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MANUAL

- KT902
- February 1, 2008
- Version 1.2

KPC, INC.

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1. Summary

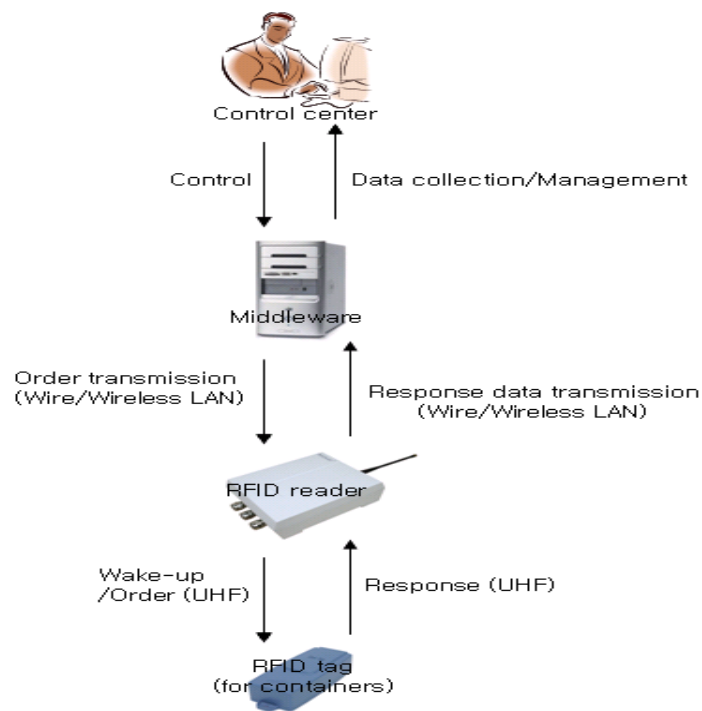
- A) The RFID system for containers is composed of an "Active RFID Tag" and a "Reader", and the communication between the tag and reader follows a Master-Slave model.
- B) Containers are embedded with 433.92Mhz RFID tag, and the reader, if necessary, gives a wake-up signal, activates the RFID tag, so 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 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 (wake-up, 7.5*4.5*3.0 cm)	KT902

2.2 System Composition



2.3 Dimension

Section	Contents
KT902 (KPC Tag 902)	≫Dimension: 7.5cm*4.5cm*3.0 cm

3. Specification of the System

Tag Name	KT902
UHF	Transceiver
Frequency	433.92Mhz
Modulation	FSK
Range	100m
Power	3.6mW
Tag Wake-up	UHF
Air Protocol	ISO/IEC 18000-7
Standards	ISO/IEC 18000-7
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: -10 to +50
	Storage: -10 to +50
Humidity	100% Condensing
Approval	MIC

4. Function of the System

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

5. Requirements of the System

Section	Description	Remark
GPS	Be capable of keeping GPS data on a regular basis	When receiving an order from reader. It sends its position data to the reader(capable of sending 10 logs)
Battery check	In case that the battery remains within 20% of its total power source. It sounds the alarm.	When receiving a wake-up signal. It sends the alarm
Read/Write Memory	At any time, users can read and write the data in a specified memory.	
Log storage	Tag: Keeps 10 logs	Tag: GPS location, Reader ID, Time of read/write memory
Encoding of data communication	Encoding for data security	Use of T-DES
Tolerance	Be, tolerant of saltiness, humidity, impact, and temperature	
Self-examination	Self-examination its hardware and software on a regular basis	It sounds the alarm, and also has the function of restoration

6. Installation of the System

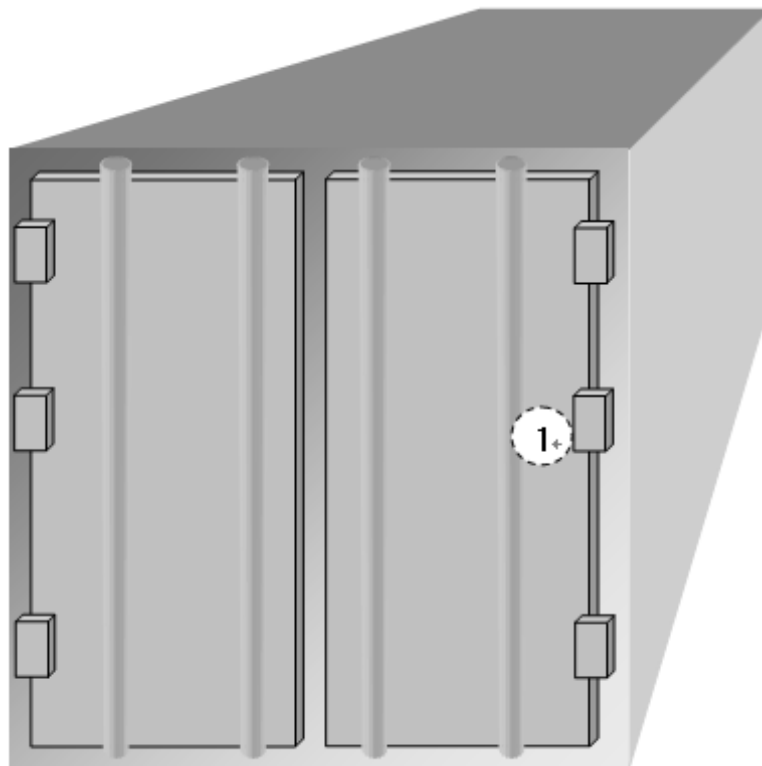
☐ Container tag(KT902) attachment position

* Considering the ISO standard, a tag is attached above the door at the right side in the rear of a container.

* The tag is attached at a little higher place than its middle.

*Taking into consideration the friction that can take place during transportation or stevedore, the tag is attached in the concave place of a container.

* As illustrated in the below picture, it is to be placed at a little higher place than #1



7. System Operation

☐ Basic Operation

A reader(KR951) communicates with a server(or middleware) over TCP/IP, and communicates with a tag(KT902) over RF. Orders sent via a server(or middleware) are transmitted to the reader(KR951), which gives a wake-up signal, send the orders to the tag(KT902), receives the response data from the tag(KT902), and finally transmits them to the server(or middleware).

8. Operation Area

To prevent interference to Federal Government radar systems, operation under the provisions of this section is not permitted within 40 kilometers of the following location:

DoD Radar Site	Latitude	Longitude
Beale Air Force Base	39°08'10"N	120°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

Warning : Changes or modifications not expressly approved by KPC,inc.

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. 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:

Federal Communications Commission
 445 12th Street, S.W.
 Washington, D.C. 20554
 ATTN: RFID Registration

FCC Compliance Statement

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 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.