

User Manual  
Of  
WBU-900A

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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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### **FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

## **1 Introduction**

### **1.1 Functions**

#### **1.1.1 Working Mode**

The device has two working mode. one is [Interval Scan Mode](#), In this mode, if reader Power on, it will scan the tag intermittently; The other mode is [Trigger Mode](#), in this mode, only if the voltage of the Trigger Pin is logic 0, the reader begins to scan the tag automatically.

When reader enters into the scanning status, it will capture the programmed identification information of the tags which within the L5121's read range automatically, and transmits the data to a local host computer or process through the specified communication interface (RS232 or RS485).

The default working mode of the reader is [Interval Scan Mode](#) if need preconfigured to [Trigger Mode](#) or other communication interface, please consult with the Hawkvor before purchasing.

#### **1.1.2 Parameters**

The parameters of the reader as [Table 1.1.2-1](#)

Table 1.1.2-1

No	Parameter	Value
1	Operating Frequency	902~928 MHz FHSS
2	Transmitter Power	0 to 20dBm (programmed by software)
3	Supply Voltage	10~25 VDC +5%/-1%, Ripple: maximum 50 mV
4	Communication Rates	9600 bps
5	Power Consumption	maximum 10 W
6	Interfaces Optional	RS232,RS485
7	Overall Size	370* 360 * 96 mm
8	Package Size	430 * 420 * 190 mm
9	Net Weight:	3.0 KGS
10	Operating Temperature	-20°C to +70°C
11	Storage Temperature	-40°C to +85°C

## 1.2 System Description

### 1.2.1 Components

The package of the reader contains the components list in the [Table 1.2.1-1](#).

Table1.2.1-1

No	Component	Specification	Quantity	Remark
1	Host	370* 360 * 96 mm	1 PC	With Fixed Holder
2	Power Adapter	12V/4A	1 PC	
3	Power Code	1.8 m in length	1 PC	
4	RS232 Cable		1 PC	
5	Test Tag	86 * 54 * 1.0 mm	1 PC	Optional
6	Definition of Connection Pins		1 PC	
7	Packing List		1 PC	

### 1.2.2 Host



Over view



Side view



Back view

### 1.2.3 Interface

.Hawkvor Reader L5121 can be able to provide 5 group interface, for details please refer to [Table 1.2.3-1](#)

Table 1.2.3-1 Definition of the Interface

No	Interface Type	Definition	Color	Remark
1	Power	+12 V	Red	Two-core
		GND	Black	Two-core
2	RS232	232(RX)	Grey	2-Pin
		232(TX)	Blue	3-Pin
		GND	Yellow	
3	RS485	485+	White	Reserved for RS485
		485-	Light Green	
		GND	Yellow	
4	Wiegand	W0D0	Purple	Reserved
		W0D1	Green	
		GND	Yellow	
5	Trigger	Trigger	Orange	Reserved for Trigger
		GND	Yellow	Mode

### 1.2.4 LED Indicator

There are two rows LED indicators on the Hawkvor Reader Model L5121, when Red LED lighting means the reader is power on, while Blue LED lighting means t the reader captures the data of the tag,

### 1.2.5 Buzzer

When the reader captures the data of the tag, the buzzer will beep.

### 1.2.6 Label

No	Label Type	Definition	Position
1	SN Label	The serial number of the host	Back Board
2	Interface Label	The specified communication interface of the host	Back Board
3	Capital Letter Label	A or B or C or D or E	Back Board

Remark:

1. The [SN label](#) is the identification of each reader, don't tear off during using.
2. Please check the interface configuration with the [Interface Label](#), if not correct, please contact with Hawkvor.
3. Don't install two hosts with the same [Capital Letter Label](#) within 20 meters scope.

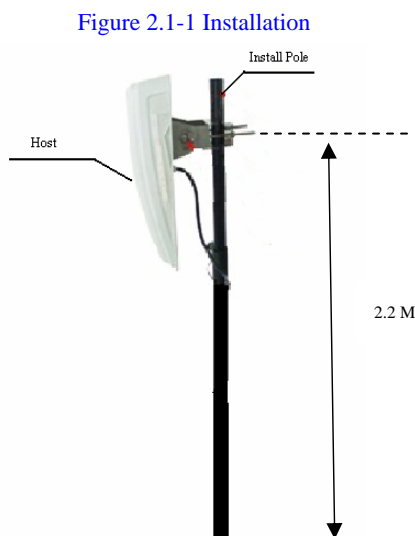
## 1.3 Cautions before Using

1. Please use the 12V 4A DC Power Adapter which enclosed the package for connecting the host with the power.
2. 12V 4A DC Power Adapter which enclosed the package is not waterproof, you need to be covered when used.
3. The power code which connected Power Adapter and the 220V AC Power needs to be connected the ground wire to prevent lightning strikes.
4. Please make well the insulation protection between different wires to prevent the short circuit damage.
5. Please read this instruction manual carefully before installation.

## 2 Reader Installation

### 2.1 Installation Overview

The Reader has been designed with easy installation in mind. The [Figure 2.1-1](#) provides you with any details that you will need to know.



## 2.2 Installation Summary

There are two ways for installing the reader by install position. One installs on the side of the lane which we called [Side Installation](#), while the other installs on the overhead of the lane which we called [Overhead Installation](#). For details please refer to the [Table 2.2-1](#)

Table 2.2-1

Install Way	Advantage	Disadvantage
Side Installation	<ol style="list-style-type: none"> <li>1. Easy to install with the pole</li> <li>2. Easy for maintenance</li> </ol>	<ol style="list-style-type: none"> <li>1. The read range is subject to the install height &amp; the angle of the reader</li> <li>2. The tag should installed to the side near the reader</li> </ol>
Overhead Installation	<ol style="list-style-type: none"> <li>1. The reader range is larger &amp; wider</li> <li>2. The tag position is more flexible</li> </ol>	<ol style="list-style-type: none"> <li>1. It's not easy for maintenance due to the install height of the reader.</li> <li>2. The extension power wire &amp; communication wire requires longer &amp; thicker</li> </ol>

When the site meets following conditions, we suggest choosing the Overhead Installation way, otherwise choosing the [Side Installation](#) way:

1. There are many types of car, especially with both large vehicle and small car;
2. The position of the tag is different from different type of vehicles;
3. The drive position is available for both left and right side

## Appendix 1 How to check the performance simply?

Purpose: When a malfunction occurs during the using, the follow steps will help you to check the performance of the reader simply.

1. Test Sites: Open area without any barrier or block.
2. Reader Install Height: Over 2 Meter and power the reader with Power Adapter & Power Code enclosed the package.
3. Test Tag: use the tag MICE5510 enclosed the package