



## TCU2000-X0-D

DIN-Rail or Wall Mounting

ARM architecture industrial IoT Edge Computing Intelligent Gateway

- Support 4 Gigabit SFP slots, 8 Gigabit copper ports, 2 isolated RS-485/232 serial ports, 4 isolated RS-485 serial ports, 4 DI, 4 DO, 1 HDMI (reserved), 1 USB, 1 TF card slot (reserved)
- Support edge network expansion, local computing and storage and other functions, and provide intelligent management and services
- Adopt standard MQTT protocol, it can connect the third-party Internet of Things/cloud platform to realize cloud and local collaborative management and control
- Support 12~48VDC wide voltage power input
- Support -40~75°C wide operating temperature range



## Introduction

TCU2000-X0-D is a compact quad-core architecture industrial IoT edge computing intelligent gateway, it can collect Ethernet, serial port, DI/DO and other terminal device information, and connect the third-party Internet of Things/cloud platform, realizing localization and cloud remote collaborative management and control. This series provide a variety of interfaces including Gigabit SFP slots, Gigabit copper ports, RS-485/232, I/O, HDMI (reserved) and USB. They adopt DIN-Rail mounting or wall mounting to meet the requirements of different application scenes.

TCU2000-X0-D has strong edge computing capability, and realizes data optimization, real-time response, agile connection and intelligent analysis at the edge nodes of the Internet of Things. Significantly reduce the data traffic at the site and the center, and avoid the bottleneck of cloud computing capability. Optimize the network architecture, make it safer and more responsive, and at the same time realize the on-site business more intelligently.

Hardware adopts fanless, low power consumption, wide temperature and voltage design, which has passed rigorous industrial standard tests, and adapt to the industrial scene environment with harsh requirements for EMC. It can be widely used in smart pole, smart pipe gallery, smart water, smart lighting, smart grid, smart buildings, public security, intelligent transportation, intelligent logistics, intelligent healthcare, intelligent plant and other intelligent fields.

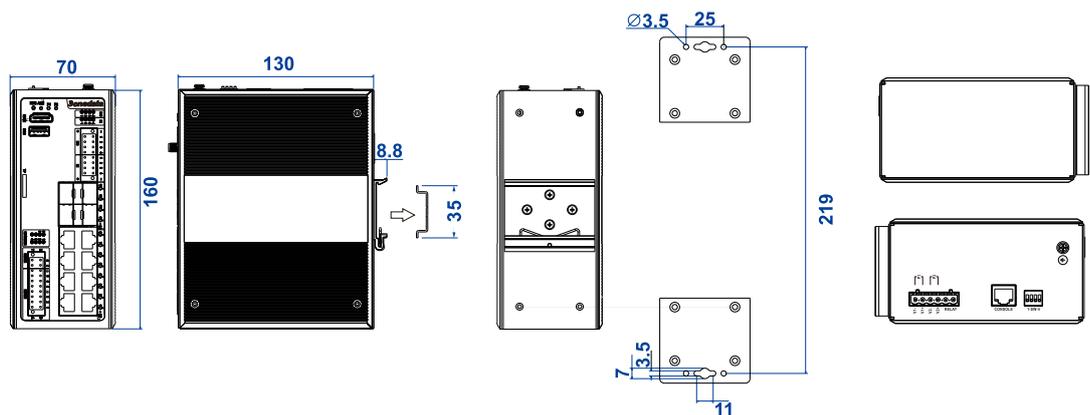
## Features and Benefits

- ⦿ Adopt quad-core 1.2GHz high-performance processor, 2GB memory, 16GB storage and nationalize key components
- ⦿ This system software architecture is Linux operating system-based and developed for IoT edge computing application scenarios
- ⦿ Support mainstream IoT protocols such as MQTT, COAP and HTTP, which can realize multi-platform synchronous access to shared device data, support self-defined northbound docking protocol and has built-in TSL model, unify southbound device access, and simplify and share device access through APP development
- ⦿ Integrate rule and calculation engine to realize scene linkage and time tasks of the device through visual scene arrangement on the platform when the network is off-line
- ⦿ Support cloud equipment operation and maintenance, and provide convenient equipment operation and maintenance functions such as intranet penetration, remote access and remote application management
- ⦿ Meet the requirements of complex networking, support routing and switching mode, and WAN/LAN port allocation
- ⦿ Support port status display, port traffic statistics, IEEE 802.1Q VLAN, STP/RSTP, broadcast storm control, multicast storm suppression, unknown unicast storm suppression.

- Provide C/C++ SDK, virtual machine compilation and debugging environment, support remote online development and debugging, which facilitate the secondary APP development
- Common edge application such as device access and platform docking can be independently realized through the secondary APP development, and the fragmented southbound device access and extensible northbound platform docking can be handled
- The system presets the APP for accessing common terminal devices of multi-functional smart poles, and opens the gateway MQTT connection protocol
- Support DI/DO interface to monitor the status of traditional inventory equipment
- Support Modbus-TCP, Modbus-RTU and DLT645 protocols
- Support RS-485/232 device access

## Dimension

Unit: mm



## Specification

System Information	Processor: quad-core CPU 1.2GHz System: Linux Memory: 2GB DDR3 Storage: Support 16Gb(optional 8GB, 32GB) Emmc
--------------------	--

### Software Functions

- Security function: firewall-access control, firewall-port mapping, data encryption
- Switching function: port status/traffic statistics, IEEE802.1Q VLAN, port configuration, STP loop protection
- Redundancy technology: RSTP
- Time management: NTP/SNTP
- Network management: DHCP client, DNS client, NAT, intranet penetration

- System management: remote monitoring, remote upgrade, remote debugging, dual-zone active and standby upgrade, real-time clock synchronization, routing mode and switching mode
- Industrial protocol: Modbus RTU, Modbus TCP, DLT645
- Edge computing: time rule, equipment linkage, TSL model
- Northbound connection: the preset APP supports open TSL model connection protocol based on MQTT/HTTP, and supports the development of customized northbound protocol
- Southbound device: the preset APP supports street lamp controller, meteorological environment monitoring equipment, electronic door lock, information display screen, network camera and smart meter equipment, and supports self-developed equipment docking
- Configuration tool: device discovery, network setting, network diagnosis, time setting, system maintenance, container application management, southbound device configuration and northbound connection configuration.
- Application development: support the development of basic IO application services, southbound equipment services and northbound connection services, and provide application service development environment, application service development examples and related application service development tools

Ethernet Port	<p>Gigabit SFP: 4 Gigabit SFP slots, 1000base-X SFP</p> <p>Gigabit copper port: 8 Gigabit RJ45 copper ports, 10/100/1000Base-T(X), support 10M/100M/Gigabit self-adaption, full duplex/half duplex self-adaption</p>
Serial Port	<p>Standard: RS-485, RS-232</p> <p>Quantity of serial port: 2 RS-485/232 serial ports, 4 RS-485 serial ports</p> <p>RS-485 signal: D+, D-, GND</p> <p>RS-232 signal: RXD, TXD, GND</p> <p>Interface form: adopt 2*10 PIN 3.5mm pitch terminal blocks</p> <p>Directional control: RS-485 direction adopts Automatic Data Direction Control technology</p> <p>Parameters of electromagnetic isolation device: 3KVDC/2KVrms</p>
I/O port	<p>DI port: 4 DI inputs, adopt 2*8 PIN 3.5mm pitch terminal blocks, DI port occupies 2*4 PIN; Support dry contact active input, ON: 5~24VDC, OFF: 0~3VDC</p> <p>DO port: 2 DO outputs, adopt 2*8 PIN 3.5mm pitch terminal blocks, DO port occupies 2*4 PIN; Support optoelectronic isolator passive output</p>
HDMI (Reserved)	<p>HDMI port: 1 standard HDMI interface, that is type A HDMI Female; Support 1080P@60FPS video and audio output</p>

USB Interface	1 type-A USB 2.0 Female, support system debugging and configuration file management
CONSOLE Port	CLI debugging port (RS-232), RJ45
Relay (Reserved)	Support 1 relay alarm output: 6-pin 5.08mm pitch terminal blocks (2-pin relay); current carrying capacity is 1A@30VDC or 0.3A@125VAC;
Indicator	Running Indicator, Alarm Indicator, Power Supply Indicator, Ethernet Interface Indicator RS-485/422 Serial Port Indicator, DI/DO Port Indicator
Power Supply	1 12-48VDC wide voltage power input, 6-core 5.08mm pitch terminal blocks, power supply occupies 2 pins, support anti-reverse connection, 5A overcurrent protection
Power Consumption	No-load: 4.5W@48VDC Full-load: 7.9W@48VDC
Working Environment	Operating temperature: -40~75°C Storage temperature:-40~85°C Relative humidity: 5%~95% (no condensation)
Physical Characteristic	Housing: IP40 protection, metal Installation: DIN-Rail (standard) or wall (Optional) mounting Dimension (W x H x D): 70mm×160mm×130mm
Industrial Standard	IEC 61000-4-2 (ESD, electrostatic discharge), Level 3 <ul style="list-style-type: none"> <li>● Air discharge:± 8kV</li> <li>● Contact discharge: ±6kV</li> </ul> IEC 61000-4-4 (EFT, electrical fast transient pulses), Level 3 <ul style="list-style-type: none"> <li>● Power supply: ±2kV</li> <li>● Signal: ±1kV</li> <li>● Relay: ±2kV</li> </ul> IEC 61000-4-5 (Surge), Level 3 <ul style="list-style-type: none"> <li>● Power supply: common mode±2kV, differential mode±1kV</li> <li>● Signal: common mode±2kV, differential mode±1kV</li> <li>● Relay: common mode ±2kV, differential mode±1kV</li> </ul> Shock: IEC 60068-2-27 Free fall: IEC 60068-2-32 Vibration: IEC 60068-2-6

Authentication CE, FCC, RoHS

Warranty 5 years



## Ordering Information

Available Models	Gigabit SFP	Gigabit Copper Port	RS-485/232	RS-485	DI	DO	Power Supply
TCU2000-X0-D	4	8	2	4	4	4	12~48VDC



Address: 3/B, Zone 1, Baiwangxin High Technology Industrial Park, Song Bai Road, Nanshan District, Shenzhen, 518108, China  
TEL.: +86-755-26702668 ext 835 FAX: +86-755-26703485  
E-mail: [ics@3onedata.com](mailto:ics@3onedata.com)  
Website: [www.3onedata.com](http://www.3onedata.com)

◀ Please scan our QR code for more details

\*Product pictures and technical data in this datasheet are only for reference. Updates are subject to change without prior notice. The final interpretation right is reserved by 3onedata.