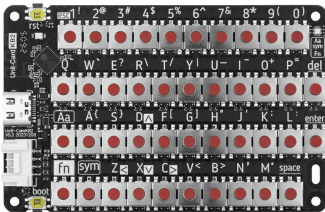
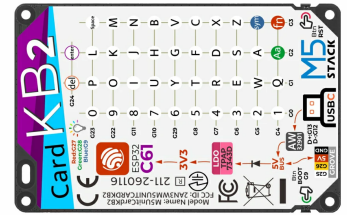
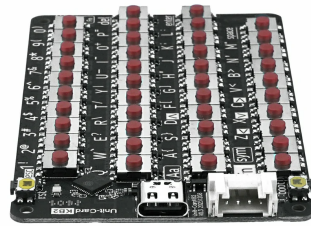
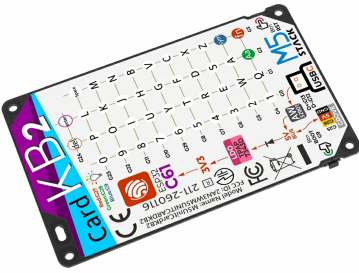
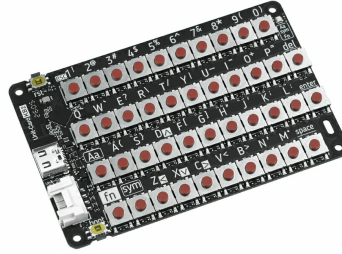
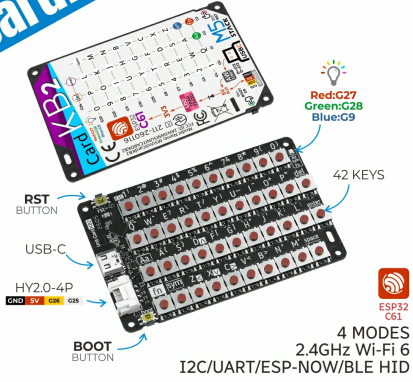
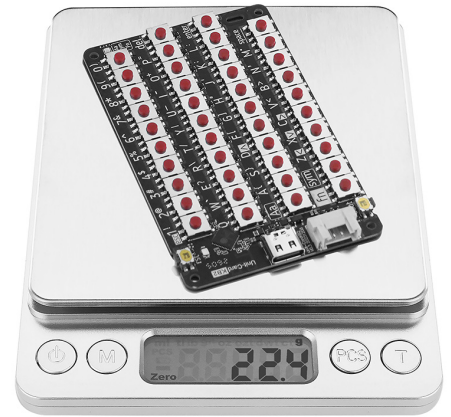


Unit CardKB2

SKU:U215





Description

Unit CardKB2 is a card-sized 42-key portable keyboard input unit. Compact and lightweight, it is designed for everyday carry and embedded integration. Powered by the ESP32-C61HF4, it supports 2.4 GHz Wi-Fi 6. The preloaded firmware supports four communication modes — I2C, UART, BLE HID, and ESP-NOW — for flexible connectivity with host devices. An onboard HY2.0-4P connector enables communication in I2C/UART mode, while a USB Type-C port provides power supply and firmware flashing. Additional features include an RGB LED status indicator, a Reset button, a Boot button, and built-in input overvoltage protection, making it well-suited for wireless input, interactive control, and a wide range of portable applications.

Features

- Equipped with ESP32-C61HF4, supporting Wi-Fi 6 / BLE wireless communication
- Full keyboard input with support for multiple key combinations (single press, Sym, Fn)
- Onboard RGB LED (XL-1615RGBC-RF) for keyboard status indication
- Reserved M2 mounting holes for easy application integration
- Power Supply:
 - USB Type-C
 - DC 5V

Includes

- 1 x Unit CardKB2
- 1 x HY2.0-4P Grove Cable (20cm)

Applications

- Text input for portable devices
- Human-machine interaction in embedded systems
- Wireless control terminal for IoT devices
- Educational programming and maker projects

Specifications

| Specification | Parameter |
|---------------------|--|
| SoC | ESP32-C61HF4 @ RISC-V 32-bit single-core, 120 MHz |
| Flash | 4MB |
| Wi-Fi | 2.4 GHz Wi-Fi 6 |
| Keys | 42-key keyboard, 1x Reset button, 1x Boot button |
| USB Type-C | Power supply / Firmware flashing, default firmware log output: 115200bps @ 8N1 |
| RGB LED | 1x RGB LED |
| Expansion Interface | 1x HY2.0-4P |
| Standby Power | 5V@19.31mA (powered via Grove interface) |
| Product Size | 84.7 x 54.3 x 1.0mm |
| Product Weight | 22.4g |
| Package Size | 170.0 x 120.0 x 8.0mm |
| Gross Weight | 28.9g |

Learn

Key Description

- **Aa Key (Caps Toggle):**
 - **Single tap:** Enables one-shot caps lock — types one uppercase character, then reverts to lowercase automatically.
 - **Double tap:** Enables caps lock — tap or double-tap again to disengage and return to lowercase.
 - **Hold:** Maintains uppercase output while held; reverts to lowercase upon release.
 - The **green LED lights up** when caps is active and turns off when disabled.
- **Sym Key (Symbol Key):** Single-click to **activate** character input; click again to deactivate.
- **Fn Key (Function Key):** Used for mode switching and combined functions. When Fn is pressed, the **red indicator light turns on**.

The following only works in BLE HID mode:

- **Fn + 1:** Outputs Esc
- **Fn + D:** Cursor up (↑)
- **Fn + X:** Cursor down (↓)
- **Fn + Z:** Cursor left (←)
- **Fn + C:** Cursor right (→)
- **Mode Switching (Fn + Sym + Number Key):** The selected mode is saved automatically and persists after power cycling.
 - **Fn + Sym + 1:** Switch to I2C mode (factory default) — white LED blinks 1 time
 - **Fn + Sym + 2:** Switch to UART mode — white LED blinks 2 times

- **Fn + Sym + 3**: Switch to ESP-NOW broadcast mode — white LED blinks 3 times
- **Fn + Sym + 4**: Switch to BLE HID mode — white LED blinks 4 times

BLE HID Mode

Unit CardKB2 can function as a wireless keyboard and connect to any BLE HID-compatible device. Follow the steps below:

1. Press **Fn + Sym + 4** to switch to BLE HID mode.
2. On your phone / tablet / computer, scan for nearby Bluetooth devices. The device will appear as **CardKB2-xxxx** (where **xxxx** represents the last four digits of the MAC address).
3. Pair and connect — the unit is now ready to use as a wireless keyboard.

For usage instructions for other modes (UART / I2C / ESP-NOW), please refer to the [Unit CardKB2 User Manual & Registers](#).

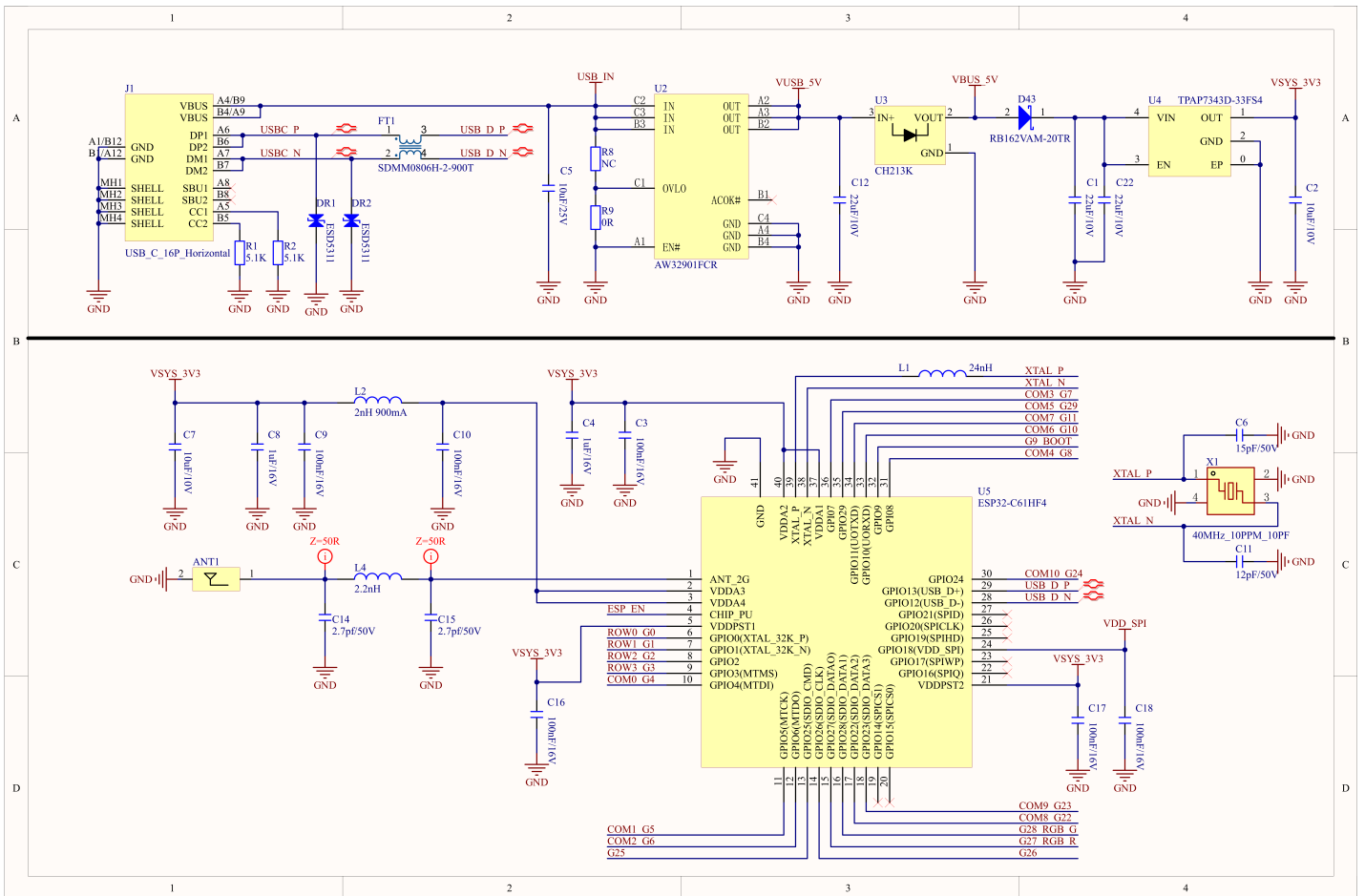
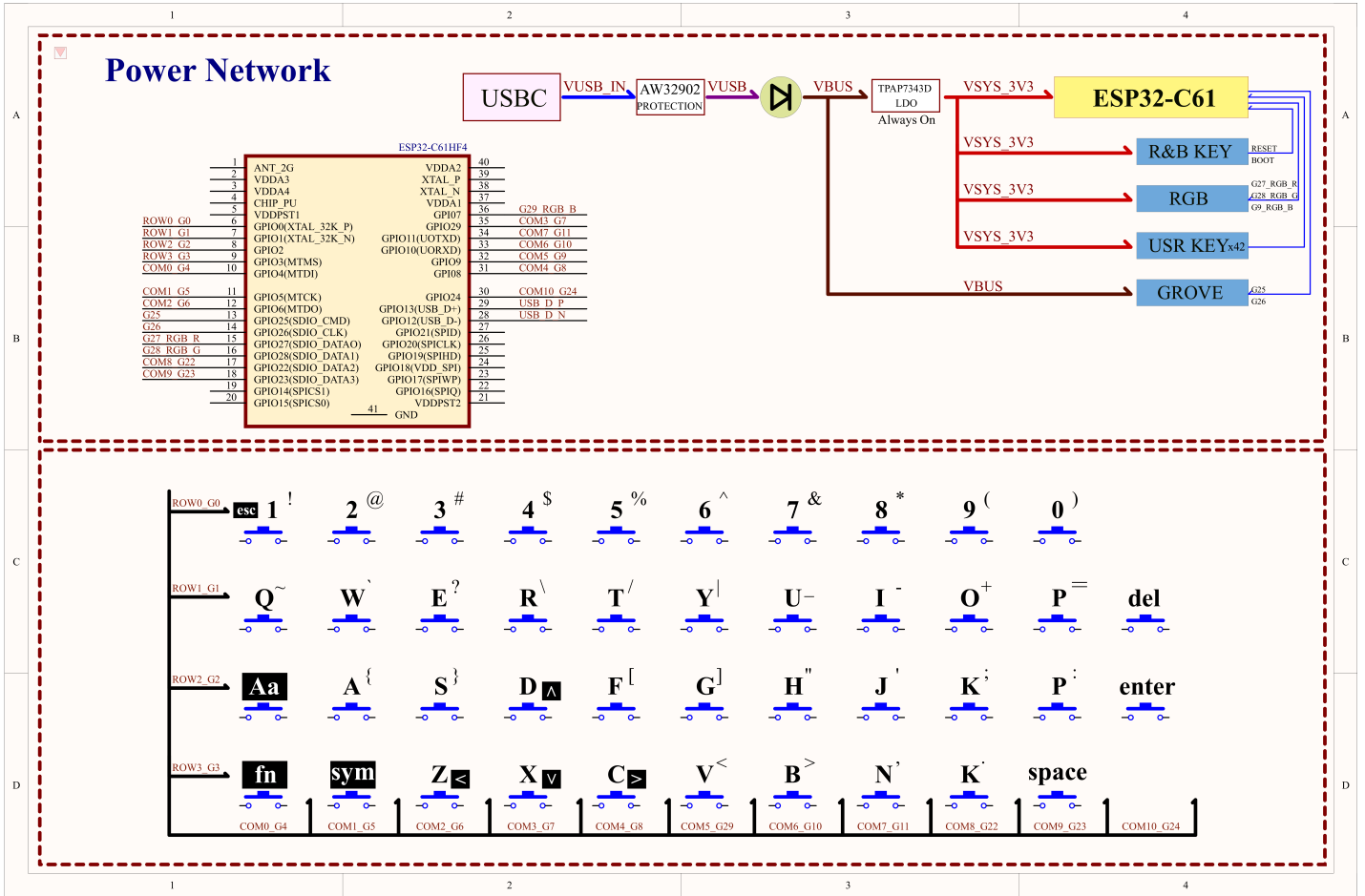
PinMap

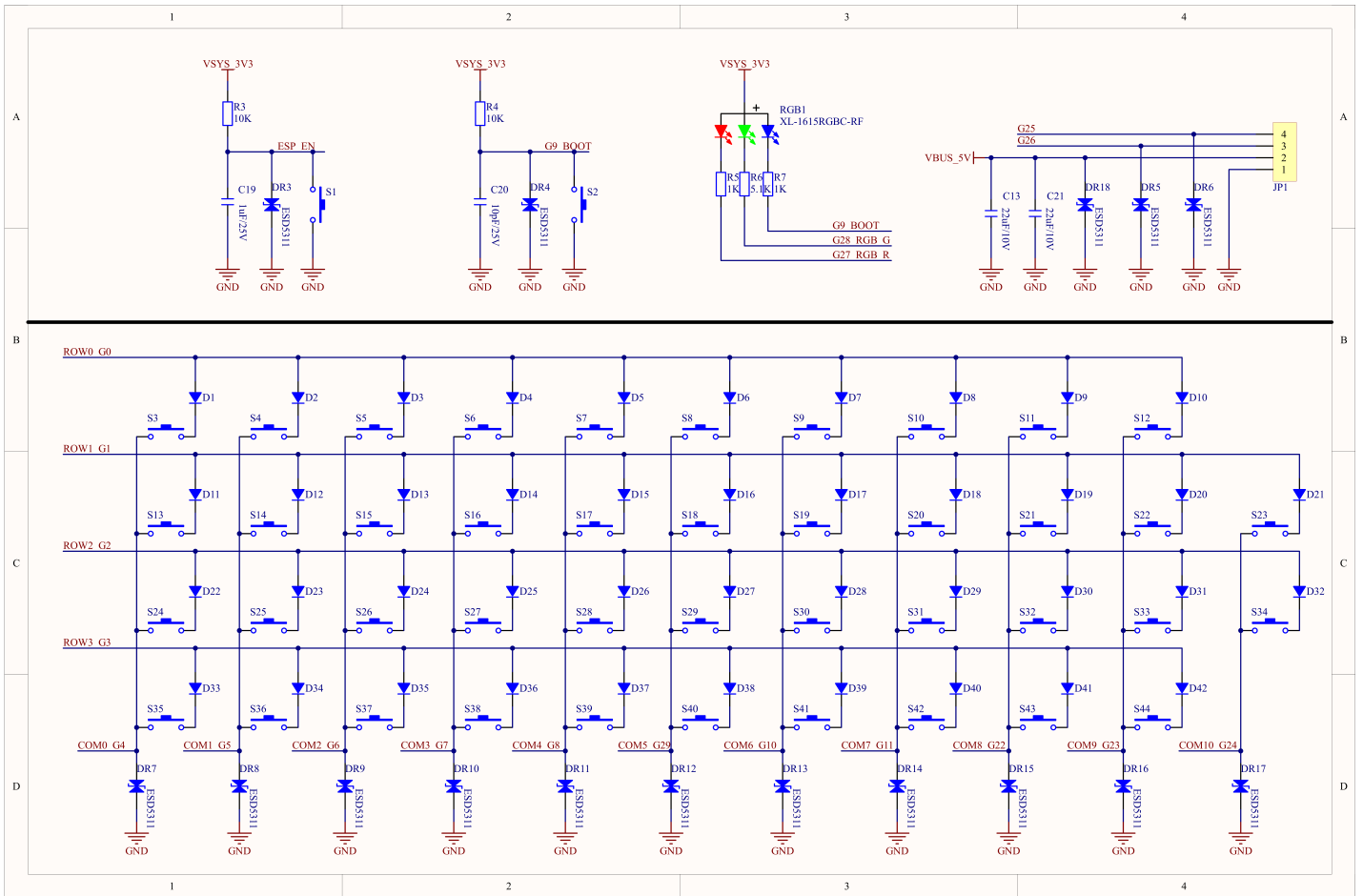
Unit CardKB2

| | | | | |
|-------------|-------|-----|---------------------|---------------------|
| HY2.0-4P | Black | Red | Yellow | White |
| PORT.CUSTOM | GND | 5V | SDA / UART_RX / G26 | SCL / UART_TX / G25 |

Schematics

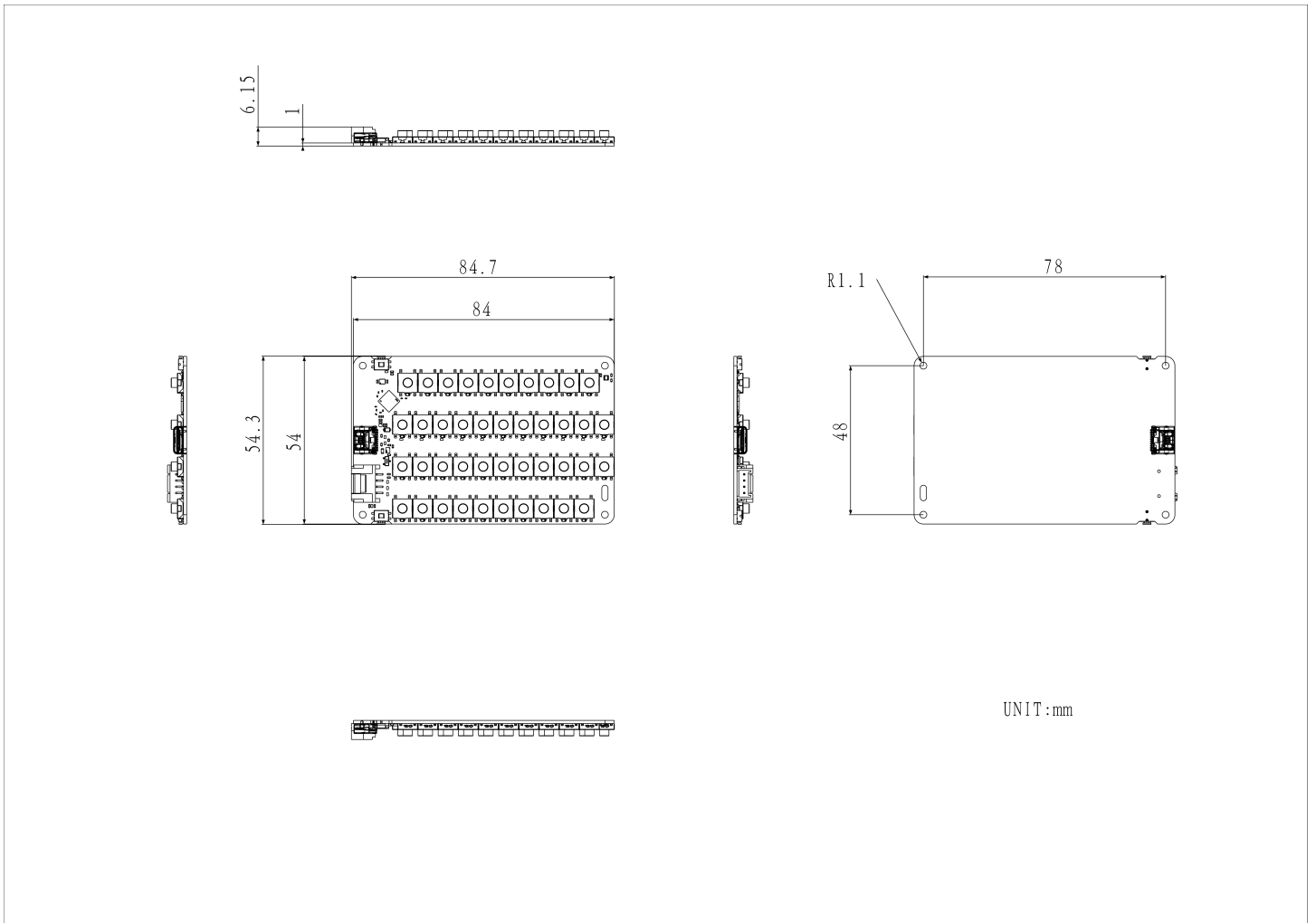
- [Unit CardKB2 Schematics PDF](#)





Model Size

[Unit CardKB2 Model Size PDF](#)



Datasheets

[ESP32-C61HF4](#)

Softwares

Arduino

- [Unit CardKB2 Arduino Tutorial](#)
- [Unit CardKB2 Arduino Library](#)

UiFlow2

coming soon...

Internal Firmware

- [Unit CardKB2 Internal Firmware](#)

Protocol

- [Unit CardKB2 User Manual & Registers](#)

| Video

- Unit CardKB2 Product Introduction and Feature Demonstration

[U215-UnitCardKB2_video_EN.mp4](#)