WiRIO3 Single Channel UHF RFID Reader

(Model: TU-05-C01)

System Feature

- Wi-Fi/Ethernet Connected UHF RFID Tag Reader
    - Connection is from device connected to server.
    - Once the system powers up, it will auto create a persistence connection to the server without user intervention.
    - Server can be placed either at public cloud, private cloud, or LAN.
    - Device able to work behind firewall.
- Single Channel Long Range UHF Tag Reading
    - Based on Imping E310 chip with improved read rate and superior receive sensitivity for long rang reading.
    - Build in 1200 Tag Cache size for highspeed reading.

    ➢ Able to match with various type of 50Ω Antenna to manage the tag detection range and angle.

    ➢ Auto antenna detection and will only turn-on the antenna output channel if the antenna is detected.

    ➢ Users can also adjust the output power from 1dBm to 30dBm to manage the reading distance remotely though the server.

    ➢ With the correct antenna and low lost feeder cable, the reading can achieve up to the reading range of 15meter.

    ➢ Build in device core temperature sensor, providing remote temperature monitoring when the device is operating under high temperature environment.

    ➢ Over temperature error auto stop and notification.

    ➢ Build in Tag Selection Filter that only detect the tag that matches or NOT matches the selection criteria.

    ➢ Auto read tag data on any one of the tag's memories banks when the tag is detected.

    ➢ Write/Lock/Kill Tag with Tag Selection Filter.

- Internal power supply with DC/DC converter to reduce power wastage.

    ➢ Input DC 12V to 24V.

    ➢ Reverse polarity protection.

- Auto fetch real time clock from Internet Time Server.

    ➢ Auto connect with the Internet Time Server to fetch the Real time value (EPOC Time) when network is connected and internet link is available.

    ➢ Manually set time by server if internet link is not available.

    ➢ Auto readjust the time drift periodically.

    ➢ Append the EPOC time to all the message.

- Direct link with USB Connection

    ➢ Easily link up with the device without connecting to the network.

    ➢ Suitable for direct connection with PC/Host system locate beside the device.

    ➢ Just add an extra JSON layer of wrapper to wrap around the same JSON messaging standard used in the MQTT Broker Server communication.

    ➢ Thus provide an easy path for future system expansion, from localized system architecture to network-based system architecture.

- Network link with MQTT Broker Server

    ➢ Open Standard protocol and readily available either using paid version or free version of MQTT Broker Server.

    ➢ Messaging format based on JSON format.

> ➢ JSON messaging format is supported by various programming language and easily integrated to any existing system.

- Easy setup and configuration

  - ➢ System configures with Android Apps.

  - ➢ Provide detailed device properties, e.g., model number, version number, etc.

  - ➢ Connectivity selection either using Wi-Fi, Ethernet or USB Link.

  - ➢ Upload WPA Enterprise Server private/public key.

  - ➢ Server IP/Domain Name Setup.

  - ➢ DHCP/Fix IP.

  - ➢ Internet Time Server Setting.

- Water and Dust resistance enclosure

  - ➢ Full aluminum body enclosure to provide good heat dissipation.

  - ➢ The enclosure also comes with proper sealing to protect against water/dusty environment.

Power and Enclosure Specification

Input Voltage	DC 12V to 24V
Supported POE	IEEE802.af/at, RJ45 Connector Power pin on 1&2, 3&6 and 4&5, 7&8.
System Power Consumption	10W Max
Operation Humidity	20%-90%RH
Operation Temperature	25°C to 45°C
Storage Humidity	10-95RH
Storage Temperature	0°C to 85°C
Enclosure Dimension	95mm (W) x 120mm (L) x 50mm (H)
Enclosure Type	Water slash proof Aluminum Extrusions, IP54 equivalent.

RFID Reader Specification

Antenna Channel	1 Channel, SMA Female Connector
Operation Frequency	919MHz~923MHz Auto Hopping (According to MCMC Class Assignment for RFID)

Output Power	30dBm Max, User Adjustable in 1dBm Step
UHF Tag Protocol	EPC global UHF Class 1 Gen 2 ISO 18000-6C

Wi-Fi Specification

Frequency	2.4Ghz~2.5Ghz
Supported Wi-Fi Protocol	802.11 b/g/n
Antenna Type	External Mini Cap antenna
Security Protocol	WPA/WPA2 personal, WPA/WPA2 Enterprise
Encryption Protocol	WEP/TKIP/AES

Ethernet Specification

Speed	RJ45, 10/100 Mbps

USB Type-C Port Specification

Supported Protocol	USB Virtual Comm Port
Baud	921600 Baud, 8bit, no-parity, 1 stop bit

Backend Server Connectivity

Server Connection	MQTT Broker with TCP, TCP-TLS, Web-Socket Connection
Server Port	User Definable
Encryption/Security	Public CA, Self-Signed Certificate
Messaging Format	JSON
Other	NTP auto RTC update