Multi-Interface Controller

UC50x Series

Milesight

◆ Introduction

UC50x series is a multi-interface controller used for data acquisition from various sensors and equipments. It contains different I/O interfaces such as analog input, digital input, digital output, serial port and so on, which simplify the deployment and replacement of LoRaWAN® or cellular networks.

UC50x series can be easily and quickly configured by NFC or wired USB port. For outdoor applications, it provides flexible power like built-in solar panel or high-capacity battery and is equipped with an IP67-rated enclosure and M12 connectors to protect itself from water and dust in harsh environments.

UC501

UC502

◆ Features

- Easy to connect with multiple wired sensors through GPIO/AI/RS232/RS485/SDI-12 interfaces
- Waterproof design including IP67 case and M12 connectors

- Solar powered and built-in battery optional

- Store historical records locally and support retransmission to prevent data loss

- Quick wireless configuration via NFC

LoRaWAN® Version Only

- Ultra-wide-distance wireless transmission up to line of sight of 15 km

- Compliant with standard LoRaWAN® gateways and network servers

- Quick and easy management with Milesight IoT Cloud solution

- Supports multicast for control in bulk (UC501 only)

LTE Version Only

- Support cumulative number report function for power saving

- Support multiple network protocols to be compatible with IoT platforms

◆ Specifications

Model	UC501	UC502
Wireless Transmission		
LoRaWAN® Version		
Antenna	Internal Antenna or External Antenna (Hardware Optional) External Antenna (EA) Version: 1 × 50 Ω SMA Female Connector	
Frequency	CN470/IN865/EU868/RU864/US915/AU915/KR920/AS923-1&2&3&4	
Tx Power	16dBm (868 MHz)/20dBm (915 MHz)/19dBm (470 MHz)	
Sensitivity	-137dBm @300bps	
Work Mode	OTAA/ABP Class A, Class C	OTAA/ABP Class A
Cellular Version		
Antenna	Internal Antenna	
Cellular Band	**NB-IoT/Cat.M Version:** Cat M1: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85 Cat NB2: B1/B2/B3/B4/B5/B8/ B12/B13/B18/B19/B20/B25/B28/ B66/B71/B85	
SIM Slot	1 (Nano SIM-4FF)	
Application Mode	TCP/UDP/MQTT/AWS	
Data Interfaces		

Interface Type	M12 A-Coded Male	
IO		
Ports	2 × GPIO	
Logical Level	Low: 0~0.8 V, High: 2.5~3.3 V	
Maximum Current	20 mA	
Work Mode	Digital Input, Digital Output, Pulse Counter (Software Switchable)	
Input Frequency	Suggested value: ≤ 4000 Hz	
Serial Port		
Ports	1 × RS232 or RS485 (Software Switchable)	
Baud Rate	1200~115200 bps	
Protocol	Transparent (RS232/RS485), Modbus RTU (RS485)	
Analog Input		
Ports	2 × Analog Input	
Resolution	12 bit	
Input Range	4~20 mA or 0~10 V (Switchable)	
SDI-12		
Ports	1 × SDI-12	
Protocol	SDI-12 V1.4, Transparent	
Power Output		
Ports	2 × 3.3 V, 2 × 5/9/12 V(Switchable)	
Power Time Before Data Collection	Continuous (3.3V), 0~10 minutes (5/9/12V)	
Operation		
Power On & Off	LoRaWAN® Version: Mobile App (via NFC), PC Software (via USB Type-C), Power Button (Internal) Cellular Version: Mobile App (via NFC), Power Button (Internal)	
Configuration	LoRaWAN® Version: Mobile App (via NFC) or PC software (via USB Type-C) Cellular Version: Mobile App (via NFC)	
Physical Characteristics		
Power Connector	1 × M12 A-Coded Male Interface	
Power Supply	1. 2 × 2550 mAh Chargeable Batteries 2. Solar powered (6V, 1.7W) 3. 5-24 VDC	1. 3 × 9000 mAh Replaceable ER26500 Li-SOCl$_2$ Batteries 2. 5-24 VDC
Operating Temperature	-20°C~60°C	-30°C~70°C

Ingress Protection	IP68 (1m underwater, 7 days)
Dimension	116 × 116 × 45.5 mm (4.56 × 4.56 × 1.79 in) (Connectors Excluded)
Installation	Wall or Pole Mounting

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