

**PRELIMINARY**



# **RF Industrial Wireless Footswitch Operators Manual**



# PRELIMINARY

## GUARANTEE

All wireless footswitches sold by Linemaster Switch Corporation are fully guaranteed as to materials and workmanship for a period of 1 year. Linemaster Switch reserves the right to perform guarantee service operations in its own factory, at an authorized repair station, or in the customer's installation.

Our obligation under this guarantee is limited to repairing or, at our option, replacing any defective parts of our equipment, except fuses or batteries, without charge, if defects occur in normal service.

Claims for damage in shipment should be filed promptly with the transportation company. All correspondence covering the instrument should specify the model and serial number.

Linemaster Switch Corporation will make available on request such circuit diagrams, component drawings, component parts lists, descriptions, calibration instructions, or other information, which will assist the users or appropriately qualified technical personnel to repair those parts of the equipment which are classified by Linemaster Switch as repairable.

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# PRELIMINARY

## Safety

The information presented in this section is important for the safety of the operator and also serves to enhance equipment reliability. This section describes how the terms Warning, Caution, Important, and Note are used throughout the manual. In addition, Linemasters' standard equipment symbols are defined.

## General Information

### General Use

If the foot switch is cold to the touch or below ambient temperature, allow it to stabilize before use.

Periodically, whenever the integrity of the switch is in doubt, test all functions.

## Responsibility of the manufacturer

Linemaster Switch is responsible for the effects on safety, reliability, and performance if:

- Assembly operations, extensions, readjustments, modifications, or repairs are carried out by persons authorized by Linemaster Switch Corporation.
- The switch is used in accordance with the instructions for use.
- **IT IS THE RESPONSIBILITY OF THE USER** to determine the suitability of a foot control for the user's intended use and to determine that the foot control chosen by the user and wiring up and installation of the same will comply with all Federal, State and Local safety and health regulations and codes.

# PRELIMINARY

## Definitions of Terminology

Four types of special notice are used throughout this manual. They are: Warning, Caution, Important, and Note. The warnings and cautions in this safety section relate to the equipment in general and apply to all aspects of the foot switch. Be sure to read the other chapters because there are additional warnings and cautions, which relate to specific features of the footswitch.

<b>Warning-</b>	A WARNING indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.
<b>Caution-</b>	A CAUTION indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury. Cautions are also used to avoid damage to equipment.
<b>Important-</b>	An IMPORTANT notice indicates an emphasized note. It is something you should be particularly aware of, something not readily apparent.
<b>Note-</b>	A NOTE indicates a particular point of information, something on which to focus your attention.

## Warnings

To avoid personal injury, do not use this switch on machinery with an unguarded point of operation. Use of foot controls on machinery lacking effective point of operation safeguards can cause serious injury to the operator.

Foot controls should only be used where “Point of Operation” and “Pinch Point” guarding devices have been properly installed and are utilized so that it is **IMPOSSIBLE** for the operator’s hands or fingers to remain within the point of operation during the machine cycle.

# PRELIMINARY

## Warnings

- Accidental spills-** In the event that fluids are accidentally spilled on the receiver, take the receiver out of operation and inspect for damage.
- Electric shock-** To reduce the risk of electrical shock do not remove any covers. Refer servicing to qualified personnel
- Explosion hazard-** Do not use this equipment in the presence of flammable materials.
- Grounding-** Do not defeat the three-wire grounding feature of the AC adapter. A dangerous shock hazard may result.
- Interfacing to equipment-**  
Foot switches must be interfaced with other equipment. Be certain to consult manufacturer's specifications to maintain safe operation.

## Cautions:

- Annual servicing-** For continued safety and performance of the switch, it is recommended that the functionality and electrical safety of the switch be verified on an annual basis by an authorized Linemaster representative.
- Daily testing-** It is essential that the foot switch be inspected everyday or before use.
- Performance-** The RF wireless footswitch system operates on a frequency range of 2.405-2.480 GHz. It should be tested to assure compatibility with any device it is connected to or environment it is working in.  
Report all problems experienced with the footswitch. If the footswitch is not working properly, contact your service representative for service. The footswitch should not be used if it is not working properly.  
On a **REGULAR BASIS**, lubricate the treadle pivot rod with one or two drops of lubricating oil on that portion of the pivot rod that extends between the outside of the base and inside of the treadle; two places.

# PRELIMINARY

## **Cautions:**

Changes or modifications not expressly approved by Linemaster Switch Corporation could void the user's authority to operate the equipment.

## **Important:**

### **Performance-**

Multiple transmitters and receivers may be operated in a single room.

Each transmitter and receiver is paired at the factory.

### **Loss of signal-**

If the receiver does not receive a signal from the transmitter for a period of 1050ms it will shut off the outputs. However, once the transmission is restored the receiver will function normally.

The RF wireless foot switch radiates in a 360 degrees mode of operation. However every application is different. You may need to adjust the position of the receiver or transmitter to obtain optimal performance.

### **Tip Switch-**

If the footswitch is tipped 60 degrees or more or disturbed in such a way as to activate the internal tip switch the receiver's red LED will blink for approximately 10 seconds, the footswitch will be inoperable until it is stabilized.

If the footswitch is left tipped for more than 20 seconds it will power down and remain so until once again righted.

### **Locator Function-**

This function is used to determine if a particulate transmitter is paired with a particular receiver. Upon tipping the transmitter the red LED on the paired receiver will blink for 10 seconds. This indicates that transmitter is paired to work with that receiver.

# PRELIMINARY

## Electromagnetic Interference

This device has been tested and found to comply with the limits for EN 61000-6-2 (2001), Immunity for industrial environments. These limits are designed to provide reasonable protection against harmful interference in a typical industrial installation.

However, because of the proliferation of radio-frequency transmitting equipment and other sources of electrical noise in the industrial environments it is possible that high levels of such interference due to close proximity or strength of a source, may result in disruption of performance of this device.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with these instructions, may cause harmful interference with other devices in the vicinity. Disruption or interference may be evidenced by erratic or incorrect functioning. If this occurs, the site of use should be surveyed to determine the source of this disruption, and actions taken to eliminate the source.

The user is encouraged to try to correct the interference by one of the following measures:






- Turn equipment in the vicinity off and on to isolate the offending equipment.
- Reorient or relocate the other receiving device.
- Increase the separation between the interfering equipment and this equipment.
- If assistance is required, contact your Linemaster Switch Representative.

# PRELIMINARY

## Equipment Symbols

The following is a list of symbols used on products manufactured by Linemaster Switch.  
Some symbols may not appear on your unit.

**Table 1-2. Equipment Symbols**

	<b>ATTENTION: Consult accompanying documents</b>
	<b>ALTERNATING CURRENT (AC)</b>
	<b>EARTH GROUND</b>
<b>O</b>	<b>POWER OFF: disconnection from the mains</b>
<b>I</b>	<b>POWER ON: connection to the mains</b>
	<b>LOW BATTERY</b>
	<b>FOR INDOOR USE ONLY</b>



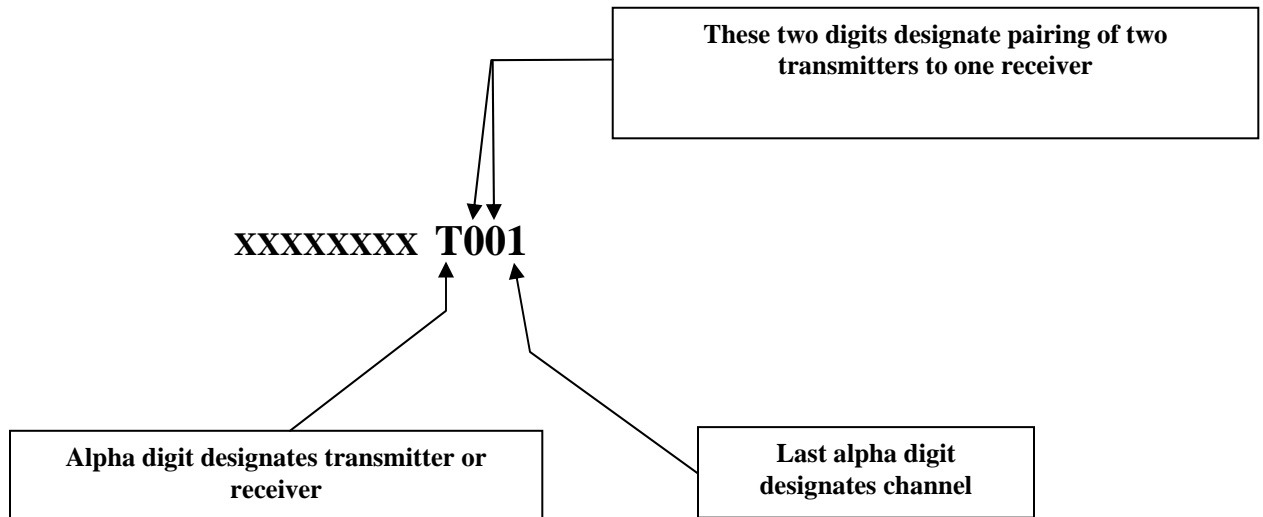
# PRELIMINARY

## Channel/Coding

The RF foot switch has multiple channel capabilities. This allows multiple switches to be used in the same area simultaneously even if they are on the same channel.

The channel is identified in the serial number of the units. See example below.

The channel also appears on a label on top of the units.



In addition to the channels each manufacturer has its own code encryption. This assures that different manufacturers with the same channel marking can be used in the same area simultaneously with no interference. The manufacturer's code is embedded into the model number as shown below. It also appears on a label on the top of the units.

SP-831-XXX XXXXXX

These three digits denote the manufacturer's code.

XXX

Example A

XXX/XXX

Example B

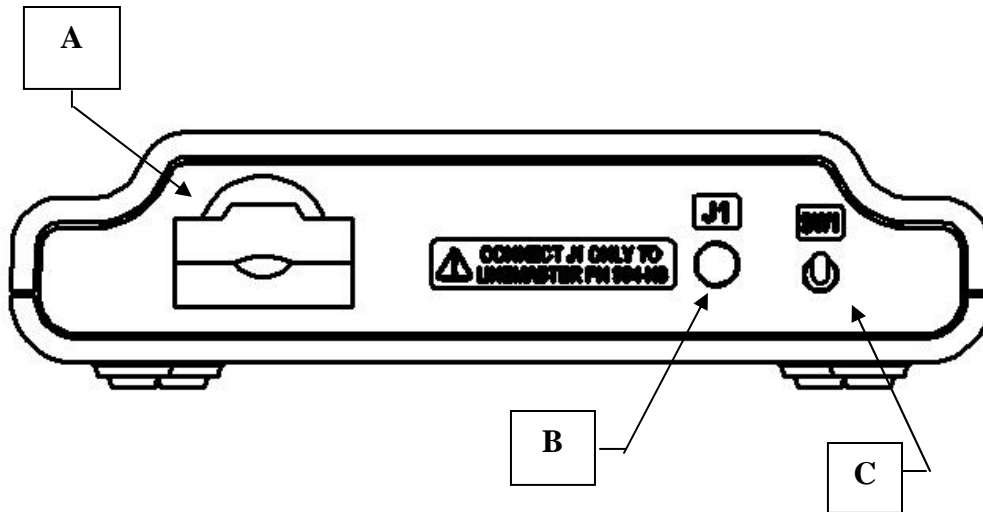
## Unit label:

The first two or three digits denote the manufacturer code, the last two digits are the channel.

If label on the receiver looks like example B, it means that the receiver is paired to two transmitters.

# PRELIMINARY

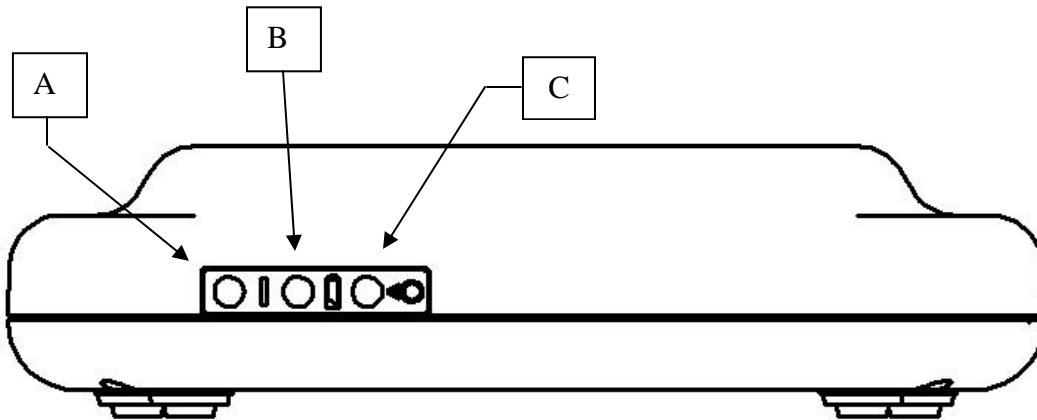
## Receiver Rear View



	Description
A	Output Cable: For connection to the user's equipment.
B	AC adapter connector. <b>Caution:</b> AC adapter Use only Linemaster part number: Domestic- 120VAC, use part number 904-N3 International- 230VAC, use part number 904-G8 UK- 240VAC, use part number 904-H8
C	Power switch, switches low voltage secondary.

# PRELIMINARY

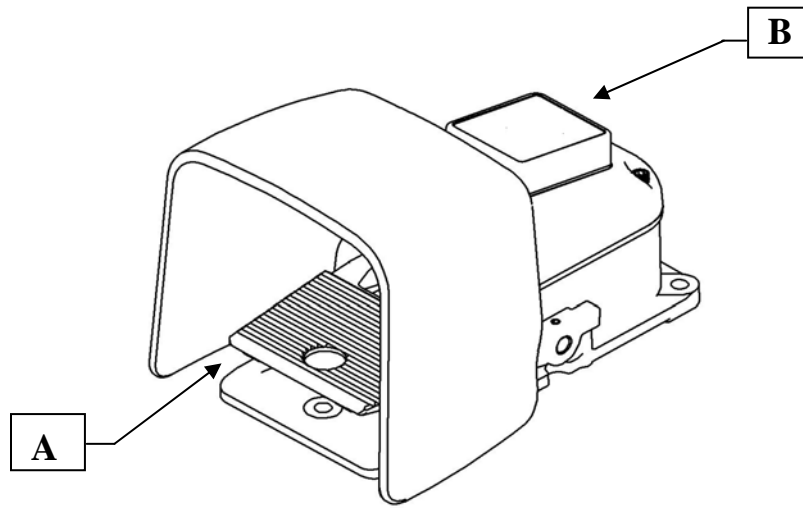
## RECEIVER FRONT VIEW



	Name	Description
<b>A</b>	Power On indicator.	Indicates unit is on
<b>B</b>	Transmitter low battery indicator	Red LED will flash when the batteries are getting low. When LED stays on constantly there are approximately 8 hours of battery life remaining. However, batteries should be replaced immediately.
	Tip Indicator	Indicates when the transmitter has been tipped or disturbed preventing operation. Also blinks in <i>Locator Function</i> .
<b>C</b>	Switch function indicator	Indicates when the switch(s) are activated.

# PRELIMINARY

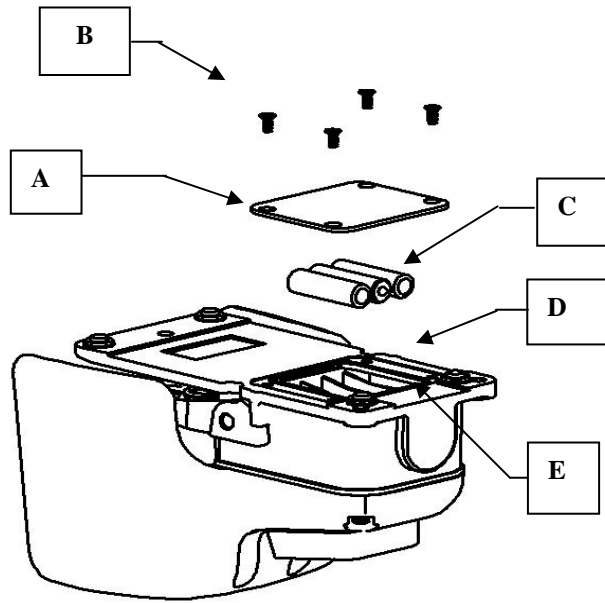
## Transmitter



Name	Description
A	Primary switch(s)
B	Antenna housing

# PRELIMINARY

## Transmitter Battery Replacement



Name	Description
<b>A</b>	Battery cover
<b>B</b>	4X # 10-32 FH Screws, torque to 30-35 in lbs.
<b>C</b>	3X “AA” Alkaline batteries
<b>D</b>	Polarity indicator on bottom face of holder.
<b>E</b>	O-ring seal

# PRELIMINARY

## Battery Statement

**Caution:** Replace the batteries in the transmitter with high quality “AA” size alkaline batteries as shown. Never mix manufacturers when replacing the batteries. Never mix old and new batteries. Care must be taken when replacing the batteries not to damage the o-ring seal on the battery cover. The o-ring seal should be replaced whenever it is damaged or its integrity is in question. Linemaster recommends the seal should be replaced at the minimum every third time batteries are replaced. When replacing the seal lubricate it with petroleum jelly.

Battery Leakage- If the transmitter will not be used for an extended period of time, remove the batteries to prevent damage due to possible battery leakage.

Battery disposal- Follow the battery manufacturer’s recommendations or your facilities policy for the disposal of used batteries.

# PRELIMINARY

## Cleaning

The following cleaning instructions are provided.

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### CAUTIONS:

**ABRASION-** Do not use abrasive cloth, sharp objects, or abrasive cleaners.

**DISCONNECTION-** Detach the interconnect cables and the AC adapter from the receiver.

**IMMERSION-** Do not immerse the receiver, cables or connectors under running water.

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## Transmitter

The transmitter is *IP68 rated* and *can be* completely immersed briefly. Dampen a non-abrasive cloth with one of the following products; then wring out until slightly wet and gently rub soiled area until clean.

- Isopropyl alcohol
  - Soap and water
  - Sodium Hypochlorite 5.25% (Bleach) diluted 10:1
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## Receiver

**CAUTION:** The receiver is *IPX1* rated and *cannot* be immersed.

Dampen a non-abrasive cloth with one of the following products; then wring out until slightly wet and gently rub soiled area until clean.

- Isopropyl alcohol
- Soap and water

Wipe any fluids from the surface of the receiver.

# PRELIMINARY

## Specifications

- Range: Typically 50 feet
- 2.405-2.480 GHz, Channels 1-15
- Switch Functions: Maximum of 3
- Latency: Typically 50 milliseconds
- Transmitter battery life: 250 hours @ 50 % Duty cycle typical
- Power consumption (transmitter): Stand-by 100ua
- Power requirements (receiver): 6VDC @ 200ma, (Other voltages available)
- Receiver Output: SPST relay, 16 amp contacts
- EN 60529 Degree of Protection IP68 (Transmitter)

## Certification

- **UL Listed and Recognized**
- **FCC ID # VPA-SP-831**

## EMC Standards

- EN61000-6-2: 2001 Generic Standards- Immunity for industrial environments.
- EN61000-6-4: 2001 Generic Standards-Emission standard for industrial environments
- IEC 61000-4-2: 2001 Electrostatic Immunity
- IEC 61000-4-3: 2006 Radiated Electromagnetic Field Immunity @ 10uv/m
- IEC 61000-4-4: 2004 Electrical Fast Transients Immunity
- IEC 61000-4-5: 2005 Surge Immunity
- IEC 61000-4-6: 2006 Conducted RF Immunity
- IEC 61000-4-8: 2001 Power Frequency Magnetic Field Immunity
- IEC 61000-4-11: 2004 Voltage Dips and Variations
- EN 55011: 1998 +A1:1999 + A2:2002 and FCC Part 15.B Radiated and Conducted Emissions, Group 1 Class B
- IEC 61000-3-2: 2000 Power Harmonics Class A
- IEC 61000-3-3: 1995 + A1: 2001 +A2: 2005 Voltage Fluctuation

## Size

Transmitter:	9.20in x 6.0in x 6.15in
Receiver:	5.75in x 7.25in x 1.75in

## Weight

Transmitter:	8.0 lbs w/batteries
Receiver:	1.5lbs



# PRELIMINARY

<b>ACCESSORIES:</b>	<b>P/N</b>
O-Ring Seal .....	907-FF
Velcro Kit .....	907-PP
AA Alkaline Battery Kit.....	904-P9
AC Adapter 120VAC.....	904-N3
AC Adapter 230VAC.....	904-G8
AC Adapter 240VAC UK.....	904-H8