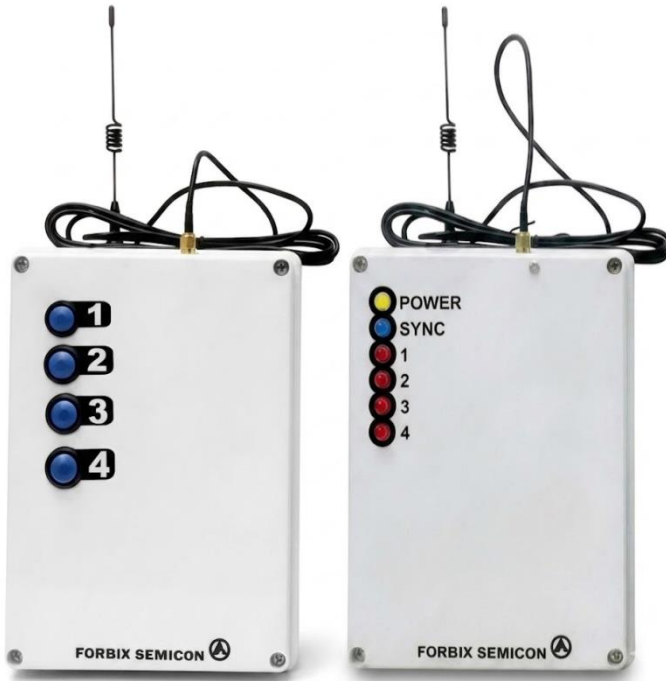


## Wireless RF Long Range Transmitter Receiver

Model: FBX-ALBATROSS-04TR

### Technical Product Specification Document



FORBIX SEMICON® Albatross - Long Range RF Transmitter-Receiver

**Transmitter:** 4 input push buttons AND / OR 4 remote controller to operate from a distance.

**Receiver:** 4 output LEDs

**Signal Range:** 2-3Kms in (open Line of Sight)

**Operating voltage:** 12VDC (adapters along with the device), customized designs for 5VDC USB input voltage

### About the device

FORBIX SEMICON® Long Range RF Transmitter-Receiver system delivers secure, interference-resistant wireless control over extreme distances. Both transmitter and receiver are designed for wall or pole mounting with no metallic or electronic interference nearby to ensure optimal performance.

### Applications:

**Defence** – Remote activation of perimeter warning systems or concealed barriers

**Factories** – Emergency stop triggers or machine start/stop across large production floors

**Warehouses** – Control of overhead doors, conveyor belts, or forklift warning beacons

**Airports** – Distant control of runway warning lights or baggage handling indicators

**Security** – Silent panic alarms or gate opening from guard posts up to 3 km away

**Logistics** – Trigger loading bay hooters or dock lock systems from inbound vehicle position

## Technical Data

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## Wireless Long Range Transmitter Receiver, FBX-ALBATROSS-04TR Technical Product Document

Product designed and manufactured by **FORBIX SEMICON®**

## Long Range RF Transmitter

Model: FBX-ALBATROSS-04T



### Precautions and mounting locations:

Device can be mounted on wall / pole etc.  
Outdoor installations keep away from direct sunlight / rain.  
Keep away from metallic enclosures

### Range of communication:

2-3Kms outdoors in open Line of Sight [LoS]  
Signal range can vary from 500m to 8Kms (depending on environmental conditions)

### Mechanical:

Enclosure type: ABS plastic (color white)  
Receiver unit size: 200 x 150 x 70 mm  
Receiver unit weight: 220 gms

### Environmental Requirement:

Operating Temperature: 0°C to 40°C  
Storage Temperature: 5°C to 25°C  
Relative Humidity: 5% (0°C) ~ 95% (40°C) RH

### Features:

4 buttons  
Each push button is a bounce back type.  
(Button life: 100,000 pushes)  
On press corresponding action is taken at the receiver unit (LEDs / Sirens / Relay / Hooter / Display)

### Technical details:

Transmitter PA +30dbm  
Operating frequency: 315 – 480 MHz  
System operates works on signal hop mechanism. Signal transmission happens at more than 12-15 predefined frequencies  
Modulation type: GFSK  
Radio IC: CC1100 (Chipcon/TI) sub-GHz frequency  
Data packet error correction mechanism: FEC

### Operating voltage:

12 Volt (220AC/12VDC adapter power supply)  
Customized designs with 5VDC USB input  
Users can also plug to any 12V external battery. Active working hours depends on the battery power

### RF antenna:

Wire coil antenna / metal antenna / rubber duck / spiral with 30cm-100cm 50 ohms wire (depends on environment necessity)

### Applications:

**Defence** – Remote activation of perimeter warning systems or concealed barriers  
**Factories** – Emergency stop triggers or machine start/stop across large production floors  
**Warehouses** – Control of overhead doors, conveyor belts, or forklift warning beacons  
**Airports** – Distant control of runway warning lights or baggage handling indicators  
**Security** – Silent panic alarms or gate opening from guard posts up to 3 km away  
**Logistics** – Trigger loading bay hooters or dock lock systems from inbound vehicle position

## Long Range RF Transmitter with Remotes

Model: FBX-ALBATROSS-04T



### 4 Independent Channels:

All four channels can be operated independently using either four separate single-button remotes, with each channel maintaining its own latched ON/OFF state at the receiver end.

The overall system becomes a latch-type remote control over extreme distance: press top button → relay latches ON until bottom button is pressed. This is ideal for gates, pumps, sirens, or any load that needs sustained activation without holding a button.

### Complete Signal Chain:

**Short-range remote (30–120m) → Long range transmitter (wall/pole mounted) → RF signal over 2–3 km → Receiver → ON/OFF control of LED + Relay per channel**

### Features (Dual Mode Triggering):

#### Two Ways to Trigger:

The long range transmitter unit can be activated either by its built-in 4 push buttons (located on the enclosure)

OR

by external wireless short-range remote controllers, offering flexible operation without physical access to the transmitter.

#### Strategic Transmitter Placement:

Because the transmitter can be triggered remotely, it can be installed at an elevated, interference-free location (rooftop, water tower, telecom pole, or hilltop) to maximize the 2–3 km long range signal, while users remain safely or conveniently at a distance.

Latch-Type On/Off Control per Channel – Each of the 4 independent channels operates like a latching switch:

Top button (on the short-range remote or a dedicated remote button) → triggers the long range transmitter → receiver turns ON the corresponding relay and LED.

Bottom button (or second button on the same remote) → triggers the long range transmitter → receiver turns OFF the same relay and LED.

## Long Range RF Receiver

Model: FBX-ALBATROSS-04R



### Precautions and mounting locations:

Device can be mounted on wall / pole etc.  
Outdoor installations keep away from direct sunlight / rain.  
Keep away from metallic enclosures

### Range of communication:

2-3Kms outdoors in open Line of Sight [LoS]  
Signal range can vary from 500m to 8Kms (depending on environmental conditions)

### Mechanical:

Enclosure type: ABS plastic (color white)  
Receiver unit size: 200 x 150 x 70 mm  
Receiver unit weight: 220 gms

### Environmental Requirement:

Operating Temperature: 0°C to 40°C  
Storage Temperature: 5°C to 25°C  
Relative Humidity: 5% (0°C) ~ 95% (40°C) RH

### Features:

4 LED indicators

Each LED glows on press of corresponding button(s) at the transmitter unit. Customized connections to external electrical control devices is possible with respective driver integration to Sirens / Relay / Hooter / Display etc.

### Technical details:

Receiver sensitivity: – 112 dbm

Operating frequency: 315 – 480 MHz

System operates works on signal hop mechanism. Signal transmission happens at more than 12-15 predefined frequencies

Modulation type: GFSK

Radio IC: CC1100 (Chipcon/TI) sub-GHz frequency

Data packet error correction mechanism: FEC

### Operating voltage:

12 Volt (220AC/12VDC adapter power supply)

Users can also plug to any 12V external battery. Active working hours depends on the battery power

Customized designs with 5VDC USB input (only for LED indication and buzzer)

### RF antenna:

Wire coil antenna / metal antenna / rubber duck / spiral with 30cm-100cm 50 ohms wire (depends on environment necessity)

## Remote Controller Trigger Button

Model: FBX521



### Features:

3 buttons

RED light indicator, glows when any button is pressed

Top button (ON) => send ON/CALL signal to the receiver

Bottom button (OFF) => send OFF/CANCEL signal

Center button (optional), function of which can be altered as per application requirement

### Technical details:

Transmitter PA +10dbm

Operating frequency: 315 – 480 MHz

System operates works on signal hop mechanism. Signal transmission happens at more than 12-15 predefined frequencies

Modulation type: GFSK

Radio IC: CC1100 (Chipcon/TI) sub-GHz frequency

Data packet error correction mechanism: FEC

### Battery and operating voltage:

12 Volt (DC battery)

Battery model: 23A

Battery type: Alkaline (dry)

Battery replaceable: Yes

Battery rechargeable: No

Battery mounting: Back cover

Battery life: 3-4years, depending on the usage

### RF antenna:

PCB trace antenna / wire coil antenna / metal antenna (depends on environment necessity)

### Mounting provisions:

Remote controller can be carried in hand or mounted on the wall using a jacket provided along with the package

### Application and features:

Nurse call system for hospitals: remote with patients

Steam bath sauna rooms / spas / restaurants etc.

OPD token system for dispensaries: remote with doctors

Office peon calling system: remote with clerk / manager

Guest house attendant call unit: remote with customers in room

### Precautions and mounting locations:

Remotes can be hand operated or mounted on the a door / wall / bed / table or any flat surface

Easy mounting of remote jacket with 2 screws

For indoor purpose use only

Keep away from metallic enclosures

Do not connect the battery in opposite direction

### Range of communication:

30-40 meters indoors (depending on environmental condition)

100-150 meters outdoors (in open line of sight)

Pressing the button for at least 2-3 seconds improves the range of communication

### Mechanical:

Enclosure type: ABS plastic (color white)

Remote controller size:120 x 40 x 20 mm

Remote controller weight: 45 gms

### Environmental Requirement:

Operating Temperature: 0°C to 40°C

Storage Temperature: 5°C to 25°C

Relative Humidity: 5% (0°C) ~ 95% (40°C) RH

## Regulated AC Power Supply Adapter

Model: FBXADP12V2A



### Important Note:

*This product (Model: FBXADP12V2A 12V 2A Power Supply Adapter) is sourced from a qualified vendor. FORBIX SEMICON® performs quality verification at the batch level to ensure baseline specifications are met prior to distribution. However, as a non-manufactured part, this adapter is expressly excluded from the standard FORBIX SEMICON® product warranty.*

### Environmental Requirement:

Operating Temperature: 0°C to 40°C

Storage Temperature: 5°C to 25°C

Relative Humidity: 5% (0°C) ~ 95% (40°C) RH

### Mechanical:

Enclosure: 80mm (L) × 50mm (W) × 30mm (H) Input

Connector : 2 Pin Input plug

Out Cord: UL1185 18AWG VW-1 80° 300V, FT1 Line with word on the cord Length: 0.6m - 1.2m

DC Plug : 5.5mm × 2.1mm × 12mm

### Input Characteristics:

Rated Voltage: 100 – 240V AC Variation

Range: 90 – 264V AC

Rated Frequency: 50/60Hz

Variation Frequency: 47 – 63Hz

Input Current: 0.6A Max. @ Any input AC voltage & output full load

Inrush Current: 35A Max. Cold start @ 240V AC input, rated output load & 25°C ambient

AC Leakage Current: 0.25mA Max. @ 240V AC input

### Output Characteristics:

Voltage: 12V

Min. Load: 0.01A

Rated Load: 2A

Output Power: 24W

### Combined Load / Line Regulation:

Voltage: 12V

Min. Load: 0.01A

Rated Load: 2A

Line Regulation: ± 1%

Load Regulation: ± 3%

### Ripple and Noise :

Under normal voltage & nominal load, the ripple & noise are as follows when measure with Max. Bandwidth of 20MHz & parallel 10µF electrolysis capacitor & 0.1µF ceramic capacitor crossed connect at testing point.

Ripple & Noise (Max.): 120mVp-p

Turn on Delay Time: 2S Max. @ 115V AC input and output Max. Load

Rise Time: 40ms Max. @ 115V AC input and output Max. Load

Hold Up Time: 5msec Min. @ 115V AC input and output Max.

Load Efficiency: Average efficiency 87.4% minimum @ 25%, 50%, 75% & 100% of full-loading and 230V AC input (After warm up 30 minutes).

## Remote Controller Battery

Model: A23



### Important Note:

*This product (Model: A23 12V Alkaline Battery) is sourced from a qualified vendor. FORBIX SEMICON® performs quality verification at the batch level to ensure baseline specifications are met prior to distribution. However, as a non-manufactured part, this adapter is expressly excluded from the standard FORBIX SEMICON® product warranty.*

### Environmental Requirement:

Operating Temperature: 0°C to 40°C  
 Storage Temperature : 5°C to 55°C  
 Relative Humidity : 5% (0°C) ~ 95% (35°C) RH  
 ≥90 % remaining capacity after 12 months storage  
 Storage should not be more than Max. 3 yrs.

### Mechanical:

Unit Weight: 7.9 gms  
 Height: 27.70 – 28.50 mm  
 Diameter: 9.90 – 10.6 mm  
 Positive Terminal Head Diameter: 5.2 – 5.8 mm

Battery type: Alkaline

Composition: Manganese Dioxide (mercury free) Battery model: A23

Chemical System: Zn / KOH-H<sub>2</sub>O / MnO<sub>2</sub> Conditions

Nominal voltage: 12 V

Open circuit voltage: 12.3...12.9 V

New battery 12.2...12.9 V

Voltage drop 10.8...10.5 V after 1 year storage at 20°C all measurements at 22 ± 2°C ambient

Capacity rated: 50 mAh discharge under 10kΩ load 24hours/day

End Voltage (EV): 6.0V minimum: 47 mAh discharge under 10kΩ load; 24hours/day

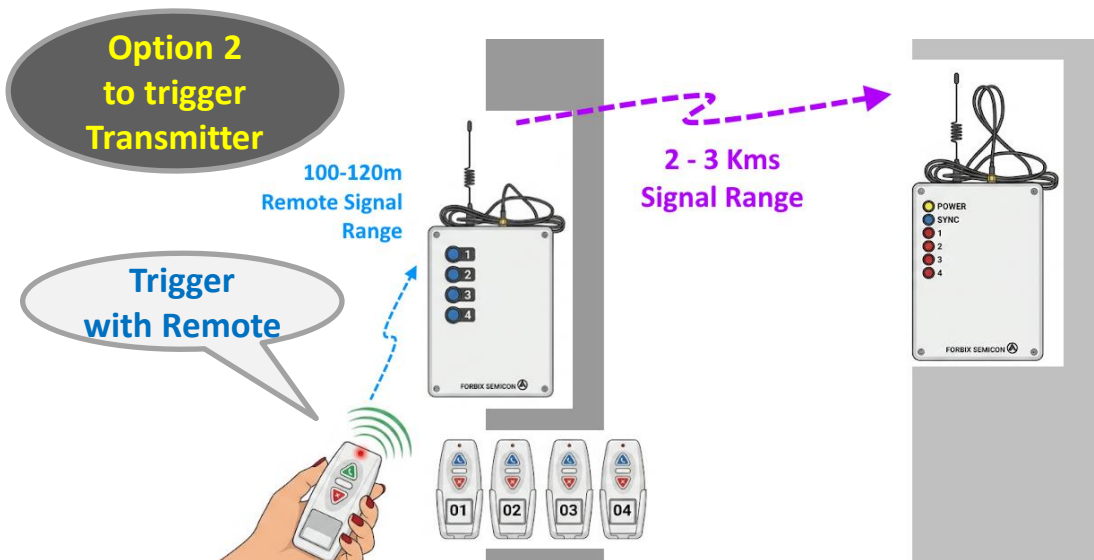
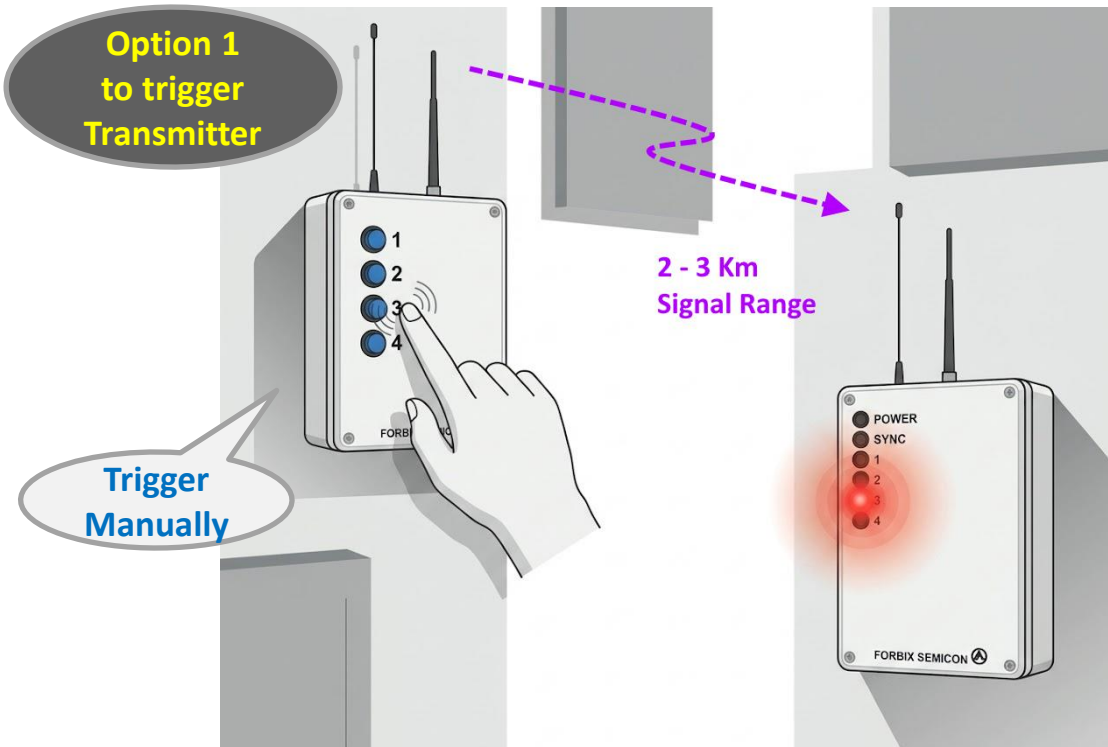
End Voltage (EV): 6.0V Standard discharge time nominal: 55 h at 10kΩ load new battery

EV: 6.0V MAD: (minimum average 50 h at 10kΩ load after 12 months storage at 20°C duration)

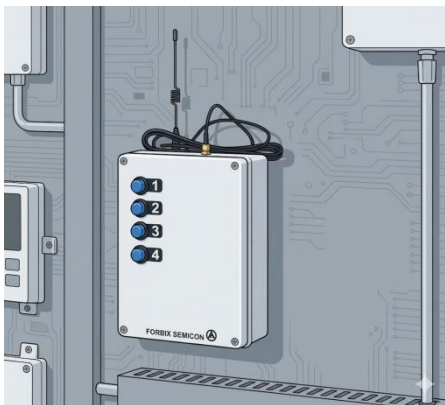
EV: 6.0V 52 h at 10kΩ load for IQC measurement EV: 6.0V (tested within 30 days after delivery)

Discharge currents standard: 0.05 mA max.  
 recommended current under continuous discharge: 0.5 mA max. recommended current under pulse discharge: 15 mA

## Triggering Long Range Transmitter



## Transmitter Mounting



### **Pole-Mounted Long Range Transmitter with Short-Range Remote Triggering**

The long range RF transmitter is designed for secure mounting on poles, building rooftops, telecom masts, or elevated structures, away from metallic or electronic interference.

**Clear Line-of-Sight Achievement** – Mounting at height ensures a clear, unobstructed line-of-sight path, enabling reliable signal transmission to the receiver over **2–3 km** (and potentially longer under ideal conditions).

**Short-Range Remote Specifications** – The remote controller operates over:

**Up to 100–120 meters outdoors** (open ground, clear line-of-sight)

**Up to 30–40 meters indoors** (through walls and building structures)

**Safe & Convenient Operation** – Users can trigger the system from ground level, inside a control room, or from a nearby building, while the transmitter remains optimally positioned at height for maximum long range performance. The transmitter is triggered wirelessly by a separate short-range remote controller, eliminating the need for ladders, lifts, or climbing.

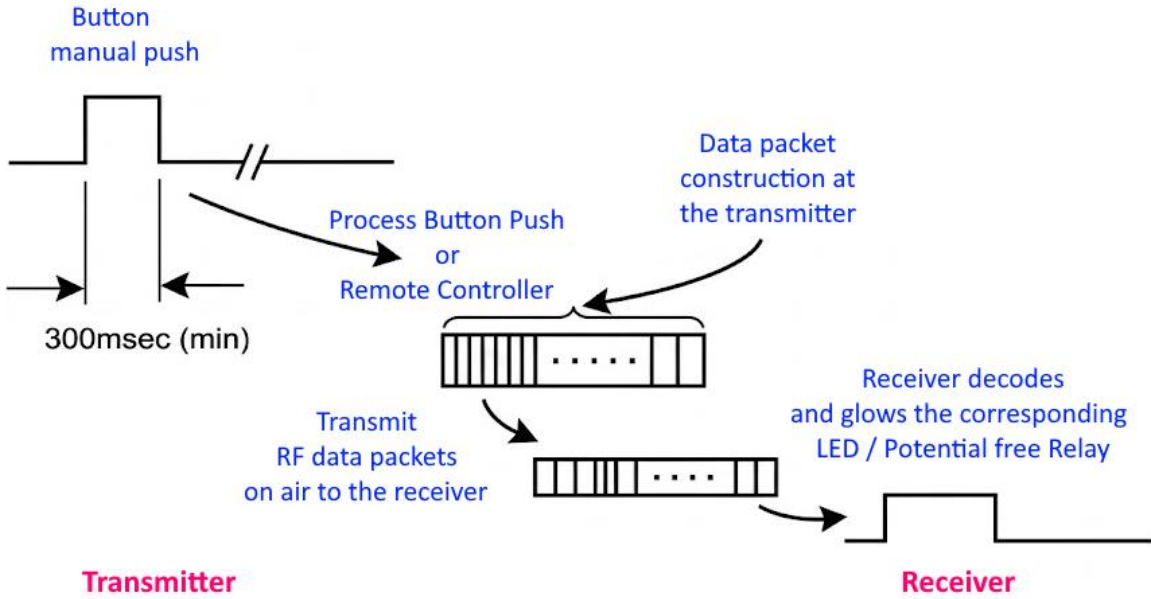
**Four Independent Channels** – Each of the four transmitter buttons (or four separate remotes) controls one dedicated relay channel at the receiver end, with latching ON/OFF functionality.

Wall-mounted in industrial/office settings, signal range may drop to **500–800m** due to concrete, metal, furniture, or machinery.

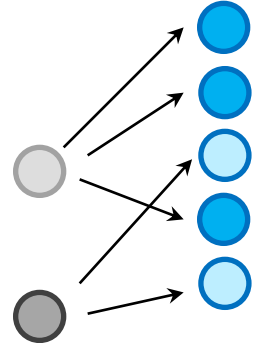
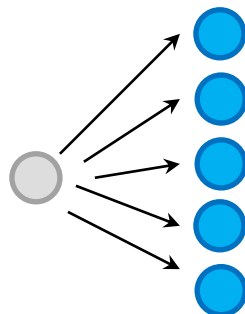
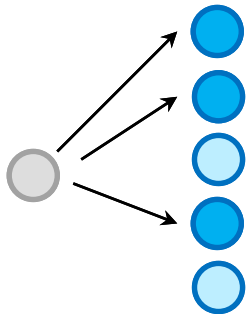
**Note:**

**It is advisable to mount the transmitter in an open, elevated location free from obstructions.**

## Timings and Possible Network Topologies



## Possible Network Communication Topologies



## Revision History

<b>Version</b>	<b>Changes</b>	<b>Time</b>	<b>Verified</b>	<b>Approved</b>
v1.0	Initial Release Copy	Apr'2026	Yes	-

## Company

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**HSN:**8542 9000

**GSTIN:**29AAECF8700F1ZO

**Trade Mark No.:**4216274, Class 9

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