



KT-WLS-WIE Ranger Long-Range 433 MHz Receiver Quick Start Guide

Table of contents

1. [Introduction](#)
2. [Overview](#)
3. [Installation specifications](#)
4. [Receiver cabling](#)
5. [Troubleshooting](#)
6. [Certifications](#)
7. [FCC compliance statement](#)

Introduction

The following information is for experienced installation technicians to use as a basic reference to ensure correct connections. Install and wire all systems in accordance with the National Electrical Code, ANSI/NFPA 70.

Overview

The Ranger® system is designed for security access control applications and offers a high-frequency, long-range identification solution. The four-channel Ranger receiver, model KT-WLS-WIE, transmits data from Ranger transmitters through four separate Wiegand outputs: Channels A, B, C, and D. The format of each Wiegand output depends on the data encoded in the corresponding Ranger Transmitter.

Figure 1. Receiver components

Callout	Description
A	Audio beeper
B	10-pin terminal block
C	Read range adjustment
D	Antenna switch
E	Beeper switch
F	Antenna connector

Installation specifications

See the following information for installation specifications and requirements.

Table 1. Installation specifications

Component	Description
Cable requirements	• 24 AWG minimum, multi-conductor stranded with an overall foil shield. For example, a Belden 9540 or similar shield. • Maximum cable length: 500 ft (152.4 m), to adhere to the SIA's Wiegand specification.
Output formats	Wiegand: Industry standard 26-bit Wiegand and custom Wiegand formats.
Grounding	• Run the shield continuity from the receiver to the access panel. • Tie the shield and receiver ground together at the access panel, and connect to an earth ground at only one point.

Component	Description
Power	• 12 VDC nominal at 120 mA. • You can power the receiver by the access panel. • For best operation, use a linear power supply.
Mounting	• Indoor or outdoor mounting • The base of the enclosure includes a drill template with mounting provisions to a standard North American and European wall box, and pre-drilled holes in the four corners for flat-surface mounting. • Use the supplied #6 mounting screws or equivalent security screws.
Read range adjustment	• The receiver is shipped with the maximum read range set to 200 ft (61 m). • For optimal read range, mount the receiver away from potential interference sources, including: ◦ Large metal and concrete obstructions ◦ Magnetic fields ◦ Radio transmissions • Read range can vary based on:

Component	Description
	○ The receiver's installation height ○ How the user holds the transmitter ○ The specific location of transmitter use • To reduce the read range, gently turn the receiver's range knob in a counter-clockwise direction.
Antenna switch	• The receiver is shipped with the antenna switch set to the INT position. • To extend the read range, connect a separate external antenna to the receiver's 6.9 mm SMA jack connector. • For installations that require a separate external antenna: ○ Set the antenna switch to the EXT position ○ Refer to the <i>KT-WLS-WIE External Antenna Reference Guide</i>.
Beeper switch	The receiver is shipped with the beeper switch set to the ON position. If you need to disable the beeper and external LED indicator, set the beeper switch to the OFF position.
Operating temperature	–40° F to 149° F (–40° C to 65° C)
Operating humidity	5% to 95% relative humidity non-condensing
IP rating	IP67-rated for outdoor use

Table 2. External LED indicator

LED state	Description
Green	Initial power on

LED state	Description
Amber	Normal powered on state
Flashing green	The receiver receives and processes an activated transmitter button press
Flashing red	The receiver detected a non-activated transmitter button press
Off	The receiver is powered off, or fails to power on successfully

Receiver cabling

See the following information for cabling the terminal block to the receiver.

Important:

- Make connections in accordance with NFPA 70.
- Do not connect to a receptacle controlled by a switch.
- Connect to a power limited DC voltage source.

Table 1. 10-pin terminal block connections

Connection	Description
AD0	Button One, Wiegand Data 0, Channel A
AD1	Button One, Wiegand Data 1, Channel A
BD0	Button Two, Wiegand Data 0, Channel B
BD1	Button Two, Wiegand Data 1, Channel B
CD0	Button Three, Wiegand Data 0, Channel C
CD1	Button Three, Wiegand Data 1, Channel C
DD0	Button Four, Wiegand Data 0, Channel D
DD1	Button Four, Wiegand Data 1, Channel D
GND	Power, 0VDC (Ground)
+VDC	Power, 12VDC Nominal Note: Apply positive voltage only to the +VDC Pin on the Terminal Block.

Troubleshooting

See the following information for troubleshooting issues.

Table 1. Troubleshooting

Issue	Fix description
The transmitter does not receive data.	Enroll the transmitter: When the receiver powers on, click the transmitter twice.

Certifications

The receiver has the following access control performance levels and certifications.

Table 1. Access control performance levels conforming to UL STD 294

Destructive attack	Line security	Endurance	Standby power
Level I	Level I	Level IV	Level I

Table 2. Grade classification certified to CAN/ULC STD 60839-11-1

Risk level	Application	Skill/knowledge of attackers	Typical examples
Grade 1	Grade 1	Grade 1	Grade 1

FCC compliance statement

FCC Compliance Statement: 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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION

Changes or modifications not expressly approved by the unit supplier and JCI could void the user's authority to operate the equipment.

Product can be used without license conditions or restrictions in all European Union countries, including Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Spain, Sweden, United Kingdom, as well as other non-EU countries, including Iceland, Norway, and Switzerland.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause unde-sired operation of the device.

Cet appareil est conforme à Industrie Canada exempts de licence standard RSS (s). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas provoquer d'interférences et (2) ce dispositif doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement du dispositif.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.