

# ESL Wireless Smoke Alarms

Caddx: NX491T

ITI: 60-848-01-95



## Installation Instructions

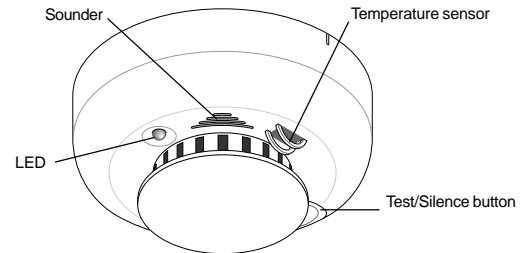


Figure 1. Alarm Features

### Description

The ESL smoke alarms are Learn Mode wireless sensors with 319.5 MHz transmitters that use photoelectric technology with a self contained sounder, a low battery annunciator, and a status LED. The smoke alarms are part of a security/fire alarm system and communicate with the system control panel.

The smoke alarms provide the following features:

**Self-diagnostics.** The smoke alarms monitor their own sensitivity and operational status.

**Base tamper switch** sends a tamper signal transmission to the control panel when the smoke alarms are removed from their mounting bases.

**Integrated fixed 135°F temperature and rate of rise heat detector** trips an alarm based on high temperature detected or rapidly rising temperature rate (15°F/minute minimum).

### Transmitted Signal Outputs

The smoke alarms transmit the following signals to the control panel:

- Alarm
- Tamper
- Test
- Low battery
- Trouble
- Supervisory

### Selecting a Location

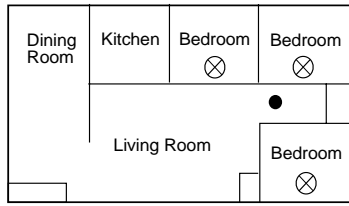
Selecting a suitable location is critical to the operation of smoke alarms. This equipment should be installed in accordance with the National Fire Protection Association's (NFPA) Standard 72. See Figure 2.

#### *A-8-1.2.1.a Where to Locate the Required Smoke Alarms in Existing Construction.*

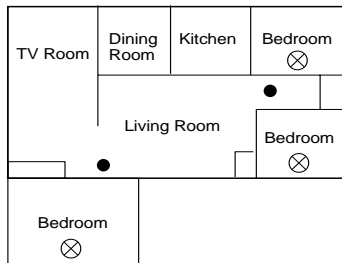
The major threat from fire in a family living unit occurs at night when everyone is asleep. The principal threat to persons in sleeping areas comes from fires in the remainder of the unit. Therefore, a smoke alarm(s) is best located between the bedroom areas and the rest of the unit. In units with only one bedroom area on one floor, the smoke alarm(s) should be located as shown in Figure 2 A.

In family living units with more than one bedroom area or with more than one floor, more than one smoke alarm is required, as shown in Figure 2 B.

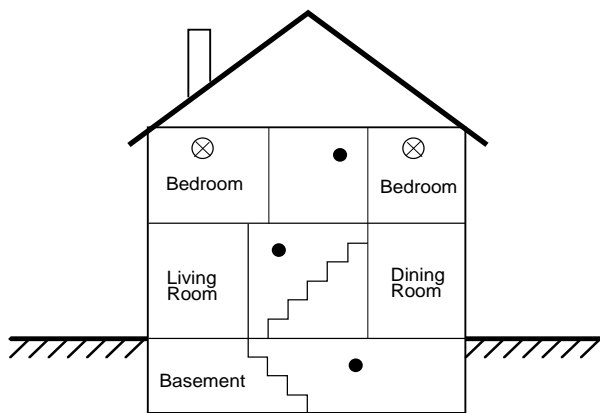
In addition to smoke alarms outside of the sleeping areas, the installation of a smoke alarm on each additional story of the family living unit, including the basement, is required. These installations are shown in Figure 2 C. The living area smoke alarm should be installed in the living room or near the stairway to the upper level, or in both locations. The basement smoke alarm should be installed in close proximity to the stairway leading to the floor above. Where installed on an open-joisted ceiling, the alarm should be placed on the bottom of the joists. The alarm should be positioned relative to the stairway to intercept smoke coming from a fire in the basement before the smoke enters the stairway.



**Figure 2 A. Alarm Placement**



**Figure 2 B. Alarm Placement**



**Figure 2 C. Alarm Placement**

- = Required smoke alarms
- ⊗ = Additional smoke alarms required for new construction

**A-8-1.2.1.b** *Where to Locate the Required Smoke Alarms in New Construction.*

All of the smoke alarms specified in A-8-1.2.1.a for existing construction are required and, in addition, a smoke alarm is required in each bedroom.

**A-8-1.2.1.c** *Are More Smoke Alarms Desirable?*

The required number of smoke alarms might not provide reliable early warning protection for those areas separated by a door from the areas protected by the required smoke alarms. For this reason, it is recommended that the householder consider the use of additional smoke alarms for those areas for increased protection. The additional areas include the basement, bedrooms, dining room, furnace room, utility room, and hallways not protected by the required smoke alarms. The installation of smoke alarms in kitchens, attics (finished or unfinished), or garages is not normally recommended, as these locations occasionally experience conditions that can result in improper operation.

**Important !**

**Regulations pertaining to smoke alarm installations vary from state to state. For more information, contact your local fire department or local authority having jurisdiction.**

In addition to NFPA 72, use the following location guidelines to optimize performance and reduce the chance of false alarms:

- Locate ceiling-mounted smoke alarms in the center of a room or hallway at least 4 inches (10.2cm) from any walls or partitions.
- Locate wall-mounted smoke alarms so the top of the alarm is 4 to 12 inches (10.2 to 30.5cm) below the ceiling.
- Locate in a suitable environment as follows:
  - Temperature between 40°F (4.4°C) and 100°F (37.8°C)
  - Humidity between 0 and 95% non-condensing
- Locate away from air conditioners, heating registers and any other ventilation source that may interfere with smoke entering the alarm.
- Mount smoke alarms on a firm permanent surface, typically a stud or metal runner.
- Locate away from large metallic objects.

## Installing the Alarms

1. Slide the battery compartment cover away from the alarm to unsnap it and lift it off. See Figure 3.
2. Observing proper polarity, insert the two lithium batteries provided into the alarm battery compartment and replace the battery compartment cover.
3. Making sure that the unit is removed from its base, put the panel in program mode/Learn Mode.
4. Remove the red plastic dust cover from the alarm. The alarms are shipped with a dust cover for protection on construction sites with dusty environments.
5. With the base still removed, press the test/silence button until the panel indicates that the sensor has been enrolled.
6. Before permanently mounting the alarm, disconnect the alarm notification appliances and test the communication between the control panel and each smoke alarm as follows:
  - Press the test/silence button on the alarm for 2 seconds. The alarm sends a test signal to the control panel.
  - At the control panel, verify the test signal was received and the RF signal strength is adequate. If no signal is received or the RF signal is weak, relocate the alarm and retest.
7. Using the two screws and anchors provided, mount the base.
8. Attach the alarm to the mounting base as follows:
  - Line up the raised tab on the lip of the alarm with the slot on the lip of the mounting base. See Figure 3.
  - Insert the alarm into the base and turn clockwise approximately 15 degrees. It should snap firmly into place.
9. Test the communication between the control panel and each smoke alarm as follows:
  - One at a time, press the test/silence button on the alarm for 2 seconds. The alarm sends a test signal to the control panel.

### Note

Continuing to press and hold the test button for more than 20 seconds will send an alarm signal to a control station.

- At the control panel, verify the test signal was received.

10. Test each alarm (see *Smoke Testing the Alarm*) and reconnect all alarm notification appliances.

### Important !

The control panel alarm and all auxiliary functions should be verified for a complete test of the system.

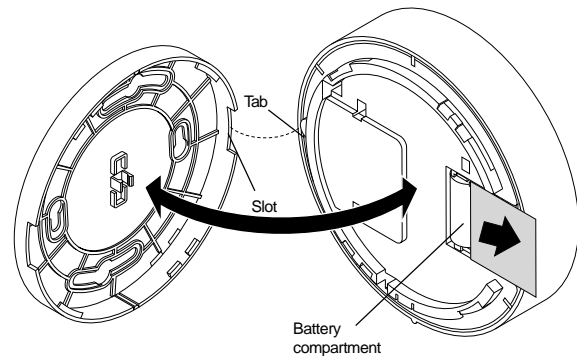


Figure 3 - Alarm-to-Base Alignment

## Smoke Testing the Alarms

Smoke alarms should be tested in place annually using smoke or Smoke! in a can®. Follow the instructions on the canned smoke or use the following steps to test the alarms with smoke:

1. Hold a smoldering punk or cotton wick close to the smoke entry openings.
2. Gently direct the smoke into the unit for 20 seconds or until an alarm is indicated.

**Be sure to properly extinguish the smoke source after testing!** The alarm LED should remain on while the built-in transmitter sends an alarm signal to the control panel. The alarms will sound a temporal rhythm until the test/silence button is pressed. The alarms automatically reset when smoke is no longer present.

## Testing the Alarms Sensitivity

The smoke alarms provide a sensitivity level test mode that allows you to check the alarm sensitivity using the test/silence button and the LED indicator on the alarms as follows:

1. Press the test/silence button on the alarm for 2 seconds. First the alarm transmits a test signal to the panel, and then performs a test and the LED flashes one to nine times.
2. Count the number of LED flashes and use the following table to determine the status of the alarm sensitivity and what action to take, if any.

Flashes	Obscuration (Approx)	Indication	Action
1	N/A	Unserviceable hardware fault detected.	Reset unit by removing batteries and rerun sensitivity test. If the error persists, replace the unit.
2-3	N/A	Alarm is not sensitive enough.	Clean the unit. Reset unit by removing batteries and rerun sensitivity test. If the error persists, replace the unit.
4	3.1%/ft	Alarm is within normal sensitivity range.	N/A
5	2.6%/ft		
6	2.1%/ft		
7	1.6%/ft		
8-9	N/A	Alarm is too sensitive.	Verify that the smoke chamber is snapped down securely. Clean the unit. Replace chamber part #211.

**If the sensitivity is not within limits**, or an unserviceable hardware fault is detected, the LED extinguishes until the alarm is serviced and the built-in transmitter sends a trouble signal to the control panel if the alarm is too sensitive or stops sending a supervisory signal if the alarm is not sensitive enough.

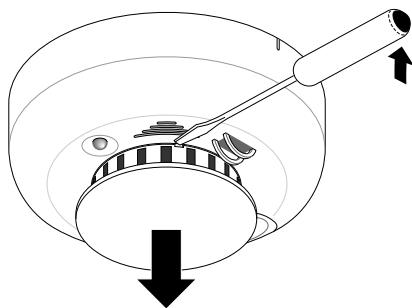


Figure 4. Removing Alarm Cap

## Understanding the Test/Silence Button

The test/silence button performs four functions as follows:

1. **Sounder/Sensitivity Test** - Press the test/silence button until the LED lights or the sounder activates (about 2 seconds) and release. The alarm performs a sounder test and a sensitivity test and sends a test signal to the control panel. This allows users to test the unit on compatible panels without putting the panel in test mode and therefore reduces false alarms.
2. **Central Station Alarm Test** - To force an alarm report to the central station, press the test/silence button down and hold it for two complete temporal cycles (about 9 seconds).
3. **Silence Alarm** - Press and release to silence the sounder during an alarm. After a few minutes, the sounder and alarm will resume if smoke is still present.
4. **Silence Low Battery Chirp** - Press and release to silence a low battery chirp. The low battery chirp resumes after 24 hours if the condition is not corrected.

## Understanding the LED

The LED indicates the status of the alarms as follows:

**FLASHING** = Flashes every 9 seconds to indicate normal operation.

**ON** = Detects smoke, sending an alarm.

**OFF** = Trouble. Maintenance is required. Check the control panel to determine what action to take. If the alarm has a hardware fault, it will stop reporting supervision signals to the panel.

## Attaching and Removing the Alarms

**To remove the alarm from the mounting base**, grasp the alarm and turn counterclockwise approximately 15 degrees. The alarm should snap off of the mounting base.

**Attach the smoke alarm to the mounting base as follows:**

- Line up the raised tab on the lip of the smoke alarm with the slot on the lip of the mounting base. See Figure 3.
- Insert the smoke alarm into the base and turn clockwise approximately 15 degrees. It should snap firmly into place.

## When to Replace the Batteries

When the batteries are low, the alarm sends a low battery signal to the control panel, waits several days and then chirps every 30 seconds until the batteries are replaced. The sounder can be silenced for 24 hours by pushing the test/silence button. See *Specifications* for battery type list.

## Replacing the Batteries

Use only 3V lithium batteries listed in *Specifications* in the alarm.

1. Remove the alarm from the mounting base. See *Attaching and Removing the Alarms*.
2. Slide the battery compartment cover away from the alarm to unsnap it and lift it off. See Figure 3.
3. Remove the batteries and dispose of properly.
4. Observing correct polarity, insert two new 3V lithium batteries into the battery compartment and replace the cover.
5. Reattach the alarm to the mounting base. See *Attaching and Removing the Alarms*.
6. Test the system.

## Cleaning the Alarms

Clean the alarm cover with a dry or damp (water) cloth as needed to keep it free from dust and dirt.

When necessary, clean the alarm interior and **replace** the smoke chamber (part #211) as follows:

1. Disconnect the alarm notification appliances.
2. Remove the alarm from its mounting base. See *Attaching and Removing the Alarms*.
3. Remove the batteries. See *Replacing the Batteries*.
4. Slide a flat-blade screwdriver in the slot on the alarm cap and gently push the handle down to pry the alarm cap up and off. See Figure 4.
5. Press in on the sides of the field replaceable optical chamber and pull it up and away from the optical base and discard. See Figure 5.
6. Blow out or use a soft-bristled brush to remove all dust and dirt from the optical base.
7. Line the new field replaceable optical chamber up with the optical base and snap into place both sides of the optical chamber.
8. Replace the alarm cap as follows:
  - Line the alarm cap up with the smoke alarm.
  - Insert the alarm cap into the smoke alarm and turn clockwise approximately 15 degrees. It should snap firmly into place.
9. Observing the proper polarity, put the batteries back in the alarm and replace the battery compartment cover.
10. Reattach the alarm to its mounting base. See *Attaching and Removing the Alarms*.
11. Test the alarm sensitivity and reconnect all alarm notification appliances. See *Testing the Alarms Sensitivity*.

### Important !

The control panel alarm and all auxiliary functions should be verified for a complete test of the system.

## Maintaining the Alarms

The smoke alarms are designed for easy field service and maintenance. When installed and used properly, they require minimal maintenance.

The smoke alarms should be tested weekly. See *Testing the Alarms Sensitivity* and *Smoke Testing the Alarms*.

When an alarm requires maintenance, it extinguishes its LED and sends a signal to the control panel as described in the following table.

Signal	Action required
Trouble signal	Smoke alarm sensitivity range is too high and the alarm needs cleaning. See <i>Cleaning the Alarm</i> .
Low battery	Batteries in the alarm are low. Replace the batteries.

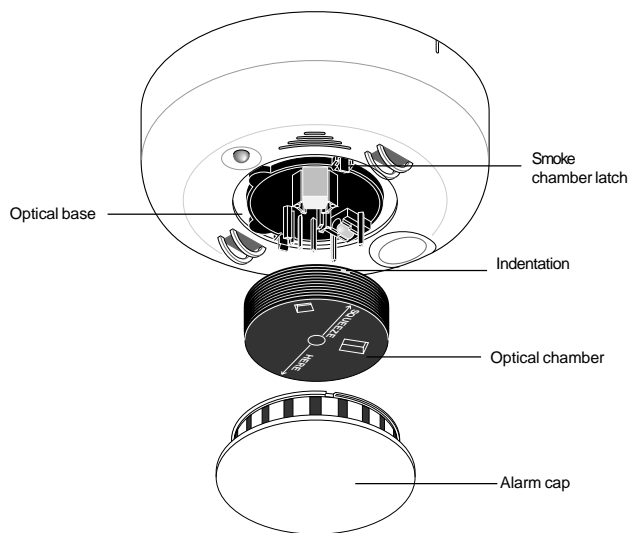


Figure 5. Alarm Parts

## Fire Prevention and Escape

The purpose of an early warning smoke alarm is to detect the presence of fire in its early stages and sound an alarm giving the occupants time to exit the premises safely.

### Avoid Fire Hazards

No detection device can protect life in all situations. Therefore, safeguards should be taken to avoid potentially dangerous situations as follows:

- **Do not** smoke in bed.
- **Do not** leave children home alone.
- **Never** clean with flammable liquids such as gasoline.
- Properly store materials. Use general good housekeeping techniques to keep your home neat and tidy. A cluttered basement, attic, or other storage area is an open invitation to fire.
- Use combustible materials and electrical appliances carefully and only for their intended uses. **Do not** overload electrical outlets
- **Do not** store explosive and/or fast burning materials in your home.
- Even after proper precautions have been taken, fires can start. Be prepared.

### In Case of Fire

In the event of a fire, you should do the following:

- Leave immediately. Don't stop to pack or search for valuables.
- In heavy smoke, hold your breath and stay low, crawl if necessary. The clearest air is usually near the floor.
- If you have to go through a closed door, carefully feel the door and door knob to see if undue heat is present. If they seem cool, brace your foot against the bottom of the door with your hip against the door and one hand against the top edge. Open it slightly. If a rush of hot air is felt, slam the door quickly and latch it. Unvented fire tends to build up considerable pressure. Be sure all members of the household realize and understand this danger.
- Use your neighbor's phone or a street fire alarm box to call the fire department. The job of extinguishing the fire should be left to the professionals.

### Be Prepared

Practice the following steps to prepare you and your family in the event of a fire:

- Perform fire drills regularly. Use them to assure recognition of an alarm signal.
- Draw a floor plan and show two exits from each room. It is important that children be instructed carefully, because they tend to hide in times of crisis.
- Establish one meeting place outside the home. Insist that everyone meet there during an alarm. This will eliminate the tragedy of someone reentering the house for a missing member who is actually safe.

- If you have children and/or physically challenged people residing in your household, use window decals to help emergency personnel identify the sleeping quarters of these individuals.



### WARNING

**Smoke alarms CANNOT provide warnings for fires resulting from explosions, smoking in bed or other furniture, ignition of flammable liquids, vapors and gases, children playing with matches or lighters.**

## Warning! Limitations of Smoke Alarms

Wireless smoke alarms are very reliable, but may not work under all conditions. No fire alarm provides total protection of life or property. Smoke alarms are not a substitute for life insurance.

**Smoke alarms require a source of power to work.** This smoke alarm will not operate and the alarm will not sound if batteries are dead or not installed properly.

**Unreliable transmission or receiving of radio frequency (RF) signals may occur if the system is not installed, located, serviced and repaired properly.** RF signals sent by this alarm may be blocked or reflected by metal objects. Adjacent devices or systems using radio frequency signals may interfere with the operation of this alarm. Test the system often to be sure that signals are being sent and received properly.

**Smoke alarms may not be heard.** A sound sleeper or someone who has taken drugs or alcohol may not awaken if the alarm is installed outside a bedroom. Closed or partially closed doors and distance can block sound. This alarm is not designed for the hearing impaired.

**Smoke alarms may not always activate and provide warning early enough.** Smoke alarms only activate when enough smoke reaches the detector. If a fire starts in a chimney, wall, roof, on the other side of closed doors, or on a different level of the property enough smoke may not reach the detector for it to alarm.

**Smoke alarms are a significant help in reducing loss, injury and even death. However, no matter how good a detection device is, nothing works perfectly under every circumstance and we must warn you that you cannot expect a smoke alarm to ensure that you will never suffer any damage or injury.**

## Limited Warranty

ESL is a brand of Interlogix, Inc. The manufacturer warrants this smoke alarm (except batteries) to be free from defects in material and workmanship under conditions of normal use for a term of 3 years from the date of manufacture.

During the warranty period, if an Interlogix product or any of its components becomes defective, it will be repaired or replaced without charge.

Out-of-warranty units will be repaired at the discretion of the manufacturer or, if not, a card will be forwarded to the customer suggesting a replacement unit and the cost of that unit.

This warranty does not apply to units which have been subject to abuse, misuse, negligence or accident, or to which any modifications, alterations or repairs have been made or attempted.

This warranty is extended only to the original purchaser of the smoke alarm and may be enforced only by such person. During the warranty period, if the alarm or any warranted components thereof becomes defective, it will be replaced or repaired without charge at the manufacturer's discretion if returned in accordance with the following instructions:

Obtain a Return Authorization Number by calling 1-800-648-7422 or 503-692-4052, then carefully pack it in a well padded and insulated carton and return, postal charges prepaid to:

**Customer Service  
Interlogix, Inc.  
12345 SW Leveton Drive  
Tualatin, OR 97062-9938**

A note should be included advising the nature of the malfunction. Care must be exercised in the proper packing of alarms returned under this warranty as Interlogix will not be responsible for warranty repairs to equipment damaged because of improper packing.

**The above warranty is in lieu of all other express warranties, and implied warranties of merchantability and fitness for a particular purpose are limited in duration for a period of THREE years from the date of manufacture. Under no circumstances shall manufacturer be liable to the purchaser or any other person for incidental or consequential damages of any nature, including without limitation damages for personal injury or damages to property, and however occasioned, whether alleged as resulting from breach of warranty by manufacturer, the negligence of manufacturer or otherwise. Manufacturer's liability will in no event exceed the purchase price of the product. Some states do not allow**

**limitations on how long an implied warranty lasts, or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you. Unless a longer period is required by applicable law, any action against manufacturer in connection with this smoke alarm must be commenced within one year after the cause of action has occurred.**

No agent, employee or representative of the Manufacturer nor any other person is authorized to modify this warranty in any respect. Repair or replacement as stated above is the exclusive remedy of the purchase hereunder. This warranty gives you specific legal rights and you also have other rights which vary from state to state.

## FCC Compliance

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

**FCC ID: B4Z-773A-SMOKE**

## Specifications

Voltage ..... 3VDC  
 Typical average standby current ..... 25µA  
 Typical test current ..... 2mA  
 Typical alarm current ..... 70mA  
 Battery type ..... Duracell® 3V lithium, DL123A  
 ..... Duracell® 3V lithium, MN1500  
 ..... Panasonic® lithium, CR123A  
 ..... Sanyo® lithium, CR123A  
 ..... Eveready Energizer® lithium, E91  
 Low battery threshold ..... 2.70V causes low battery signal  
 Sounder ..... 85dBa at 10' temporal pattern  
 Low battery beep rate ..... 1 every 30 sec. ± 2 sec.  
 Sensitivity ..... 2.3% ± 0.8%/ft.  
 Operating temperature ..... 40°-100°F (4.4°-37.8°C)  
 Operating humidity range ..... 0-95% non-condensing  
 RFI Immunity ..... 20V/m minimum; 0-1000MHz

Color ..... white  
 Alarm dimensions ..... 5.5" x 2.3" (14.0cm x 5.6cm)  
 Base dimensions ..... 4.88" x 0.38" (12.3cm x 0.95cm)  
 Drift compensation adjustment ..... 0.5%/ft. max.  
 Heat detector specifications:  
 Rate of rise ..... 15°F/min > 105°F (8.3°C/min > 40.6°C)  
 Fixed ..... 135°F ± 5°F (57.2°C ± 2.8°C)  
 RF frequency ..... 319.5 MHz  
 Transmitter ID ..... Pre-programmed, 1 Million codes  
 Modulation type ..... AM  
 Signal format ..... PWM  
 Signal output types ..... alarm, tamper, test, low battery,  
 ..... trouble, supervisory  
 Approvals ..... Canada: 8671032273  
 ..... FCC Part 15: B4Z-773A-Smoke  
 Listings  
 C-UL US ..... UL217, ULC-S531

### For use with the following panels:

**Caddx:** NX4, NX6, NX8, NX8E

**ITI:** Commander 2000 and custom versions with software versions 4.1 and later, CareTaker Plus and custom versions with software versions 3.1 and later, UltraGard and custom versions, Concord, Concord Express, Simon

## Product Ordering

Model	Description
NX-491T 60-848-01-95	Sentrol wireless smoke alarm, two 3V lithium batteries, 85dBa sounder, thermal, base tamper, UL 217 Listed, 319.5 MHz transmitter
<b>Accessories</b>	
SM-200	Smoke! in a can <sup>®</sup> (canned smoke) for functional testing of smoke alarms/detectors
SMEXT-1	Extension tube for Smoke! in a can <sup>®</sup>
211	Field replaceable optical chambers (set of 10)

Patents: 4,855,713 & 4,864,636 & 5,686,885 & 5,686,896



PH 503.692.4052  
 USA & Canada: 800.547.2556  
 Technical Service: 800.648.7424 FaxBack: 800.483.2495  
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