ACKCIO DIGITAL NODE

Code : N620



- 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 °C to +80 °C.

- Power can be supplied internally by high-capacity Li-$SOCl_2$ 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.

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: ±18 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 °C to +80 °C)
- On-board Sensors: Temperature (−40 °C to +80 °C, ±1.8 °C accuracy), Barometer (300–1100 hPa, ±1.7 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 × D-cell Li-$SOCl_2$ 3.6 V, 19 Ah each

- Typical Current Drain: < 20 µA (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 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 °C to +80 °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 ...

OTHER PHOTOS


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