

PRODUCT SPECIFICATION AND MANUAL

2016.07

BUYER / PROJECT	SYMC / Y400
BUYER MODEL	Transmitter Assy-Smart Key
PART No.	MT FLIP 03
COMPANY	MOTOTECH Co., Ltd.
MAKER/NATION	Huf Korea Ltd./Republic of Korea
DRAFT PART	Research Center/Safety control team
DRAFTER	H.J.Myung

Title	Certification Request Document		
Project Name	Y400	Drawn	2016-07-26
Model Name	MT FLIP 03	Released	2016-07-26
		Made by	H.J.Myung

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1. Contents

TYPE	Wireless controller about wireless electronic equipment of specific low output radio station
MODEL NAME	Transmitter Assy-Smart Key
USAGE	Vehicle of door keyless controller what use 133.3KHz & 433.92 MHz frequency
SUMMARY	<p>1. This equipment use semiconductor and integrated circuit, so it designs to get high reliability.</p> <p>2. This equipment use oscillation circuit of crystal, so it designs to satisfy about legally frequency an allowable error and bandwidth of exclusive frequency.</p> <p>3. The transmitter has each other specific identification code.</p> <p>4. The power use Li-ion coin Battery (DC 3.0V)</p>
COMPOSITION	<p>1. RF Transmitter part</p> <ul style="list-style-type: none"> - Pattern Antenna <p>2. LF Receiver part</p> <ul style="list-style-type: none"> - 3D LF Antenna

2. ELECTRONIC SPEC

UNIT	Transmitter Assy-Smart Key
List	
Rated voltage	DC 3.0V
Voltage range	DC 2.7 ~ 3.3V
Operating Temperature range	-10 ~ +55℃
Storage temperature range	-30 ~ +80℃
Dark current	6.0μA ±0.4μA

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3. Specification

TYPE	Transmitter Assy-Smart Key
NAME	Wireless controller about wireless electronic equipment of specific low output radio station
Equipment List	RF Transmitter, LF Receiver
Frequency	RF : 433.920MHz, LF : 133.3KHz
Antenna composition	Pattern ANTENNA, LF ANTENNA
Oscillation method	Crystal oscillation
Modulation method	FSK
Communication method	Two-Way Communication
Frequency multiplier	32 multiplier
Working voltage	DC 3.0V(Li-ion Battery CR2032 x 1EA)

4. Repair of Unit & Circuit Explanation

4.1 Repair of Unit

- Exchange an old unit.

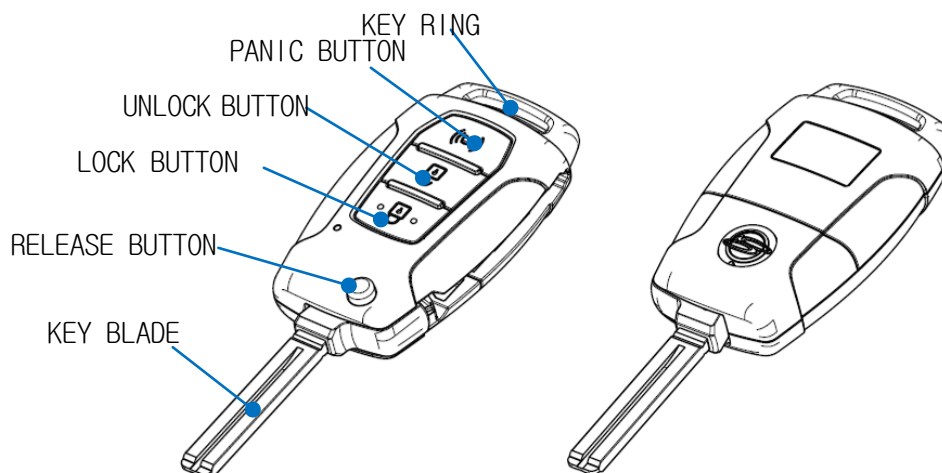
4.2 Circuit Explanation


- If User presses specific Switch of transmitter, MCU(U1) makes inherent serial value and encryption value, so it is transmitted to the FSK&ASK pin of TX_IC, at the same time, TX_IC gets to be ENABLE.
- Printing data are falsified into Tx_IC and it synthesizes through crystal(X1). synthesized frequency is multiplied and amplified by Tx_IC, it transmits through pattern antenna from output matching circuit.
- FOB receives random data through LF Antenna and prints to encrypt result value from MCU, at the same time TX_IC get to be ENABLE. As following, it transmits pattern antenna how to change falsification, synthesis, and multiplier.

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5. The Method of Unit Operating

5.1 REMOTE OPERATING METHOD



 <p>[PICTURE OF UNIT]</p>	FUNCTION		SWITCH FUNCTION
	LOCK BUTTON	DOOR LOCK	SHORT PRESSING LOCK BUTTON OVER 0.03s - LED flicker once as short time
		TOTAL WINDOW CLOSE	LONG PRESSING LOCK BUTTON OVER 1.5s - TOTAL WINDOW CLOSE signal output After LOCK signal output, - LED flicker 12 times as short time After LOCK LED flicker
	UNLOCK BUTTON	DOOR UNLOCK	SHORT PRESSING UNLOCK BUTTON OVER 0.03s - LED flicker once as long time
		TOTAL WINDOW OPEN	LONG PRESSING LOCK BUTTON OVER 1.5s - TOTAL WINDOW CLOSE signal output After LOCK signal output, - LED flicker 12 times as short time After LOCK LED flicker
PANIC BUTTON (Non-PTG)	PANIC	LONG PRESSING PANIC BUTTON OVER 1.5s - LED flicker once as short time	

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	Tailgate Open BUTTON (PTG)	TAILGATE STOP	SHORT PRESSING PANIC BUTTON OVER 0.03s
		TAIL GATE OPEN	LONG PRESSING PANIC BUTTON OVER 1.5s - LED flicker once as short time

6. The System of Each Unit Code Discrimination

6.1 TRANSMISSION CODE

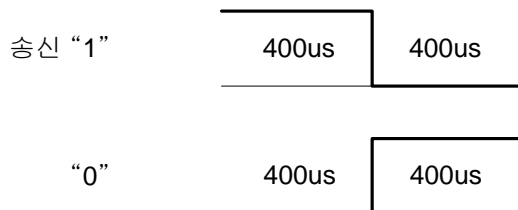
RKE RF DATA : 88 Manchester Code(176bits) + 4개 Bits

- 16 Codes : Preamble
- 4 bits : Header('0000')
- 24 Codes : Signature
- 40 Codes : Random Data
- 8 Codes : Serial & Button Data & Battery Voltage Low Data

AFTER LF RECIVE, RF DATA : 48 Manchester Code(96bits) + 4 Bits

- 16 Codes : Preamble
- 4 bits : Header('0000')
- 24 Codes : Signature
- 8 Codes : Serial & Battery Voltage Low Data

6.2 DATA STRUCTURE ("1", "0")



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FCC (Federal Communications Commission)

WARNING: This equipment may generate or use radio frequency energy.

Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual.

The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

This device complies with Part 15 of the FCC's Rules. Operation is subject to the following two Conditions:

1. This device may not cause harmful interference, and
2. This device must accept ant interference received, including interference that may cause undesirable operation.

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