

MT-100C User's Manual

Thread Interface Module for Matter Doorlock

2024.04.17 by  SOLITY

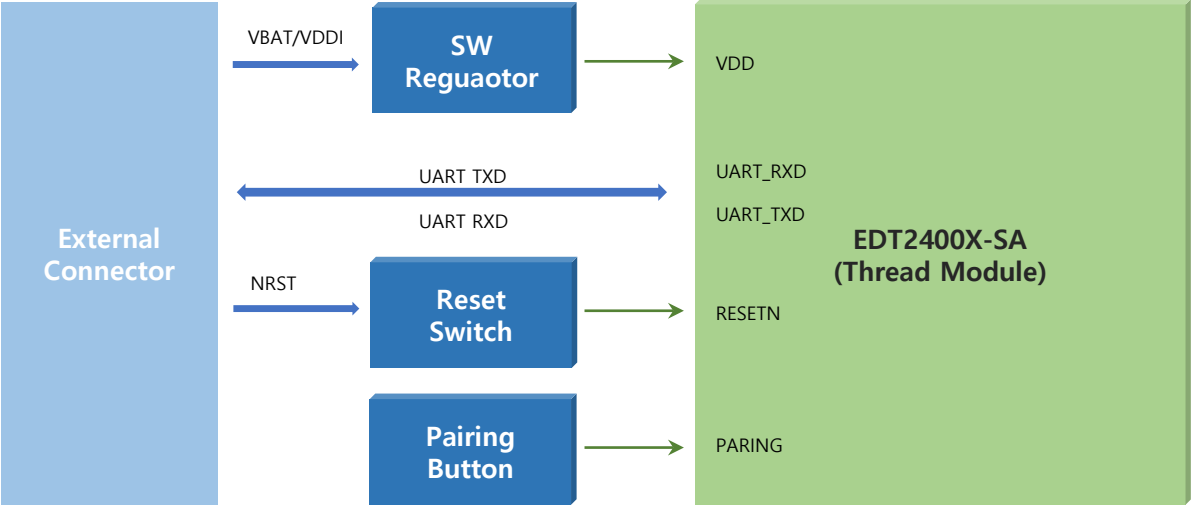
1. MT-100C: Features

Solity's MT-100C is an interface board/accessory product that uses Wireless Thread communication.
MT-100C is designed to easily implement IoT in an attachable manner on basic door locks.

Items	Features
Core MCU	Cortex-M33, 78MHz @ Maximum Operating Frequency
	1536 KB @Flash, 256 KB @RAM
	Secure Vault (Secure Boot, TRNG, Secure Key Management, etc...)
Wireless	Matter non-FHSS
	-105 dBm @ Sensitivity
	Modulation : GFSK
Operating Condition	1.3uA @ Deep Sleep Mode
	5mA @ RX Mode Current
	19 mA @10dBm Output Power
	160 mA @ 20dBm Output Power
	5 V @ Operating Voltage
	-25 °C to 85 °C / Optional -40 °C to 105 °C
I/O Signal	VDDI, GND, UART TXD, UART RXD, RESET
Dimension	54.3 x 21.6 x 9.7(T) mm

2. MT-100C: System Block Diagram and Operation

System Block Diagram



Operation Description

- **Vcc and Internal SW Regulator**
Vcc input is input to the sw regulator.
The SW Regulator generates a constant voltage (3.2V~3.4V) to supply power to MT-100C.
- **MT-100C Reset**
When changing the input of NRST from High to Low, MT-100C is reset, and when changing the input from Low to High, MT-100C boots and runs the program.
- **MT-100C Paring**
If user want to connect MT-100C newly to a matter Controller/Hub, press and hold the pairing button for more than 7 seconds.
After 7 seconds, the mobile app can discover this device (MT-100C) via Thread , and user can proceed pairing process.

3. MT-100C: External Connector Pin Map and Function Description

PIN No	Pin Name	Signal Diriecton	Description
1	USR_TXD	Output	UART Transmisstion Signal
2	USR_RXD	Input	UART Receiving Signal
3	NC	No Connection	
4	GND	Power Ground	
5	VDDI	Power Input	Optional Power Input. If the VBAT input is not used, it is an external constant voltage power input.
6	GND	Power Ground	
7	NRST	Input	Active low reset signal.
8	NC	No Connection	
9	NC	No Connection	
10	NC	No Connection	
11	NC	No Connection	
12	GND	Power Ground	
13	VDDI	Power Input	Same with PIN 5
14	VBAT	Power Input	Battery Power is between 4.7~6.4V.
15	NC	No Connection	
16	NC	No Connection	

4. MT-100C: Operating Charateristics

Electrical Maximum Ratings

Note: Stresses exceeding Maximum Ratings may damage the device

Parameter	Min	Max	Unit
VBAT(DC Power Input)	-0.3	12	V
VDDI(Optional DC Power Input)	-0.3	3.8V	V
Current per I/O pin	-	50	mA

Note: Current for all I/O pins is limited max 200mA

Electrical Recommended Operation Conditions

Parameter	Min	Max	Unit
VBAT (DC Power Supply)	4.7	6.4	V
VIH (High Level Input Voltage)	1.71V	3.8V	V
VIL (Low Level Input Voltage)	0V	0.3V	V

ESD Susceptibility

Parameter	Min	Max	Unit
HBM (Human Body Model)	-	2,000	V
MM (Machine Mode)	-	200	V

Communication Channel

Channel	Frequency[MHz]	
11	2405	
12	2410	
13	2415	
14	2420	
15	2425	
16	2430	
17	2435	
18	2440	
19	2445	
20	2450	
21	2455	
22	2460	
23	2465	
24	2470	
25	2475	
26	2480	

FCC Information to User

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. 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 to correct the interference by one of the following measures:

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

Caution

Modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Compliance 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 interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

RSS-GEN Section

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.