User Manual for 12ch RW

1. Introduction

Model:YRQLSG55   FCC ID:2BK24YRQLSG55

YRQLSG55 is a unit that counts coins in a card game. It complies with FCC Part 15B, and FCC Part 15C.
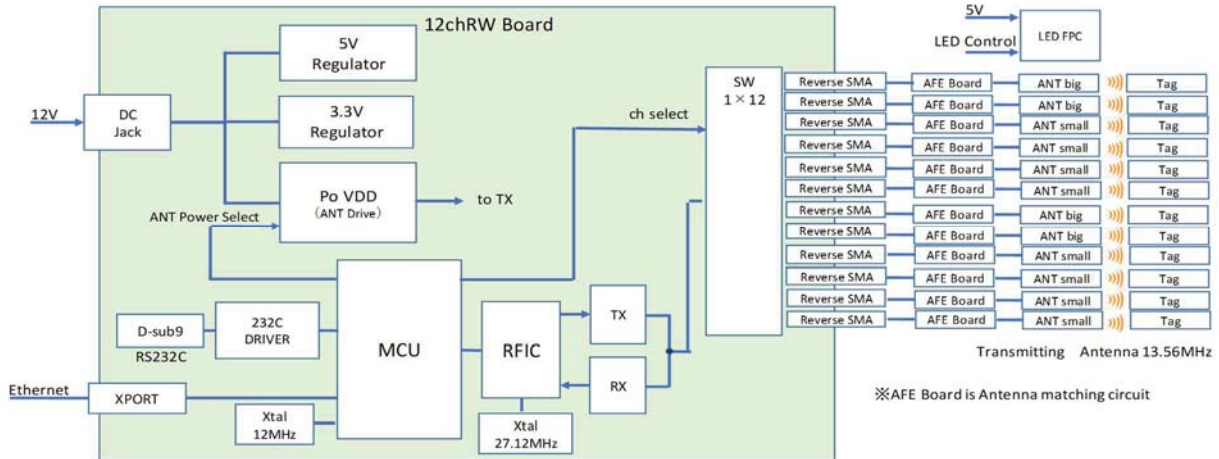
2. System Description
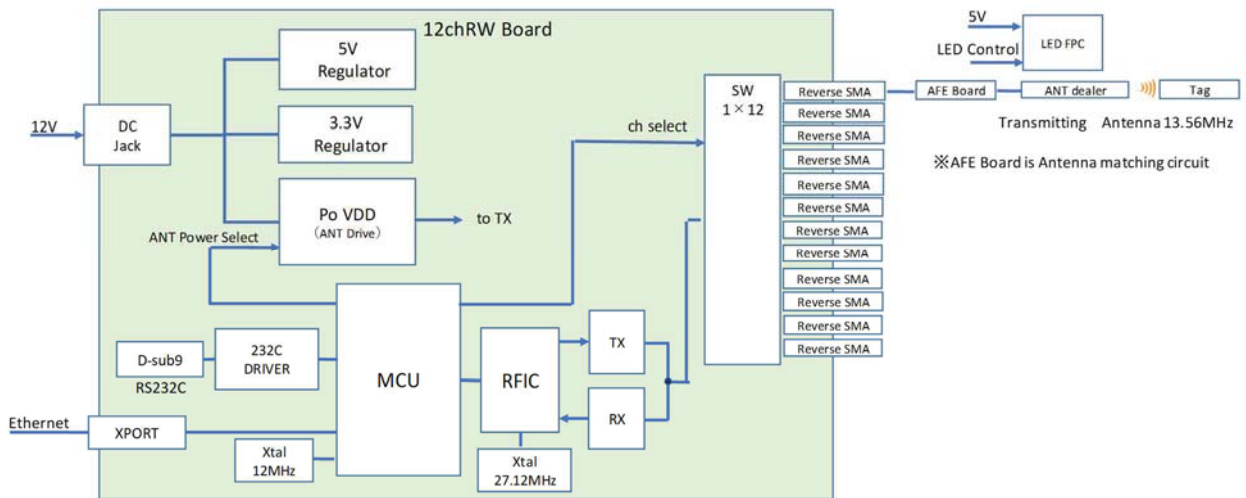

Fig.1 Block Diagram (for Player)

Fig.2 Block Diagram (for Dealer)

YRQLSG55 is equipped with an RFID reader/writer and counts the tags above the antenna.

Player uses 4 small antennas and 2 big antennas.

Dealer uses one dedicated antenna.

The type of "RFID tag" corresponds to the international standard ISO 15693 and ISO 18000-3M3.

12ch RW board selects any 1ch and outputs RF power. It does not operate multiple channels at the same time.

The communication interface with the host is Ethernet.

Intelligent control LED（WS2813B） are connected and attached to the antenna case, The LED can be turned on by controlling it externally.

The included LAN cable and ferrite core must be used for RF interference suppression.

3. Operating mode

YRQLSG55 has 2 operating modes.

3.1 Bootloader mode

Bootloader mode is for updating applications.

When the application cannot be recognized when starting RFID-RW,

It operates in this mode when the application intentionally transitions to the bootloader.

Even if the application cannot be recognized, the bootloader can operate, so it is possible to update the application.

A state in which the application cannot be recognized may occur when the power is cut off or an unexpected situation occurs during an update.

3.2 Application mode

Application mode operates as RFID-RW.

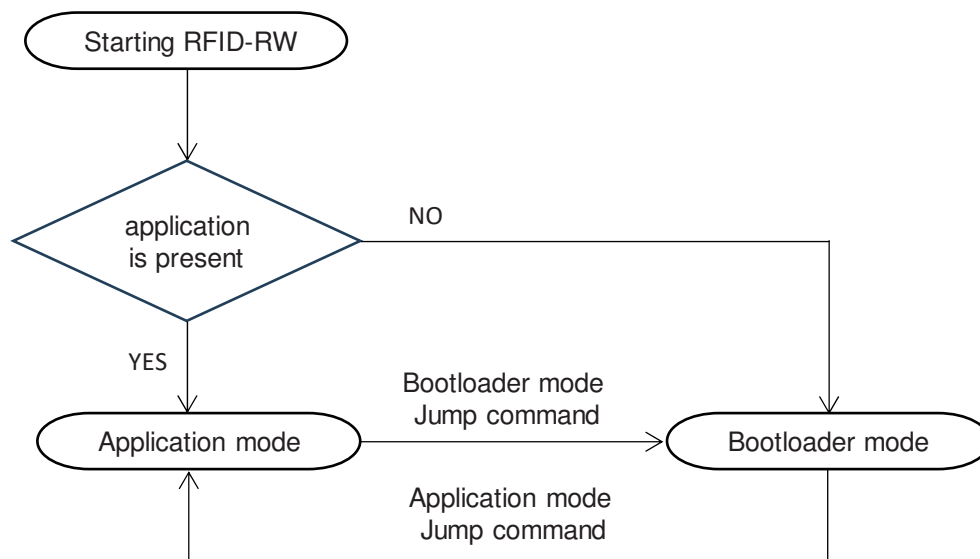RFID-RW operates in mode when the application is present at startup.

Fig.3 Operating mode

4.Command List

Table 1 lists the command set available for standard use.

Table 1. Command List

Command	Bootloader mode	Application mode	class code	Command code	Short description
SelectAntenna	✕	✓	10h	00h	Select the antenna for RF output.
FieldOn	✕	✓	10h	01h	Turn on RF output.
FieldOff	✕	✓	10h	02h	Turn off RF output.
ICODEILT_Inventory	✕	✓	23h	00h	Make the ICODE ILT-M tag OPEN
ICODEILT_Read	✕	✓	23h	01h	Read data from ICODE ILT-M tag in OPEN state
ICODEILT_Write	✕	✓	23h	02h	Write data to ICODE ILT-M tag in OPEN state
SetConfigExt	✕	✓	A1h	01h	Set Config data to control RW
GetConfigExt	✕	✓	A1h	02h	Get Config data to control RW
InventoryAndReadISO15693	✕	✓	A1h	03h	Gets the UID from the ISO15693 tag and one block of data from the specified block number.
InventoryAndReadICODEILTM	✕	✓	A1h	04h	Gets the UID from the ICODE ILT-M tag and the specified number of words from the specified address.
GetFWVersion	✕	✓	F0h	02h	Get firmware version.
GetProductName	✕	✓	F0h	10h	Get the product name.
Echo	✕	✓	F0h	11h	Confirm communication with RW.
BootloaderVersion	✓	✕	F3h	00h	Returns the bootloader version.
IsBootloaderRunning	✓	✓	F3h	01h	Returns whether the bootloader is running.
JumpToBootloader	✓	✓	F3h	02h	Jump to bootloader.
JumpToApplication	✓	✕	F3h	03h	Jump to application.

GetApplicationInfo	✓	×	F3h	04h	Get application area information.
IsBlankApplication	✓	×	F3h	05h	Returns whether the application area is blank.
EraseApplication	✓	×	F3h	06h	Erase the application area.
ProgApplication	✓	×	F3h	07h	Program the application area.
ProgApplicationVCS	✓	×	F3h	08h	Program the vector checksum in the application area.
DumpApplication	✓	×	F3h	09h	Dump the application area.

✓× indicates whether the command can be operated or not in each mode.

✓: Operation possible,

×: Operation not possible

5. Operating conditions

Table 2. Operating conditions

Item	Value
Operation Voltage Range(RF)	12VDC±10%
Operation Voltage Range(LED)	5VDC±10%

6. CRYSTAL RESONATOR

6.1. FA-128 27.12MHz

6.1.1 Electrical Characteristics

(1)NOMINAL FREQUENCY	27.12 MHz
(2)OVERTONE ORDER	Fundamental
(3)LOAD CAPACITANCE(CL)	8.0 pF
(4)FREQUENCY TOLERANCE OVER ALL/	±15 ppm @25°C
(5)DRIVE LEVEL	100uW
(6)OPERATING TEMPERATURE RANGE	-40~ +85 °C
(7)STORAGE TEMPERATURE RANGE	-40~ +125 °C
(8)ESR	60Ω Max

6.1.2 Construction
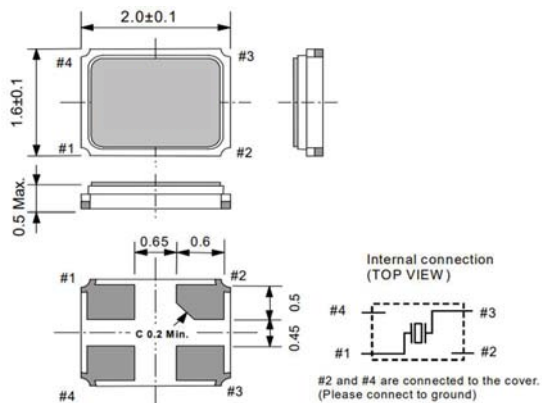
6.2. FA-238V 12MHz
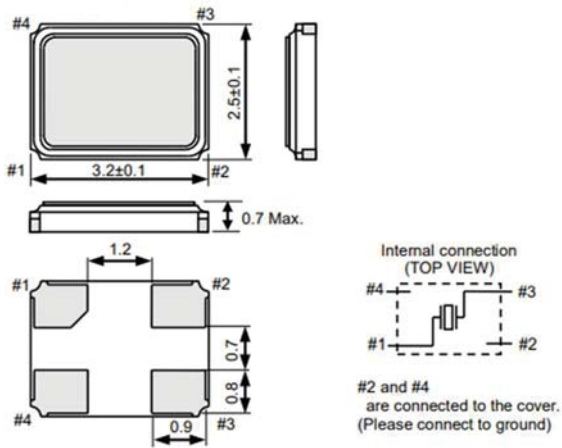
6.2.1 Electrical Characteristics

(1)NOMINAL FREQUENCY   12   MHz

(2)OVERTONE ORDER   Fundamental

(3)LOAD CAPACITANCE(CL)   18.0 pF

(4)FREQUENCY TOLERANCE OVER ALL/   ±50 ppm @25°C

(5)DRIVE LEVEL   200uW

(6)OPERATING TEMPERATURE RANGE   -40~ +85 °C

(7)STORAGE TEMPERATURE RANGE   -40~ +125 °C

(8)ESR   100Ω Max

6.2.2 Construction

Federal Communications Commission (FCC) Statement:

15.105(a)

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.

15.21:

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement:

1.This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

2.This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

FCC RF Exposure requirements:

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

15.19(a):

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.

U.S. Responsible Party:	SEGA SAMMY CREATION USA INC.
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	Phone: +1- 702-790-5680
Product Name:	12ch RW
Model Number(s):	YRQLSG55

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