IDRO900MI
USER’S MANUAL

V2.06.29

June 2012

Identification with Radio and Optical

■ Revision history

Version	Revision Date	Revision Page	Revision Description
V2.6.29	2012-06-29		Draft

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1. Introduction & System composition diagram

● Introduction

- The IDRO900MI is a compact size RFID reader module developed for the embedded reader market, which comprises printers, industrial PDA, and similar devices. It provides customers with compact size, low cost, high performance functions. It supports protocols of ISO18000-6C(EPC C1G2), and it interfaces with a host system via UART.

- **Target Application**

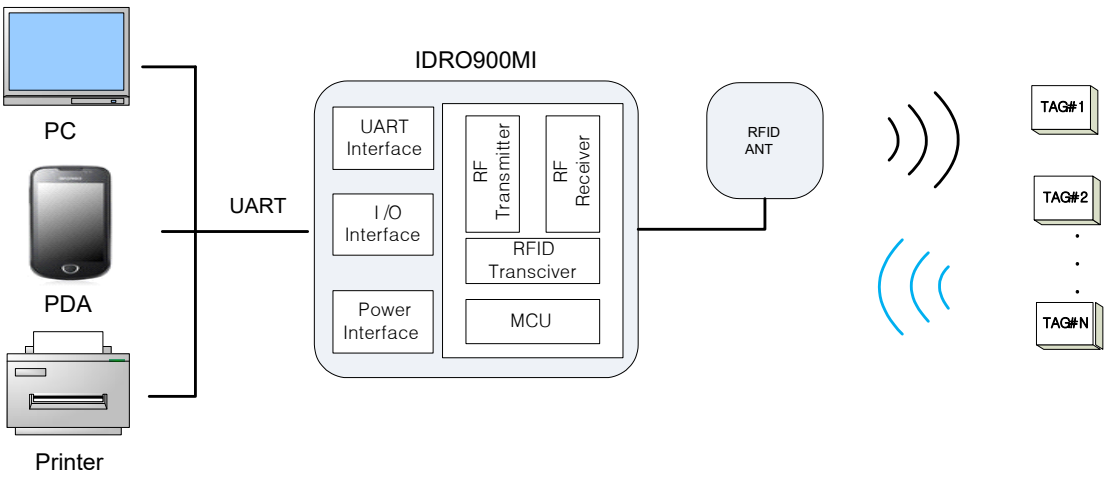
  PDA type RFID Reader

  RFID Printers / Tag Encoders

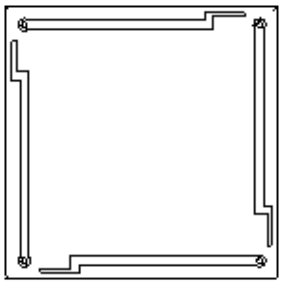
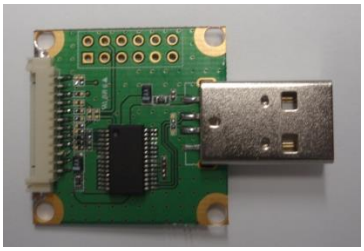
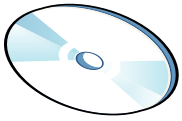
  USB Readers

  Smart-Shelves

● System composition diagram



2. Composition parts

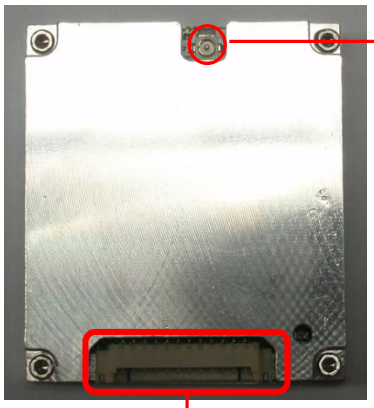
RFID Reader module	
Interface Cable	
ANTENNA (option)	
UART to USB Convertor (option)	
Reader Software & User Document CD-ROM	

3. Reader Description

상태 표시 LED

DATA LED : The Red LED will twinkle when the reader is receiving data from a tag.

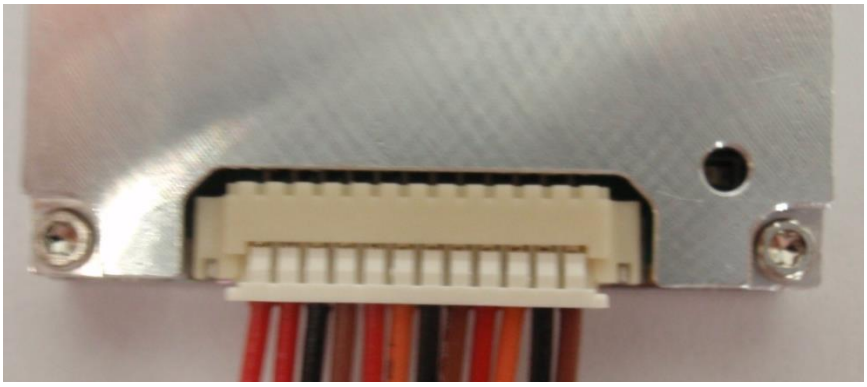
ANT Port



ANT Port : Connect RF Cable to reader module and ANT

Interface connector :
Supply voltage and interface with a host system(PC, PDA…) via UART.

Interface Pin-map



① ⑫

1	VCC (3.8 ~ 4.2V, typ 4V)
2	VCC (3.8 ~ 4.2V, typ 4V)
3	GND
4	GND
5	GND
6	TXD (AT-R2000-S1 →HOST)
7	RXD (AT-R2000-S1← HOST)
8	PWR_ON
9	Not Used
10	Not Used
11	Not Used
12	Not Used

4. Reader Specification

● Reader Performance (KOREA, USA, EUROPE, etc)

Description	Value
MODEL	IDRO900MI
Architecture	UHF RFID Reader Module
Protocol	EPC Gen2(ISO 18000-6C)
Frequency	917.3MHz to 920.3MHz(Korea) 860MHz to 960MHz (Customizable)
Max Tx Power	30dBm±1dBm (1W)
Power control	5dBm to 30dBm (1dB step)
Hopping Channels	6 (Korea), 50(USA), 4(EUROPE)
Channel Spacing	600KHz (Korea, EUROPE), 500KHz(USA)
Channel Dwell time	< 0.4 seconds
Modulation Method	PR-ASK
Supply voltage	3.8 ~ 4.2V (typ. : 4V)
Max Current (max. power)	< 1.4A
Tag Read Distance(Max.)	<10m
Operating Temperature	-10℃ to +50℃
LED Indicators	Data
Signaling	UART, Baud rate(115200bps)

● Interface

Host connector	Part No. : 12505WR-12 Manufacturer : Yeonho Electronics
ANT Connector	Part No. : CMJ-S00 Manufacturer : Giga Lane

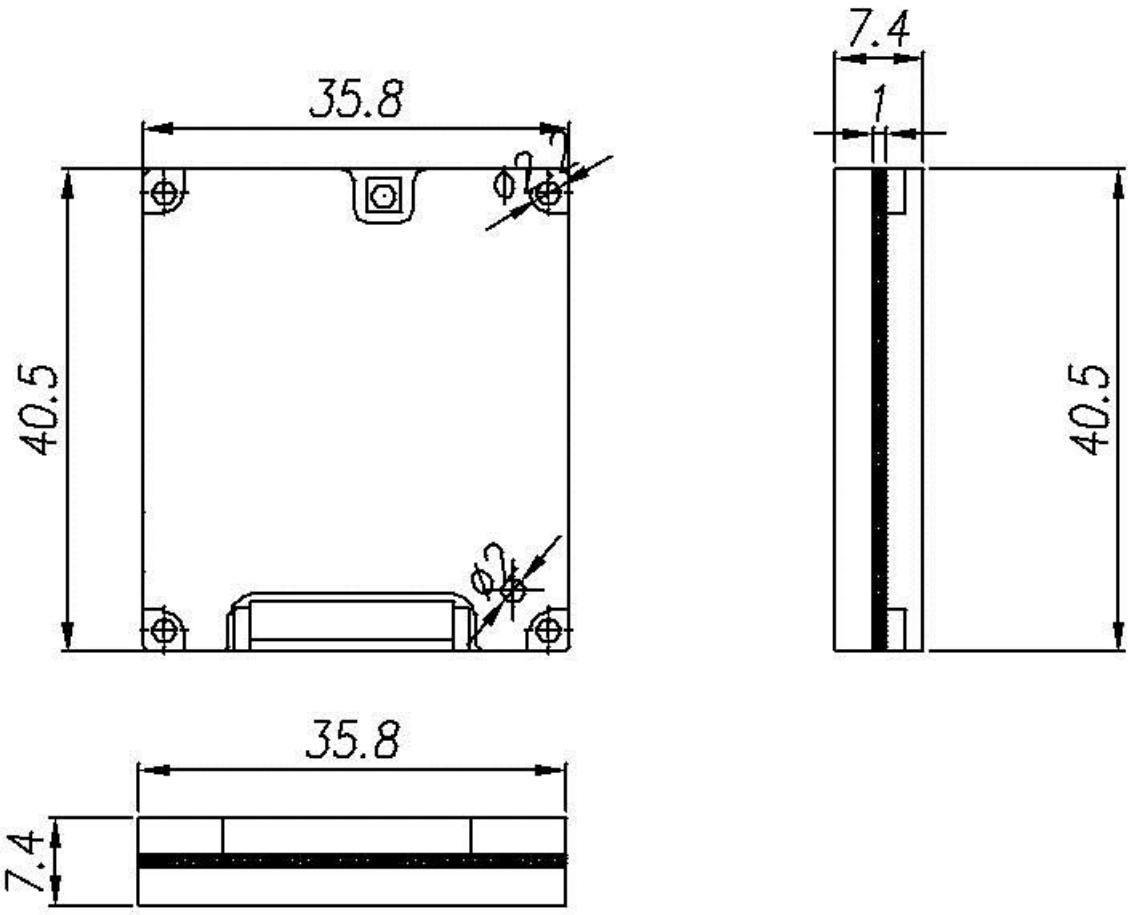
● Physical Dimension

SIZE	36mm × 41mm × 8mm
Weight	16g

● Channel number & Frequency table

CHANNEL NO.	KOREA	USA	EUROPE	CHANNEL NO.	KOREA	USA	EUROPE
0	917.3	902.75	865.7	25		915.25	
1	917.9	903.25	866.3	26		915.75	
2	918.5	903.75	866.9	27		916.25	
3	919.1	904.25	867.5	28		916.75	
4	919.7	904.75		29		917.25	
5	920.3	905.25		30		917.75	
6		905.75		31		918.25	
7		906.25		32		918.75	
8		906.75		33		919.25	
9		907.25		34		919.75	
10		907.75		35		920.25	
11		908.25		36		920.75	
12		908.75		37		921.25	
13		909.25		38		921.75	
14		909.75		39		922.25	
15		910.25		40		922.75	
16		910.75		41		923.25	
17		911.25		42		923.75	
18		911.75		43		924.25	
19		912.25		44		924.75	
20		912.75		45		925.25	
21		913.25		46		925.75	
22		913.75		47		926.25	
23		914.25		48		926.75	
24		914.75		49		927.25	

● Mechanical Dimension



5. How to Run IDRO900MI Sample Program

1. Windows XP/7

1.1 File name :

Reader@Express V3.2.24.zip

1.2 Simple use :

0. **Add bluetooth device (Reader), and confirm relevant communication port in device manager.**

1. Decompress the file. Execute reader@express.exe.
2. **Designate communication port → Select from combo box located at top upper left side.**
3. **Click [OPEN] button** → It is right below the combo box located at upper left side
4. If it is normally connected

   "RFID_OPEN() = 0 OK" is displayed in list box.
5. **If you click [INVENTORY MULTIPLE] button then it starts to read tag (Inventory).**

   If tag is recognized,

   Tag ID is displayed in list box → the latest one will be displayed at the most top.

   Total number of readers is displayed → It is displayed at just upper left side of list box in small size.

   Number of tags is displayed → It is displayed at just upper right side of list box in large size.
6. **If you click [StopOperation] button then it stops to read tag (Inventory).**

1.3 Notes :

Use it by setting POWER value as below 27 in upper combo box.

2. Android

2.1 File name :

AndroidSample.zip

2.2 Simple use :

It is SDK sample program for developers therefore it is not registered in the market.
You can directly install it in PC in following method.

1. Prepare Android phone and relevant data communication cable.
2. Download USB driver of relevant phone from Android phone manufacturer's homepage and install it in your PC.
3. Connect the phone to PC using data communication cable.

   At this time, relevant drivers can be additionally installed through internet.
4. Execute command prompt (cmd.exe), and move to decompressed folder.
5. If you input as follows and execute it then it will be installed.

   adb install -r ReaderApiBlueDemo.apk

You can connect with bluetooth reader in following method.

1. **If you select [Search] in [Option menu],**
   then the window to select bluetooth device appears.
   Already paired devices are appeared on upper part.
   Because you must search new device therefore click [Scan for devices]
   Select the device name "Blue Angel" among searched devices at the lower part.
2. Only when you connect first time,
   Pairing process is progressed – PIN number is "0000".
   In most cases, it is connected normally after pairing.
3. Sometimes, it is not connected after pairing,
   [Option menu]→[Search]→Select "Blue angel" in paired devices.

If you click [Inventory] button then it starts to read tag (Inventory).

If tag is recognized

Tag ID is displayed in list box → you can find the latest one on first top.

If you click [StopOperation] button then it stops to read tag (Inventory).

Hereby, IDRO co., Ltd Declares that this IDRO900MI is in compliance with the essential requirements and other relevant provisions of directive 1999/5/EC.

FCC Information to User

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.

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:
(1) the device may not cause interference, and
(2) the device must accept any interference, including interference that may cause undesired operation of this device.

Caution : Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

This equipment should be installed and operated with minimum 20 cm between the radiator and your body.