NTC-220 Series

4G LTE Cat 1 Industrial IoT Router
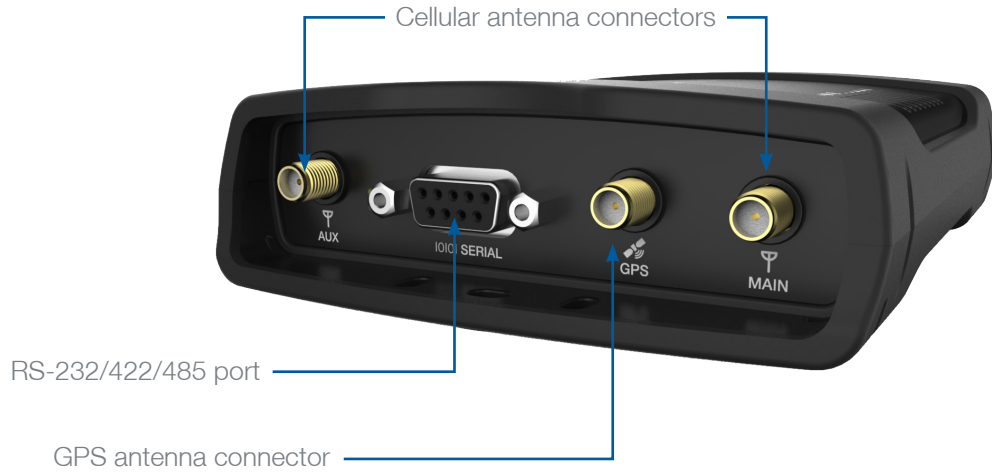
Device Features

www.esis.com.au
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143 mm

34 mm

107 mm

221 g

Key Features

- Cat 1 4G LTE (10Mbps)
- A Fast Ethernet port, a serial port and a USB port
- Integrated GPS for reliable asset tracking
- Software configurable I/O ports

- Rugged industrial design for harsh environments
- Ignition sense capability and a wide input voltage range for vehicular applications

Pre-release specifications subject to change.

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Cellular antenna connectors

AUX

IOIOI SERIAL

GPS

MAIN

RS-232/422/485 port

GPS antenna connector

Micro USB 2.0 OTG port
(host or device mode)

Fast Ethernet LAN port

Reset button

⊕ ⊖ i ⌐I/O⌐

USB

SIM card slot
(for USIM/SIM 2FF format)

6 way connector
(power, ignition input and 3 x I/O ports)

SIM tray eject button

What's in the box*

1 x DIN rail
mounting bracket

2 x Cellular
antennas

1 x six-way
terminal block

1 x 1.5m yellow
Ethernet cable

NetCommWireless

1 x Quick start
guide

1 x NetComm Wireless (NTC-220)

* GPS Antenna sold as optional accessory

Optional Accessories

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ANT-0038
GPS Active Patch Antenna
SPECIFICATIONS

- Frequency range: 1575.42±1.023 MHz
- Gain: 27 dBi (GPS)
- VSWR: 2.0:1 MAX
- Polarization: R.H.C.P.
- Cable: RG174
- Cable length: 3 m
- Impedance: 50 Ω
- Voltage: 3.0-5.5 V
- Connector: SMA male
- Radome colour: Black
- Radome material: ABS

PSU-0079
12V DC Power Supply
SPECIFICATIONS

- International Efficiency Level VI Power supply
- No-Load Power Consumption: 0.1 W (115 VAC 60 Hz)
- Average Efficiency in Active Mode: 85% (115VAC 60Hz)
- Maximum input voltage range: 90 - 264 V AC (100 - 240 V AC Normal)
- Maximum input frequency range: 47 - 63 Hz (50/60 Hz Normal)
- Output voltage range: 11.4 - 12.6 V DC (Typical 12 V DC)
- Maximum output current: 1.5 A
- Maximum ripple and noise: 150 mV peak to peak
- Maximum output overshoot: 10%
- Protection against Over-Voltage, Over-Current and Short-Circuit
- Temperature range: 0°C - 40°C (Operating), -30°C - 70°C (Storage)
- Relative humidity range: 10% - 90%
- Altitude range: Sea level to 2,000 m
- Suitable regions: US/UK/EU/AU/SA/TW/CH/JP
- Safety certifications: UL60950-1, CSA C22.2 NO.60950-1, EN60950-1, AS/NZS 60950, GB4943, J60950, IEC 60950-1
- Lead length: 1.5 m

Pre-release specifications subject to change.

Technical Specifications

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PEAK DATA SPEED (MODEL DEPENDENT)

- LTE FDD: Max 10 Mbps (DL) / Max 5 Mbps (UL)
- LTE TDD: Max 8.96 Mbps (DL) / Max 3.1 Mbps (UL)
- DC-HSPA+: Max 42 Mbps (DL) / Max 5.76 Mbps (UL)
- UMTS: Max 384Kbps (DL) / Max 384Kbps (UL)
- EDGE: Max 236.8 Kbps (DL) / Max 236.8 Kbps (UL)
- GPRS: Max 85.6 Kbps (DL) / Max 85.6 Kbps (UL)

ANTENNA CONNECTORS

- 2 x SMA connectors for 4G/3G/2G
  (1 x Main and 1 x RX Diversity)
- 1 x SMA connector for GPS

INTERFACES

- 1 x 100Base-T Ethernet RJ45 port
- 1 x RS232 Serial Port DB-9 female DCE supporting either
  9 wire RS232 or RS485/RS422 (software selectable)
- Software controlled termination resistors for RS485
- 1 x Micro USB 2.0 OTG interface with 0.5A supply capability
- I/O terminal block providing:
  - 3 x Multipurpose I/O pins
  - NAMUR (EN 60947-5-6 / IEC 60947-5-6) compatible
    sensor input
  - Analogue 0V to 30V input
  - Digital input (through measurement of voltage above/
    below threshold)
  - Open collector output
- 1 x Recessed multifunctional reset button
  - Reboot
  - Reboot into recovery mode
  - Reset to factory default settings

LED INDICATORS

- 8 x tri-colour LEDs
  - Power, Network, a GPS/customizable LED and 5x
    Signal Strength indicators
- Easy and clear LED status display for connection status,
  connected network type, and connection errors

GPS

- GPS
- GLONASS
- BeiDou
- Galileo
- QZSS

SIM CARD READER

- 1 x SIM card slot
  - Supports Mini USIM/SIM Format (2FF)
  - Optional soldered-down SIM (ETSI MFF2 DFN-8 USIM)

PROCESSOR AND STORAGE

- 800 MHz ARM Cortex A8 processor with 128 MB RAM
- 512 MB flash memory storage

CELLULAR

- Profile managed packet data connections
- NAT Disable for framed route configuration
- Transparent bridge mode using PPPoE to allow the router
  to transparently forward Public WAN IP address to a
  downstream device
- SIM Security Management (PIN configuration, enable and
  disable)
- Automatic and manual cellular band selection
- Automatic and manual operator selection
- Odometer reading available via Web-UI, CLI and SDK

NETWORK & ROUTING

- Static Routing, RIP (v1/v2), Port Forwarding and DMZ
- Dynamic DNS
- VRRP for redundant router failover
  - DHCP Server including address reservation by MAC
    address
  - Custom DNS server definitions
  - DHCP Relay
  - DHCP list display in Web-UI
  - Advanced DHCP Option configuration (Option 42 NTP,
    Option 66 TFTP, Option 150, Option 160)
- Data Stream Manager providing ability to create
  mappings between input and output ports (e.g. Serial
  Port, SMS, USB) and perform required translation or data
  processing by each virtual tunnel.
- Modbus Server TCP/IP Gateway and Client TCP/IP Agent
  with up to 247 slaves connected to the Serial TCP/IP
  Gateway.
- Modbus RTU/ASCII frames support.

VPN

- PPTP Client for VPN connectivity to remote PPTP VPN Server
- IPSec tunnel termination (for up to 5 tunnels)
- GRE Tunnelling
- OpenVPN (Client, Server and P2P)

ADMINISTRATION & CONFIGURATION

- Secure web-based user interface (HTTPS) for full device
  status and configuration
- Password protected configuration file backup and restore
  for quick device configuration and device cloning
- SSH Command Line Interface for status monitoring,
  configuration and control
- SNMP v1/v2/v3 including cellular specific MIB, config and
  firmware download
- TR-069 Client for remote device configuration,
  configuration backup and restore, and firmware upgrade
- SMS Client (Send/Receive) including inbox, outbox
- Ping monitor watchdog (Reset connection on repeated
  ping failure)
- Diagnostic Log Viewer (remote and local)
- System Status and Security Logs
- NTP Server Support for network time sync of device's
  system clock
- Device User Guide stored on the device and accessible via
  the secure web-based user interface (HTTPS)

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- Advanced Diagnostics and Control via SMS
  - Query status information – such as Signal Strength, WAN IP, Uptime, and many more
  - Configure device remotely via SMS – such as APN, authentication settings, and many more
- Execute commands via SMS – such as reboot, reset to defaults, go offline, and many more
- Secure SMS management using sender whitelisting and password management
- SMS acknowledgement replies for queries and commands

FIRMWARE MANAGEMENT

- Firmware Upgrade locally via LAN or remotely Over-The-Air (HTTPS, SNMP, TR-069, LWM2M)
- Multiple firmware image storage on device and dynamic install
- Triggered firmware upgrade via SMS (initiate download & install from HTTPS)

SOFTWARE DEVELOPMENT KIT

- Develop and install custom software applications
- Open Linux standard development environment
- Develop applications/scripting in standard ANSI C/Shell script and LUA
- Package manager built into Web-UI for Application installation/removal

- API (C, LUA and Shell libraries) to the unit's internal Runtime Database to allow full status monitoring configuration and control of the device from custom applications

TEMPERATURE

- Operating Temperature Range: -40°C to +70°C
- Storage Temperature Range: -40°C to +85°C
- Operating Humidity Range: 0-95%

POWER SUPPLY

- Power input via 6-way termination block receptacle
- Field terminable power input via screw type terminal block included
- DC Power (8 - 40V DC)
- 1 x Dedicated ignition input and 3 x I/O ports on 6-way connector (only available on some models)
- Power consumption 6W, recommended DC supply via terminal block (12V 1.5A)
- Vehicle compatible protection on DC Input Jack. (ISO7637 standard)

DIMENSIONS, WEIGHT & MOUNTING

- Device dimensions (excluding external antenna): 143 mm (L) x 107 mm (W) x 34 mm (D) / 221 g (254 g with bracket)
- Wall mount support in multiple orientations via embedded mounting holes
- DIN Rail mount support via plastic bracket included in box (Top hat section rail TH 35 IEC60715)

MODEL	NTC-221	NTC-222	NTC-224	NTC-225
Region / Carrier	Australia / New Zealand	Europe / Middle East / Africa	USA - AT&T, T-Mobile / Canada	USA - Verizon
Frequency Bands	LTE FDD Bands: • Band 1 (2100 MHz) • Band 2 (1900 MHz) • Band 3 (1800 MHz) • Band 4 (1700 MHz) • Band 5 (850 MHz) • Band 7 (2600 MHz) • Band 8 (900 MHz) • Band 28 (700 MHz) LTE TDD Bands: • Band 40 (2300 MHz) WCDMA Bands: • Band 1 (2100 MHz) • Band 2 (1900 MHz) • Band 5 (850 MHz) • Band 8 (900 MHz) GSM Bands: • Band 2 (1900 MHz) • Band 3 (1800 MHz) • Band 5 (850 MHz) • Band 8 (900 MHz)	LTE FDD Bands: • Band 1 (2100 MHz) • Band 3 (1800 MHz) • Band 5 (850 MHz) • Band 7 (2600 MHz) • Band 8 (900 MHz) • Band 20 (800 MHz) WCDMA Bands: • Band 1 (2100 MHz) • Band 5 (850 MHz) • Band 8 (900 MHz) GSM Bands: • Band 3 (1800 MHz) • Band 8 (900 MHz)	LTE FDD Bands: • Band 2 (1900 MHz) • Band 4 (1700 MHz) • Band 12 (700 MHz) WCDMA Bands: • Band 2 (1900 MHz) • Band 4 (1700 MHz) • Band 5 (850 MHz)	LTE FDD Bands: • Band 4 (1700 MHz) • Band 13 (700 MHz)
Regulatory Certifications	• Pending	• Pending	• Pending	• Pending
Carrier Approvals	• Pending	• Pending	• Pending	• Pending

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ESIS
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Listen.
Innovate.
Solve.

For over 35 years, NetComm Wireless has engineered new generations of first to market technologies and helped to change the way that the world communicates.

Innovation comes from our people. Working together, from all parts of the globe, we listen to our customers and achieve innovation through a unique understanding of the challenges and opportunities of a connected world.

No matter the challenge, we look at the world through the eyes of our operator partners and customers and innovate solutions engineered to deliver lasting results in line with specific business needs.

Whether transforming rural and regional communities with superfast Fixed Wireless; optimising business efficiencies with smart wireless Industrial Internet of Things (IIoT) solutions, or extending network infrastructure with Fibre or Cable to the distribution point – NetComm Wireless is backed by the experience, expertise and capabilities needed to optimise outcomes.

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