

2018.12.26

Prepared(작성)	Reviewed(검토)	Approved(승인)
Bae wonsik		

## Revision History

Rev.	날짜	수정 내용	담당
1.0	2018.12.26	First Release	Bae wonsik

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### **Revision History**

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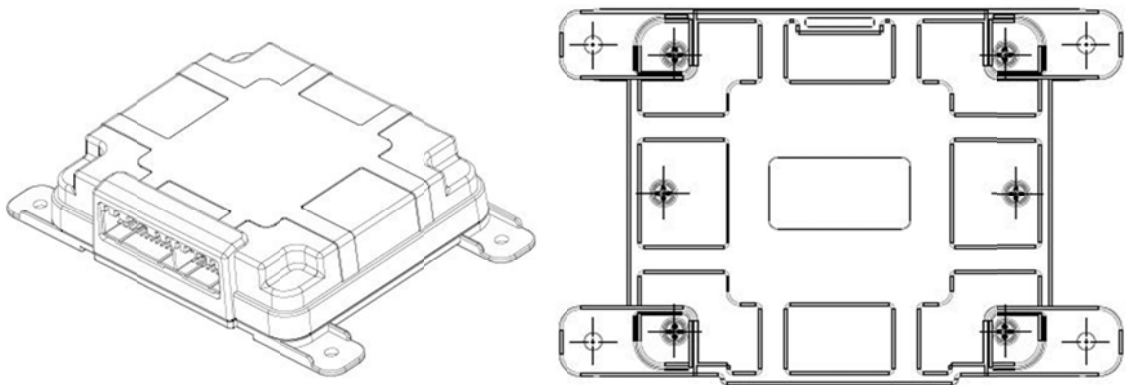
## 1. Synopsis

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

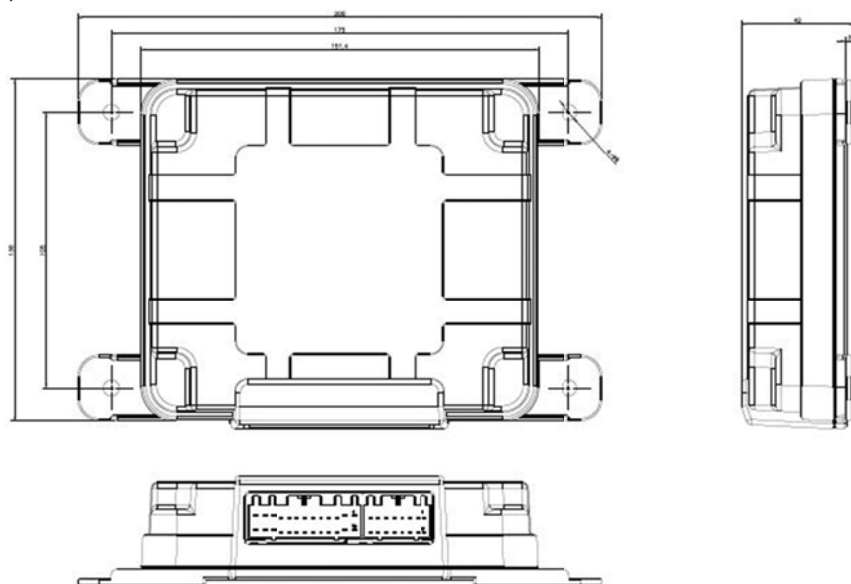
SMART KEY CONTROLLER is defined as followings; SMART KEY CONTROLLER transmits a signal pattern by RFID 133 kHz in order to wake up SMK FOB. And then SMART KEY CONTROLLER communicates with SMK FOB by 433.92 MHz wireless signal. SMART KEY CONTROLLER decodes password-secured signals and transfer identification information to certification device which has a function of engine-start limiting, such as Cluster, MCU or ECU, with using CAN protocol

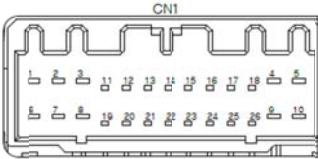
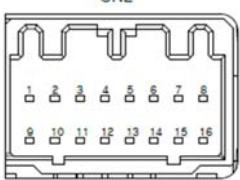
## 2. Product Image

### 1) External Appearance



### 2) Dimension



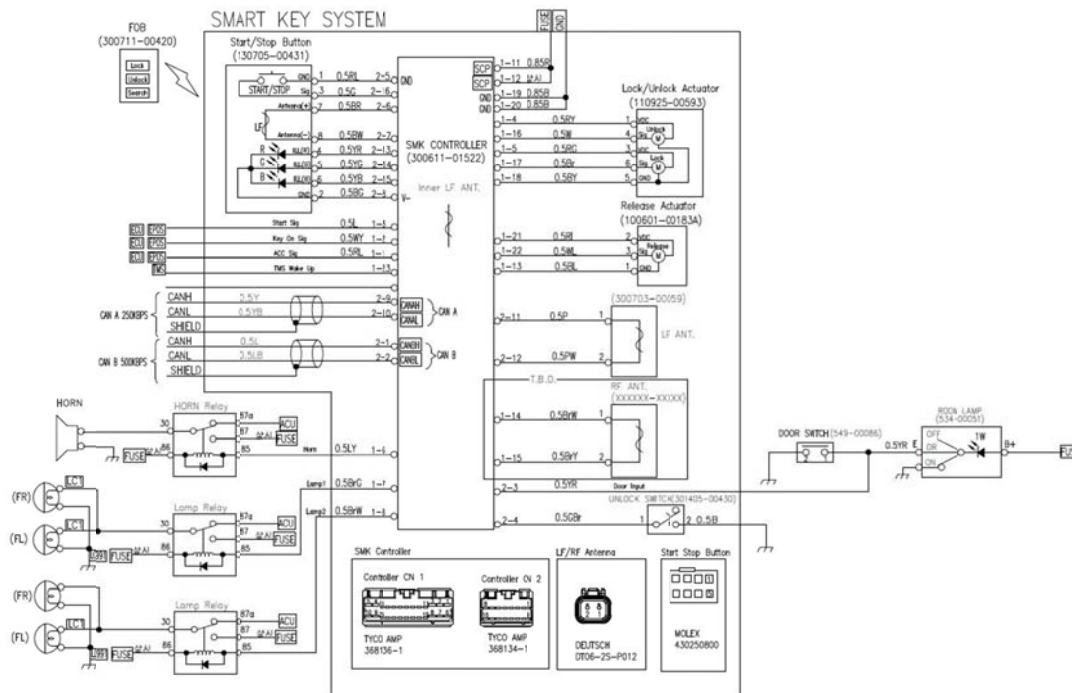
	PIN	Controller Manual	
CN1 (26-pin)	1	ACC output	 <p>MATE : TYCO AMP 368136-1</p>
	2	Key-ON output	
	3	START SIG. output	
	4	Lock Actuator (+)	
	5	Unlock Actuator (-)	
	6	HORN RELAY	
	7	LAMP 1 RELAY	
	8	LAMP 2 RELAY	
	9	N/A	
	10	N/A	
	11	Controller 상시전원 (12/24V) (+)	
	12	Controller 상시전원 (12/24V) (+)	
	13	Release Actuator 전원 (-)	
	14	N/A	
	15	N/A	
	16	N/A	
	17	N/A	
	18	Actuator signal Com.	
	19	Controller 상시전원 (12/24V) (-)	
	20	Controller 상시전원 (12/24V) (-)	
	21	Release Actuator 전원 (+)	
	22	Release Actuator signal	
	23	Wake-up port (From TMS)	
	24	N/A	
	25	N/A	
	26	N/A	
CN2 (16-pin)	1	HS CAN	 <p>MATE : TYCO AMP 368134-1</p>
	2	HS CAN L	
	3	In DOOR SIGNAL	
	4	DOOR UNLOCK SWITCH SIGNAL	
	5	Button 전원 (-)	
	6	Button LF (+)	
	7	Button LF (-)	

8	Button 전원 (-)
9	CAN H
10	CAN L
11	DOOR ANT (+)
12	DOOR ANT (-)
13	Red Backlight Signal
14	Green Backlight Signal
15	Blue Backlight Signal
16	BUTTON SIG.

### 3) Certification LABEL location



### 3. Block Diagram



### 4. Specification

#### 4.1. Operating Specification

- Must transmit a signal of RFID 133 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 be able to use Single channels band of 433.92 MHz.

#### 4.2. Power Specification

- Rated Voltage: 12V $\overline{\text{DC}}$  (Max 180 mA) / 24V $\overline{\text{DC}}$  (Max 90 mA) both available

#### 4.3. General Specification


- Storage Temperature: -40 °C ~ 85 °C
- Operating Temperature: -30 °C ~ 75 °C
- Water-Proof Specification: IP65 (Connector Face : None Water-proof)
- Communication with equipment: CAN2.0 250 Kbps/500 Kbps

(\*It is recommended to use twist shield cable and should be connected through a short distance as possible.)

- Material of Device: PC&ABS

(Substance : LUPOY GN-5001RF BLACK, Flame Class : V0, Manufacturer : LG CHEMICAL)

-. PCB Material





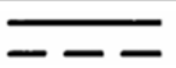
object/part No.	manufacturer/ trademark	Layer /Thickness	Flame Class	standard	mark(s) of conformity
SMK-DWS Controller	JM ELECTRONICS CO LTD	4Layer /1.6T	V-0	UL 796	JM 

#### 4.4 RF Specification

Item		Specification
<b>Wireless Data Communication System</b>	<b>Frequency Range</b>	433.050 MHz ~ 434.790 MHz
	<b>Operating Frequency</b>	433.92 MHz (Single Channel)
	<b>RF Power</b>	Under 1 mW
	<b>Modulation Method</b>	GFSK
<b>Magnetic Induction System</b>	<b>Operating Frequency</b>	133 KHz (Single Channel)
	<b>RF Power</b>	FCC: Under 105 dBμV/m @ 3 meter CE: Under 64 dBμA/m @ 10 meter
	<b>Modulation Method</b>	ASK



#### 4.5. Product label Explanation of graphic symbols used

Symbol	Description
	Korea Certification Marking
	Communaute Europeenne Marking
	Electrical waste and electronics equipment
	Federal Communication Commision Marking
	Direct current

#### 5. Postal address:

Kyungwoo Systech, Inc. Office: +82-2-985-8085

#401, Daeryung Post Tower 5, 68, Digital-ro 9, Geumcheon-gu, Seoul, South Korea

Zip Code: 08512,, E-mail: [Webmaster@kyungwoo.com](mailto:Webmaster@kyungwoo.com)

#### 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.

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

#### 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.

#### RED Compliance Statement

This product is CE marked according to the provision of the RED (2014/53/EU). Hereby Kyungwoo Systech, Inc. declares that this product is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU