

ACKCIO DIGITAL NODE (N620)

Category: Monitoring



Product Code: N620

Category: MONITORING

Sub-Category: DATALOGGER

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- The Ackcio BEAM-DG Digital Node is a wireless data acquisition module designed for digital sensors operating via RS232, RS485, or SDI-12 communication protocols, enabling fully automated monitoring in geotechnical, structural, and environmental applications.

- It forms part of Ackcio's advanced wireless mesh ecosystem, allowing direct digital communication between field sensors and the central monitoring gateway without manual intervention or cabling complexity.
 - The BEAM-DG supports MODBUS RTU, SDI-12, and custom serial communication protocols, providing exceptional versatility and compatibility with a wide range of third-party instruments and data loggers.
 - The node supports baud rates between 4800 and 115200, with multiple digital ports (RS232, RS485, and SDI-12) allowing flexible integration of various sensor types including ShapeArrays, in-place inclinometers, tiltmeters, and smart digital sensors.
 - Designed for reliability in harsh environments, the BEAM-DG features a rugged die-cast aluminium enclosure with IP67 protection and an operating temperature range of $-40\text{ }^{\circ}\text{C}$ to $+80\text{ }^{\circ}\text{C}$.
 - Power can be supplied internally by high-capacity Li-SOCl₂ batteries or externally from a 12 V DC source, ensuring long-term autonomous operation.
 - Wireless communication is handled by Ackcio Mesh, a low-power, self-healing network providing secure (AES-128 encrypted) and long-range connectivity up to 5 km in line-of-sight conditions.
 - Configuration and diagnostics are managed through the Ackcio Nimbus Android application, enabling rapid deployment and simplified network maintenance.
 - The system includes comprehensive surge, short-circuit, and reverse-supply protection to ensure stable field performance and long-term reliability.
 - Mounting options include a durable multi-purpose bracket that supports both vertical and horizontal installations on structural surfaces or poles.
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TECHNICAL SPECIFICATIONS

- Communication Protocols: MODBUS RTU, SDI-12, Custom (on request)
- Supported Baud Rates: 4800 - 115200
- Digital Ports: RS232 serial, RS485 (Full/Half Duplex), SDI-12 bidirectional
- Input Impedance: 120 Ω typical (RS232/RS485)
- Measurement Rate: Dependent on sensor
- Measurement Duration: Dependent on sensor
- Sustained Input Voltage: $\pm 18\text{ V DC max}$
- MCU: Arm® Cortex®-M3 48 MHz, 32-bit CPU
- Memory: 128 KB flash, 20 KB SRAM, 8 MB external flash
- Clock: High-precision RTC (10 ppm, $-40\text{ }^{\circ}\text{C}$ to $+80\text{ }^{\circ}\text{C}$)
- 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)
- Power Output to Sensors (Battery Mode): 5 V @ 200 mA, 12 V @ 200 mA, 24 V @ 45 mA
- Power Output to Sensors (External Power Mode): 5 V @ 200 mA, 12 V @ 200 mA, 24 V @ 45 mA
- Supply Voltage: 2.7 - 4 V (battery) / 8 - 36 V DC (external, min 36 W)
- Internal Batteries: 3 $\times$ D-cell Li-SOCl₂ 3.6 V, 19 Ah each
- Typical Current Drain: $< 20\text{ }\mu\text{A}$ (idle), $< 100\text{ mA}$ (RX), $< 300\text{ mA}$ (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 Size: Up to 50 nodes
- Maximum Hops: 12
- Range: Up to 5 km (line-of-sight), 1 km (urban), 500 m (subsurface)
- Operating Temperature: $-40\text{ }^{\circ}\text{C}$ to $+80\text{ }^{\circ}\text{C}$
- Protection Level: IP67
- Circuit Protection: Surge (60 V DC breakdown), impulse (500 V typical), reverse polarity, short-circuit, ESD 15 kV
- Interfaces: USB 2.0 (Micro B, 5 V 500 mA), LED indicators (SYS, SENS), buttons (TEST, RESET, FORMAT)
- Firmware: Ackcio Mesh long-range, low-power firmware
- Software: Ackcio Nimbus (Android application)

ORDERING INFORMATION

To be added soon ...

Keywords: Ackcio BEAM-DG, digital node, RS485 node, RS232 node, SDI-12 node, wireless data logger, Ackcio Mesh, IoT monitoring node, ShapeArray compatible, in-place inclinometer, geotechnical monitoring, structural health monitoring, low-power wireless sensor, IP67 digital sensor node, autonomous monitoring system