINX 160 system to alarm as for an internal leak; to stop the alarm, unplug the LINX 160 system. When battery powered, the external sensor itself sounds the buzzer; to stop the buzzer, remove the batteries. The external sensor can be repowered when the area is dry.

## **Section 5. Maintenance**

### **LINX 50 TDS Cartridge, LINX 120 Sediment and Carbon Filters**

The LINX 160 system includes three replaceable components:

- One LINX 50 TDS cartridge
- One LINX 120 Sediment filter
- One LINX 120 Carbon filter (GAC).

Additionally, space is reserved for an optional third LINX 120 filter (eg. a second carbon post-filter). The indicator lights let you know it is time to call for service (see Indicator Status Table in the previous section). All three components need replacement at 650 gallons (2500 liters). Some reduction in water flow rate may be noticed near the end of filter and cartridge life. Contact your Authorized Dealer for service and replacement of cartridges and filters.

### **Drain Blockage Alarm**

When treating hard water, scale may accumulate in the drain valves or drain line causing a plugged drain line. If a drain plug is detected, the system will shut-down and all four indicator lights (blue and red) will blink in unison. If this alarm is observed, reset the system by repowering it. This is done by detaching and reattaching the power cord at the rear of the LCM 160 system. If the alarm occurs again, contact your Authorized Dealer for maintenance.

The drain plugged alarm will also occur if the feed pressure is lost. The LCM 160 system will check every 20 minutes to determine if pressure has been restored, and will automatically clear the alarm when pressure is detected.



## Section 6: Troubleshooting

Observation	Causes/Remedies
No Water Flow No Green Power Light (under dial)	<ul style="list-style-type: none"> <li>• No power; unit not plugged into required 100-120V or 200-240V outlet.</li> <li>• Fuse blown (2 A slow blow fuse).</li> </ul> <p><i>Remedy – Replace fuse</i></p> <ul style="list-style-type: none"> <li>• Electronics failure.</li> </ul> <p><i>Remedy – Call your Authorized Dealer</i></p>
Four blue and red Indicator Lights Flash right-left-right	<ul style="list-style-type: none"> <li>• The system in the 90 second filling stage immediately following powering</li> <li>• The system is conditioning the LINX 50 TDS cartridge (90 minutes)</li> </ul>
Clicking noise for 10 sec after regeneration	<ul style="list-style-type: none"> <li>• The LINX system is cleaning its valves – this is normal behavior</li> </ul>
No Product Water Flow (Green light on; no indicator lights are flashing when faucet is opened)	<ul style="list-style-type: none"> <li>• Faucet is mounted 13 ft (4 meters) or more above the LINX system</li> </ul> <p><i>Remedy – install the LINX system at &lt;13 ft (4 meters) below faucet</i></p> <ul style="list-style-type: none"> <li>• Tubing connections are incorrect</li> </ul>
No Product Water Flow Indicator lights B, C and D flashing	<ul style="list-style-type: none"> <li>• Top Enclosure is installed incorrectly</li> </ul> <p><i>Remedy – Assure that top enclosure is fully seated</i></p>
No Product Water Flow Indicator lights A, B, C and D flashing	<ul style="list-style-type: none"> <li>• Clogged drain line (drain valve(s) or tubing)</li> <li>• No feed pressure (alarm will automatically clear when feed P is restored)</li> </ul> <p><i>Remedy – If occurs again after re-powering, call Authorized Dealer</i></p>
No Product Water Flow Indicator lights A, B and D flashing AND audible buzzer	<ul style="list-style-type: none"> <li>• Internal leak detected (or external leak if this sensor is attached)</li> </ul> <p><i>Remedy – Turn off the feed water and call Authorized Dealer</i></p>
No Product Water Flow Indicator lights A, C and D flashing	<ul style="list-style-type: none"> <li>• No power to LINX cell (no TDS reduction)</li> </ul> <p><i>Remedy – If occurs again after re-powering, call Authorized Dealer</i></p>
LED B (red) continuously on (when system is idle)	<ul style="list-style-type: none"> <li>• LINX 120 Sediment/ Carbon filters have surpassed their usage volume limits</li> </ul> <p><i>Remedy – Call the Authorized Dealer to replace cartridges and/or filters</i></p>
LED C (blue) continuously on (when system is idle)	<ul style="list-style-type: none"> <li>• LINX 50 TDS cartridge has surpassed its usage volume limit</li> </ul> <p><i>Remedy – Call the Authorized Dealer to replace cartridges and/or filters</i></p>
Objectionable Taste or Odor	<ul style="list-style-type: none"> <li>• LINX 120 Carbon filter missing or exhausted.</li> </ul> <p><i>Remedy – Call the Authorized Dealer to replace carbon filter</i></p>
Poor TDS reduction	<ul style="list-style-type: none"> <li>• Dial-a-Taste knob set to high mineral level (rotated clockwise).</li> <li>• Missing or damaged bottom LINX 50 TDS cartridge o-ring(s)</li> <li>• LINX TDS cartridge needs replacement.</li> </ul>

***Contact your Local Authorized Dealer for service and replacement components***

## Replacement Parts List:

<b>Part</b>	<b>Part Number</b>
LINX 50 TDS Cartridges	08-00050
LINX 120 Sediment Filters	28-000121
LINX 120 Carbon Filters	28-000122
0.15 gpm (0.6 liter/min) Flow Restrictor	07-000123
Check Valve	28-000119
LINX Housing (lid seal) o-ring	28-001203
LINX TDS Cartridge bottom o-ring	28-00025
Valve Manifold Assembly	07-001115
Shut-off Valve	28-000313
Internal Leak Sensor (with cable)	19-001116
External Leak Sensor Module (without batteries)	19-001320
External Leak Sensor Cable (6 ft; 2 meters)	19-001321
External Leak Sensor Cable (6 in; 15 cm)	19-001322
External Leak Sensor Kit (above 3 parts)	19-001323
LED PCB (front display)	19-000009
Power Cord (US Plug, 120V)	19-000006

The LINX 160 and LINX 160M Drinking Water Systems are manufactured by:

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# Warranty

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