

ACKCIO ANALOGUE NODE (N610)

Category: Monitoring



Product Code: N610

Category: MONITORING

Sub-Category: DATALOGGER

-
- The Ackcio BEAM-AN Series (S1 and S4) are long-range wireless analogue nodes designed for real-time monitoring of sensors with voltage, current, Wheatstone bridge, or thermistor outputs in geotechnical and structural health applications.
 - These nodes form part of Ackcio's robust wireless mesh network, offering secure and

reliable transmission of analogue data from remote or hard-to-access sites to the central monitoring system.

- Each node features a 24-bit low-noise differential ADC for high-accuracy signal conversion, supporting both ± 10 V and 0–20 mA sensors with auto-calibration and dynamic range adjustment.
 - The devices are available in two configurations: BEAM-AN-S1, supporting up to one sensor (2 analogue + 1 thermistor channel), and BEAM-AN-S4, supporting up to four sensors (8 analogue + 4 thermistor channels).
 - Built to withstand harsh environmental conditions, the BEAM-AN series features an IP67-rated die-cast aluminium enclosure and a wide operating temperature range from -40 °C to $+80$ °C.
 - The system is powered by long-life internal Li-SOCl₂ D-cell batteries, ensuring years of unattended operation, with typical lifetimes up to 36 months depending on sampling frequency and network configuration.
 - The nodes communicate through Ackcio's proprietary Ackcio Mesh firmware and are managed via the Ackcio Nimbus Android application for setup, diagnostics, and performance monitoring.
 - Advanced data integrity is ensured by AES-128 encryption, supporting up to 50 nodes and 12 mesh hops with transmission ranges up to 5 km (line-of-sight).
 - Integrated on-board sensors continuously record internal temperature and barometric pressure for self-diagnostic and compensation functions.
 - Optional small or large multipurpose mounting brackets allow flexible installation on walls, structures, or poles in both vertical and horizontal orientations.
-

TECHNICAL SPECIFICATIONS

- Models: BEAM-AN-S1 (1 sensor), BEAM-AN-S4 (4 sensors)
- Analogue Inputs: 2 / 8 differential + 1 / 4 thermistor channels
- ADC Resolution: 24-bit (22 true bit), auto-calibrated
- Measurement Range (Voltage): ± 10 V
- Measurement Range (Current): 0–20 mA
- Resolution (Voltage): 0.0001 V
- Resolution (Current): 0.005 mA
- Accuracy: ± 0.05 % FS (Voltage / Current)
- Bridge Measurement Range: 0.1 mV/V resolution, 0.25 % FS accuracy, ≥ 150 Ω input resistance
- Thermistor Range: -20 °C to $+80$ °C (3 k Ω sensor)
- Thermistor Resolution: 0.1 °C
- Thermistor Accuracy: ± 0.2 °C
- Measurement Rate: 50 samples per second (SPS)
- Warm-up Time: 1 s to 2 min (user-configurable)
- Power Outputs to Sensors: 5 V @ 100 mA, 12 V @ 90 mA, 24 V @ 40 mA (± 5 %)
- Internal Power Source: Li-SOCl₂ 3.6 V D-cell battery (S1: $\times 1$, S4: $\times 2$), 19 Ah each
- Typical Current Drain: < 20 μ A (idle), < 100 mA (RX), < 300 mA (TX)
- Radio Band: ISM 863–870 MHz / 902–928 MHz
- Transmit Power: Up to 1 W (30 dBm)
- Modulation: 2-GFSK
- Data Rate: 50 kbps

- Network Capacity: Up to 50 nodes, 12 hops
- Range: Up to 5 km (line-of-sight), 1 km (urban), 500 m (subsurface)
- Operating Temperature: -40°C to $+80^{\circ}\text{C}$
- Enclosure: Die-cast aluminium, IP67 rated
- Circuit Protection: Surge (60 V DC breakdown), short-circuit protection, reverse polarity protection, ESD 15 kV
- Interfaces: USB 2.0 Micro B (for setup / OTG), LED status indicators, push-buttons (TEST, RESET, FORMAT)
- Firmware: Ackcio Mesh low-power wireless protocol
- Software: Ackcio Nimbus (Android setup and monitoring app)

ORDERING INFORMATION

Item Name	Item Code
ACKCIO ANALOGUE NODE (1 Channel)	N610X001B
ACKCIO ANALOGUE NODE (4 Channels)	N610X004B

Keywords: Ackcio BEAM-AN, wireless analogue node, sensor data logger, remote monitoring, geotechnical instrumentation, Ackcio Mesh, IoT monitoring system, voltage sensor node, current loop sensor, bridge sensor, thermistor node, long-range wireless data acquisition, structural health monitoring, IP67 node, low-power mesh network