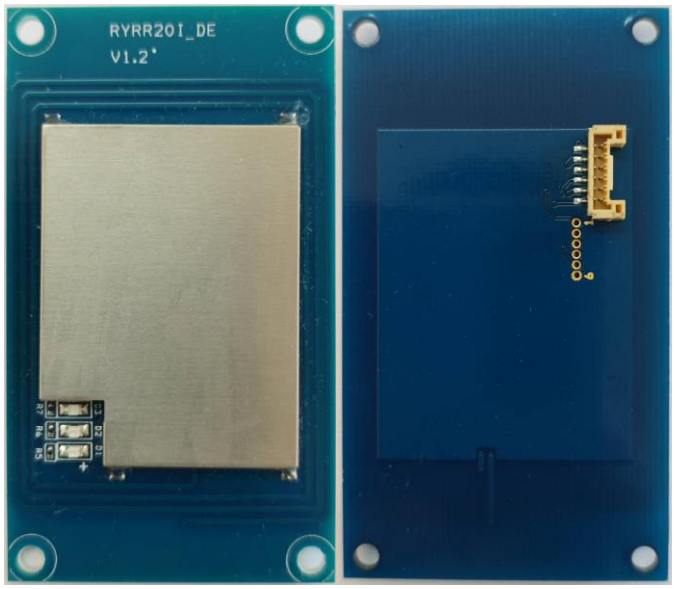
REYAX
TECHNOLOGY CORPORATION, LTD

24-May-2023 V1.0

RYRR20I_DE

Multiprotocol Fully Integrated 13.56MHz +3.3V UART Interface RFID Antenna Module

Datasheet



PRODUCT DESCRIPTION

The RYRR20I_DE module is a 13.56-MHz RFID. Built-in programming options make the device suitable for a wide range of applications for proximity and vicinity identification systems.
The standalone mode of RYRR20I_DE can help you to read RFID cards of various protocols as soon as it is powered on.

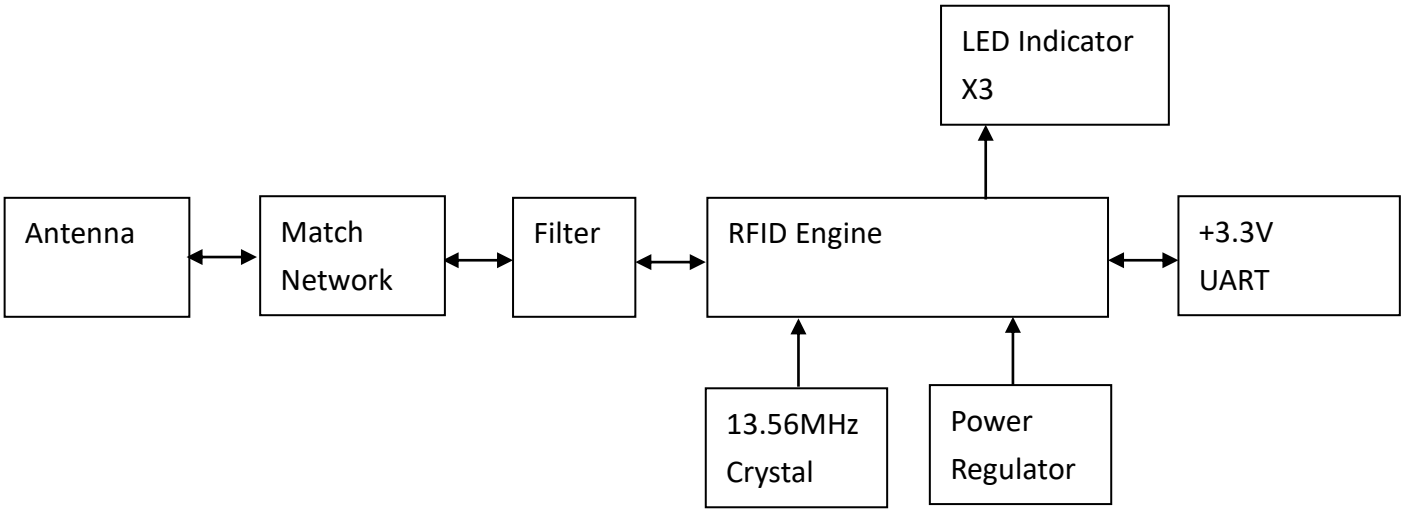
FEATURES

- Automatically reads various protocols.
- Completely Integrated Protocol Handling for ISO14443A/B, ISO15693, FeliCa and ISO18092.
- ISO14443A support functions :
  1. Mifare Ultraligh UID/memory block reading & memory block writing.
  2. Mifare Classic, Plus, Desfire UID reading.
- ISO14443B support functions : UID reading
- ISO15693 support functions : UID/memory block reading & memory block writing.
- Felica support functions : UID reading.
- ISO18092 support functions : UID reading.
- RF Field Detector.
- Complete and customizable firmware command set.
- Operation Temperature range: -40 to +85°C.

APPLICATIONS

- RFID cards Reader
- Access Control
- EV charger
- Secure Pairing (Bluetooth, Wi-Fi, Others)
- Event Ticketing

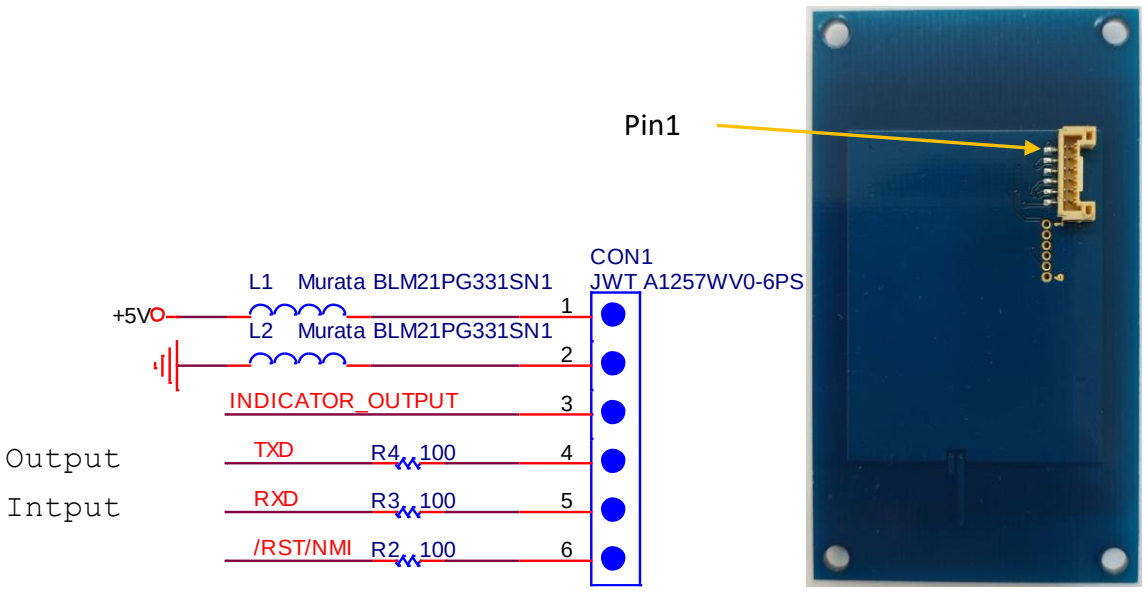
BLOCK DIAGRAM



SPECIFICATION

Item	Min.	Typical	Max.	Unit	Condition
Operation Voltage	4.7	5	6	V	VDD
UART Interface Hi level	3.1	3.3	3.5	V	
UART Interface Low level	0	0	0.3	V	
Indicator,/RTS/NMI Interface level		3.3V			
RF Output Power		20		dBm	
RF transmit current		90		mA	
Communication Range		4		cm	Standard card
RESET_N low duration		100		ms	
Baud Rate		115200		bps	8,N,1
RF Frequency Range	13.553	13.56	13.567	MHz	
Storage temperature	-40	25	+85	˚C	
Operating Temperature	-40	25	+85	˚C	
Humidity			90	%	
Antenna					Internal PCB Antenna

PIN DESCRIPTION



Pin	Name	I/O	Condition
1	VCC	P	+5V Power Supply
2	GND	P	Ground
3	Indicator	O	When read RFID card the pin will output Hi.
4	TXD	O	UART Data Output
5	RXD	I	UART Data Input
6	/RTS/NMI	I	Low reset

STANDALONE MODE DESCRIPTION

The RYRR20I_DE has a standalone mode in which when power is applied, then the preloaded MCU firmware initializes the RFID IC for full power operation, the INDICATOR_POWER pin become high, and begins a polling loop for ISO15693, ISO14443A, and ISO14443B transponders.

When any (or all) of these types of transponders are presented to the onboard antenna, the corresponding INDICATOR_ISO pin become high.

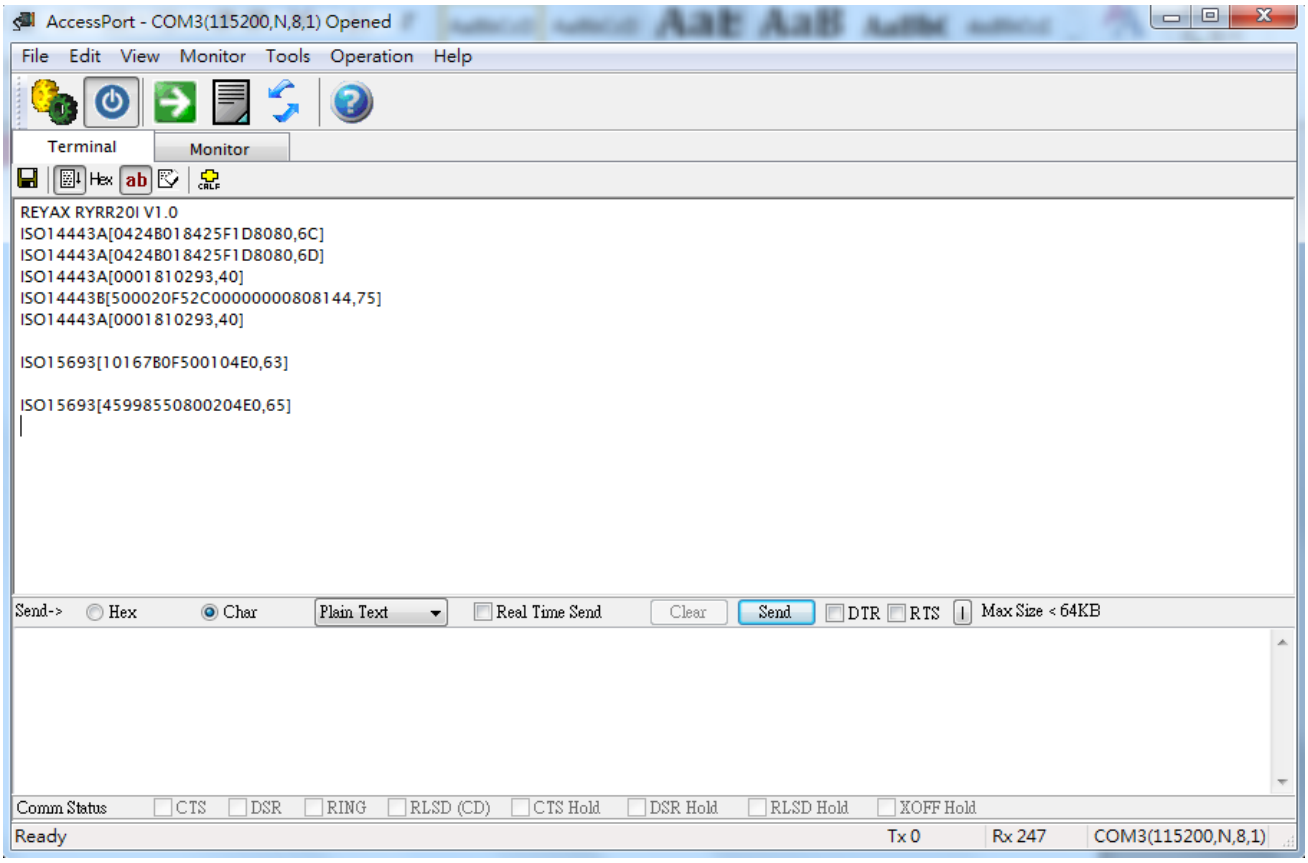
Syntax	Output
After RESET	REYAX RYRR20I Vx.x

Output Format	Output Examples
<ISO> [<UID& data>,<RSSI>]0x0D 0x0A <ISO> is the types of transponders: ISO14443A ISO14443B ISO15693 FELICA <UID& data> is the User Identification and data <RSSI> is the Received Signal Strength Indicator, show in 2 bytes hexadecimal, Maximum is 0x7F	ISO14443A[0424B018425F1D8080,6C] ISO14443A[0424B018425F1D8080,6D] ISO14443A[0001810293,40] ISO14443B[500020F52C00000000808144,75] ISO14443A[0001810293,40] ISO15693[10167B0F500104E0,63] FELICA[1201012E3D23BA06527700F1000000014300,47] ISO15693[45998550800204E0,65]

STANDALONE MODE APPLICATION TEST

Run the free Hyper-terminal software for Windows, *Access Port*, please download by the following link.

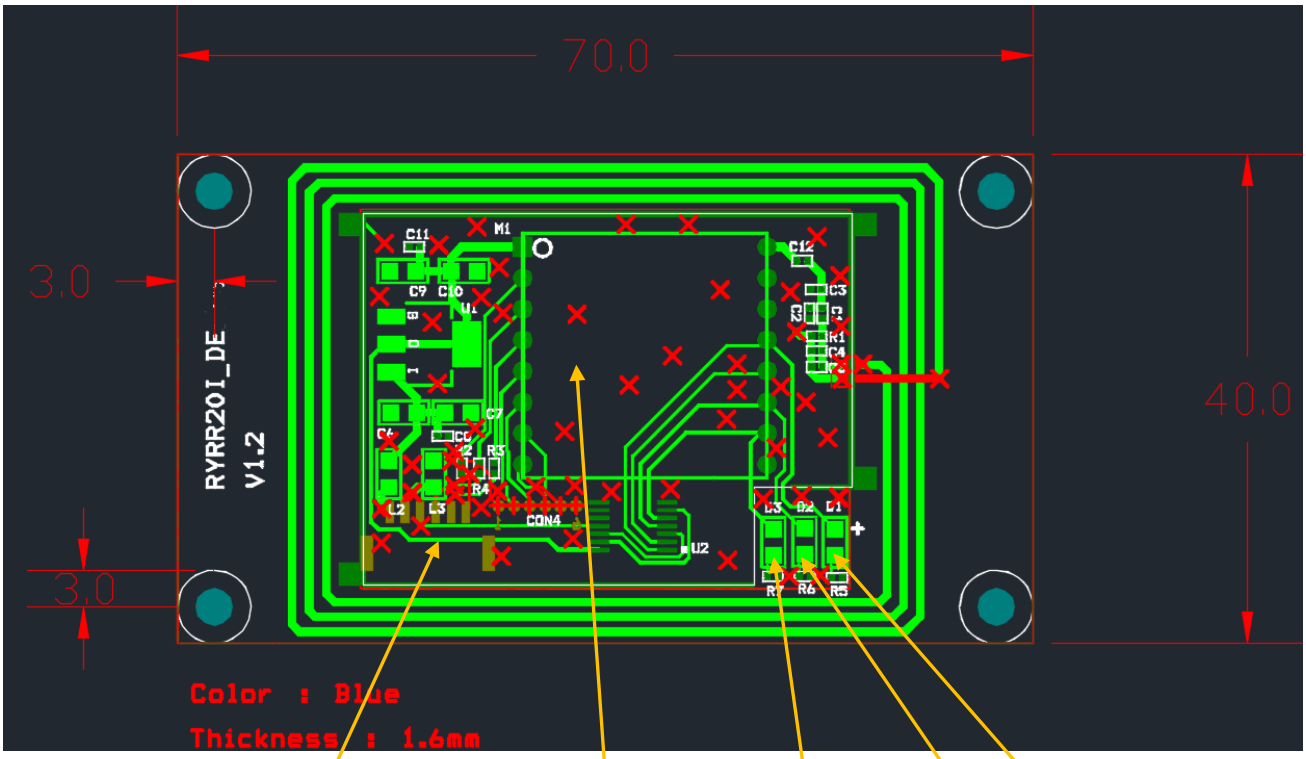
http://www.sudt.com/en/ap/



ISO15693 COMMAND MODE

The RYRR20I_DE will entry the ISO15693 command mode after the RXD receive the string 0108000304FF0000. Please refer to the ISO15693 command guide. If you want to exit the ISO15693 command mode, please reset the RYRR20I.

DIMENSIONS



PCB Thickness 1.6mm

unit : mm

Connector Pin1
JST® BM06B-GVHS-TB
JWT® A1257WV0-6PS

Shielding case

Felica
LED

IOS15693
LED

IOS14443A
LED

REYAX
TECHNOLOGY CORPORATION, LTD

E-mail : sales@reyax.com
Website : http://reyax.com