

## WiRIO3 4-Channel UHF RFID Reader

(Model: TU-04-C04)



### System Feature

- Wi-Fi/Ethernet Connected UHF RFID Tag Reader
  - Connection is from device connected to server.
  - Once system power 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.
- 4 Channel Long Range UHF Tag Reading
  - Based on Imping E710 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.
- User can also adjust the output power from 1dBm to 33dBm to manage the reading distance remotely through the server.
- With the correct antenna and low loss feeder cable, the reading can achieve up to the reading range of 15meters.
- Built 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.
- Built in Tag Selection Filter that only detects the tag that matches or NOT matches the selection criteria.
- Auto read tag data on any one of the tag's memory banks when the tag is detected.
- Write/Lock/Kill Tag with Tag Selection Filter.
- Power of Ethernet support
  - Support IEEE 802.3af and 802.3at.
  - Input voltage ranging from 44V to 57V.
  - In-rush current limit control.
  - Over-temperature protection
  - Support power supply at pin 1&2, 3&6 and 4&5, 7&8 on the RJ45 connector
- Internal power supply with DC/DC converter to reduce power wastage
  - Input DC 12V to 24V.
  - Reverse polarity protection.
- Built in with onboard Input and Output Port
  - 2 input port and 2 output port.
- Able to configure the input port as I/O input or user push button input.
- Push button input allows auto user press action, single press, double press, triple press and long press (press and hold more than 4 seconds).
- Provide number of input on/off cycle counter to prevent missing cycle.
- Wet contact output design using MOSFET thus supports up to 30V 1A output current without the wear and tear of the relay contact.
- Output port can be configured as standard High/Low output or Auto Pulsed output.
- Configurable pulse duration (configure separately for High level and Low-level period) and number of pulse cycle when triggered by server.
- Auto fetch real time clock from Internet Time Server.
  - Auto connect with the Internet Time Server to fetch the Real time value (EPOCH 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 EPOCH time to all the messages.
- Direct link with USB Connection
  - Easily link up with the device without connecting to the network.
  - Suitable for direct connection with PC/Host system located 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 detail 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.
- FW-Bus for I/O port expansion
  - A short distance (Up to 10 meter) communication bus.
  - Allow to attach external I/O Expansion Unit.
  - Maximum up to 8 unit of I/O Expansion Unit, thus providing up to 64unit of input port and 64unit of output port.

### *Power and Enclosure Specification*

<i>Input Voltage</i>	DC 12V to 24V or POE
<i>Supported POE</i>	IEEE802.af/at, RJ45 Connector Power pin on 1&2, 3&6 and 4&5, 7&8.
<i>System Power Consumption</i>	15W Max
<i>Operation Humidity</i>	20%-90%RH
<i>Operation Temperature</i>	25°C to 45°C
<i>Storage Humidity</i>	10-95RH
<i>Storage Temperature</i>	0°C to 85°C
<i>Enclosure Dimension</i>	131mm (W) x 130mm (L) x 28mm (H) with 4x mounting screw hole.
<i>Enclosure Type</i>	Aluminum Extrusions

### *RFID Reader Specification*

<i>Antenna Channel</i>	4 Channel
<i>Operation Frequency</i>	919MHz~923MHz Auto Hopping (According to MCMC Class Assignment for RFID)
<i>Output Power</i>	33dBm Max, User Adjustable in 1dBm Step
<i>UHF Tag Protocol</i>	EPC global UHF Class 1 Gen 2 ISO 18000-6C

### *Wi-Fi Specification*

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

### *Ethernet Specification*

<i>Speed</i>	RJ45, 10/100 Mbps
<i>Power over Ethernet</i>	IEEE802.af/at, RJ45 Connector Power pin on 1&2, 3&6 and 4&5, 7&8.
<i>Voltage</i>	44V~57V DC

### *USB Type-C Port Specification*

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

### *Backend Server Connectivity*

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

### *Output Port Specification*

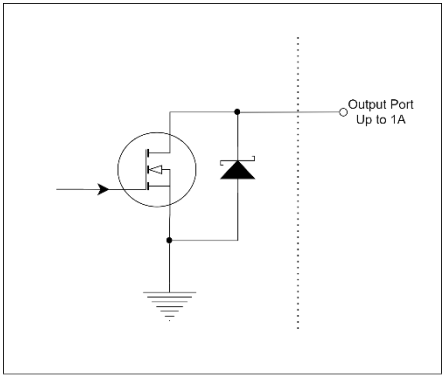
<i>Total Output Port Channel</i>	2 Channel
<i>Connection Type</i>	N Type Sink to Ground when on
<i>Max V+ Voltage</i>	30V
<i>Max Sink Current</i>	1A (Non-Inductive Load)

*Input Port Specification*

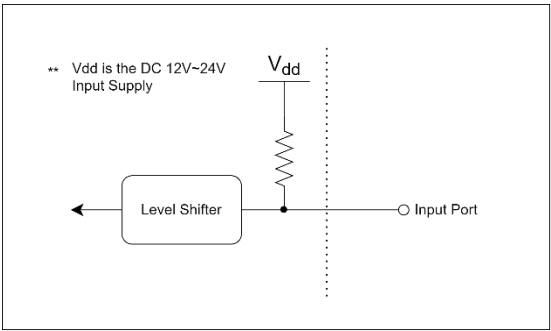
<i>Input Port</i>	2 Channel
<i>Connection Type</i>	N Type, External Sink to Ground to Trigger On
<i>Max Sink Current</i>	5mA

*FWBus Specification*

<i>Port</i>	Pin A+GND, Pin B+GND
<i>Connection Type</i>	Open Collector
<i>Max Sink Current</i>	30mA Max
<i>Max Cable Length</i>	Up to 10Meter with Cat5E cable



Typical Output Port Design



Typical Input Port Design

## Device Outer Dimension

