

BLUEBOX RFID System

COMMUNICATION PROTOCOL



Wiegand Interface

Preface

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Safety Instructions / Warning - Read before start-up!

- The device may only be used for the intended purpose designed by the manufacturer. The operation manual should be conveniently kept available at all times for each user.
- Unauthorized changes and the use of spare parts and additional devices that have not been sold or recommended by the manufacturer may cause fire, electric shocks or injuries. Such unauthorized measures shall exclude any liability by the manufacturer.
- The liability-prescriptions of the manufacturer in the issue valid at the time of purchase are valid for the device. The manufacturer shall not be held legally responsible for inaccuracies, errors, or omissions in the manual or automatically set parameters for a device or for an incorrect application of a device.
- Repairs may be executed by the manufacturer only.
- Only qualified personnel should carry out installation, operation, and maintenance procedures.
- Use of the device and its installation must be in accordance with national legal requirements and local electrical codes.
- When working on devices the valid safety regulations must be observed.

This manual applies to the following devices:

Description:

Order Number:

Mid Range read / write UHF RFID (EU) device with integrated antenna. With serial RS232/RS485 and Wiegand communication interface. EU1 (865 MHz ... 868 MHz) version.

5327U



Mid Range read / write UHF RFID (US) device with integrated antenna. With serial RS232/RS485 and Wiegand communication interface. FCC (902 MHz ... 928 MHz) version.

5327U-FCC

Long Range read / write UHF RFID device with 1 external antenna. With serial RS232/RS485 and Wiegand communication interface. EU1 (865 MHz ... 868 MHz) version.

5337U

Long Range read / write UHF RFID device with up to 2 external antennas. With serial RS232/RS485 and Wiegand communication interface. EU1 (865 MHz ... 868 MHz) version.

5347U

Description:

Mid Range read / write UHF RFID device with integrated antenna. With serial RS232/RS485 and Wiegand communication interface. Grey white (RAL 9002) case color. EU1 (865 MHz ... 868 MHz) version.

Mid range read / write UHF RFID device with integrated antenna. With serial RS232/RS485 and Wiegand communication interface. Grey (RAL 7045) case color. EU1 (865 MHz ... 868 MHz) version.

Long range read / write UHF RFID device with integrated antenna. With serial RS232/RS485 and Wiegand communication interface. Grey white (RAL 9002) case color. EU1 (865 MHz ... 868 MHz) version.

Long range read / write UHF RFID device with integrated antenna. With serial RS232/RS485 and Wiegand communication interface. Grey (RAL 7045) case color. EU1 (865 MHz ... 868 MHz) version.

Order Number:

5427U

 NO PRODUCT
IMAGE

5427U-G

 NO PRODUCT
IMAGE

5527U



5527U-G

 NO PRODUCT
IMAGE

This manual is valid as of firmware version:

Order Number	Carrier
5327U	2.28B
5327U-FCC	2.28B
5337U	2.28A
5347U	2.28
5427U	2.28E
5427U-G	2.28E
5527U	2.28E
5527U-G	2.28E

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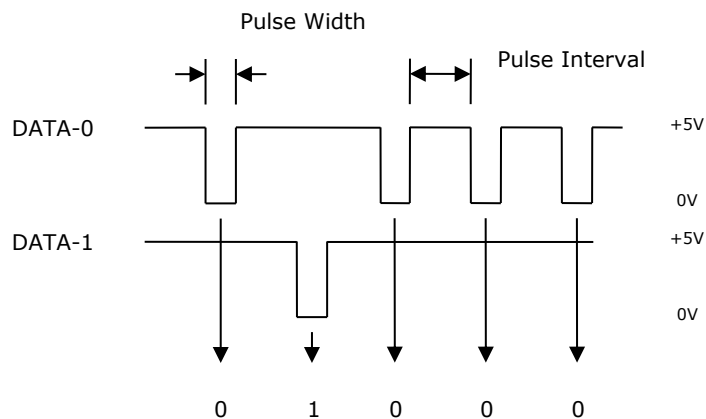
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1 Introduction

This document describes Wiegand interface and the 'spontaneous' message format on the Wiegand interface.

2 Protocol Specifications

The Wiegand interface uses three wires, one of which is a common ground and two of which are data transmission wires called DATA-0 and DATA-1. When no data is being sent, both DATA-0 and DATA-1 are pulled up to the high voltage level — +5 Vdc. When a 0 is sent the DATA-0 wire is pulled to a low voltage while the DATA-1 wire stays at a high voltage. When a 1 is sent the DATA-1 wire is pulled to a low voltage while DATA-0 stays at a high voltage.



The communication protocol could be Wiegand26 or Wiegand34.

2.1 Wiegand26 Format

The Wiegand26 transmits 26 bits every time, 24 of them are the tag's ID. The format of transmission is as follows.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
E	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	O

Where

- E: Even parity of the first 12 bits of the ID. If the 12 data bits result in an odd number, the parity bit is set to one to make the 13-bit total come out even.
- O: Odd parity of the last 12 bits of the ID. If the 12 data bits result in an even number, the parity bit is set to one to make the 13-bit total come out odd.

- I: 24 bits of the tag's ID (see the user manual of the device for more details).

2.2 Wiegand34 Format

The Wiegand34 transmits 34 bits every time, 34 of them are the tag's ID. The format of transmission is as follows.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
E	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	O

Where

- E: Even parity of the first 16 bits of the ID. If the 16 data bits result in an odd number, the parity bit is set to one to make the 17-bit total come out even.
- O: Odd parity of the last 16 bits of the ID. If the 16 data bits result in an even number, the parity bit is set to one to make the 17-bit total come out odd.
- I: 32 bits of the tag's ID (see the user manual of the device for more details).

3 Document Revision History

Date	Revision	Description
19/09/16	1.00	Initial release.
23/12/16	1.01	Deleted supported tags appendixes.
12/07/17	1.02	Added 5327U, 5327U-FCC, 5337U and 5347U readers support to this manual. Removed 5427U-RTC, 5427U-RTC-G, 5527U-RTC and 5527U-RTC-G readers support from this manual.
04/05/20	1.03	Updated the company name/logo and BLUEBOX logo. Updated the reader's description object of this manual. Format changes and document fixes in all sections.