

# MT-100C User's Manual

*Thread Interface Module for Matter Doorlock*

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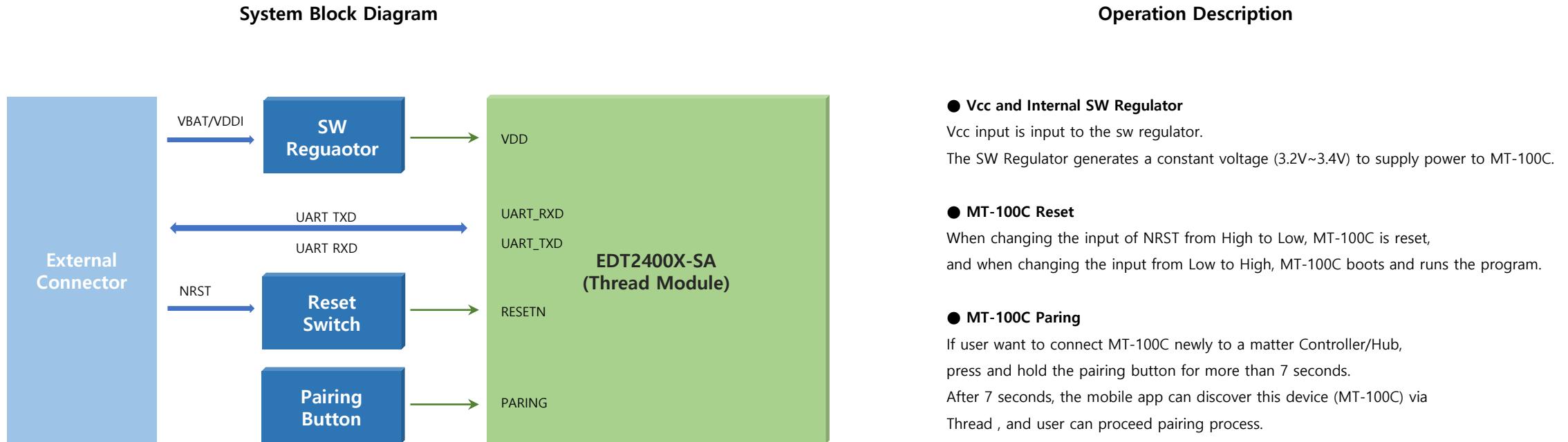
# 1. MT-100C: Features

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



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

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

# 4. MT-100C: Operating Characteristics

## 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.*