

INFORMATION DOCUMENT NO. SCE-0512

RELATING TO FCC/IC APPROVAL
AS SEPARATE TECHNICAL UNIT
OF VEHICLE RF REMOTE KEYLESS ENTRY

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Information Document	(5 sheets: including this sheet)
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Shinchang Electrics Co.,Ltd.

- 01.Dec. 2005 -

1. GENERAL

1.1. Make

SHINCHANG ELECTRICS Co., Ltd.

1.2. Name and address of manufacturer

SHINCHANG ELECTRICS CO., LTD.

734-2, Wonshi-dong, Ansan-si, Gyungki-do, Korea.

1.3. Model NO.

REMOTE KEYLESS ENTRY SYSTEM FOR VEHICLE

- TRANSMITTER : SAKS-01Tx

- RECEIVER : SAKS-02Rx

1.4. Address of assembly plant

SHINCHANG ELECTRICS CO., LTD.

734-2, Wonshi-dong, Ansan-si, Gyungki-do, Korea.

2. PRODUCT SPECIFICATION

2.1 SCOPE

2.1.1 KEY PART : TRANSMITTER is inside of the FOLDING KEY, and it sends the ROLLING CODE to the RECEIVER by Radio Frequency.

2.1.2 RECEIVER : It receives the ROLLING CODE and decodes that, and sends the DATA to ATAS.

*ETACS : Electronic Time & Alarm Control System.

2.2 SPECIFICATIONS

2.2.1 TRANSMITTER

ITEM	SPECIFICATION
RATED SUPPLY VOLTAGE	DC 3V
OPERATING VOLTAGE RANGE	DC 2.5 ~ 3.2V
OPERATING TEMPERATURE RANGE	-20 ~+60℃
STORAGE TEMPERATURE RANGE	-30 ~ 85℃
Modulation	AM
Frequency	315MHz
Code	Rolling Code(Hopping Algorithm)
Electric field strength	- 28 ±5dBm (433.92MHz)
SPURIOUS RADIATION	-36dBm (MAX)
BATTERY LIFE	2 YEAR(Lithium 3V 1EA)

2.2.2 RECEIVER

ITEM	SPECIFICATION
Rated Supply Voltage	DC 12V
Operating Voltage	DC 9 ~ 16V
Operating Temperature	- 30 ~ + 80℃
Storage Temperature	- 40 ~ + 85℃
StandBy Current	3.5mA (max)
Sensitibility	Min -98dBm

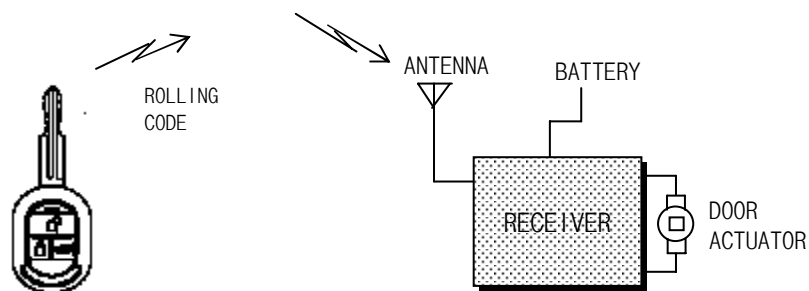
3. USER MANUAL

3.1 NAME : REMOTE KEYLESS ENTRY SYSTEM

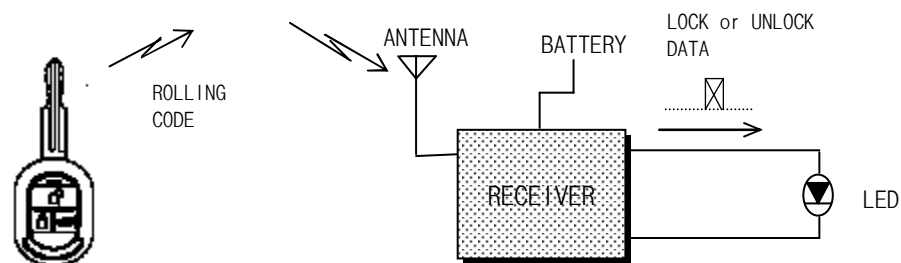
- This system is ATAS and includes RKE.
 - RKE in ATAS system is intended for auto door lock or unlock in vehicle.
 - This ATAS system is to be installed on motor vehicles as *OE item.
- *OE : Original Equipment.
 *ATAS : Anti Theft Alarm System.
 *RKE : Remote Keyless Entry.

3.2 SYSTEMS CONSTRUCTION

SYSTEM IN VEHICLE



SYSTEM FOR TEST



* Through the use of LED, operating state is displayed by LED.
 LED 'ON' means that DATA is sent to the ATAS.

3.3 OPERATING SUMMARY

- ① TRANSMITTER's button is pushed.
- ② TRANSMITTER sends the code by radio frequency.
- ③ RECEIVER gets the code and decodes it.
- ④ Receiver judges the code whether it is right code or not.
- ⑤ Receiver checks door lock or unlock state.
- ⑥ Receiver drives the actuator.

3.3.1 LOCK & UNLOCK

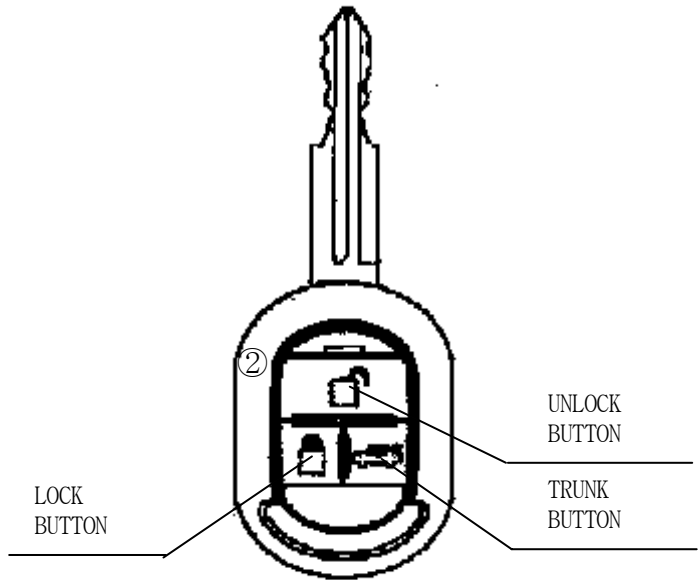
If LOCK or UNLOCK button is pushed for less than 1 sec, then TRANSMITTER sends the LOCK or UNLOCK DATA.

3.3.2 TRUNK OPEN

If TRUNK button is pushed for more than 0.6 sec, then TRANSMITTER sends the 'TRUNK OPEN' DATA

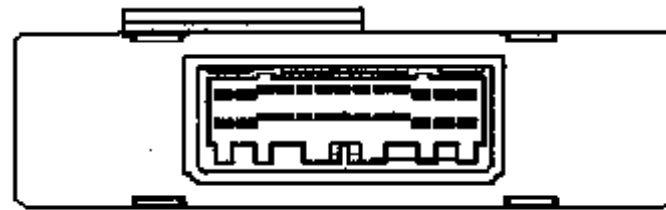
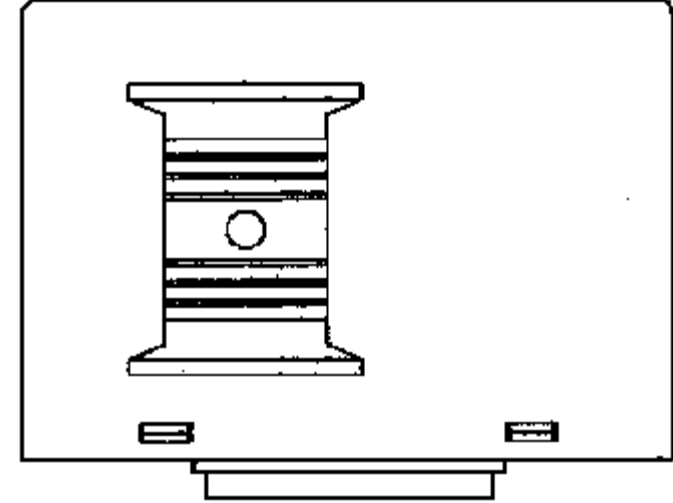
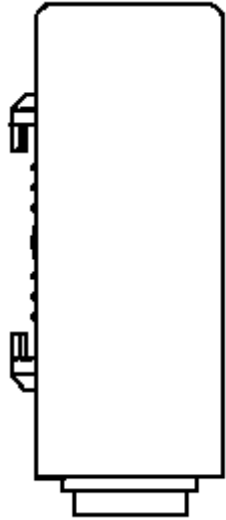
NO.	PART NAME	Q'TY	REMARKS
①	ATAS	1	
②	TRANSMITTER	1	

315.00MHz



NAME	RKE SYSTEM
TITLE	SYSTEM DIAGRAM
SCALE	FREE

NO.	PART NAME	Q'TY	REMARKS
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NAME	RECEIVER
TITLE	EXTERIOR LAYOUT
SCALE	FREE

NO.	PART NAME	Q'TY	REMARKS
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도면 첨부

NAME	RECEIVER
TITLE	CIRCUIT DIAGRAM
SCALE	FREE

Bills of Material

lev	part number	part name	q'ty	material	surf	comment	maker
0	301CA10000	CONTROL UNIT A-RKE & ATAS	1				
1	1073A21230	NAME PLATE	1	TEXT:BLACK 색상:ORANGE			
1	3017A17100	CONTROL UNIT A-RKE & ATAS SUB ASS'Y	1				
2	3017A10010	CASE	1	SR 0330M	BLACK		
2	3010A11120	COVER	1	SR 0330M	BLACK		
2	3017A17300	PCB ASS'Y	1				
3	1090A12050	ANTENNA JACK	1	JAS-004D			
3	0004490410	VARISTOR	2	SIOV-S14K14AUTOG5		V1,2	EPCOS
3	0003500360	RELAY	1	JJM1A-12V(AJJM331 M06)		RLY1	DENKI SHOJI
3	0008500360	RELAY	1	JJM2W-12V H48		RLY2	DENKI SHOJI
3	0002470220	RF MODULE	1	ENW19B03R		315MHz ASK	
3	0003530080	CONNECTOR	1	MG641791		J1	한국전자공업
3	3017A10020	PCB	1	FR-4 T1.6 1ONZE			
3	3017A10030	CPU	1	ST72334J4T6		U1	THOMSON
3	0010340210	VOLTAGE REGULATOR	1	TLE4269G		U2	INFINEON
3	0015340140	K LINE SERIAL INTERFACE	1	MC33290DR2		U5	MOTOROLA
3	0046340280	WATCH DOG IC	1	MB3793-42PNF		U6	FUJITSU
3	0006320190	TRANSISTOR CHIP	2	DTC114EKA-T146		Q1,16	ROHM
3	0032320160	TRANSISTOR CHIP	2	2SC2712Y		Q10,12	TOSHIBA
3	0024320230	TRANSISTOR CHIP	1	2SC3392-6-TB		Q11	SANYO
3	0011320210	TRANSISTOR CHIP	2	BC807-40		Q4,15	INFINEON
3	0001330210	FET CHIP	2	BSP75N		Q2,7	INFINEON
3	0000330210	FET CHIP	1	BTS134D		Q9	INFINEON
3	0012310180	ZERNER DIODE CHIP	1	Z02W24V		ZD1	KEC
3	0005310120	ZERNER DIODE CHIP	1	RD5.6MB		ZD2	NEC
3	0015310490	DIODE CHIP	5	S1G - 13		D1,2,5-7	DII
3	0020310160	DIODE CHIP	4	1SS306		D3,4,9,10	TOSHIBA
3	4725105610	RESISTOR CHIP	4	ERJ3GEYJ472V		R5,27,42,62	MATSUSHITA
3	4735105610	RESISTOR CHIP	3	ERJ3GEYJ473V		R6,9,18	MATSUSHITA

Bills of Material

lev	part number	part name	q'ty	material	surf	comment	maker
3	2715105610	RESISTOR CHIP	3	ERJ3GEYJ271V		R7,8,40	MATSUSHITA
3	1825105610	RESISTOR CHIP	2	ERJ3GEYJ182V		R45,46	MATSUSHITA
3	1035105610	RESISTOR CHIP	3	ERJ3GEYJ103V		R44,47,48	MATSUSHITA
3	2025105610	RESISTOR CHIP	1	ERJ3GEYJ202V		R41	MATSUSHITA
3	0000105610	RESISTOR CHIP	2	ERJ3GEY0R00V		R50,98	MATSUSHITA
3	0000104510	RESISTOR CHIP	1	ERJ6GEY0R00V		R49	MATSUSHITA
3	1035104510	RESISTOR CHIP	3	ERJ6GEYJ103V		R1,2,43	MATSUSHITA
3	1045104510	RESISTOR CHIP	14	ERJ6GEYJ104V		R11,19-25,30,34,36-39	MATSUSHITA
3	1545104510	RESISTOR CHIP	5	ERJ6GEYJ154V		R28,29,31-33	MATSUSHITA
3	3335104510	RESISTOR CHIP	2	ERJ6GEYJ333V		R4,60	MATSUSHITA
3	2015104510	RESISTOR CHIP	1	ERJ6GEYJ201V		R96	MATSUSHITA
3	4735104510	RESISTOR CHIP	1	ERJ6GEYJ473V		R97	MATSUSHITA
3	4725103410	RESISTOR CHIP	1	ERJ8GEYJ472V		R3	MATSUSHITA
3	1225103410	RESISTOR CHIP	6	ERJ8GEYJ122V		R12-16,63	MATSUSHITA
3	1625102210	RESISTOR CHIP	1	ERJ12YJ162U		R35	MATSUSHITA
3	1011200290	CONDENSER CHIP	14	GRM1885C1H101JA01		C10,12,14,16,33,35,68-73,76,7	MURATA
3	1031200470	CONDENSER CHIP	20	GRM21BR72A103KA01		C5,9,11,13,15,19-21,24-26,	MURATA
3	3331200140	CONDENSER CHIP	1	GRM219R71H333KA01		C46	MURATA
3	1041200850	CONDENSER CHIP	1	GRM21BR71H104KA01		C42	MURATA
3	1541200200	CONDENSER CHIP	1	GCM21BR11E154KA01L		C43	MURATA
3	2732200500	CONDENSER CHIP	1	ECJ2VB1H273K		C44	MATSUSHITA
3	1021200340	CONDENSER CHIP	2	GCM216R11H102KA01		C6,23	MURATA
3	4721200310	CONDENSER CHIP	1	GRM216R71H472KA01		C22	MURATA
3	4731200480	CONDENSER CHIP	3	GRM31MR72A473KD01		C1,2,4	MURATA
3	2263220000	CONDENSER CHIP	1	RVL-35V220MF60-R		C3	ELNA
3	3373220010	CONDENSER CHIP	1	RVH-6V331MG10Y-R		C7	ELNA
3	0003350330	RESONATOR CHIP	1	CSTCC8M00G53A-R0		X1	MURATA

FCC Information

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 interface, 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 CLASS B digital device, pursuant to Part 15 of 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 instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try correct the interference by one or more of the following measures:

- 1.1. Reorient or relocate the receiving antenna.
- 1.2. Increase the separation between the equipment and receiver.
- 1.3. Connect the equipment into an outlet on a circuit different from that to which receiver is connected.
- 1.4. Consult the dealer or experienced radio/TV technician for help.

WARNING

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.