NIO 51

Industrial Mesh Wi-Fi Serial/Ethernet Device Gateway



Main Features

- Support EZ Mesh and Wi-Fi client router operation mode
- Selectable 2.4GHz/5GHz, 2x2 MIMO
- Support serial to Ethernet' serial to Wi-Fi and Ethernet to Wi-Fi
- Support Modbus/RTU to Modbus/TCP
- Built-in offline port buffer with 20MB of storage
- High immunity to Surge, ESD & EFT protection
- Up to 921.6Kbps baud rate for RS-232/422/485 transmissions
- Web-based configuration
- Support serial data log
- Support nCare remote configuration
- Wide DC input range with 12V-48V
- Wide operation temperature from -40°C~70°C

Product Overview

NIO 51 brings the wireless connectivity from serial devices or Ethernet devices perfectly to Wi-Fi mesh backbone in smart factories. Thanks for the Wi-Fi mesh technology, every device connecting to NIO 51 can easily keep multiple Wi-Fi connecting paths to either IWF 310 EZ Mesh backbone or neighbor NIO51 devices to communicate with the control center even the devices are in moving status such as AGV application in factories.

NIO 51 provides flexible conversion between Modbus RTU to Modbus TCP protocols as well as serial to Ethernet/Wi-Fi interfaces within one box. It's also equipped with high immunity to EMC high level protection in Surge, ESD and EFT, wide operation temperature and redundant power so people do not need to concern about impact from harsh environment. Optional mPCIe port can be used as 3G/LTE WAN connection in the mobility applications or the environments where no Wi-Fi coverage is possible.

NIO 51 fills the communication gap between legacy edge nodes to the control center, enabling field data to be harnessed for manufacturing process optimization, asset management, and preventive maintenance.

Specifications

Wi-Fi Radio
- IEEE802.11a/b/g/n, 2x2 MIMO

Serial Interface
- RS232/422/485 with isolation
  - Data bits: 8
  - Stop bits: 1
  - Parity: none, even, odd
  - Baud rate: 300bps~921.6Kbps

Ethernet Interface
- 10/100Mbps

Power Requirements
- Input voltage: 12~48VDC, 2-pin removable terminal block
- Input current: 1.5A@12VDC

LED Indicator
- 1 x Power/status
- 1 x Serial status
- 3 x RSSI indicator
- 1 x Wi-Fi 2.4/5GHz indicator
- 1 x Link/Act indicator
- 1 x Extension module

Factory Default/Reset Button
- Press reset button 10 seconds for factory default

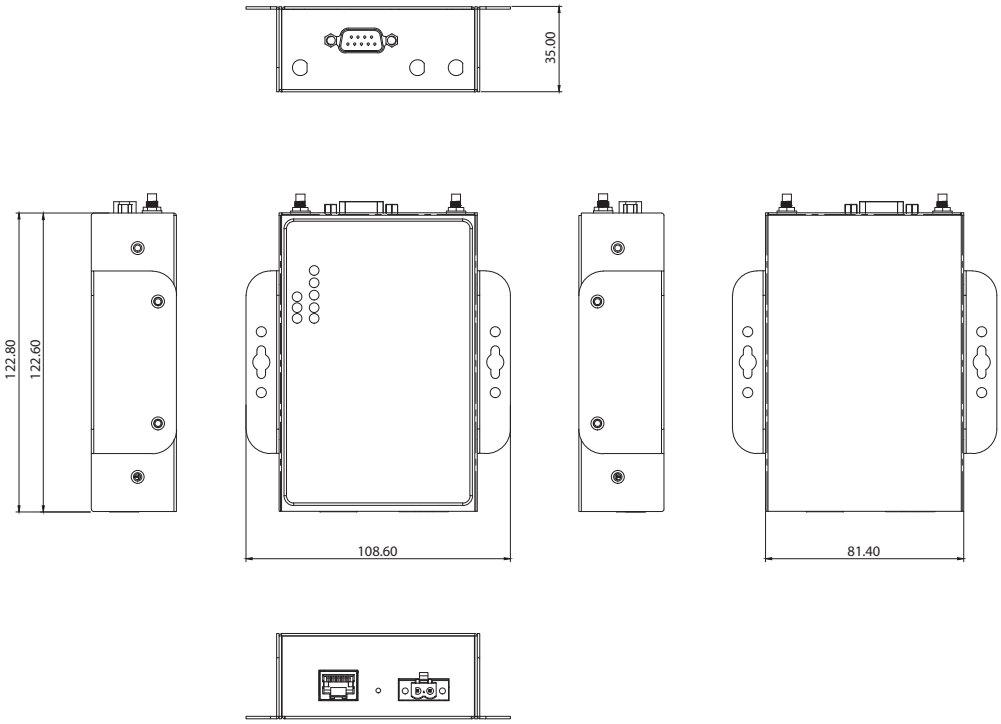
Connector Type
- DC input: Phoenix contact terminal block
- Ethernet: RJ-45 connector
- Serial signal: DB9

Wi-Fi Operating Mode
- EZ Mesh
- Client router

Wi-Fi Security (Client Mode)
- WEP (64/128)
- WPA/WPA2 mixed
- WPA2-personal (PSK+CCMP/AES), WPA2-enterprise

Protocol
- Modbus TCP
- Modbus RTU
- Transparent mode for serial to Wi-Fi/Ethernet

Dimension Drawing



Serial Port Characteristics
- Flow control: XON/XOFF, RTS/CTS
- Serial data log: 64KB
- Offline port buffering: 20MB
- Min. concurrent TCP client number: 10

Software Watchdog

Dimension
- 81.4 x 122.6 x 35 (W x D x H) (mm)

Weight
- 450g

Mounting
- Wall mounting
- DIN mounting

Construction
- SGCC chassis with fanless design

Certification
- EMI: FCC, CE Class A
- RF
  - FCC: Part 15C
  - CE: EN300328, EN301893
- EN 62368-1 (pending)
- EMC
  - EN301 489-1/17, FCC Part 15 subpart B, EN55032/55024
  - IEC61000-4-2: level 4
  - IEC61000-4-4: level 4
  - IEC61000-4-5 Surge: level 3

Environment
- Operating temp: -40°C~70°C
- Storage temp: -40°C~85°C
- Relative humidity: oper ating 5%~95%, non-condensing
- RoHS compliant
- Vibration
  - Random: 2Grms@5~500Hz, IEC60068-2-64
  - Sinusoidal: 2Grms@5~500Hz, IEC60068-2-6
- Shock: 50G, half sine, 11ms, IEC60068-27

Ordering Information

- **NIO 51 (P/N: 10T00005101X0)**
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We reserve the right to change specifications and product descriptions at any time without prior notice.