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	Subject(제목) A230 User's Manual		Version(이력) Rev	Date(작성일) 2009.10.28
Part No(품번) A230	Name of Product(제품명) SMART KEY READER	Prepared(작성) JJI	Reviewed(검토) -	Approved(승인)

<Revision History>

Rev	Date	Page	Before Change	After Change	Composi -tion	Approval
	2009.10.28		First Release			


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1. Synopsis

This document is specifically-written manual for SMART KEY READER which is receiver and transmitter of wireless communication, which is to confirm user identifications under engine-start limiting function in heavy equipments.

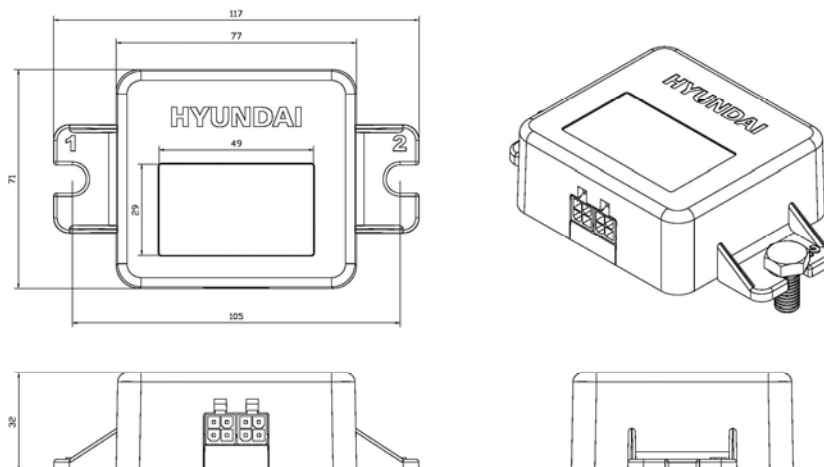
SMART KEY READER is defined as followings; SMART KEY READER transmits a signal pattern by RFID 125 KHz in order to wake up SMK TAG. And then SMART KEY READER communicates with SMK TAG by 2.4 GHz Zigbee wireless signal. SMART KEY READER decodes password-secured signals and transfer identification information to certification device which has a function of engine-start limiting, such as Cluster, MCU or ECU, with using CAN protocol

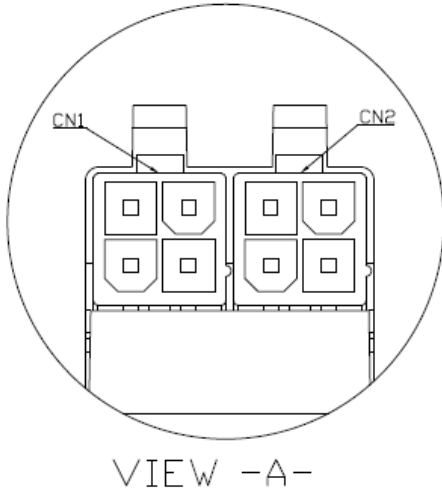
2. Product Image

1) External Appearance



2) Dimension

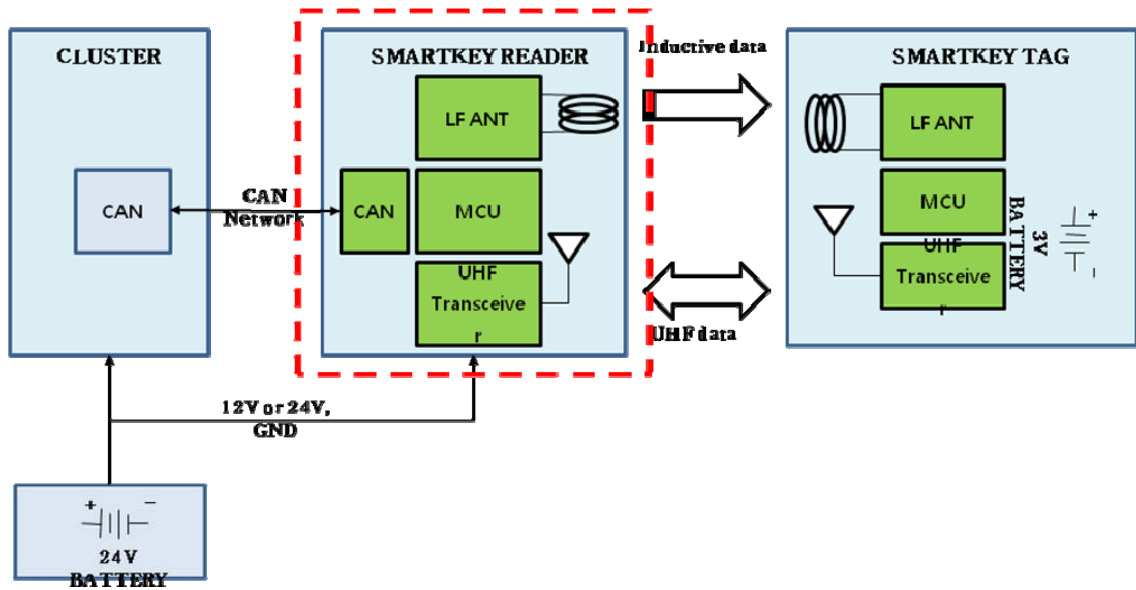




구분	NO.	NAME	신호
CN1	1	IG	12Vdc / 24Vdc
	2	GND	-
CN2	3	CAN	HI
	4	CAN	LOW

CONNECTOR SPEC.
 - No: MOLEX-39300040


3. Block Diagram



4. Specification

4.1. Operating Specification

- . Must transmit a signal of RFID 125 KHz as a wake up pattern signal.
- . Must be activated from 12 Vdc/24 Vdc external voltage supply.
- . Must be able to analyze the password-secured signal.
- . Must have Zigbee band of 2400 to 2483.5MHz.

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4.2. Power Specification

- Rated Voltage: 12V(Max 30mA) / 24V (Max 20mA) both available

4.3. General Specification

- Storage Temperature: -40°C ~ 85°C
- Operating Temperature: -30°C ~ 75°C
- Water-Proof Specification: IP00
- Communication with equipment: CA N2.0 250Kbps (*It is recommended to use twisted shield cable and should be connected through a short distance as possible.)
- Material of Device: PC
(Substance : 943AR, Flame Class : V0, Manufacturer : SABIC Innovative Plastics)
- PCB Material

object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity ¹⁾
SMK READER B/D PCB	WOOMYUNG ELEC CO	SKD	V-0 ; 105 °C	UL 796	UL
SMK READER POWER B/D PCB	JAE IN CIRCUIT CO LTD	JID1	V-0 ; 130 °C	UL796	

4.4 RF Specification

Item		Specification
Wireless Data Communication System	Frequency	2405 ~ 2480MHz (16 Channels)
	RF Power	Under 10mW
	Modulation Method	QPSK
	Tested Temperature	-20 ~ 50°C
Magnetic Induction System	Frequency	125KHz (Single Channel)
	RF Power	Under 42 dB μ A/m @ 10 meter
	Modulation Method	ASK



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EC Declaration of Conformity

Manufacturer KYUNGWOO SYSTECH INC.

Address 229-10, Beon-dong, Gangbuk-gu, Seoul 142-705, South Korea

Declares that the following product

Product Name: SMART KEY READER

Model Number: A230

conforms to the technical regulations applicable to the product within the scope of Directives 2006/95/EC (LVD), 2004/108/EC (EMC), and 1999/5/EC (R&TTE):

Article 3.1(a) **Health** EN 50364:2001, EN 50371:2002

Article 3.1(a) **Safety** EN 60950-1:2001+A11:2004

Article 3.1(b) **EMC** EN 301 489-1 V1.8.1 (2008-04)
EN 301 489-3 V1.4.1 (2002-08)
EN 301 489-17 V1.3.2 (2008-04)

Article 3.2 **Radio** EN 300 330-1 V1.5.1 (2006-04)
EN 300 330-2 V1.3.1 (2006-04)
EN 300 328 V1.7.1 (2006-10)

All essential radio test suites have been carried out. The relevant technical file is available for inspection.

Notified Body UNDERWRITERS LABORATORIES(UL)
Pfungston Rd.333
60062 Northbrook. IL
United States
EU Identification Number: 0983


CE 0983

This declaration is issued under the sole responsibility of the manufacture and, if applicable, his authorized representative.

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(Name, telephone and fax number)

South Korea, December 3, 2009
(Place, date of issue)

(Signature)
Jeon, Jae-il
R&D Team / Research Engineer
(Name and title in block letters)

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FCC Compliance Statement

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

NOTE: 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.

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To comply with RF exposure compliance requirements, the antenna used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.