ACKCIO VIBRATING WIRE NODE

Code : N615



- The Ackcio BEAM-VW Series (S1 and S8) are long-range wireless nodes designed to capture and transmit readings from vibrating wire sensors used in geotechnical and structural health monitoring applications.
- Each node seamlessly integrates into Ackcio's low-power wireless mesh network, providing secure and reliable data transmission from vibrating wire sensors to a central gateway without the need for manual data collection.
- The BEAM-VW nodes feature high-stability excitation and precision frequency measurement for accurate reading of vibrating wire and thermistor sensors. The system automatically sweeps excitation frequencies to ensure resonance and precise data capture even under varying field conditions.
- Two models are available: BEAM-VW-S1, supporting one vibrating wire sensor (plus one pulse counter and one thermistor channel), and BEAM-VW-S8, supporting up to eight vibrating wire sensors and eight thermistor channels.
- The devices include a robust 12-bit differential ADC module, ultra-low-power MCU, and on-board temperature and barometric sensors for automatic compensation.

- Data security is ensured through AES-128 end-to-end encryption, with communication handled by the Ackcio Mesh protocol — a proprietary, self-healing, long-range wireless mesh network.
- Designed for field durability, the BEAM-VW Series uses a die-cast aluminium enclosure rated IP67, capable of continuous operation in extreme temperatures from −40 °C to +80 °C.
- The internal Li-$SOCl_2$ D-cell batteries offer up to 24 months of autonomous operation depending on configuration and sampling frequency.
- Configuration, diagnostics, and real-time monitoring are easily managed through the Ackcio Nimbus Android application.
- Flexible installation options are provided through small or large multi-purpose mounting brackets suitable for horizontal, vertical, or pole mounting configurations.

TECHNICAL SPECIFICATIONS

- Models: BEAM-VW-S1 (1 sensor), BEAM-VW-S8 (8 sensors)
- Vibrating Wire Inputs: 1 / 8 channels
- Thermistor Inputs: 1 / 8 channels
- Pulse Counter Input: 1 channel (S1 only)
- ADC Resolution: 12-bit differential converter
- Measurement Range: 450 – 6000 Hz
- Resolution: 0.01 Hz
- Accuracy: ± 0.04 % FS
- Excitation Wave: 8 V peak-to-peak sweep
- Measurement Rate: 5 samples / s
- Measurement Duration: 5 s per cycle
- Thermistor Range: −20 °C to +80 °C (3 kΩ sensor)
- Thermistor Resolution: 0.1 °C
- Thermistor Accuracy: ± 0.2 °C
- Sensor Resistance: 50 Ω
- Sustained Input Voltage: 3.6 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 from −40 °C to +80 °C)
- Interfaces: USB 2.0 (Micro B, 5 V, 500 mA max), LED indicators (SYS, SENS), buttons (TEST, RESET, FORMAT)
- 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)
- Supply Voltage: 2.7 – 4 V DC
- Internal Batteries: Li-$SOCl_2$ 3.6 V D-cell (19 Ah) – S1: 1 × D, S8: 2 × D
- Typical Current Drain: < 20 µA (idle), < 100 mA (RX), < 300 mA (TX)
- Operating Temperature: −40 °C to +80 °C
- Enclosure: Die-cast aluminium, IP67 rated
- Circuit Protection: Surge (60 V DC breakdown), impulse (500 V typical), reverse polarity, short-circuit, ESD 15 kV
- Firmware: Ackcio Mesh low-power wireless protocol
- Software: Ackcio Nimbus (Android setup and monitoring app)

ORDERING INFORMATION

Item Name	Item Code
ACKCIO VIBRATING WIRE NODE (1 Channel)	N615X001B
ACKCIO VIBRATING WIRE NODE (8 Channels)	N615X008B

OTHER PHOTOS


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Li-SOCl2
BATTERY
Li-SOCl2
BATTERY



