UR220/225 13.56MHz RFID Reader

RS232 ,Wiegand and ABA TK2 OUTPUT with Remote I/O

■ INTRODUCTION

The UR220 brings the concept of " Your Reader" which is a stylish, reliable proximity RFID reader with piano finish housing which really shows seamless integration to an intelligent building. For those high end projects, UR220 fulfils its requirement in both excellent performance and flexible appearance, such as changeable housing with customized logo, LED colors or even the buzzer sound which are all configurable to meet wide range of applications in Access control area or Home automation area. With waterproof design, it also serves as a great outdoor reader in all environment.

UR225-00   UR220-00

■ FEATURES

- Mifare Card 13.56MHz Read only
- Pre-programmable 3 in 1 interface outputs according to ABA TK2, RS232(UART) or Wiegand characteristics.
- Weather resistant
- Available installed on metal surface
- Reading distance: up to 2~5 cm
- New stylish housing to match modern construction for customer design
- 2ch Digital output can direct to drive Door Lock and Alarm .
- 2ch Digital input for Door Sensor and Door Open Switch with optical coupler to improve noise immunity

■ SPECIFICATIONS

OPERATING

Transmit Frequency	13.56MHz standard
Transponder	ISO1443A Card Read Only
Reading distance	2~5 cm with Mifare 1K/4K card.
Interface	Wiegand, MSR ABA Track2 or RS232

ELECTRICAL

| Power Input	7.5 to 12 VDC. Linear supply recommended.
Current Requirements	90 mA @12VDC
Digital Output	Strike Max. Voltage : DC 50 VDC Strike Max. Current : 4.0A (Drain 2.0A Current-Continuous) Strike Time : 3 - 254 seconds (Toggle Mode) Strike Mode : Toggle/Latch (Open Drain)
Digital Input	Optical Coupler isolation Input Voltage : DC 7.5~12 VDC

MECHANICAL

Dimensions	Length : 100 mm / Width : 32 mm / Height : 16.5 mm for UR110 Series Length : 87 mm / Width : 32 mm / Height : 16.5 mm for UR115 Series
Weight	50 gm (Without Cable)
Cable Length	15 cm +/- 1cm

ENVIRONMENTAL

Temperature	Operating : 0 ℃ to 55 ℃ Storage : -10 ℃ to 65 ℃
Humidity	Operating : 10 % to 90 % noncondensing Storage : Up to 100% noncondensing

■ TERMINAL / INDICATOR DESCRIPTIONS
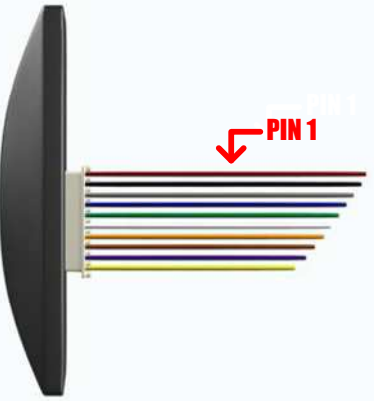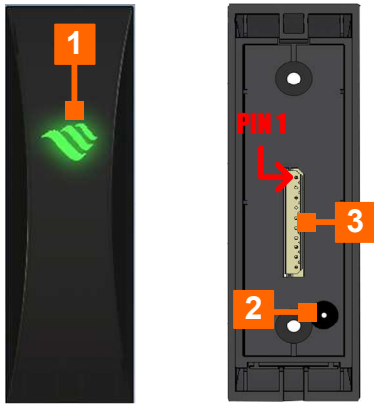
1 LED Indicator

Green	Red	Description
On	Off	Standby
Blink	Off	Read OK
Off	On	ISP Mode
Other		Software Control

2 Sound Indicator

Buzzer	Description
Bi-	Read OK
Other	Software Control

3 9 Pin Terminal

Pin	Color	Signal	In/Out	Description
1	Red	VCC	P	Power 7.5-12 Volts
2	Black	GND	P	Power Ground
3	Gray	D/O 1	O	Digital output 1 (open drain)
4	Blue	D/O 2	O	Digital output 2 (open drain)
5	Green	TX	I/O	RS232 TX (transmit), Magstripe Data & Wiegand Data 0
6	White	RX	I/O	RS232 RX (receive), Magstripe Clock & Wiegand Data 1
7	Orange	CP	I/O	Card Present Output
8	Brown	D/I 1	I	Digital input 1 (active high)
9	Purple	D/I 2	I	Digital input 2 (active high)
10	Yellow	SEL	I/O	Program In/out

Pin5,6,7 output with internal 2K pull up

■ CONNECTION

RS232 Wiring Diagram
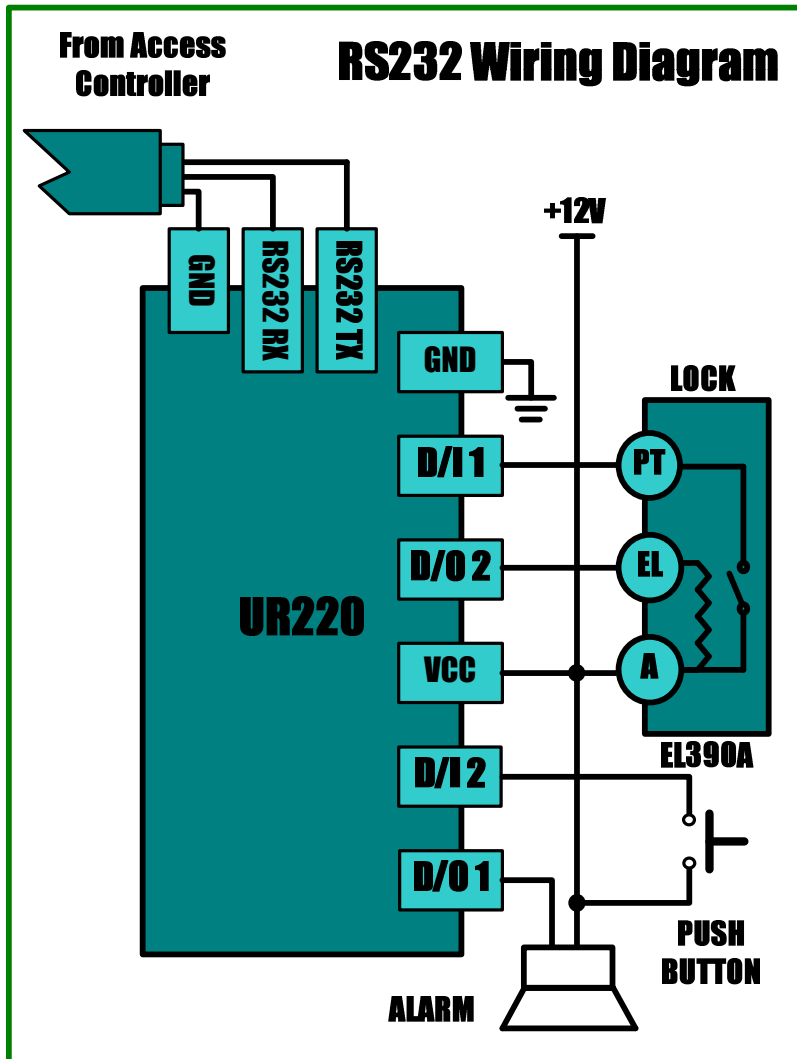
Data Structure for RS232

Host to UR220 (RS232 only)

STX	"J"	"n"	CR

Baud Rate : 19200,N,8,1

"n"	Description
5	Treble Single Beep
6	Treble Triple Beep
7	Mediant Single Beep
8	Mediant Triple Beep
9	Bass Single Beep
A	Bass Triple Beep
B	D/O 1 On
C	D/O 1 Off
D	D/O 2 On
E	D/O 2 Off
F	* D/O 1 Momentarily On
G	* D/O 2 Momentarily On

* Momentarily Time default 5 seconds.
* This Value is changed by the URKit

STX : 0x02
CR : 0x0D

[Ex.] D/O 1 On :

Host

STX	"J"	"B"	CR

Device

STX	"A"	CR

Wiegand/MSR ABA Track2 Wiring Diagram

To Access Controller

GND | CP | CLK | DATA | D/I1 | D/I2

+12V
LED

D/O 1

UR220

D/O 2

GND
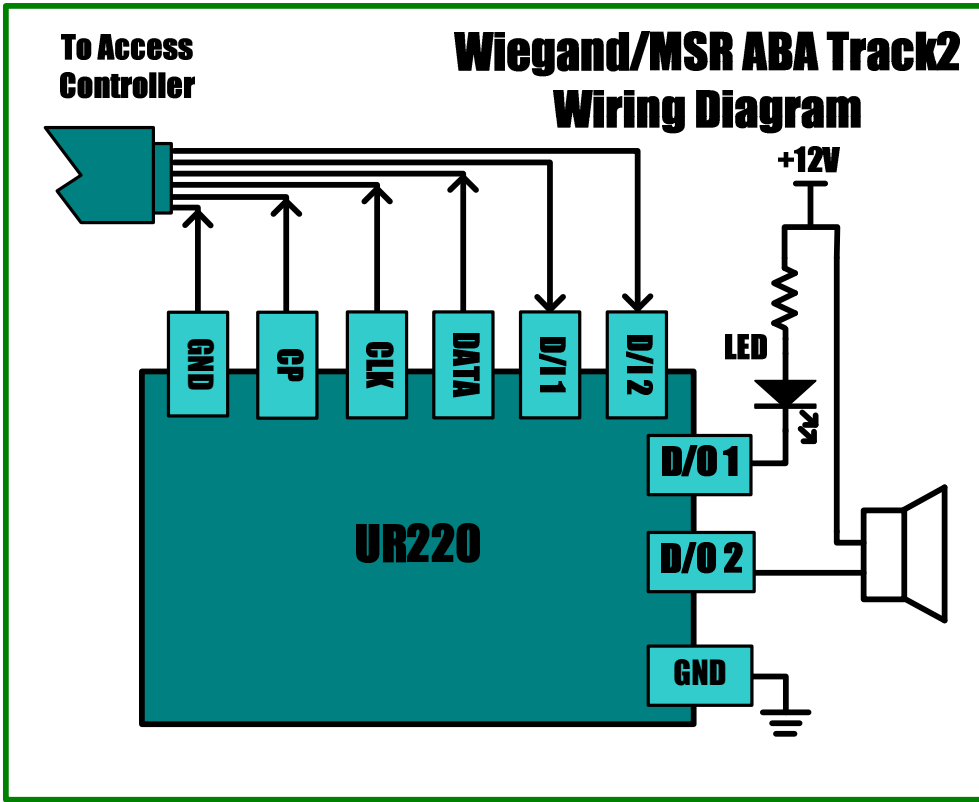
Data Structure for Wiegand /ABA TK2

Host to UR220

UR220 sends the reading ID to the host through Wiegand and MSR ABA Track2 interface. This is a signal direction communication protocol.

The Host (Access Controller) can control UR110 by the D/I1 or D/I2 Digital Input Ports.
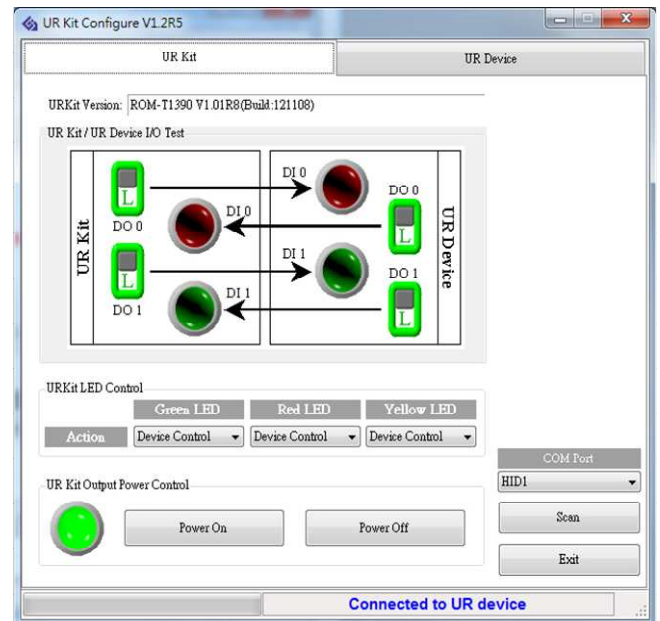
The D/O1 or D/O2 Digital Output ports, UR220 may send out a signal for external device control.

■ Utility Tool

URkit is the Utility tool for UR series reader. With its software(URkit Configure), URkit may perform complete functionalities of UR series reader.

URKIT is an optional device for UR220's configuration,please contact sales for inquiry

UR Kit Configure V1.2R5

| UR Kit | UR Device |

URKit Version: ROM-T1390 V1.01R8(Build:121108)

UR Kit / UR Device I/O Test

UR Kit — DO 0, DO 1 | DI 0, DI 1 | DO 0, DO 1 — UR Device

URKit LED Control

| | Green LED | Red LED | Yellow LED |
| Action | Device Control | Device Control | Device Control |

UR Kit Output Power Control

Power On | Power Off

COM Port
HID1

Scan

Exit

Connected to UR device

■ INTERFACE SELECT

The output format can be customer programmed . The available formats are Wiegand , Magnetic Emulation and Serial ASCII (RS232)

PIN		Wiegand	Magstripe	Serial ASCII (RS232)
1	Red	Power 7.5-12V		
2	Black	Ground 0V		
6	White	Data 1	Clock (Strobe)	No Connection
5	Green	Data 0	Data	TX Data
7	Orange	No Connection	Card Present	No Connection
10	*Yellow	Connect to White	Connect to Orange	No Connection

* It will enter ISP mode for Update Firmware when yellow connect to ground before power on.

OUTPUT FORMAT

Data Structure (Serial ASCII)

Baud Rate : 19200,N,8,1

STX(02 HEX)	DATA(10 HEX CHARACTERS)	CR	LF	CRLFETX(03 HEX)

The start character is factory defined as an 'STX' (02 HEX). This is followed by 10 Hex characters of data . The CR\LF characters serve to bring the received screen text back to the left hand side and on the line below after the data bytes have been sent. The 'ETX' (03 HEX) character denotes the end of the current transmission.

Data Structure (Magstripe Emulation , ABA Track 2)

Speed : Simulated to 40 IPS (Inch per Second)

10 LEADING ZEROS	SS	DATA (14 DIGITS)	ES	LRC	10 TRAILING ZEROS

The 10 leading zeros prepare the receiving unit to accept the data. The data is 14 digits long. SS is the Start Sentinel consisting of 11010.ES is the End Sentinel consisting of 1111.LRC is the Longitudinal Redundancy Check character. Lastly there are 10 trailing zeros. Magstripe 8 digits and 6 digits are available for special request .

The hexadecimal data from the card is first converted to a denary string before transmission. For example, a card containing the hexadecimal data (60ABE67A88) , will be converted to denary and sent as denary 00415200869000(14 digits)

The calculation is performed as follows.

$$(8 * 16^0 + 8 * 16^1 + 10 * 16^2 + 7 * 16^3 + 6 * 16^4 + 14 * 16^5 + 11 * 16^6 + 10 * 16^7 + 0 * 16^8 + 6 * 16^9)$$
$$=415200869000$$

Data Structure (Wiegand Format-26 Bit)

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
P	S	S	S	S	S	S	S	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	P
P	E	E	E	E	E	E	E	E	E	E	E	E													
													O	O	O	O	O	O	O	O	O	O	O	O	P
SUMMED FOR EVEN PARITY (E)													SUMMED FOR ODD PARITY (O)												

Note :
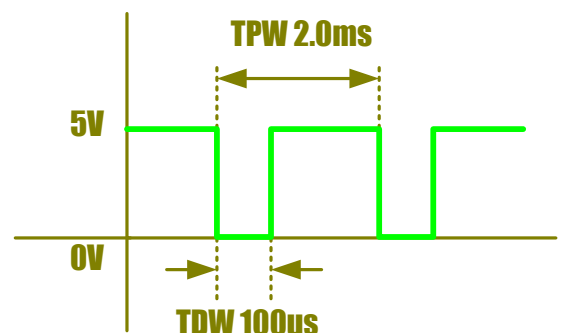P : Parity (Even or Odd) Start Bit and Stop Bit
S : Site Bits from Card or Reader
C : Card Data
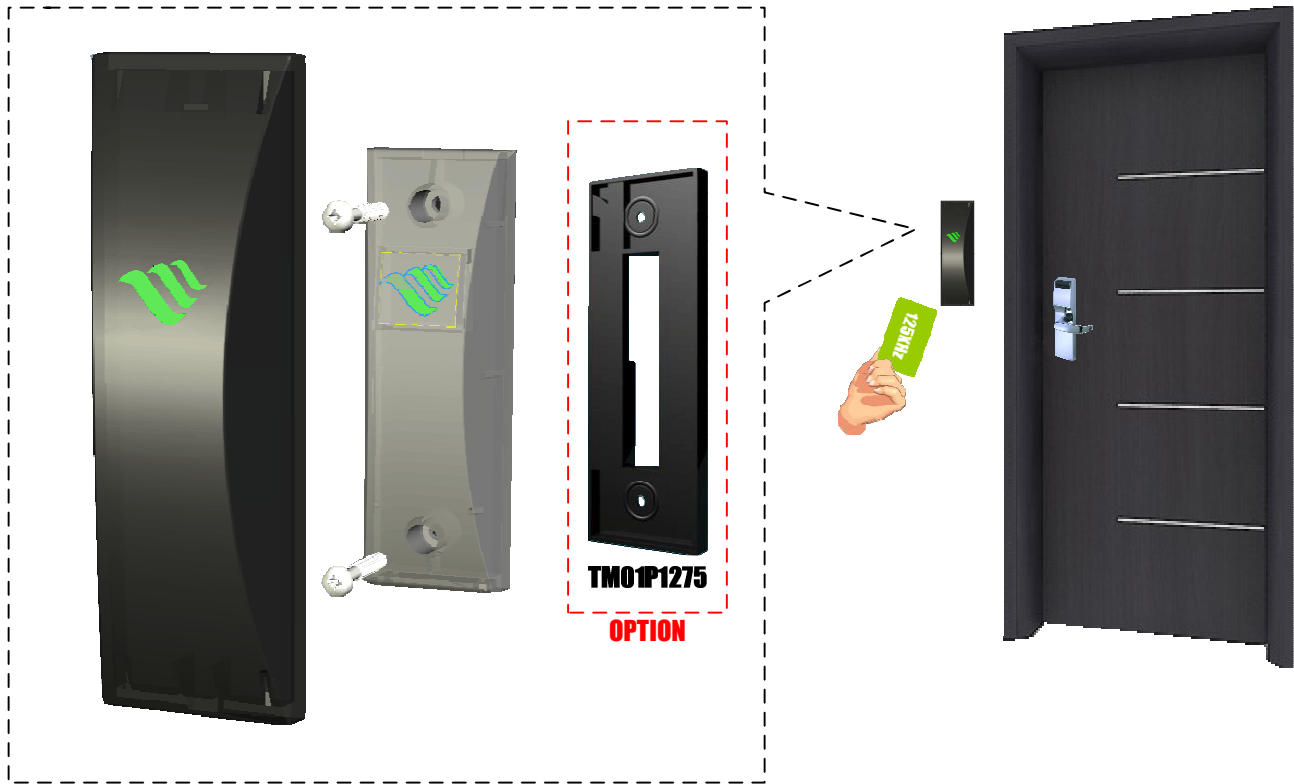Wiegand Data Timing Specification
Pulse Interval (TPW)=2.0mS +/- 5%
Pulse Width   (TDW)=100uS +/- 5%

■ Installation

For the installation, the inner reader requires two screws to be fixed on the proper location next to the entrance. The outer black housing will apply on top of the reader.

TM01P1275

OPTION

Please pay special attention to the below instruction which demonstrates the proper direction that outer housing needs to be applied to inner reader.

TOP

BUTTOM

TOP

BUTTOM

TOP

BUTTOM

Above picture shows the inside of the outer housing.
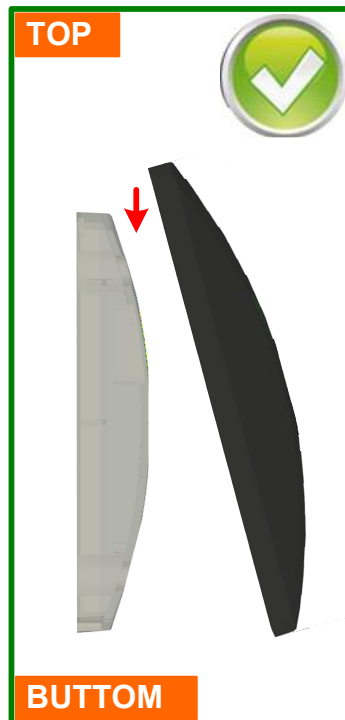
Above picture shows the correct direction (TOP) that outer housing needs to be applied.

CAUTION:

The crossed out wheeled bin label that can be found on your product indicates that this product should not be disposed of via the normal household waste stream.

To prevent possible harm to the environment or human health please separate this product from other waste streams to en-sure that it can be recycled in an environmentally sound manner.

For more details on available collection facilities please contact your local government office or the retailer where you purchased this product.

This information only applies to customers in the European Union.

For other countries, please contact your local government to investigate the possibility of recycling your product.