User Manual

KPC,Inc.

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THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS. (1)THE DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE AND (2)THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

ALSO, TO PREVENT INTERFERENCE TO FEDERAL GOVERNMENT READER SYSTEMS, OPERATION GOVERNMENT RADAR SYSTEMS, OPERATION UNDER THE PROVISIONS OF THIS SECTION IS NOT PERMITTED WITHIN 40 KILOMETERS OF THE FOLLOWING LOCATIONS:

DoD Radar Site	Latitude	Longitude
Beale Air Force Base	39° 08′ 10″ N	121° 21′ 04″ W
Cape Cod Air Force Station	41° 45′ 07″ N	070° 32′ 17″ W
Clear Air Force Station	64° 55′ 16″ N	143° 05′ 02″ W
Cavalier Air Force Station	48° 43′ 12″ N	097° 54′ 00″ W
Eglin Air Force Base	30° 43′ 12″ N	086° 12′ 36″ W

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.

The user of the device shall be responsible for submitting updated information in the event the operating location or other information changes after the initial registration by the grantee. The information provided by the grantee or user to the Commission shall include the name, address, telephone number and e-mail address of the user, the address and geographic coordinates of the operating location, and the FCC identification number of the device. The material shall be submitted to the following address:

Experimental Licensing Branch,
OET, Federal Communications Commission,
445 12th Street, SW., Washington,
DC 20554, ATTN: RFID Registration.

Professional installation is required. Installers are responsible for ensuring that the proper antenna is used as described in the FCC filing.

1. Summary

A) The RFID system for containers is composed of an “Active RFID Tag“ and a “Reader“, and the communication between the tag and reader follows a Master-Slave model.

B) Containers are embedded with 433.92Mhz RFID tag, and the reader, if necessary, gives a wake-up signal, activates the RFID tag, so that it can obtain container-related information.

C) The reader works according to the order of middleware or a terminal(or a computer). The communication air protocol between the reader and the tag follows ISO/IEC 18000-7.

D) By using a RFID tag system, the recognition rate and recognition distance for containers is greatly improved, so that it can lay the foundation for the job automation of gate, CY storage, and shipment.

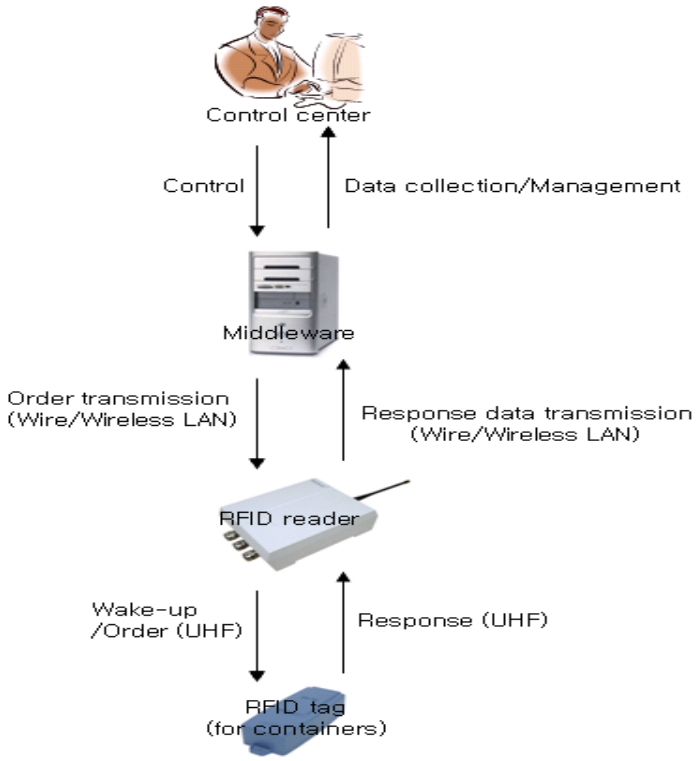
E) By making the best use of wireless/network technology, this system can be flexibly applied regardless of container’s movement of position

2. Composition

2.1 Deceives Composition

No.	Model Name	Type	Remarks
1	RFID Tag	433.92MHz active tag	KT901
2	RFID Reader	Fixed type	KR951

2.2 System Composition



2.3 Dimension

Section	Contents
 KT900 (KPC Tag 901)	≫Dimension: 15.8cm*4.3cm*3.2 cm
 KR950 (KPC Reader 951)	≫Dimension: 21.0cm*16.6cm*6.75cm

3. Specification of the System

3.1 RFID Tag

Tag Name	KT901
UHF	Transceiver
Frequency	433.92Mhz
Modulation	FSK
Range	100m
Power	3.6mW
LF(option)	Receiver
Frequency	125Khz
Range	4m(max)
Tag Wake-up	LF or UHF
Air Protocol	ISO/IEC 18000-7
Case Material	PC(Polycarbonate)/GLASS
Memory	
Tag ID	4bytes(RO)
User ID	16bytes(RW)
User Memory	64Kbytes
Beacon	yes
Range(unobstructed)	~100m
Battery	
Type	Non-replaceable, Non-rechargeable
Volts/Material	3.6V/Lithium
Life	3years(5 read events/day)
Re-Usable	yes
Temperature	Operation: -30 to +60
	Storage: -30 to +60
Humidity	100% Condensing
Approval	MIC

3.2 RFID Reader

Reader Name	KR951
Case Material	PC(Polycarbonate)/PBT(Polybuthylene Terephalate)
Environmental Temperature	Operating: -10 to +50
	Storage: -10 to +50
Humidity	95% Condensing
RF Frequency(Transceiver)	433.92Mhz
Range	100m
Modulation	FSK, deviation 35Khz for receiver, 50Khz for transmit
Sensitivity	95 dBM
IF Frequency	307.2Khz
Data Rate	27.8Kbps
Air Protocol	ISO/IEC 18000-7
RFID Tag Compatibility	All KPC RFID Tags
Network Interface	Ethernet, RS485, RS232, Wireless LAN
Upgrades	Supports firmware downloads
Diagnostics	Supports remote reader performance status reports
DC Source	7.5VDC
Type Approval	MIC
Other Mounting	Mounting Kit

4. Function of the System

□ The communication protocol and operation between the reader and the tag follows ISO/IEC 18000-7.

5. Installation of the System

□ Installation of the system(Container tag and Reader) follows ISO 10374.2

6. System Operation and Tests

□ Basic Operation

A reader(KR951) communicates with a server(or middleware) over TCP/IP, and communicates with a tag(KT901) over RF. Orders sent via a server(or middleware) are transmitted to the reader(KR951), witch gives a wake-up signal, send the orders to the tag(KT901), receives the response data from the tag(KT901), and finally transmits them to the server(or middleware).

□ Test Modes

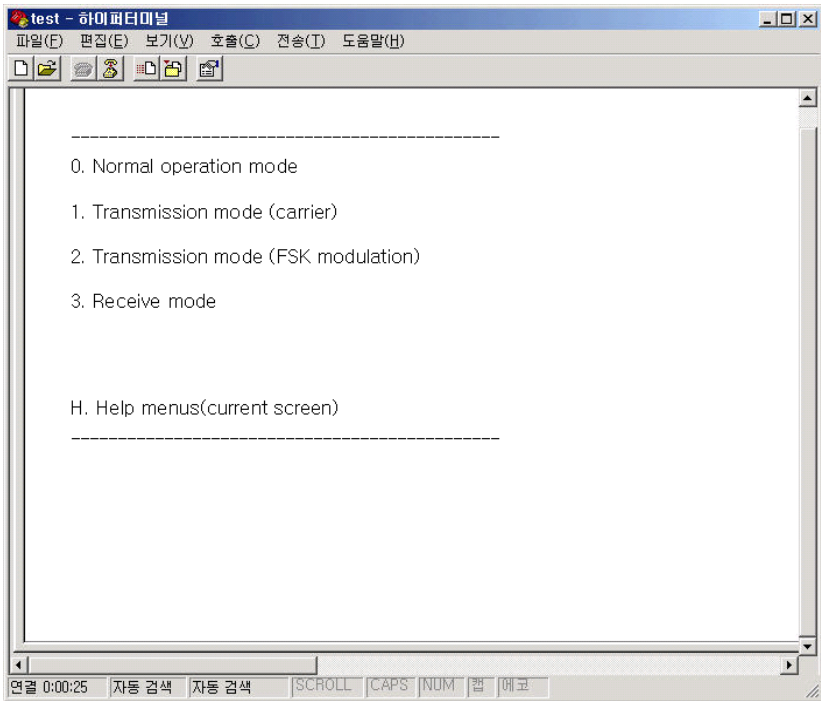
The reader provides the following test modes.

1. Carrier transmission
2. Modulated signal transmission
3. Waiting to receive
4. Normal operation(basic operation)

The test modes can be performed by linking a cable to th serial terminal of a PC and a reader

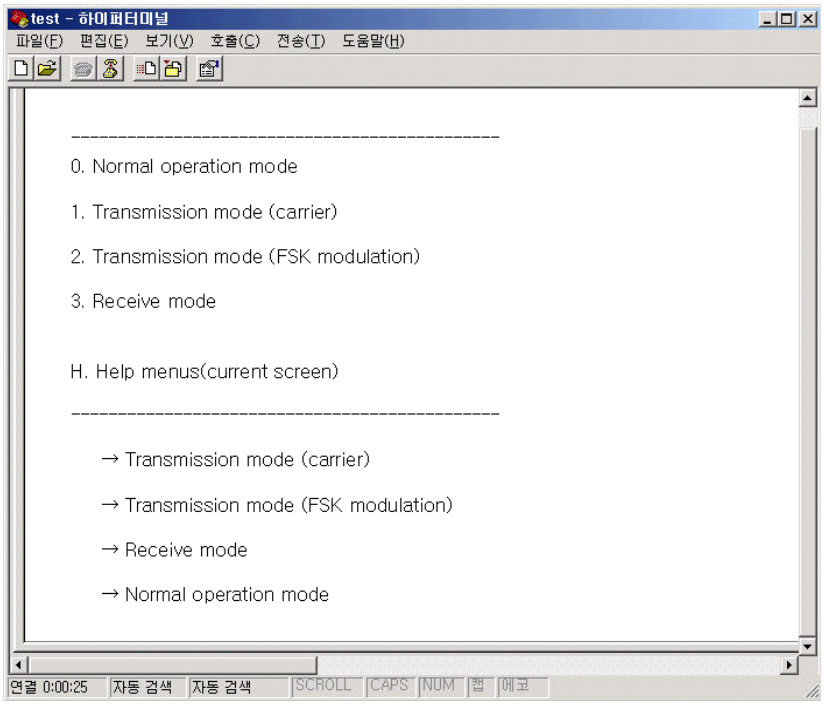
* Serial
  - Buad Rate : 115200bps
  - Flow Control : NO
  - Data Bit : 8 bit
  - Parity : NO
  - Stop Bit : 1 bit

After linking a cable to the serial terminal and alignment, push the keyboard “H“(or “h“), and then the following menus come out.



* Help menus screen

As illustrated in the above help menu screen, push the corresponding key to see what you want.



* Menu Selection