# Proximity Reader UR110

# Instruction Sheet

TM951264

# Proximity Reader UR110

The UR110 is a very high performance proximity reader featuring medium range and small dimensions. The unit will run from any voltage from 7.5~12 V (DC). The UR110 also features good read range at 7.5 Volts , making it ideally suited to a wide variety of applications, particularly access control.

| | |
|---|---|
| **Power Requirements** | 7.5~12 Volts regulated DC at 75 mA typical with a 12V supply.<br>A linear regulator is recommended . |
| **Interface** | Wiegand , Magstripe ,19.2K Baud Serial ASCII (RS232)<br>Or special to customer specifications . |
| **Typical Maximum Read In ideal conditions** | Range8~9.5 cm at 7.5~12V with EM card. |
| **Frequency** | 125KHz standard |
| **Transponder** | Read Only (For Unique Serial Number / Unique Identifier) |
| **Audio/Visual Indication** | Internal LED and Buzzer |
| **Additional** | Control 2 Digital input and 2 Digital output. |
| **Dimensions** | UR110-00 10 x 3.2 x 1.6 cm<br>UR110-01 8.7 x 3.2x 1.6 cm |
| **Operating Temperature** | -10 to 60 Deg C. |
| **Interface Cable** | 15 cm |

## Output Assignment

| | |
|---|---|
| Red | Power 7.5-12 Volts |
| Black | Power Grand |
| Gray | Digital output1 |
| Blue | Digital output2 |
| Green | RS232 TX (transmit), Magstripe data & Wiegand 0 , with internal 4k7 Pull up (pull up only for Wiegand and Magstripe) |
| White | RS232 RX (receive), Magstripe clock & Wiegand 1 , with internal 4k7 pull up |
| Orange | Card Present Output with internal 4k7 pull up |
| Brown | Digital input1 |
| Purple | Digital input2 |
| Yellow | Program Inout |

## Output Format

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

### Wiegand

| | |
|---|---|
| Red | Power 7.5-12V |
| Black | Ground 0V |
| White | Data 1 |
| Green | Data 0 |
| Yellow | Connect to White |
| Orange | No Connection |

### Magstripe

| | |
|---|---|
| Red | Power 7.5-12V |
| Black | Ground 0V |
| White | Clock (Strobe) |
| Green | Data |
| Orange | Card Present |
| Yellow | Connect to Orange |

### Serial ASCII (RS232)

| | |
|---|---|
| Red | Power 7.5-12V |
| Black | Ground 0V |
| Green | TX Data |
| Yellow | No Connection |
| White | No Connection |
| Orange | No Connection |

## Data Structure (Serial ASCII)

Baud Rate : 19200,N,8,1

| STX(02 HEX) | DATA( 10 HEX CHARACTERS ) | CR | LF | ETX(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 56 IPS (Inch per Second)

| 10 LEADING ZEROS | SS | DATA (12 DIGITS) | ES | LRC | 10 TRAILING ZEROS |
|---|---|---|---|---|---|

The 10 leading zeros prepare the receiving unit to accept the data. The data is 12 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 415200869000(12 digits)

The calculation is performed as follows.

( $2 * 16^0$ + $15 * 16^1$ + $15 * 16^2$ + $9 * 16^3$ + $10 * 16^4$ + $7 * 16^5$ + $7 * 16^6$ + $15 * 16^7$ ) =4152008690

## 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 | S | 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

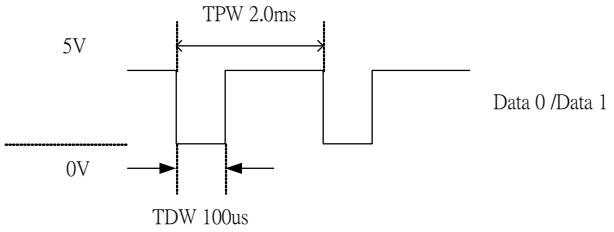
S Site Bits from Card or Reader

C Card Data

Wiegand Data Timing Specification

Pulse Interval (TPW)=2.0mS +/- 3%

Pulse Width (TDW)=100uS +/- 3%




## APPLICATION NOTE

Host to UR110

| STX | 'D' | CR |
|---|---|---|

Host form UR110

| STX | 'A' | ',' | 'UR110' | ',' | CR |
|---|---|---|---|---|---|

Host to UR110

| STX | 'J' | n | CR |
|---|---|---|---|

Host form UR110

| STX | 'A' | CR |
|---|---|---|

| n | Description |
|---|---|
| 5~A | ( Hi~Lo ) Beep - |
| B | D/O1 On |
| C | D/O1 Off |
| D | D/O2 On |
| E | D/O2 Off |