

ACKCIO GATEWAY (N640)

Category: Monitoring



Product Code: N640

Category: MONITORING

Sub-Category: GATEWAY

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- The Ackcio BEAM-GW Gateway is the central communication hub of Ackcio's wireless monitoring ecosystem, connecting all BEAM nodes to cloud or local data platforms via secure and reliable channels.
 - It manages data acquisition, processing, and transmission using Ackcio Snape, an

intelligent on-Gateway data and device management software that enables real-time visualization, diagnostics, and system configuration.

- The Gateway coordinates Ackcio's proprietary Ackcio Mesh network, supporting up to 50 nodes and 12 hops, ensuring long-range and self-healing communication even in complex or obstructed environments.
 - Equipped with multiple communication interfaces including 3G/4G cellular, Wi-Fi, Ethernet, and GPS, the BEAM-GW provides flexible connectivity options for both remote and site-based monitoring systems.
 - The unit incorporates a quad-core 64-bit CPU with industrial-grade storage, integrated modem, and optional solar power capability, making it suitable for long-term autonomous operation in the field.
 - Designed for durability, the Gateway features an IP67-rated die-cast aluminium enclosure and operates reliably across a temperature range from $-40\text{ }^{\circ}\text{C}$ to $+80\text{ }^{\circ}\text{C}$.
 - The built-in real-time clock, internal sensors, and external RTC ensure precise time synchronization and performance stability.
 - Advanced power management allows operation from 12 V or 24 V DC supply, with backup from a high-capacity Li-SOCl₂ battery or solar-charged lead-acid batteries.
 - Status LEDs and on-board control buttons simplify local inspection and diagnostics, while the Ackcio Nimbus app provides mobile configuration and network monitoring.
 - This gateway serves as the key interface between field instrumentation and data management systems, offering secure AES-128 encrypted end-to-end data transfer for industrial and geotechnical monitoring applications.
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TECHNICAL SPECIFICATIONS

- Model: BEAM-GW
- CPU: Broadcom BCM2837B0, quad-core A54 (ARMv8) 64-bit @ 1.4 GHz
- Processor Platform: Raspberry Pi 3A+
- Memory: 512 MB LPDDR2 SDRAM
- Storage: 16 GB industrial microSD (13 GB usable)
- Internal Sensors: Temperature $\pm 2\text{ }^{\circ}\text{C}$ accuracy
- Internal RTC: $\pm 3.5\text{ ppm}$ ($0\text{--}60\text{ }^{\circ}\text{C}$); External RTC: $\pm 2\text{ ppm}$ ($0\text{--}40\text{ }^{\circ}\text{C}$, CR3032 powered)
- MCU (Auxiliary): Arm® Cortex®-M3 48 MHz, 32-bit CPU
- MCU Memory: 128 KB flash, 20 KB SRAM, 8 MB external flash
- On-board Sensors:
 - Temperature: $-40\text{ }^{\circ}\text{C}$ to $+80\text{ }^{\circ}\text{C}$, $\pm 1.8\text{ }^{\circ}\text{C}$ accuracy
 - Barometer: 300–1100 hPa, $\pm 1.7\text{ hPa}$ accuracy
- Communication Interfaces:
 - Cellular: Integrated 3G/4G LTE modem (HSDPA, EDGE, GPRS)
 - Ethernet over USB 2.0
 - Wi-Fi (2.4 GHz / 5 GHz IEEE 802.11 b/g/n/ac)
 - GNSS high-sensitivity GPS (external antenna)
- Cellular Bands (LTE): Bands 1, 2, 3, 4, 5, 7, 8, 12, 13, 18, 19, 20, 25, 26, 28, 38–41
- Cellular Data Rates:
 - LTE FDD: 150 Mbps (DL), 50 Mbps (UL)
 - LTE TDD: 130 Mbps (DL), 35 Mbps (UL)
 - WCDMA: 42 Mbps (DL), 5.7 Mbps (UL)
 - GSM/EDGE: 296 Kbps (DL), 236.8 Kbps (UL)

- RF Band: ISM 863-870 MHz / 902-928 MHz
- Transmit Power: Up to 1 W (30 dBm)
- Modulation: 2-GFSK
- Network Capacity: Up to 50 nodes, 12 hops
- Range: Up to 5 km (line-of-sight), 1 km (urban), 500 m (below ground)
- Data Security: AES-128 encrypted end-to-end
- Operating Temperature: -40 °C to +80 °C
- Protection: IP67 rated die-cast aluminium enclosure
- Power Supply: 12 V DC @ 3 A nominal (max 24 V DC)
- Backup Battery: 1 × D-cell Li-SOCl₂ 3.6 V, 19 Ah
- Typical Current Drain: 250 mA (operation), max 3 A
- Solar Option: 12/24 V, 80 W panel minimum, 18 Ah lead-acid battery recommended
- Interfaces: USB 2.0 Micro B, LEDs (SYS, NET, RF, WF), buttons (Wi-Fi toggle, Shutdown)
- Firmware: Ackcio Mesh
- Software: Ackcio Snape (on-Gateway), Ackcio Nimbus (mobile configuration)

ORDERING INFORMATION

Item Name	Item Code
ACKCIO GATEWAY	N640X001B

Keywords: Ackcio BEAM-GW, wireless gateway, Ackcio Mesh, data logger gateway, IoT gateway, LTE monitoring gateway, Wi-Fi industrial gateway, geotechnical monitoring system, structural monitoring, remote data transmission, Ackcio Snape, Ackcio Nimbus, IP67 gateway, long-range mesh communication