



# Product Portfolio

3G / 4G Wireless M2M Devices



# NetComm Wireless

## 3G / 4G Wireless M2M Product portfolio

For 33 years, NetComm Wireless has provided businesses, enterprises and governments with innovative broadband networking products that meet the latest requirements of modern telemetry, Machine-to- Machine (M2M) communication, WAN and legacy serial applications.

NetComm Wireless specialises in the development of advanced industrial and commercial grade broadband products that support business continuity /disaster recovery, primary mobile broadband and remote M2M connectivity.

Wireless M2M products are designed to deliver cost-effective high-performance 3G/4G data communication for challenging applications in areas such as retail, health, metering, digital signage, security, banking and mining.

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# A global leader in Wireless M2M

## Ready for future growth

M2M communication describes automatic data communication between devices such as electric meters, digital displays, vending machines, alarm systems and vehicles. Using NetComm Wireless' M2M devices to link remote assets with central data terminals or more complex back-end systems over 3G/4G networks, these assets can exchange data, be monitored and even serviced across the globe in real time.

NetComm Wireless' M2M technologies remain at the forefront of wireless M2M innovation, offering customised solutions that enable remote tracking and real time monitoring as well as mobile access to the Internet and corporate network data. Dual system management allows users to maximise reliability and reduce the total cost of ownership.

NetComm Wireless' M2M products are easily installed and integrated into existing enclosures, feature browser-based device management, routing, Internet and security protocols in addition to software customisation, hardware development and project management solutions to meet specific requirements.



### IDEAL FOR USE IN REMOTE AND UNMANNED LOCATIONS

NetComm Wireless' M2M devices build Wide Area Networks (WAN) utilising the superior speeds of 3G/4G networks worldwide. Designed with a focus on remote installation, reliable backup and simple setup, NetComm Wireless' M2M routers and modems support mission-critical applications with multi-level system monitoring to keep communication lines open in any conditions.



### END-TO-END CONTROL

Gain complete communications control with remote monitoring, management, reporting, security and real time connections while benefiting from the freedom to select your preferred service provider and carrier.



### TAILORED TO YOUR NEEDS

Take advantage of integrated software customisation capabilities (Embedded Linux OS, SDK), browser based and remote device management, multiple routing protocols and the development of hardware, custom firmware and project management solutions to meet specific business needs.



### INCREASED PERFORMANCE BENEFITS

Technologies strategically aligned with the evolution of 3G/4G telecommunications networks have been engineered to improve productivity, simplify logistics and enhance business operations by offering flexible mobility and easy relocation. NetComm Wireless' remotely managed industrial-grade M2M routers are designed for easy installation and integration into existing machines for reliable Internet connectivity without fixed-line limitations.



### COMPREHENSIVE PRE-SALES AND TECHNICAL SUPPORT

A dedicated team of support engineers and developers are available to ensure you receive superior pre-sales and after-sales technical support worldwide. We offer troubleshooting and integration support while also providing value-added services such as fixed IP addressing, and application development services.



### ROBUST AND SECURE

Designed to withstand harsh environmental conditions, NetComm Wireless' industrial M2M products have been meticulously tested for demonstrated performance in extreme temperature conditions. All products in the range have been designed for durability to ensure a long product lifespan while also offering highly advanced security features.



### REACH CUSTOMERS FASTER

Advanced technology components have been engineered to facilitate speed-to-market with the rapid design, development and deployment of wireless M2M product solutions that provide uninterrupted mobile and remote access to email, the Internet and corporate network data.

# 4G WiFi M2M Router NTC-140W



Machine-to-Machine (M2M) communications is to industrial automation and management what the internal combustion engine was to the automobile industry.

It is revolutionary, and even disruptive, creating new ways to improve productivity and increase profits by enabling the industrial Internet of Things (IoT). Whether you are an end-user, a system integrator or an IoT service manager, your design toolbox will benefit from the highly adaptable 4G WiFi M2M Router (NTC-140W).

## QUICK FACTS

- Rugged enclosure, wide operating temperature range, wall mount options and a flexible range of input power options making it ideal for use in harsh industrial environments
- Tested for vehicular applications (IEC Class 5M2, MIL-STD-810 method 516.5, ISO 7637-2)
- Powerful cellular connectivity supporting 4G (LTE) up to 100Mbps/50Mbps (downlink/uplink), 3G (DC-HSPA+ and 1xEV-DO Rel. A) up to 42Mbps/5.76Mbps and 2G (EDGE)
- Two Gigabit Ethernet ports for networking flexibility
- USB-OTG for additional interfaces or extra storage
- High-speed WiFi (802.11b/g/n) as access point or client with 2x2 MIMO antenna technology and integrated hotspot functionality
- Flexible WAN setup (use any interface as WAN), ideal for business continuity applications
- Integrated standalone GPS for precise and accurate asset tracking
- Ignition sense capability for graceful shutdown and startup in vehicle applications
- Configurable power save mode with minimum current draw when in sleep mode

The robust and intelligent NetComm Wireless 4G WiFi M2M Router (NTC-140W) provides real-time M2M data connectivity, even in harsh environments. The NTC-140W creates reliable point-to-point or point-to-multi-point WAN connections for a variety of mission critical applications such as primary broadband, video surveillance, retail, payments, in-vehicle communications and business continuity.



### USER FRIENDLY

The NTC-140W is all about simplicity. It has 8 tri-colour LED indicators and a user friendly web interface, making onsite setup and ongoing remote management simple, easy and cost-effective. Access the device using any browser, or use text messages (SMS) to securely access the current status, change configurations or execute commands.



### IDEAL INDUSTRIAL IOT DEVICE

The industrial IoT industry is expanding at a rapid rate as businesses realise the enormous value of remote asset management enabled through M2M communications. The NTC-140W has the custom capacity needed to adapt to varied M2M implementations; and is a future proof 4G device that ensures a low total cost of ownership and the highest possible rate of return.



### CARRIER GRADE MANAGEMENT

The NTC-140W supports a wide range of telecommunication standards based remote management protocols such as LWM2M, TR-069 and SNMP to allow quick and easy integration with a wide range of remote management platforms. Extensive support for managing the device via SMS allows enterprises to communicate, get status reports, change settings or even execute commands using an SMS gateway. The built-in event notification engine, which sends alarms and notifications via email or SMS, allows an automated layer of self-monitoring to ensure a quick response to events requiring human intervention.

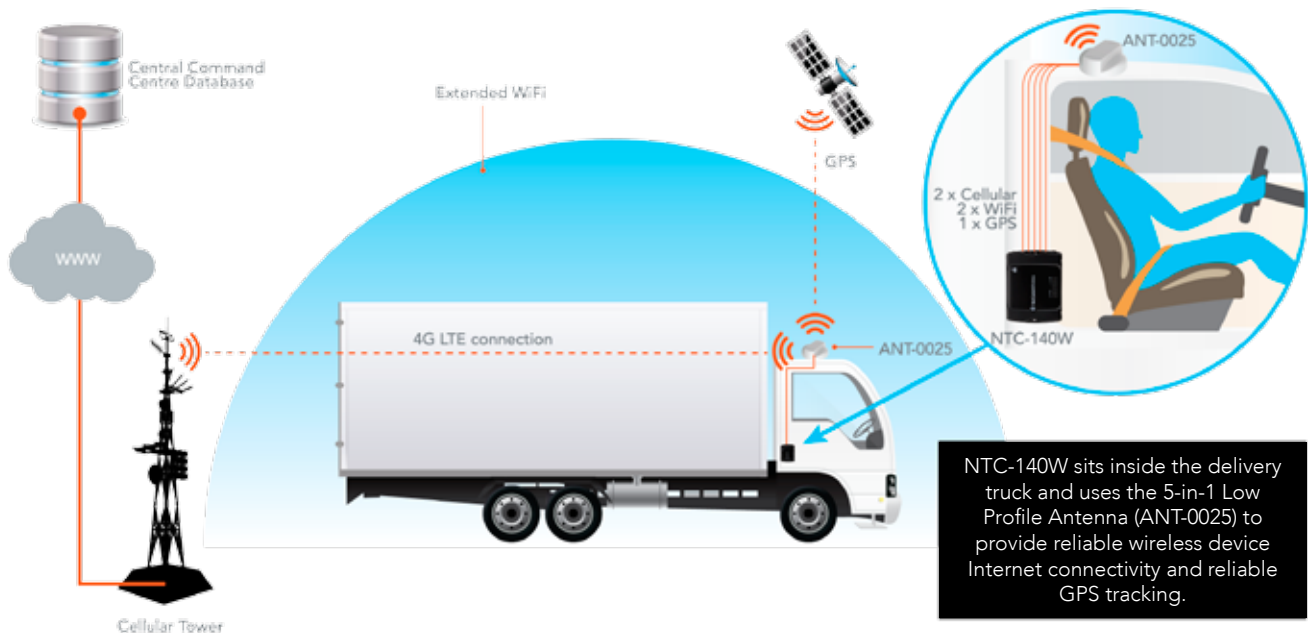


### INDUSTRIAL GRADE DESIGN

Designed from the ground up with harsh industrial and automotive environments in mind, the NTC-140W features a state-of-the-art enclosure made from a composite of hard wearing, shock absorbing and environmentally stable industrial materials. Electrical components have been carefully selected to allow the NTC-140W to operate at extreme temperatures. Most importantly NetComm Wireless has done extensive environmental tests to ensure the device continues to operate under extreme conditions of temperature, shock and vibration.

# Application Example

## Connected vehicle



## Device Features

### At a glance



- 1 Cellular antenna connectors
- 2 WiFi antenna connectors
- 3 GPS antenna connector
- 4 MicroSD card slot (up to 32GB MicroSD cards)
- 5 SIM card slot (for USIM/SIM 2FF format)
- 6 SIM tray eject button
- 7 Micro USB 2.0 OTG port (host or device mode)
- 8 Reset button
- 9 Molex Mini-Fit 4 pin connector (power, ignition input and I/O port)
- 10 Gigabit Ethernet LAN port
- 11 Gigabit Ethernet LAN/WAN port

## Package Contents

### What's in the box?\*



\* GPS Antenna sold as optional accessory



# 4G M2M Router NTC-140



Wireless Machine-to-Machine (M2M) communications is used to connect and manage an ever increasing number of mission-critical business assets across the entire organisation. As the cost of downtime escalates, the need to maintain a fail-proof connection is essential. Whether used as a primary or complimentary solution, the industrial-grade 4G M2M Router (NTC-140) ensures a fast, powerful and constant connection.

## QUICK FACTS

- Fast and reliable cellular connectivity supporting 4G (LTE) up to 100Mbps/50Mbps (downlink/uplink), 3G (DC-HSPA+) up to 42Mbps/5.76Mbps and 2G (EDGE)
- Flexible WAN setup (use any interface as WAN), ideal for business continuity applications
- Two Gigabit Ethernet ports for networking flexibility
- Powerful processor and flash memory storage
- Rugged enclosure, wide operating temperature range, wall mount options and a flexible range of input power options making it ideal for use in harsh industrial environments
- USB-OTG for additional interfaces or extra storage
- Integrated standalone GPS for precise and accurate asset tracking
- Configurable power save mode with minimum current draw when in sleep mode

The NetComm Wireless 4G M2M Router (NTC-140) provides uninterrupted real-time data connectivity for diverse mission-critical applications, and is an ideal business continuity device. The feature rich and user friendly NTC-140 creates reliable point-to-point or point-to-multi-point WAN connectivity and offers automatic failover to ensure reliable connectivity when outages occur.



### DEPENDABLE AUTOMATIC-FAILOVER

Business continuity and continuous connectivity is assured with automatic failover to 3G when outside of 4G coverage areas, and instant fall-back to 4G when the Gigabit Ethernet ports are used as a primary Internet connection.



### CUSTOM APPLICATIONS

The NTC-140 is a complementary solution that integrates seamlessly with the existing network. The powerful processor delivers optimal performance and its embedded NetComm Linux OS and Software Development Kit (SDK) enables the installation of custom software applications to the on-board memory.



### SIMPLE AND COST-EFFECTIVE

Designed for ease of use, the NTC-140 has a user-friendly web interface and 8 tri-colour LED indicators for easy setup and ongoing management. The device can be managed using any browser, and text messages (SMS) can be used to securely access the current status, change configurations or execute commands. .



### FUTURE-PROOF REMOTE ASSET MANAGEMENT

The NTC-140 enables carrier grade remote management with support for protocols such as LWM2M, TR-069 and SNMP to allow quick and easy integration with a wide range of remote management platforms. The NTC-140 is a future-proof 4G device that is ideal for long-term deployments, ensuring a low total cost of ownership and a high rate of return as networks advance. Designed to ensure a quick response to events requiring human intervention, the built-in event notification engine, which sends alarms and notifications via email or SMS, allows an automated layer of self-monitoring.

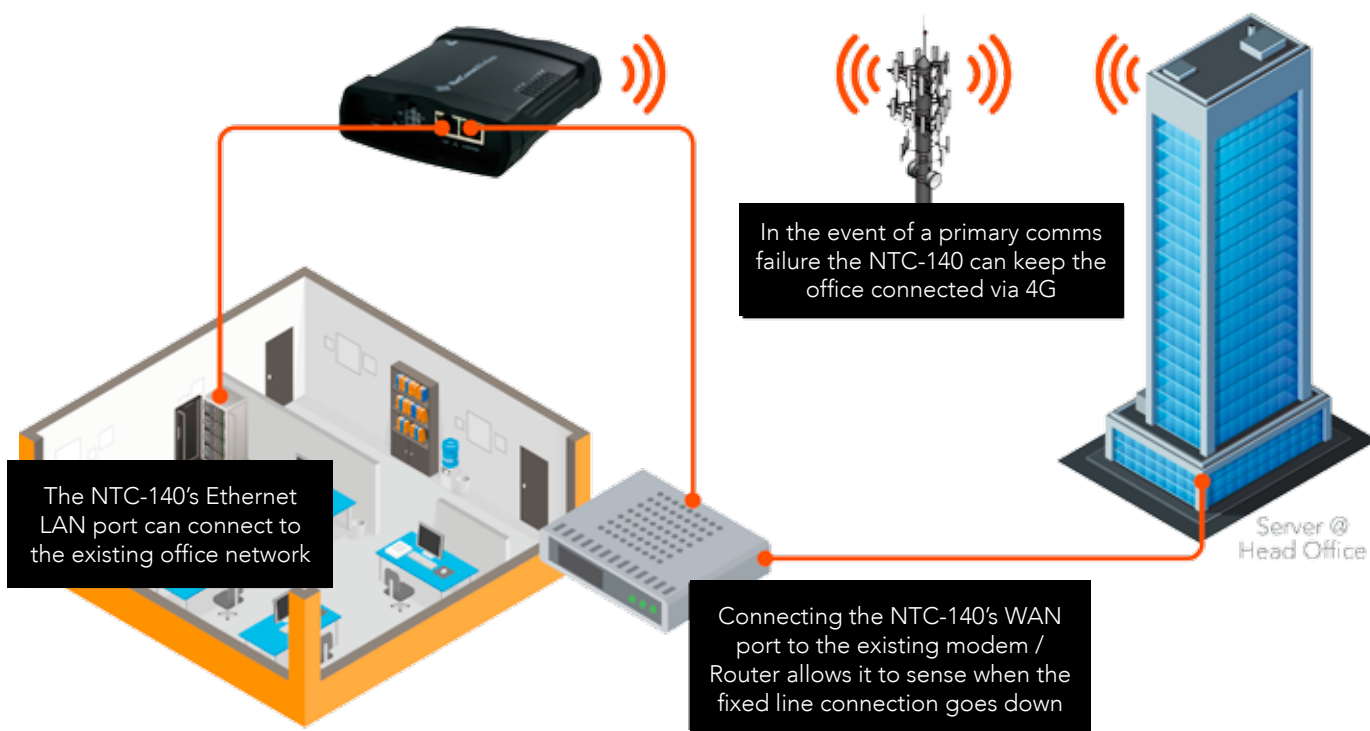


### INDUSTRIAL GRADE DESIGN

Ideal for remote and industrial environments, the NTC-140 is easily mountable and features a hard wearing polycarbonate and rubber enclosure. Electrical components have been carefully selected to allow the NTC-140 to operate at extreme temperatures; and extensive environmental testing ensures that the device continues to operate under extreme conditions of temperature, shock and vibration.

# Application Example

## Wireless 4G failover



## Device Features

### At a glance



- 1 MAIN Cellular antenna connector
- 2 MicroSD card slot (up to 32GB MicroSD cards)
- 3 GPS antenna connector
- 4 AUX Cellular antenna connector
- 5 SIM card slot (for USIM/SIM 2FF format)
- 6 SIM tray eject button
- 7 Micro USB 2.0 OTG port (host or device mode)
- 8 Reset button
- 9 Molex Mini-Fit 4 pin connector (power, ignition input and I/O port)
- 10 Gigabit Ethernet LAN port
- 11 Gigabit Ethernet LAN/WAN port

## Package Contents

### What's in the box?\*



\* GPS Antenna sold as optional accessory

# 4G LTE Light Industrial M2M Router - NWL-25



Machine-to-Machine (M2M) communications is to industrial automation and management what the internal combustion engine was to the automobile industry. It is revolutionary, and even disruptive, creating new ways to improve productivity and increase profits by enabling the industrial Internet of Things (IoT). Whether you are an end-user, a system integrator or an IoT service manager, your design toolbox will benefit from the simple integration of the 4G LTE Light Industrial M2M Router (NWL-25).

## QUICK FACTS

- Rugged enclosure, multiple wall mount options and a wide range of input power options making it ideal for use in harsh environments
- Powerful cellular connectivity supporting 4G LTE
- A serial port software selectable to support either 9 wire RS232 or RS485/RS422
- 3 x multipurpose I/O pins to connect to external sensors or relays
- A Fast Ethernet (100Mbps) port to connect to a local device or network
- USB-OTG for additional interfaces or extra storage
- Ignition sense capability for graceful shutdown and startup in vehicle applications
- Configurable power save mode with minimum current draw when in sleep mode
- Supports PPPoE, RIP, VRRP, DDNS, MAC/NET address filtering and DHCP/DHCP relay
- VPN support for establishing a secure connection over public cellular networks using: OpenVPN, PPTP, IPSec or GRE Tunnelling
- Powerful processor and spare storage capacity ideal for applications requiring edge processing

The robust and intelligent NetComm Wireless 4G LTE Light Industrial M2M Router (NWL-25) provides real-time M2M data connectivity, even in harsh environments. The NWL-25 creates reliable point-to-point or point-to-multi-point WAN connections for a variety of mission critical applications such as primary broadband, video surveillance, retail, payments and in-vehicle communications.



### IDEAL INDUSTRIAL IOT DEVICE

The industrial IoT industry is expanding at a rapid rate as businesses realise the enormous value of remote asset management enabled through M2M communications. The NWL-25 has the custom capacity needed to adapt to varied M2M implementations; and is a future proof cost-effective 4G device that ensures a low total cost of ownership and the highest possible rate of return.



### CARRIER GRADE MANAGEMENT

The NWL-25 supports a wide range of telecommunication standards based remote management protocols such as LWM2M, TR-069 and SNMP to allow quick and easy integration with a wide range of remote device management and application management platforms.



### ENTERPRISE GRADE PERFORMANCE AND RELIABILITY

The NWL-25 features external antenna connectors for cellular antennas to ensure the best possible high performance 4G connectivity, even in areas with low signal strength. It is a powerful router with advanced networking features for smooth and simple integration within the enterprise's existing network routing architectures. The device is ideal for business critical applications such as providing high-speed 4G wireless connectivity to substitute fixed-line services.



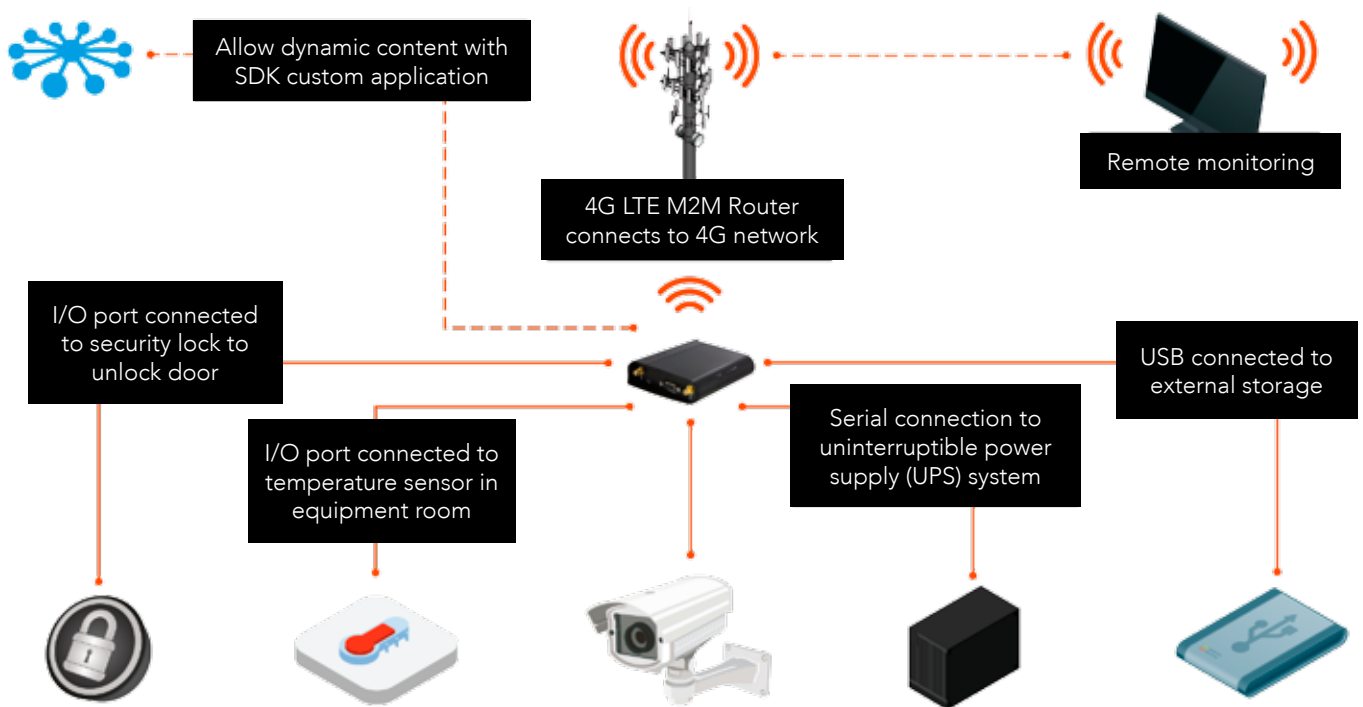
### POWERFUL EDGE PROCESSOR

The NWL-25 is a software rich intelligent 4G router with the additional benefit of being software expandable. It has an open embedded Linux OS, empowering solution architects and system integrators to create their own applications using NetComm Wireless' Software Development Kit (SDK).



# Application Example

## Wireless surveillance camera



## Device Features

### At a glance



- |  |  |
|--|--|
| 1 Cellular antenna connectors                  | 6 Reset  |
| 2 SIM card slot (for USIM/SIM 2FF format)      | 7 6-way Terminal block connector (power, ignition input and 3 x I/O ports) |
| 3 SIM tray eject button                        | 8 Fast Ethernet LAN port   |
| 4 Serial port                                  |  |
| 5 Micro USB 2.0 OTG port (host or device mode) |  |

## Package Contents

### What's in the box?\*



1 x NetComm Wireless 4G LTE Light Industrial M2M Router (NWL-25-02)



2 x 4G LTE Cellular antennas



1 x DIN rail mounting bracket



1 x 1.5m yellow Ethernet cable



1 x 6 way termination block



1 x Quick start guide



1 x WiFi security card

# 3G M2M Router Plus

## NTC-6200



Industrial M2M applications are becoming more advanced, more complex and more diverse. Whatever the industry sector, the challenge is to achieve business objectives through the efficient management of remote assets, equipment and systems. The NetComm Wireless 3G M2M Router Plus (NTC-6200) offers an easily integrated solution that is simple to manage, configure and customise.

Designed to enable diverse M2M applications, the NTC-6200 connects to 3G networks worldwide and, depending on the selected model, comes equipped with GPS and multipurpose interfaces including I/O, Serial, Ethernet and USB ports.

### QUICK FACTS

- Penta-band 3G and quad-band 2G auto-fallback for uninterrupted communications
- Connect to global 3G HSPA+ networks reaching speeds up to 14.4 Mbps (downlink)
- Fast Ethernet port (100Mbps)
- Connect legacy devices using the Serial (RS232/RS422/RS485) port and USB 2.0 OTG port
- Track assets with built-in GPS supporting an active GPS antenna via external SMA connector (*selected models*)
- Three multi-purpose I/O ports and one dedicated ignition sensing input (*selected models*)
- Intelligent, tri-Colour LED display for clear, easy to read modem status
- Remote device management with support for LWM2M, TR-069, web GUI and full feature management with SMS
- Save power using low power 'sleep' mode (~5mA at 12V)
- Flexible mounting suitable for industrial applications with built-in wall mount and DIN rail mounting options
- Device dimensions (excluding external antenna): 143mm (L) x 107mm (W) x 34mm (D) / 221g (254g with bracket)
- Browser-based device management and on-board processing capabilities for customised software and all-in-one monitoring and communications functionality

The robust and intelligent NetComm Wireless 3G M2M Router Plus (NTC-6200) provides real-time M2M data connectivity, even in harsh environments. The NTC-6200 creates reliable point-to-point or point-to-multi-point WAN connections for a variety of mission critical applications such as primary broadband, video surveillance, retail, payments, in-vehicle communications and industrial automation.



#### UNLIMITED CONNECTIVITY

Connect and manage remote assets across the globe. NTC-6200 delivers speeds reaching 14.4Mbps over 3G networks worldwide; and feature Ethernet, Serial (RS232/422/485) and USB 2.0 ports to seamlessly connect virtually any piece of equipment, anywhere.



#### SEAMLESS INTEGRATION

NTC-6200 routers integrate with application service enablement platforms, and provide developers with a variety of real-world interfaces, offering complete integrated solutions for any application.



#### MONITOR MOBILE ASSETS (SELECTED MODELS ONLY)

Track and monitor vehicles and other mobile assets from any location using NTC-6200 models that feature built-in GPS; and gather information about the physical environment using the three multipurpose I/O ports to collect data from sensors, monitors and other input devices. One I/O port is a dedicated ignition input that can power the router when a vehicle is started, providing powering flexibility.



#### REMOTE MANAGEMENT

M2M deployments in remote locations can be managed from a central location in real time to reduce site visits and manual maintenance costs. Technicians can receive status alerts, log into the system, extract and analyse data, upload firmware and change configuration from virtually any location using management interfaces including OMA LWM2M, TR-069, SNMP, HTTP/HTTPS, Telnet/CLI, and SMS. SMS can be used to access, control and monitor the router, and send and receive text messages while protecting from 3G/2G IP network outages using GSM networks.



#### CUSTOM SOFTWARE APPLICATIONS

NTC-6200 routers are software rich intelligent 3G routers with the additional benefit of being software expandable. They feature an open embedded Linux Operating System empowering solution architects and system integrators to create their own apps using NetComm's Software Development Kit (SDK).

# Application Example

## Wireless 3G connectivity to digital signs



## Device Features

### At a glance



- 1 Cellular antenna connectors
- 2 GPS antenna connector
- 3 RS-232/422/485 port
- 4 SIM card slot (for USIM/SIM 2FF format)
- 5 SIM tray eject button
- 6 Mini USB 2.0 OTG port (host or device mode)
- 7 Reset button
- 8 6 way connector (power, ignition input and 3 x I/O ports)
- 9 Fast Ethernet LAN port

## Package Contents

### What's in the box?





# 3G WiFi M2M Router with Voice - NTC-40WV

The NetComm Wireless 3G WiFi M2M Router with Voice (NTC-40WV) delivers fast and powerful 3G broadband Internet connectivity, enhanced networking and voice capabilities - making it ideal for emergency response, temporary offices and pop-up stalls.

The NTC-40WV brings the power and performance of 3G to remote M2M applications that use voice and data content; and delivers a fast and reliable Internet and phone connection to construction site offices, market stalls and other temporary setups in areas with limited access to fixed-line infrastructure.

## QUICK FACTS

- Powerful and flexible industrial cellular router platform supporting 3G
- Make normal voice calls using a standard analogue telephone
- Automatic failover to 2G/GSM/GPRS/EDGE
- Industrial features including a rugged enclosure, wide operating temperature range and wall mount options
- Install custom applications using the embedded Linux operating system and Software Development Kit (SDK)
- Fast Ethernet (100Mbps) connection for easy integration
- VPN support for establishing a secure connection over public cellular network using OpenVPN, IPsec, GRE, PPTP
- 802.11b/g/n WiFi access point with 2x2 MIMO antenna technology
- Native support for LWM2M, TR-069, SNMP, HTTP and Telnet
- System monitoring, remote diagnostics and configuration over the air, diagnostic log viewer via browser

The NTC-40WV is perfect for dynamic M2M applications that transmit data and voice over 3G networks. The device delivers fast throughput speeds, remote control and enhanced networking for the freedom to connect and manage virtually any device, anywhere.



### TOTAL COMMUNICATIONS SOLUTION

Offers a new level of networking - featuring an Ethernet port for a high-speed wired connection, a built-in WiFi access point to connect wireless clients while also letting you make phone calls using a standard analogue phone.



### CUSTOM SOFTWARE APPLICATIONS

The powerful processor delivers optimal performance and its embedded NetComm Linux OS and Software Development Kit (SDK) enables the installation of custom firmware to the onboard flash memory via the programming interface.

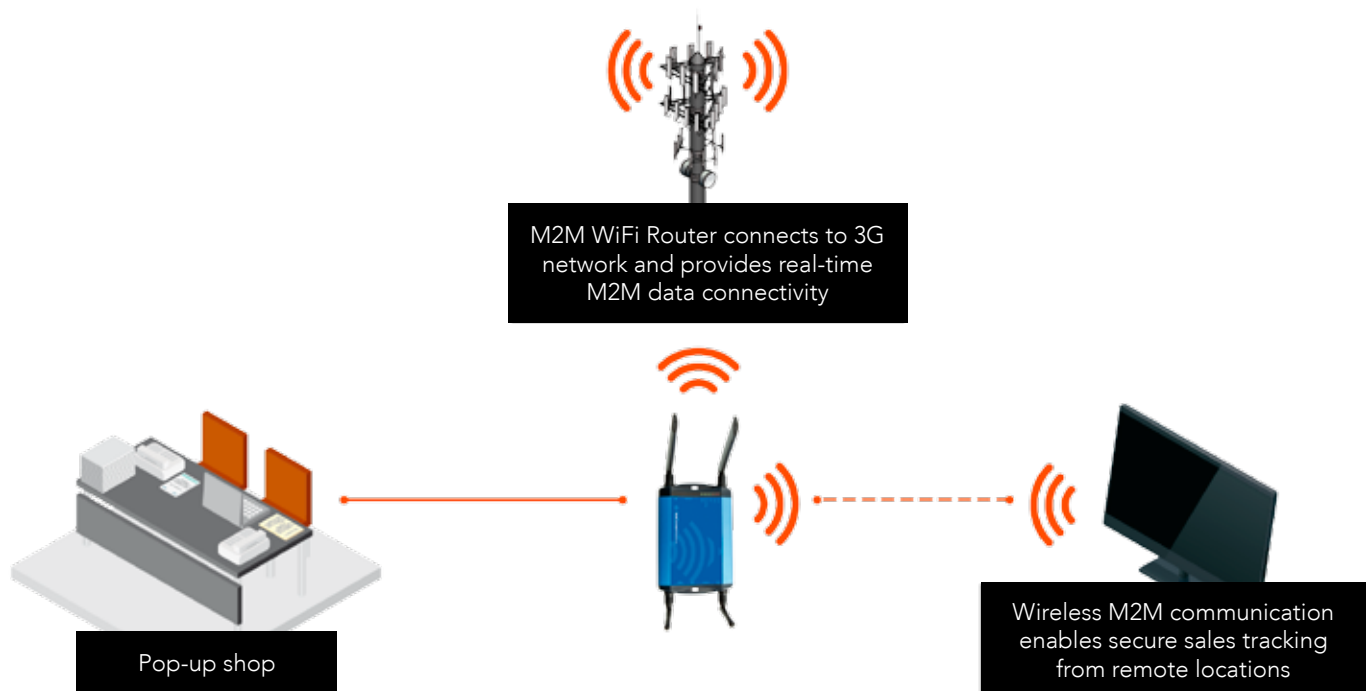


### INDUSTRIAL-GRADE DURABILITY

Designed for rugged deployments, the NTC-40WV features a metal enclosure with multiple mounting options and a wide temperature tolerance to support remote and industrial applications. LWM2M and TR-069 supports the remote management of unmanned assets from any location and it provides VPN support for a secure connection over public networks.

# Application Example

## Mobile broadband connectivity to pop-up shop



## Device Features At a glance



- 1 High performance 3G antenna connectors
- 2 WiFi antenna connectors
- 3 SIM card slot (for USIM/SIM 2FF format)
- 4 Mini USB 2.0 port
- 5 SIM tray eject button
- 6 Power connector
- 7 Phone port
- 8 Fast Ethernet LAN port
- 9 Reset button

## Package Contents What's in the box?



1 x NetComm Wireless 3G WiFi Router with Voice (NTC-40WW)



2 x 3G Antennas



2 x WiFi Antennas



1 x Ethernet cable



1 x Power supply



1 x WiFi security card



1 x Quick start guide





# 3G Outdoor WiFi Router with Voice - NTC-30WV

Rural and regional homes and businesses, remote commercial sites and metropolitan fringe districts located beyond the reach of fixed line infrastructure rely on mobile networks to access broadband Internet.

Designed to optimise signal strength in weak signal areas, the NTC-30WV is positioned on the exterior of the premises to overcome distance limitations and geographical obstructions, and deliver high-speed 3G broadband, WiFi, Ethernet and phone connectivity.

## QUICK FACTS

- Rugged outdoor router for deployments in remote environments and harsh industrial conditions
- Powerful 3G/HSPA+ modem for high-speed Internet connectivity reaching 21Mbps downlink and 5.76Mbps uplink
- Compatible with global mobile networks
- Withstands dust and extreme weather conditions - IP67 rated housing
- Features an 802.11n WiFi access point with 2x2 MIMO antenna technology to deliver indoor and outdoor Wi-Fi connectivity spanning up to 100 metres
- Connect a wired device using the Fast Ethernet (100Mbps) port which supports Power over Ethernet
- Create and install custom applications using the embedded Linux operating system
- Supports remote diagnostics, configuration and firmware upgrade capabilities
- Includes built-in VPN support for a secure connection over a public mobile network
- Make circuit switched phones calls using the RJ11 voice port
- Easy wall or pole mounting options

Designed to provide a complete communications solution, the NTC-30WV combines a modem, router, wireless LAN access point, telephone adapter and powerful high gain antenna system in a single weather-resistant device that is easily mounted on an external wall or pole to deliver a fast and reliable Internet and phone connection.



### EVOLVED HIGH-SPEED PACKET ACCESS (HSPA+)

The NTC-30WV offers an ideal alternative to dial-up. The device attaches to the outside of the premises to boost 3G/HSPA+ signal strength in low signal areas and locations without fixed-line (ADSL/Cable/Fibre) broadband connectivity. The embedded 3G modem delivers data download rates of up to 21Mbps (HSPA+) which can be shared via a secure and reliable WiFi and Ethernet network.



### MULTIPLE DEVICE CONNECTIVITY

The device creates an expansive indoor and outdoor WiFi network. With access to an integrated Wireless LAN access point and MIMO antenna technology, a reliable 802.11n WiFi signal reaching wireless N speeds of up to 300Mbps is transmitted over a radius of up to 100 metres from the router.



### EXTREME OUTDOOR DURABILITY

The sturdy, water and dust proof NTC-30WV is IP67 rated and proven to withstand severe environmental conditions including extreme temperatures and water exposure to ensure durability and longevity in harsh remote and isolated climates. The device can be powered using Power over Ethernet for those installations where outdoor power isn't available.

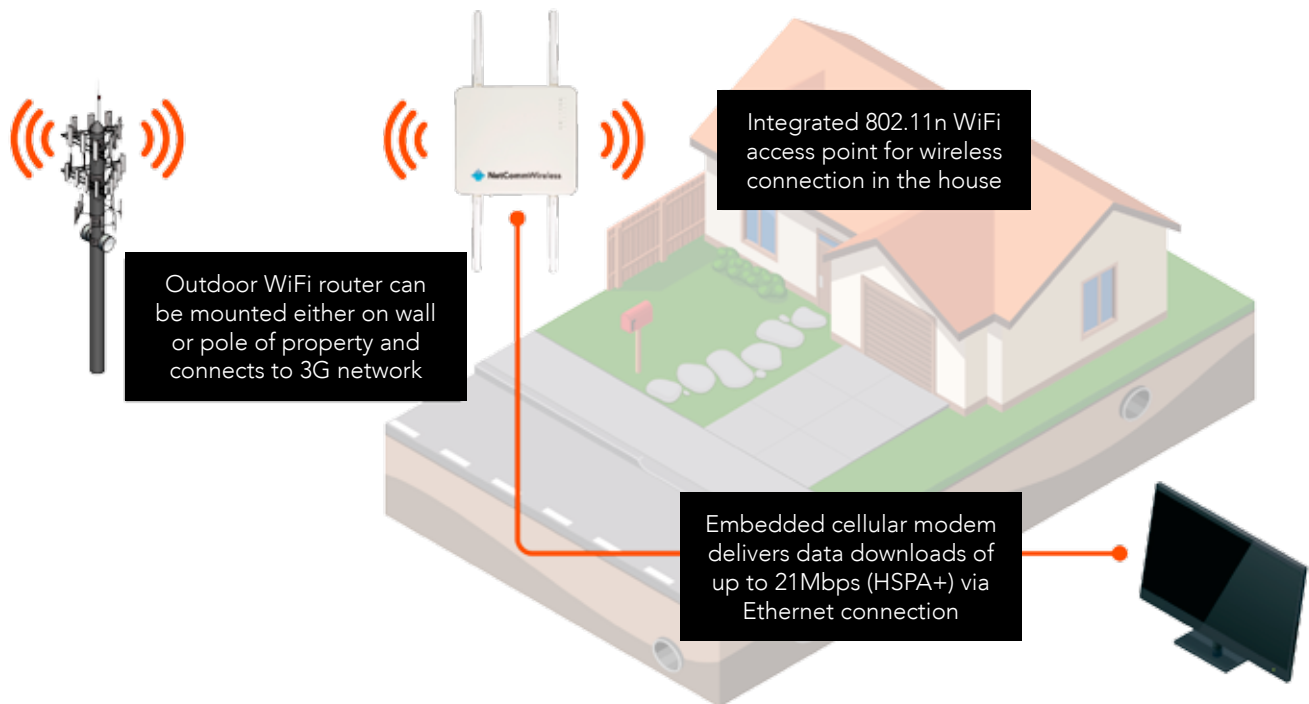


### ADVANCED REMOTE MANAGEMENT

Designed to provide remote diagnostics, configuration and firmware upgrade capabilities, the NTC-30WV allows a range of issues to be diagnosed and resolved over the air without requiring a technician onsite to upgrade firmware or to check the network connection status, WiFi and device settings.

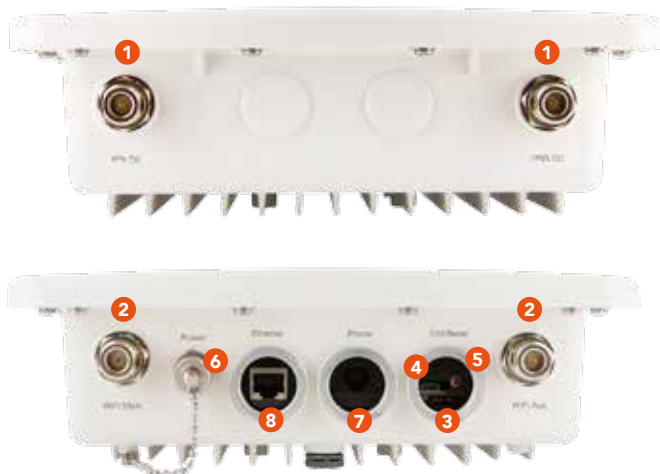
# Application Example

## Mobile broadband connectivity to remote homes



## Device Features

### At a glance



- 1 High performance 3G antenna connectors
- 2 WiFi antenna connectors
- 3 SIM card slot (for USIM/SIM 2FF format)
- 4 Mini USB 2.0 port
- 5 Reset button
- 6 Power connector
- 7 Phone port
- 8 Fast Ethernet LAN port (supporting Power over Ethernet)

## Package Contents

### What's in the box?



# 3G Multiport WiFi M2M Router - NTC-8000



Temporary site offices, connected vehicles, mobile assets and remote businesses located beyond the reach of fixed line infrastructure rely on mobile networks to access broadband Internet. The industrial-grade NTC-8000 supports multi-device Machine-to-Machine (M2M) deployments by enabling the connection and remote management of multiple WiFi enabled mobile devices and up to 8 Ethernet devices simultaneously. Designed to be vibration proof with an extended temperature range, the NTC-8000 is built to withstand harsh industrial and on-road conditions.

## QUICK FACTS

- Industrial-grade fixed wireless gateway with extended temperature tolerance
- Designed for rugged deployments in industrial applications
- Tested for vehicular applications Class 5M2 and MIL-STD-810F Method 516.5
- Ideal for providing primary and backup wireless connectivity over 3G UMTS networks
- 802.11n WiFi, configurable as access point or network client, with 2x2 MIMO antenna technology
- Powerful processor for optimal performance on advanced 3G UMTS networks
- 8 x Fast Ethernet (100Mbps) ports for universal deployment
- Flexible DC power input to suit diverse installation environments
- Power save mode with minimum current draw
- Built-in VPN clients for a secure connection over a public cellular network
- Embedded Linux based OS and Software Development Kit (SDK)
- Remote diagnostics, configuration and firmware upgrade capabilities
- Management and configuration via web user interface, SNMP or SMS
- Optional mounting bracket for easy mounting/installation (HDW-0022)

The NetComm Wireless 3G Multiport WiFi M2M Router (NTC-8000) provides a secure and powerful connection to multiple devices in harsh environments. Designed to support M2M applications that usually require multiple devices to connect and communicate, the NTC-8000 features 8 Ethernet ports to reduce total system costs by negating the need for an additional industrial grade Ethernet switch to connect external devices to the router. Its powerful processor, which runs an embedded Linux based OS, is an ideal Edge Processor allowing customised IoT applications to be added using the NetComm Wireless Software Development Kit (SDK).



### GLOBAL 3G COMPATIBILITY

The NTC-8000 delivers speeds reaching 14.4Mbps over 3G networks and is ideal for global deployment offering penta-band connectivity for worldwide network compatibility. The device features external antenna connectors to boost 3G signal strength in low signal areas and locations without fixed-line (ADSL/Cable/Fibre) broadband connectivity.



### EXTENSIVE LOCAL NETWORKING CONNECTIVITY

The device creates an expansive WiFi network. With access to an integrated Wireless LAN access point and MIMO antenna technology, a reliable 802.11n WiFi signal reaching wireless N speeds of up to 300Mbps is transmitted over a radius of up to 100 metres from the router. And the built-in industrial grade 8 port Fast Ethernet (100Mbps) switch allows high quality connectivity with fixed line devices such as printers, cameras, control panels and PCs.



### INDUSTRIAL GRADE DESIGN

The robust NTC- 8000 is proven to withstand severe environmental conditions including extreme temperatures and vibrations to ensure durability and longevity in industrial construction and commercial vehicles or harsh remote and isolated climates. Ideal for vehicular applications, it also features an ignition sensing port to shutdown gracefully and conserve power when connectivity is not required.

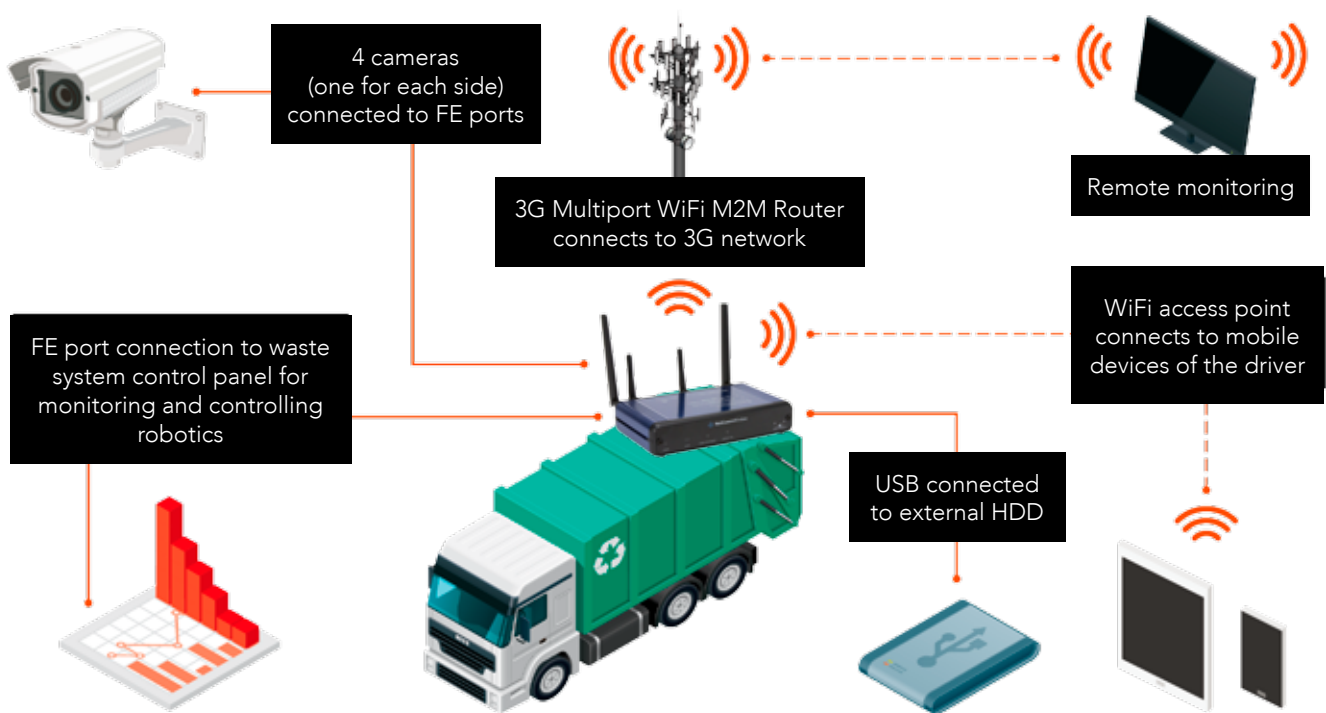


### ADVANCED REMOTE MANAGEMENT

Designed to provide remote diagnostics, configuration and firmware upgrade capabilities, the NTC-8000 allows a range of issues to be diagnosed and resolved over the air without requiring a technician onsite. It features a range of industry standard remote device management protocols to make it easy to integrate the router into any existing management platform.

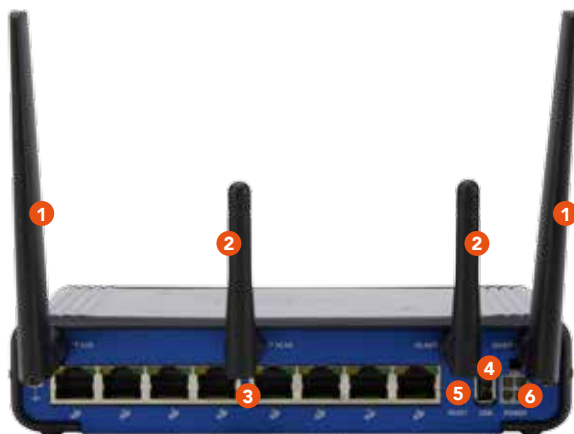
# Application Example

## Connectivity to all devices on a garbage truck



## Device Features

### At a glance



- 1 Dual 3G antennas
- 2 MIMO WiFi antennas
- 3 8 Fast Ethernet ports
- 4 USB 2.0
- 5 Reset button
- 6 Molex power connector with ignition sensing port

## Package Contents

### What's in the box?



# 3G Serial Modem

## NTC-3000



The NetComm Wireless 3G Serial Modem (NTC-3000) enables the remote monitoring, analysis and management of industrial and commercial machine data.

Offering RS-232 serial data connectivity, it gathers and transfers machine data to a central site over 3G for the real-time management of traffic infrastructure, water and waste control systems, vending machines, farming equipment and other machines in remote locations.

### QUICK FACTS

- A compact heavy-duty 3G modem that provides reliable RS-232 serial data connectivity to enable diverse Machine-to-Machine (M2M) applications;
- Connect to various 2G and 3G networks worldwide;
- Includes a USB 2.0 port and a SIM card reader with lockable tray;
- Can be deployed in diverse environments, offering a wide input voltage (5-36V DC), a wide operating temperature range (-40 to 85°C) and flexible mounting options; and
- Supports the Open AT command set and AirVantage and allows remote diagnostics and control via SMS

The 3G Serial Modem (NTC-3000) is a rugged 3G modem that enables wireless data communication and supports SCADA (Supervisory Control and Data Acquisition) systems. It comes equipped with RS-232 serial data connectivity and a USB 2.0 port for the real-time monitoring and control of machines in remote locations.



#### CONNECT LEGACY EQUIPMENT

Avoid the cost of replacing or upgrading existing assets that run critical processes. The cost-effective 3G Serial Modem sends data to any IP enabled device using RS-232 serial data. Ideal for SCADA use in areas such as manufacturing, utilities, construction and agriculture, the NTC-3000 enables the remote collection, monitoring and control across a wide range of M2M applications.



#### NETWORK AND SERVICE FLEXIBILITY

Featuring a multi-mode data module, the NTC-3000 supports remote deployments and allows you to choose between a variety of 2G and 3G networks.



#### UNIVERSAL INSTALLATION

Deploy M2M applications in any environment with access to a wide input voltage range, extreme temperature tolerance (-40°C to 85°C) and a lockable SIM tray. For easy installation, the compact NTC-3000 also includes a DIN rail and flexible wall mount options including a removable mounting bracket.



#### OPEN AT

Take advantage of the custom NetComm Wireless Open AT application with the capacity to: transparently transfer serial port traffic over the Internet via TCP or UDP using the built-in Packet Assembler and Disassembler (PAD) functionality; configure a periodic reboot to ensure the modem is always accessible and connect to a DynDNS account to update the NTC-3000's IP address when not using a static IP address.



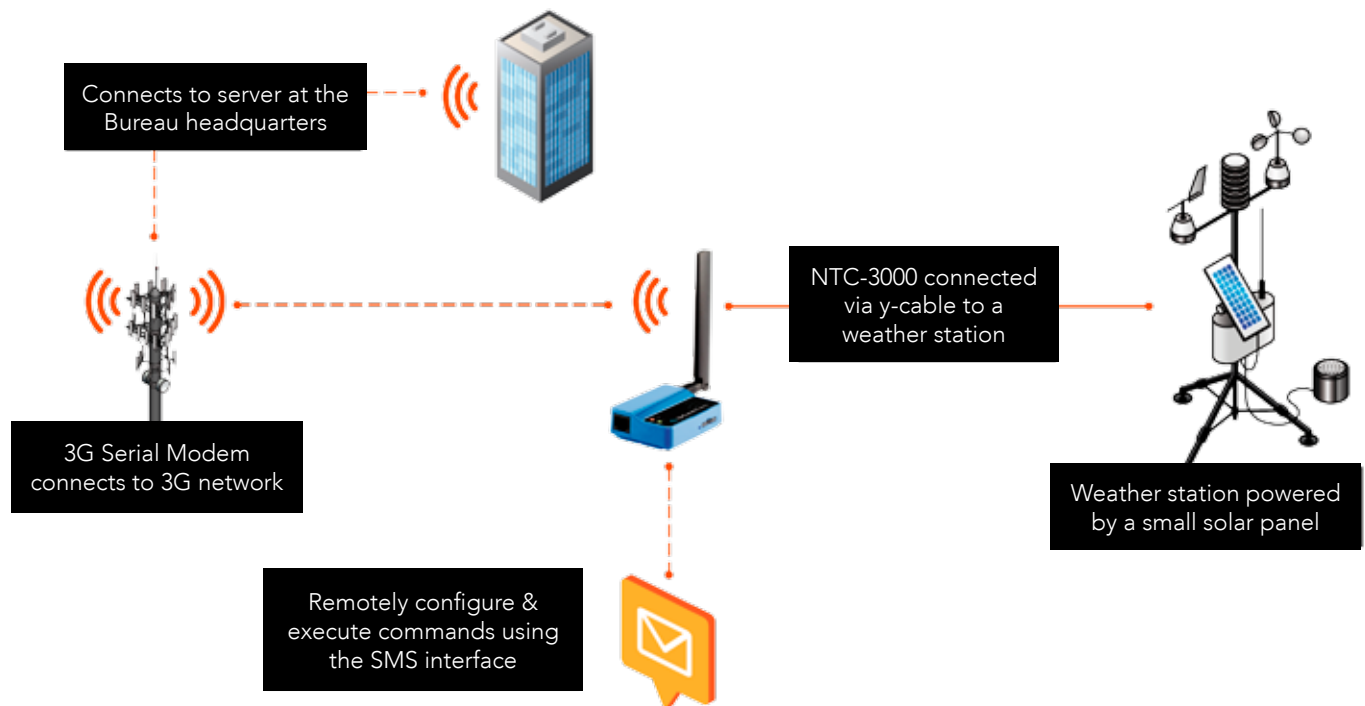
#### SMS CONTROL

Reduce onsite visits and save costs using advanced diagnostics and control via SMS to query status information and settings, execute commands and configure settings.



# Application Example

## Connecting remote weather stations



## Device Features

### At a glance



- |   |   |
|---|---|
| 1 Cellular antenna connector              | 5 SIM tray eject button                   |
| 2 Serial RS-232/422/485 port via Y-cable  | 6 Mini USB 2.0 port (host or device mode) |
| 3 Power input via Y-cable                 | 7 Reset button                            |
| 4 SIM card slot (for USIM/SIM 2FF format) |   |

## Package Contents

### What's in the box?



1 x NetComm Wireless NTC-3000 3G Serial Modem



1 x Quick start guide



1 x Penta band 1dBi antenna with SMA connection



1 x Y-cable (8P8C to DE-9 and DC power input)



1 x DIN rail mounting bracket



# NetComm Wireless n-Hub

## NTC-20

The Mobile Health industry is growing at an exponential rate and so is the ecosystem of devices used to monitor, manage and assist individuals to improve and maintain their health. More and more mHealth devices are being launched with communications technologies such as Bluetooth and WiFi built-in, including devices as basic as bathroom scales to complex technologies such as miniaturised wearable devices, blood glucose monitors, implantable cardiac devices and home dialysis machines.

### QUICK FACTS

- 1.3 inch OLED display (128x64 pixel resolution), audio loudspeaker, a Bi-Colour LED and 2 capacitive sense buttons for easy and user friendly interaction
- Dimensions with mains plug attached: 116mm (L) x 72mm (W) x 70mm (D)
- Dimensions with desktop stand attached: 116mm (L) x 72mm (W) x 76mm (D)
- Global certification in progress
- Built-in WiFi and Bluetooth to seamlessly connect to a variety of devices
- Micro USB 2.0 OTG port for added connectivity options
- Open embedded Linux OS and SDK to allow customised applications
- Penta-band 3G with quad-band 2G auto-fallback
- Data rates of 14.4 Mbps downlink and 5.76 Mbps uplink
- Dual internal 3G antennas for improved reception and reliability
- Supports Mini USIM/SIM format with optional second soldered down SIM failover
- Extensive device management with support for TR-069, Web GUI and full feature management with SMS

The NetComm Wireless NTC-20 n-Hub is the perfect Mobile Health (mHealth) ecosystem aggregation device. Designed to connect mHealth devices to the speed and coverage of a mobile broadband network, the n-Hub allows carer networks, hospitals, insurance companies and proactive health networks to connect to, monitor and remotely manage medical equipment and information.



#### USER FRIENDLY INTERFACE

The NetComm Wireless n-Hub is all about simplicity. It has an intuitive OLED display and user friendly interface which means onsite setup and ongoing management is simple, easy and cost effective. Stylish yet functional, the n-Hub offers multimode power and mount options to ensure a seamless and non-intrusive integration into any home.



#### IDEAL MOBILE HEALTH AGGREGATION DEVICE

The Mobile Health (mHealth) ecosystem of devices are expected to grow to more than 650 million devices by 2020. With built-in Bluetooth and/or WiFi, these devices – from bathroom scales to blood glucose monitors and implantable cardiac devices – can provide an immense amount of critical data – if a connection can be established to a central database.

The NetComm Wireless NTC-20 n-Hub is an ideal mHealth ecosystem aggregation device designed to connect mHealth devices to the speed and coverage of a mobile broadband network.



#### GLOBAL NETWORK FLEXIBILITY

Ideal for global deployment, the n-Hub is able to work on any global mobile network, giving system integrators the flexibility to choose which mobile network to connect to.



#### CARRIER GRADE MANAGEMENT AND RELIABILITY

The n-Hub features internal antennas for easy deployment and internal diversity antenna for improved performance. And it has been designed to interoperate with any management platform, offering network managers freedom of choice while keeping the total cost of ownership as low as possible.

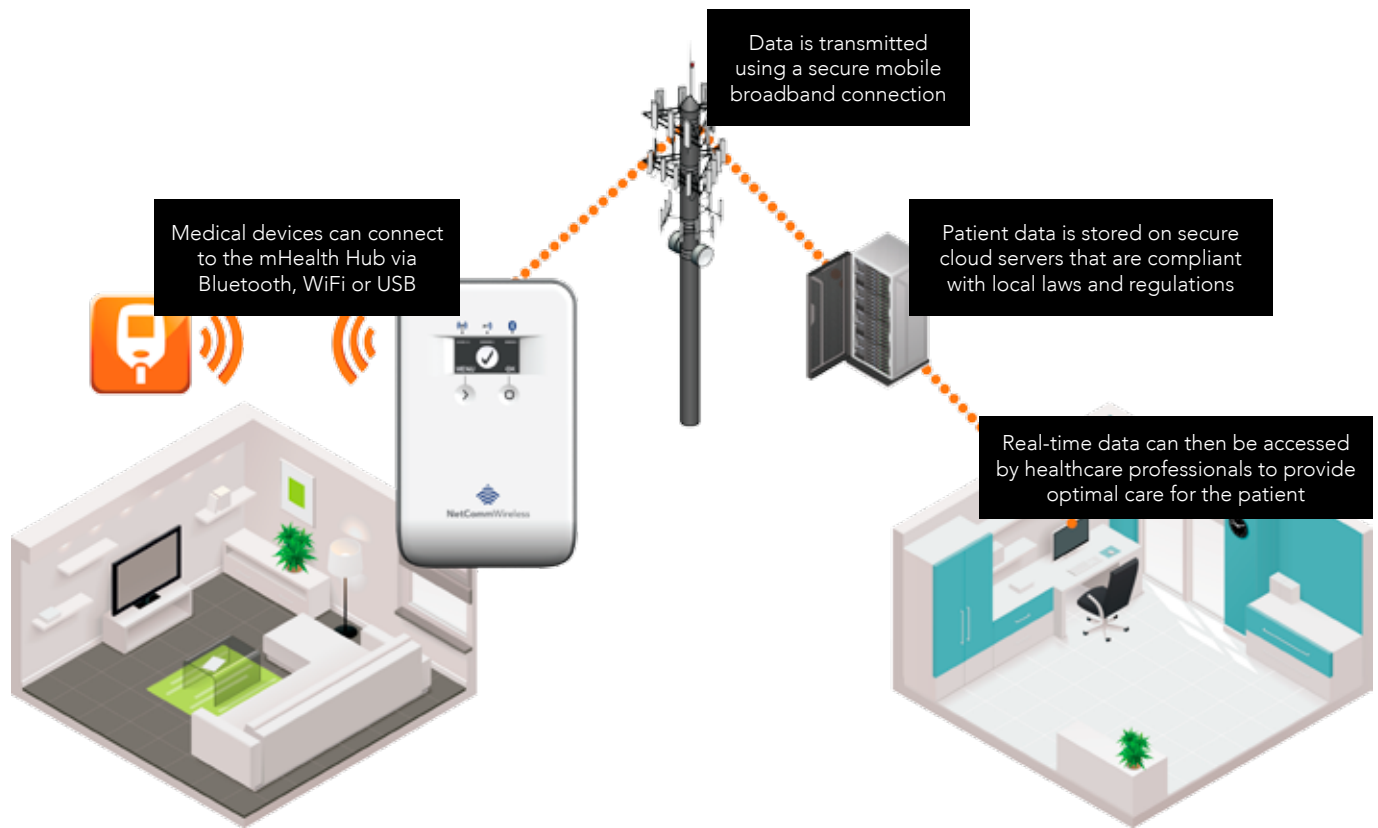


#### CUSTOM SOFTWARE APPLICATIONS

The n-Hub is a software rich intelligent 3G router with the additional benefit of being software expandable. It has an open embedded Linux Operating System empowering solution architects and system integrators to create their own apps using NetComm's Software Development Kit (SDK).

# NetComm Wireless n-Hub

## As part of the mHealth ecosystem



## Device Features

### At a glance

1. 1.3 inch OLED display (128x64 pixel resolution) gives easy access to current configuration, connection status or any custom developed app reports.
2. An audio speaker allows accessibility features or audible prompts and reminders
3. A Bi-colour LED to provide status of power supply
4. Two capacitive sense buttons provide easy interaction with adaptive display menu
5. A micro USB 2.0 OTG port for added connectivity
6. Connect directly to a wall socket or mount on a desk



# NetComm Wireless accessories

## Antennas



Successful Industrial M2M/IoT projects rely on various components working together flawlessly to power unique and innovative solutions to market. NetComm Wireless is keen to see its partners succeed and therefore offer a range of best-in-class add-on products to ensure your next rollout is both easy and worry free.

### 5-in-1 Low Profile Antenna

#### ANT-0025



The NetComm Wireless 5-in-1 Low Profile Antenna (ANT-0025) is ideal for use in vehicular deployments of our range of devices. Designed and built in the UK by Panorama Antennas, the antenna enclosure contains five isolated high performance antenna elements including two ultra-wideband elements covering 698-2700MHz to support MIMO/diversity at cellular frequencies, two dual band elements covering 2.3-2.7 & 4.9-6GHz to support MIMO/diversity operation for WIFI and a high performance GPS antenna with an integrated 26dB gain LNA and high quality filtering to combat noise. The antenna does not require a metallic ground plane, and maintains a high level of performance even when mounted on a non-metallic surface.

#### KEY FEATURES

- ② 2 x MIMO/Diversity Cellular Antennas (4G LTE / 3G / 2G)
- ② 2 x MIMO/Diversity WiFi Antennas
- ① 1 x GPS Antenna
- ⑤ 5 x 5m cable leads
- ① Panorama Antenna (IN2039)

### 4G LTE MIMO Antenna

#### ANT-0026



The NetComm Wireless 4G LTE MIMO Antenna (ANT-0026), designed and built in the UK by Panorama Antennas, provides an innovative and future proof solution for 2G, 3G and 4G LTE networks. Incorporating two separately fed ultra wideband elements in a single housing, the ANT-0026 is equipped to provide client side MIMO and diversity support for the networks of today and tomorrow.

The rugged, weatherproof housing is designed for wall mounting with both wall and mast mount brackets provided as standard. The ANT-0026 is supplied with 5 metres of fitted low loss double shielded twin cable, which minimises exposed connector joints and simplifies cable management for easy installation.

#### KEY FEATURES

- ② 2 x Cellular Antennas (4G LTE / 3G / 2G)
- ② > 2dBi gain
- ⑤ 5m cable lead
- ① Panorama Antenna (WMM-7-27-5SP)

## 4G LTE Wall Mount Antenna ANT-0031



The NetComm Wireless 4G LTE Wall Mount Antenna (ANT-0031) is ideal for applications where an external antenna with aesthetic appeal is required.

Manufactured by Panorama Antennas, the ANT-0031 offers ground-plane independent omnidirectional performance across global cellular and LTE bands making it a versatile solution. The efficient element design ensures a high first time connection rate and an ongoing, robust communications link even in problematic coverage areas.

### KEY FEATURES

- ① 1 x Cellular Antenna (4G LTE / 3G / 2G)
- ② 2dBi gain
- ③ 2m cable lead
- ④ Panorama Antenna (LPW-BC3G-26-2SP)

## GPS Active Patch Antenna ANT-0020



The NetComm Wireless GPS Active Patch Antenna (ANT-0020) is used to enable highly accurate GPS on our range of M2M devices. Ideal for applications such as mobile asset tracking, geo-fencing and location based services.

### KEY FEATURES

- ① Frequency range: 1575.42±1.023MHz
- ② Gain: 27dBi (GPS)
- ③ VSWR: 2.0:1 MAX
- ④ Polarization: R.H.C.P.
- ⑤ Cable: RG174
- ⑥ Cable length: 3m
- ⑦ Impedance: 50  $\Omega$
- ⑧ Voltage: 3.0-5.5V
- ⑨ Connector: SMA male
- ⑩ Radome colour: Black
- ⑪ Radome material: ABS

## 4G LTE Low Profile Antenna ANT-0032



The NetComm Wireless 4G LTE Low Profile Antenna (ANT-0032) is an ideal accessory to our Industrial grade M2M devices. At only 82mm (3.22") high and protected by a robust high impact radome the antenna is almost impervious to daily wear, tear and impact.

The 4G LTE Low Profile Antenna offers excellent performance across a wide bandwidth. Mounted on a 400 x 400mm ground plane the ANT-0032 covers all global cellular frequencies from 698-960MHz and 1710-2700MHz making it an extremely versatile product.

### KEY FEATURES

- ① 1 x High performance Cellular Antenna (4G LTE / 3G / 2G)
- ② 3dBi gain @ 700/800MHz
- ③ 4dBi gain @ 900/1800MHz
- ④ 5dBi gain @ 1900/2100/2400/2600MHz
- ⑤ 5m cable lead
- ⑥ Panorama Antenna (LPB-7-27-2SP)



# The freedom to innovate

NetComm Wireless' portfolio of industrial-grade 3G and 4G wireless routers deliver powerful edge processing and flexible connectivity for complex Machine-to-Machine (M2M) and IoT (Internet of Things) applications.

Hardware is only one part of the story, our embedded **Linux operating system** and **Software Development Kit** open a world of development possibilities to create custom applications to run on NetComm Wireless devices and enhance the functionality to fit your needs.

## Powerful edge processing

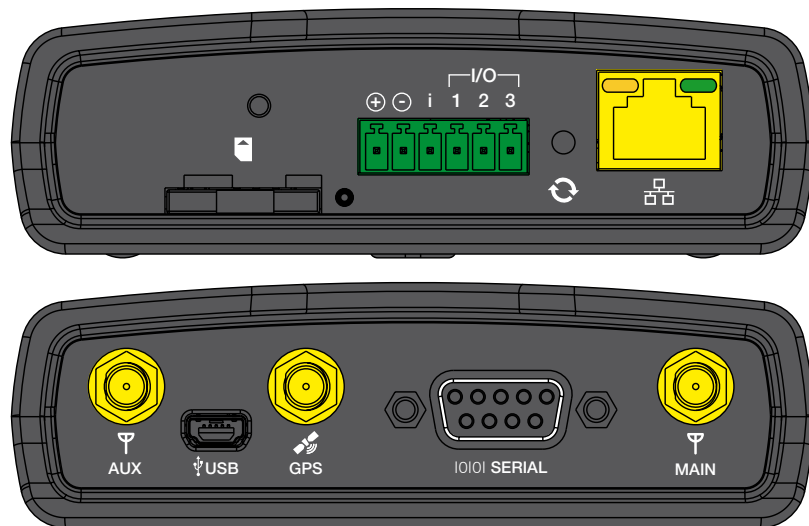
NetComm Wireless' M2M devices are equipped with powerful edge processing capabilities that enable multifaceted M2M and IoT applications.

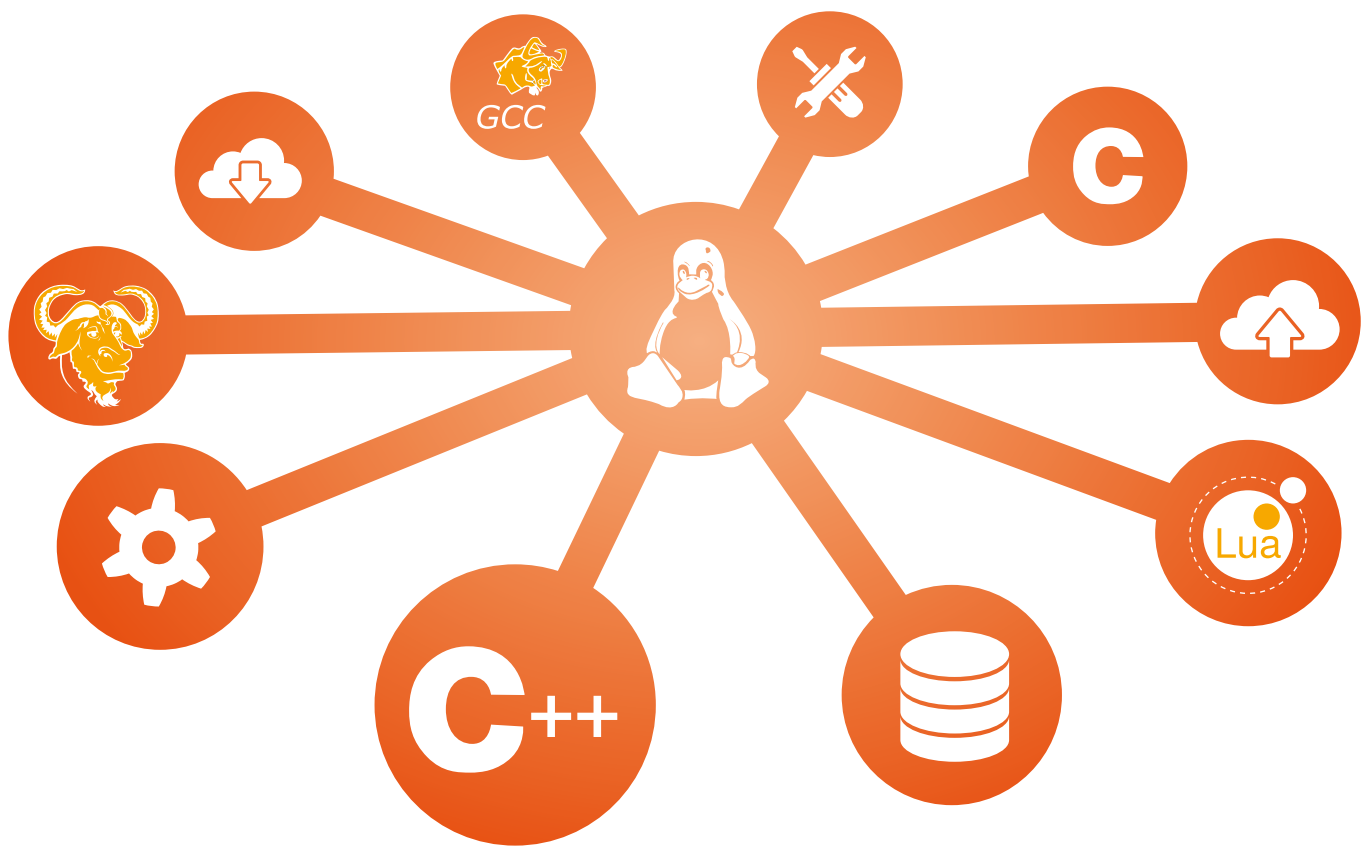
Fast edge processing is needed for time sensitive applications that must respond quickly to changing input sensor measurements. This allows instant decisions without wasting time waiting for feedback from the control centre main frame.

Edge processing also supports bandwidth constrained applications that need to reduce the bandwidth required to communicate sensor input values. It supports flexible strategies to increase bandwidth efficiencies by pre-processing data before sending it to the remote database. These strategies may be as simple as compressing or buffering data before sending it upstream, or as complex as enabling intelligent algorithms which notify external platforms of events based on input from sensors and attached machines.

## Flexible connectivity

Beyond raw processing power, you can connect virtually any device for any purpose using a combination of interfaces including: Ethernet ports, serial ports, general purpose input / output ports, USB ports and WiFi.





## Create custom M2M applications

NetComm Wireless' purpose-built **Software Development Kit (SDK)** is a user-friendly Linux application development platform. It supports custom applications specifically tailored to the unique needs of M2M and IoT applications that are easily uploaded, installed and managed remotely using the router's built-in Web UI.

Custom applications can be created using any commonly used programming language including **ANSI C/C++**, **Shell Script**, **LUA Scripting Language** and many more. And development time is reduced with easy access to vast **online resources** and **code samples**.

The open nature of the NetComm Wireless OS and SDK allows the custom application to be ported from one NetComm Wireless device to another, to ensure a flexible future proof investment.

# The future is lightweight

If the global Machine-to-Machine (M2M) market develops at its current rate, cellular M2M connections will account for at least 10%, or almost one billion of the 10 billion total mobile connections expected by 2020.

**LightweightM2M (LWM2M)** is one of the key factors expected to double this growth, fast tracking the uptake of M2M to reach a possible 20%, or two billion cellular M2M connections by 2020. To sustain this growth, **LWM2M** supports the efficient management of connected devices and the ever increasing volume of information they generate.

## Introducing the first ever remote management protocol **purpose-built for M2M**

The global M2M market is still in an early development phase, its full growth potential hindered by a fragmentation of industry players and the resulting lack of industry-wide standards.

Before the introduction of **LightweightM2M**, most M2M devices used a variety of communications protocols to perform remote device management. These preexisting protocols were traditionally used for legacy fixed-wire devices that access cheap but unsustainable amounts of bandwidth from fixed-wire networks. In other cases they were proprietary protocols developed by remote device management or Internet of Things (IoT) application management server providers that lock end users into an agreement throughout the lifecycle of the device.

**LightweightM2M version 1.0 (LWM2M 1.0)** is the first remote management protocol specifically built for M2M devices. Open Mobile Alliance (OMA) released the new protocol in response to market demand for a common set of standards to effectively manage the billions of devices connecting to bandwidth restrained networks.

Application management simplifies complex IoT applications and reduces high development costs in areas such as:



SMART CITIES



SMART HOMES



INDUSTRIAL



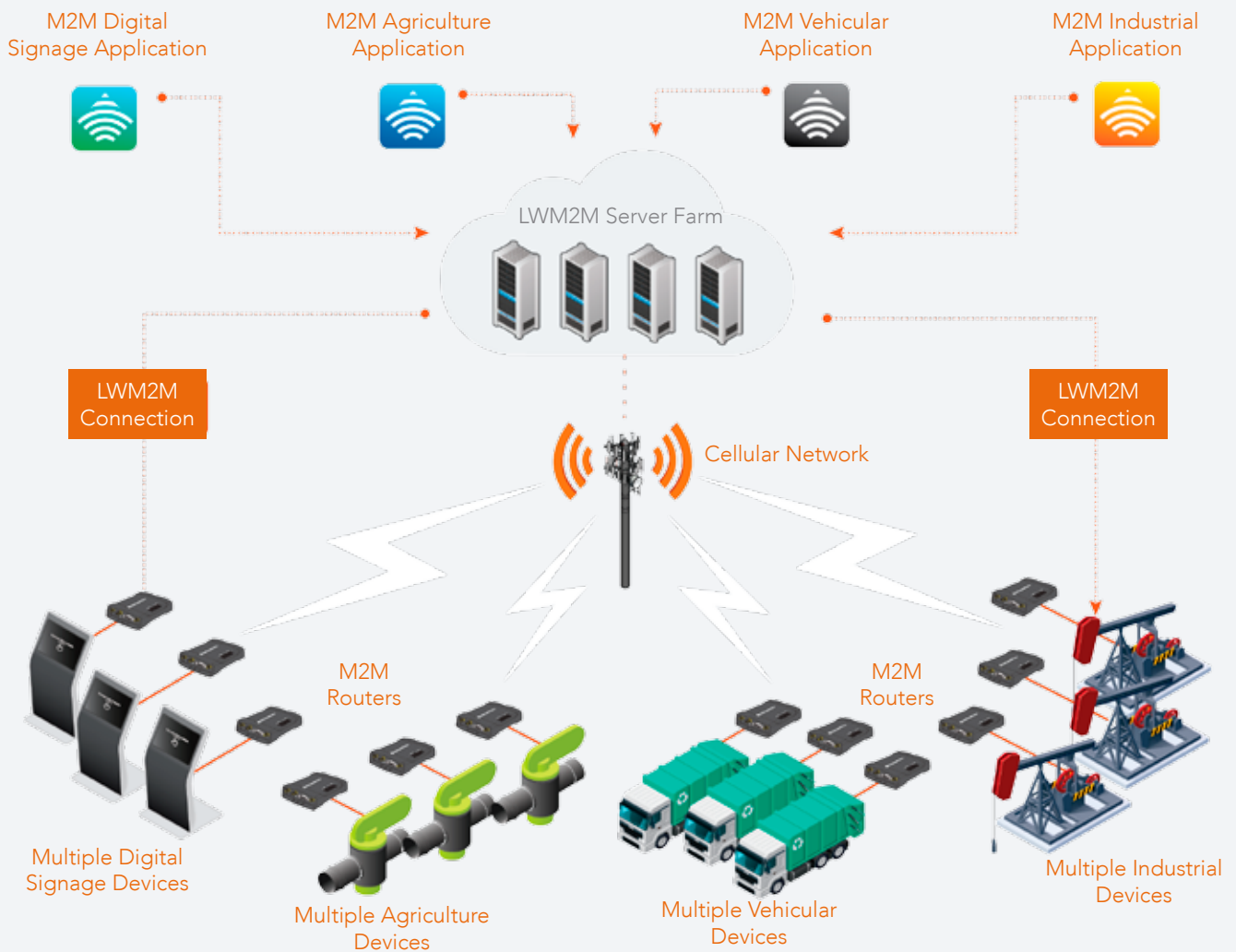
SMART METERING



AGRICULTURE



TRACKING



## Transforming device management with **LightweightM2M v 1.0 (LWM2M)**

**LWM2M** is a simple, secure and highly efficient protocol designed to support the device and application management of resource constrained wireless M2M devices such as temperature or fluid level sensors that must run at a low cost to support sustainable business models and viable mass deployments.

Device management allows functions such as:

- Firmware/software updates
- Remote configuration
- Remote monitoring
- Remote diagnostics
- Remote reboot

**LWM2M** defines a highly efficient client-server application layer protocol based on Constrained Application Protocol and uses either User Datagram Protocol (UDP) or Short Message Service (SMS) to transport messages to and from the device.

Importantly, **LWM2M** is an extensible protocol through the use of objects. Some objects are predefined by OMA to improve interoperability, but new objects can be defined as the need arises.

# Product portfolio at a glance



**NTC-140W**



**NTC-140**



**NWL-25**



**NTC-6200**



**NTC-40WV**



**NTC-30WV**



**NTC-8000**



**NTC-3000**



**NTC-20**

	Cellular	Outdoor IP-67	WiFi	Bluetooth 4.0	Router	Serial Interface	Ethernet	USB	I/O	Voice	GPS	Power over Ethernet	Remote Management	Linux OS / SDK
	4G / LTE	-	Y	-	Y	-	x2	Y	x1	-	Y	-	Y	Y
	4G / LTE	-	-	-	Y	-	x2	Y	x1	-	Y	-	Y	Y
	4G / LTE	-	-	-	Y	Y	x1	Y	x3	-	-	-	Y	Y
	3G	-	-	-	Y	Y	x1	Y	x3	-	Y	-	Y	Y
	3G	-	Y	-	Y	-	x1	Y	-	Y	-	-	Y	Y
	3G	Y	Y	-	Y	-	x1	Y	-	Y	-	Y	Y	Y
	3G	-	Y	-	Y	-	x8	Y	-	-	-	-	Y	Y
	3G	-	-	-	-	Y	-	Y	-	-	-	-	Y	-
	3G	-	Y	Y	Y	-	-	Y	-	-	-	-	Y	Y

## Custom design & development. Bringing your ideas to life.

Whether you're looking to design and develop a new product from the ground up, or to test and improve an existing product, our team of internal R&D engineers specialise in developing purpose-built HSPA+ and LTE Machine-to-Machine (M2M) technologies in line with your specifications.

We have the project management; testing and support; software product development; hardware product development and technical capacity needed to bring your ideas to life, on time and on budget.

The end-to-end product development process takes place in our Sydney design centre to: reduce risk, ensure maximum control over systems integration, support timely product development and guarantee thorough testing for superior performance results.

**Whatever your goal, NetComm Wireless is here to help you achieve it.**



**NetComm Wireless**

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