



## OWNER'S MANUAL

# ECHO Series

## Radio Controls

Models:

S601

S802



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← Channel & SN

Channel \_\_\_\_\_ SN \_\_\_\_\_

## 1.0 General Product Information

We would like to thank you for purchasing an ECHO Series Radio Control by Starke. This manual covers basic installation, operation, safety, and troubleshooting. Please read this entire manual before attempting to use your new radio system. This manual includes important information relating to your safety and the safety of others in the area where this radio kit or components are in use.

An ECHO Radio System typically includes these items:

Receiver Unit with harness

Transmitters

Lanyard

Button Cover

Batteries 2x(AA)



### 1.1 Preface

The ECHO Series radio remote controls are a very reliable industrial wireless remote control system for industrial applications. We appreciate the opportunity to provide you with easy to use transmitters that when used properly provide safe and reliable movement of your overhead crane or industrial equipment motions. Starke stands behind our ECHO Series products with best in class service support. You can get assistance with troubleshooting or get additional programming information by contacting us through the [Starkeamerica.com](http://Starkeamerica.com) website.

## 1.2 Safety

The ECHO Series wireless remote control provides dependable wireless control of your overhead crane system and industrial equipment making operating heavy equipment seem easy. The ease of use alone can cause an operator to forget the importance of the operation they are engaged in. Large or small loads, and even an empty crane hook, may be a danger to the operator and others in the area. **Always be attentive and watch the object you are controlling.** Everyone's safety is important. **It is your responsibility** to understand, properly train, and educate all of the operators of this wireless radio control.

- When using the remote control, the operator must follow the safety instructions in this manual and the relevant safety regulations for correct operation, otherwise it may cause personal injury to the operator and/or other personnel.
- Before using the remote control system for the first time, **the operator must read** the owner's manual carefully and place it in a convenient place for easy access at any time.
- Only qualified operators can operate the remote control system. Anyone under the influence of drugs, medication, or with slow reaction times due to drug treatments or drug use cannot be allowed to control suspended loads or the equipment used to move suspended loads.
- Before turning on the system, look over the entire area where the system will be used. Look for obstructions to the path of movement along with others that may be working in the area. Take the time to know where the system will be used to prevent unwanted collisions with equipment or personnel.

## 1.3 Transmitter Precautions

- Before Starting to operate your transmitter, please make sure that you are being safe and have good visibility of the work area.
- In the case of an emergency press the emergency stop button on the transmitter. **Do not** remove the batteries as a means to stop operation. No stop signal can be sent to the receiver with the transmitter batteries removed or too low of battery power.
- Turn off the transmitter when doing other tasks, such as leaving for a break, doing another part of your job not requiring transmitter use, or while climbing over any obstacles, or equipment where the buttons on the transmitter may accidentally get pushed. Protect the transmitter from unintended button presses. Accidental button presses can result in injury or death. Safety first.
- Test the emergency stop button from time to time and verify that it is working normally. Only test the motion buttons with no load suspended and motions that will not result in damage or injury to yourself or others. **With the emergency stop button pressed in,** cautiously and briefly press the down button to make sure that no action or motion occurs.
- Always pay attention to and check the transmitter voltage. If there is no voltage or the voltage is insufficient, replace the 2 "AA" 1.5v alkaline batteries immediately. Otherwise, the signal to the receiver could be poor at a time when you need to activate the transmitter.
- Finding a safe standard location for the transmitter when not in use is good practice. Knowing where to find the transmitter quickly when an accident happens involving the

system will be important. The transmitter controls will provide you or others the ability to quickly move the system out of the way of those who are providing assistance.

- Note any issues with the transmitter and take it out of service if it is not acting normally. Transmitters are cheap compared to the price of damaged equipment or injury to others working in the area.
- If the transmitter is to be stored for a period of time, remove the “AA” batteries so that there is no corrosion when the transmitter is ready to be put back in use.

## 2.0 Transmitter Operation

### 2.1 Transmitter use

- Install two “AA” 1.5v alkaline batteries and confirm that the positive (+) end of the battery is installed correctly in the transmitter body. Remove the 2 screws on the black cover located on the back side of the transmitter as shown in the picture below.
- Once the batteries are in properly, turn the red round emergency stop button on the end of the transmitter clockwise. Once turned, the red stop button will pop up on its own if operating normally.
- Press the Green start button to start the transmitter. (for certain operations this start button may have to be pushed twice to start the receiver also) Test your system to see how it is programmed by pressing start once and proceeding to the operation you choose.
- Watch during the initial startup for the green status indicator light to come on. This green light will be on for 1 second and then will go off. This light indicates normal startup and normal voltage.
- In case of shutdown or an emergency shutdown, simply press the red emergency stop button down (towards the transmitter).



## 2.2 Transmitter Warning Codes

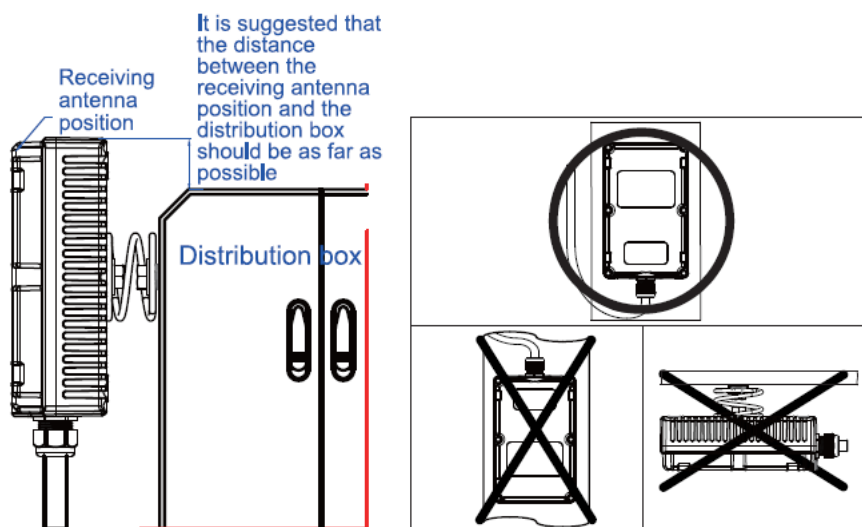
| LED Signal flash |           | • Short   | – Long | Failure analysis                                 | Solution                                |
|------------------|-----------|-----------|--------|--|---|
|                  | LED Red   | LED Green |        |  |   |
| Status           |           |           |        |  |   |
| Batt             | • • • • • |           |        | corrosion on battery springs, low battery output | Clean batter springs, replace batteries |
| !                |           |           |        |  |   |
| Status           |           | • • • • • |        | Transmitter is not communicating with receiver   | Rec Fuse Bad, Power to Rec bad          |
| Batt             |           |           |        |  |   |
| !                |           |           |        |  |   |
| Status           |           |           |        |  |   |
| Batt             |           |           |        |  |   |
| !                | – • •     |           |        | Push Button Damaged                              | Replace push button parts               |

## 2.3 Transmitter Technical Data

| Transmitters |  |                                     |
|--------------|--|-------------------------------------|
| S601-S802    | Frequency  | 425.195 ~ 444.5MHz                  |
| S601-S802    | Modulation method                                  | 4GFSK                               |
| S601-S802    | Typical operating range                            | 350 Ft                              |
| S601-S802    | Control System                                     | PLL                                 |
| S601-S802    | Antenna impedance                                  | 50Ω                                 |
| S601-S802    | Typical response time for stop command and command | 50mS ~ 100mS                        |
| S601-S802    | Power supply                                       | LR6 (AA) 1.5V x2                    |
| S601-S802    | Antenna  | Internal                            |
| S601-S802    | Average power consumption                          | 16mA@DC 3V                          |
| S601-S802    | Radio-frequency power                              | <109dBm (default setting)           |
| S601-S802    | Operating / storage temperature                    | (-4 ° F- 131 ° F)/(-40 ° F-149 ° F) |
| S601-S802    | Protection rating                                  | IP65                                |
| S601-S802    | Weight   | Approx. 905 g                       |
| S601-S802    | Housing material                                   | PA6 (30% GF)                        |

## 3.0 Receiver Installation Guide

- 3.1 Determine your wiring method and proceed to wrap unused ends with tape.
- 3.2 Select the correct location to mount the receiver.
- 3.3 Select a position that can be seen from the ground during operation.
- 3.4 Select a location away from high voltage wiring or equipment, such as motors, frequency converter etc.
- 3.5 Select an area that provides the least amount of hinderance to the radio wave transmission.



### 3.1 Receiver Warning Codes

| LED Signal flash |         | • Short   | – Long | Failure analysis  | Solution                       |
|------------------|---------|-----------|--------|---|--------------------------------|
|                  | LED Red | LED Green |        |   |                                |
| Status           | – • • • |           |        | RF error  | Check the Antenna              |
|                  |         |           |        |   | Contact your dealer            |
|                  |         |           |        |   | Contact Starkeamerica.com      |
| Status           |         |           |        | Receiver is not powered                                     | Rec Fuse Bad, Power to Rec bad |
|                  |         |           |        |   |                                |
|                  |         |           |        |   |                                |
| Status           |         | –         |        | Valid or invalid data (from different transmitter) received |                                |
|                  |         |           |        |   |                                |
|                  |         |           |        |   |                                |



### 3.2 Receiver Technical Data

| Receiver  |  |                                     |
|-----------|--|-------------------------------------|
| S601-S802 | Frequency  | 425.195~444.5MHz                    |
| S601-S802 | Modulation method                                  | 4GFSK                               |
| S601-S802 | Sensitivity  | -112dBm@baud1.2K bps                |
| S601-S802 | Control System                                     | PLL                                 |
| S601-S802 | Antenna impedance                                  | 50Ω                                 |
| S601-S802 | Typical response time for stop command and command | 50mS~100mS                          |
| S601-S802 | Power supply                                       | 24~264V AC/DC Low Voltage Version.  |
| S601-S802 | Power supply                                       | 110~460V AC/DC High Voltage Version |
| S601-S802 | Antenna  | Internal                            |
| S601-S802 | Standby power                                      | 16mA@AC220V                         |
| S601-S802 | Operating / storage temperature                    | (-4 ° F- 131 ° F)/(-40 ° F-149 ° F) |
| S601-S802 | Protection rating                                  | IP65                                |
| S601-S802 | Weight   | Approx. 905 g                       |
| S601-S802 | Housing material                                   | PA6 (30% GF)                        |

S601

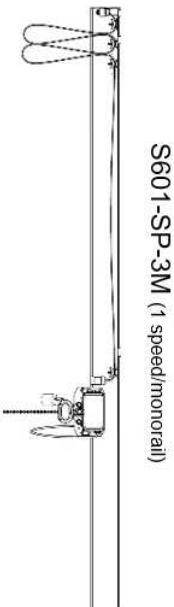
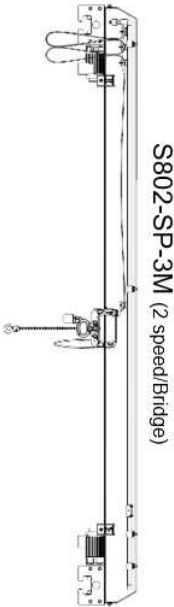
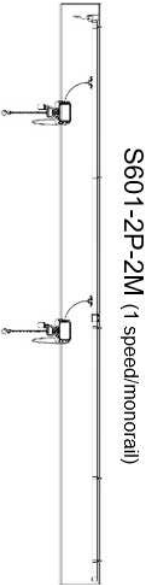


S802



# 4.0 Capability of systems

| Model/SKU  | Motion                        | Speed | Kit Includes                           | Receiver Power Supply | Transmitter Power Supply | Frequency |
|------------|-------------------------------|-------|--|-----------------------|--------------------------|-----------|
| S601-SP-3M | 3 Motion                      | 1 Spd | 1 Receiver<br>2 Handheld Transmitters  | 24V-264V<br>AC/DC     | (2) AA Batteries         | 433 MHz   |
| S601-2P-2M | 2 Motion<br>A/B/Both Controls | 1 Spd | 2 Receivers<br>2 Handheld Transmitters | 24V-264V<br>AC/DC     | (2) AA Batteries         | 433 MHz   |
| S802-SP-3M | 3 Motion                      | 2 Spd | 1 Receiver<br>2 Handheld Transmitters  | 24V-264V<br>AC/DC     | (2) AA Batteries         | 433 MHz   |
| S802-SP-4M | 4 Motion                      | 2 Spd | 1 Receiver<br>2 Handheld Transmitters  | 24V-264V<br>AC/DC     | (2) AA Batteries         | 433 MHz   |
| S802-1P-3M | 3 Motion<br>A/B/Both Controls | 2 Spd | 2 Receivers<br>2 Handheld Transmitters | 24V-264V<br>AC/DC     | (2) AA Batteries         | 433 MHz   |
| S802-2P-3M | 3 Motion<br>A/B/Both Controls | 2 Spd | 3 Receivers<br>2 Handheld Transmitters | 24V-264V<br>AC/DC     | (2) AA Batteries         | 433 MHz   |



## 5.0 Parts

### 5.1 Parts list

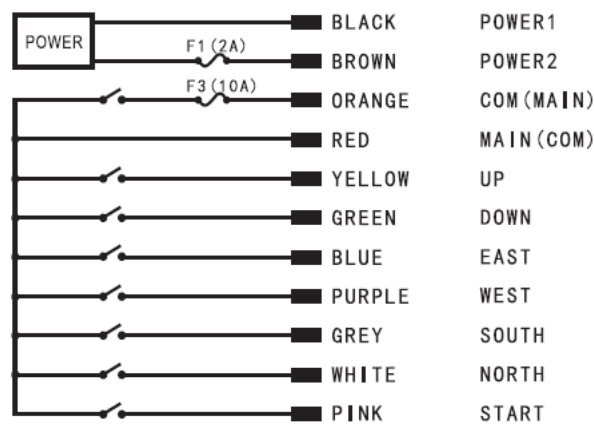
| Part Number | Part Description  | Qty Required |
|-------------|---|--------------|
| 610-00001   | Button Cover  | 1            |
| 610-00002   | Single Speed Button   | 1            |
| 610-00003   | Two Speed Button  | 1            |
| 610-00004   | Transmitter Only, 6 button 1 speed                            | 1            |
|             |   | 1            |
| 610-00006   | Transmitter Only, 8 button 2 speed                            | 1            |
|             |   | 1            |
| 610-00008   | Receiver Only, S601 System                                    | 1            |
| 610-00009   | Receiver Only, S802 System                                    | 1            |
| 610-00010   | Clear protective button protector, fits 6 button transmitters | 1            |
| 610-00011   | Clear protective button protector, fits 8 button transmitters | 1            |

### 5.2 Dimensions

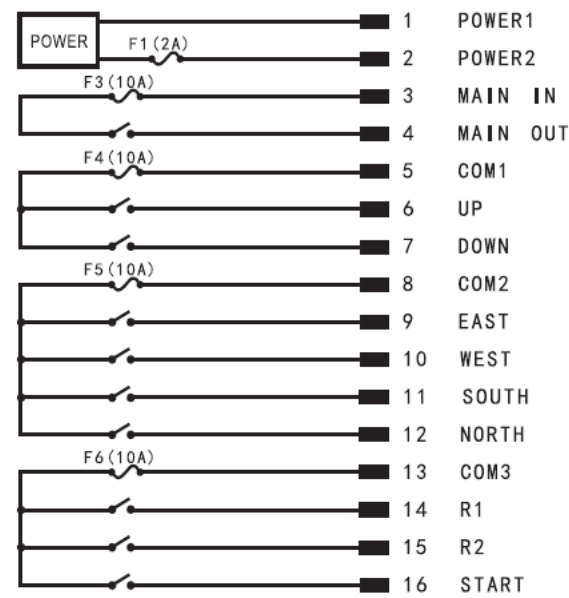
|                        | Dimensions                 |
|------------------------|----------------------------|
| 2-8 Button Transmitter | 7-3/4" x 2-1/4" x 2"       |
| S601 Receiver          | 6-3/4" x 4-15/16" x 2-1/2" |
| S802 Receiver          | 7-1/2" x 7-1/4" x 2-1/2"   |

6.0 Wiring Information

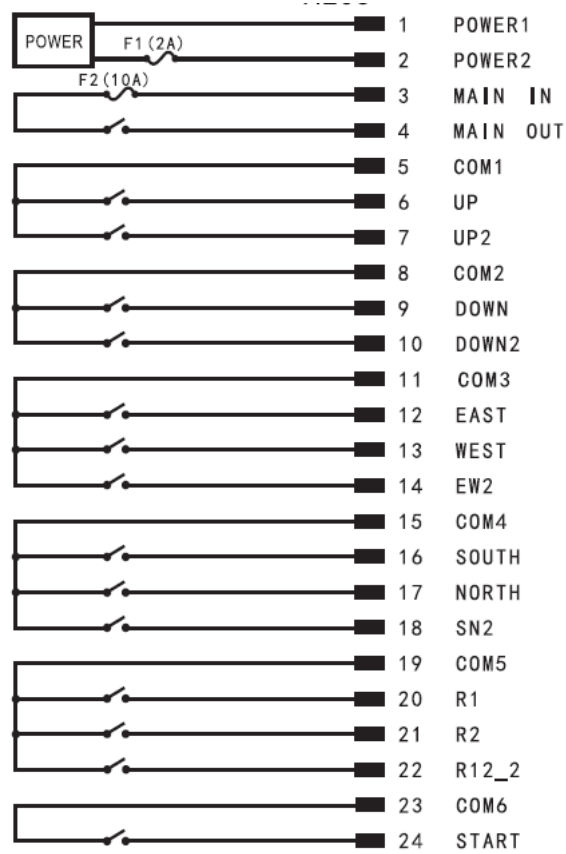
Model S601



Model S801



# Model S802





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## **Starke Products Warranty**

### **1 Year (12 Month) Parts & Labor Warranty**

Unless otherwise specified, Starke guarantees that our products are free from material defects in design and workmanship under normal use, proper maintenance, and service.

This warranty is strictly limited to 12 months for single shift operation or 2,000 hours after installation, or 14 months after shipment, whichever is shorter. Within ten days after a defect is found, warrantee must deliver a written notice to Starke providing defect information. All requested warranty information must be received promptly by Starke in no more than 5 business days.

**Customer is responsible for all shipping charges on returned/warrantable items. Starke will cover the repair (parts and labor) at no charge or provide a replacement item at Starke's discretion.**

This warranty does not cover defects or damage caused by acts of God, unusual wear and tear, improper use, or improper maintenance by the user. No responsibility for consequential damage is expressed or implied, and the responsibility under this warranty/guaranty is limited to the repair or replacement of the defective materials. Repair or replacement of the item is fully at the discretion of Starke.

*ALL OTHER REPRESENTATIONS, EXPRESS OR IMPLIED, WARRANTY, OR LIABILITY RELATING TO THE CONDITION OR USE OF THE PRODUCT ARE SPECIFICALLY DISAVOWED, AND IN NO EVENT SHALL STARKE BE LIABLE TO BUYER, OR ANY THIRD PARTY, FOR ANY DIRECT OR INDIRECT CONSEQUENTIAL OR INCIDENTAL DAMAGES*

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[illegible]



**Contact Your Starke Representative for More Information on Products to Help Maximize Your Workplace Efficiency**



**Hoists & Trolleys**



**Crane Components**



**Electrification**



**Crane Kits**



**Slings**



**Safety**

