DATASHEET

Wi-SOS 480 Wireless Monitoring System

London Underground
Approved Product
ID 3576

Long-range 800MHz radio
No system planning
No repeaters
Instant data access
Android technology
Saves installation costs

GEOSENSE

Wi-SOS 480 Wireless Monitoring System

Overview

The Wi-SOS 480 (Wireless Sensor Observation System) provides a system to transmit, receive and data log remotely signals from any sensor with a vibrating wire, voltage, 4-20mA, SDI12 or resistance output over long ranges up to 15 km.

Stand-alone Wireless Tilt Meters are also available which can be integrated into the system, together with any type of Node. The user can configure, diagnose, and download from a mobile device using android technology.

The Wi-SOS 480 is a star network consisting of a series of wireless nodes and a gateway. The gateway collects the data from the long-range star network, stores it locally and it is available to view and/or download via GPRS, wired Ethernet or Wi-Fi. No system planning is required and repeaters are not required, saving on installation costs.

What makes Wi-SOS 480 different to other wireless systems is the use of data modulation via the Worldsensing G6 Platform which uses the latest LoRa spread spectrum technology. This technology means long range, low cost, low power consumption and high connectivity.

Software is embedded in the gateway, which allows it to be fully configurable over air or Ethernet and a fast mode allows full diagnostics to ensure correct operation of the system.

The Wi-SOS 480 Web Centre provides a platform to download data and view it on PC, tablet or mobile phone; or the data can be forwarded to any FTP for inputting into most visualisation software.
The Wi-SOS 480 offers a highly flexible and cost-effective solution for projects where a cabled solution is not possible due to physical barriers and/or access restrictions and where near real-time monitoring is required.

APPLICATIONS

- Wireless connection to sensors such as:
- Tilt meters
- Crack meters
- Piezometers
- Strain Gauges
- Load cells
- Total pressure cells
- NATM stress cells
- Rod extensometers
- Crack meters
- Joint meters
- Settlement cells
- Temperature sensors
- V-Notch weirs

FEATURES

- Long-range 868/915MHz radio
- Low-power LoRa® spread spectrum technology
- London Underground approved product
- Easy configuration
- No repeaters
- Instant data access
- Android technology
- Long range communication up to 15 km
- Up to 10 years battery life
- User-friendly configuration with Android device
- Vibrating wire, Digital & Analogue sensor input options
- Robust, small and weather-proof box for harsh environments

www.hoskin.ca | sales@hoskin.ca | 905-333-5510
Vancouver | Oakville | Montréal

Wi-SOS 480 Wireless Monitoring System

Specifications

ANALOGUE NODE 4 CH	
Each channel is individually configured by the user. Equipped with a control port for operating a distributed multiplexer.	
VOLTAGE	
Measuring ranges [V DC]	±10 ; ±1.25 (8x)
Accuracy (-40 to +85°C)	± 0.05 % FS
CURRENT LOOP (2-3 WIRES)	
Measuring range	4-20 mA
Accuracy (0 to +50°C)	± 0.05 % FS
POTENTIOMETER	
Accuracy (0 to +50°C)	± 0.02 % FS
FULL WHEATSTONE BRIDGE	
Accuracy (0 to +85°C)	± 0.1 % FS
THERMISTOR	
Accuracy (0 to +50°C)	± 0.2°C
PT 100	
Accuracy (20°C)	± 0.8°C
VIBRATING WIRE NODE 1 CH AND 5 CH	
VIBRATING WIRE	
Measurement method	Embedded algorithms increasing immunity to noise
Excitation wave	± 5 V
Measurement range	300 to 7,000 Hz
Resolution (-40 to +85°C)	0.12 Hz
Accuracy (-40 to +85°C)	0.018 % FS
THERMISTOR	
Measurement range	0 ohm to 4 Mohm
Resolution1 ohm	
Accuracy (20°C)	0.05°C (0.04 % FS)
BAROMETER	
Pressure Range	300 to 1,100 hPa
Relative Accuracy (950 to 1,050 hPa at 25°C)	±0.12 hPa

www.hoskin.ca | sales@hoskin.ca | 905-333-5510
Vancouver | Oakville | Montréal

Wi-SOS 480 Wireless Monitoring System

Specifications

DIGITAL NODE

Channels	One RS485 channel and two SDI-12 channels
Power supply	12 V DC up to 120 mA
RS-485	Full or half duplex supported
Suitable for a chain of up to 30 biaxial in-place inclinometers	
ModbusRTU RS485	

WIRELESS TILT METER (NODE)

Range	±15°
Accuracy (±5°)	0.3% FS / 0.004°
Accuracy full range	0.17% FS / 0.025°
Resolution	0.001°
Axes	Biaxial

DATA STORAGE & POWER

INTERNAL DATA STORAGE

Up to 72,500 readings, including time and 5 sensors

Up to 200,000 readings, including time and 1 sensor

POWER

Internal standard C-size batteries. 1 to 4 batteries, depending on usage

BATTERY LIFE ESTIMATION	5 MIN INTERVALS	HOURLY INTERVALS
5 - channel vibrating wire	7 years	>10 years
4 - channel analogue (FWB/TH/POT/PT100)	6 months	> 5 years
Digital bus (15 biaxial sensors)	3 months	~ 2.5 years

SIZE

1 channel	145 x 105 x 61 mm
2 to 5 channels	145 x 220 x 61 mm

WEIGHT

1 channel	850g without batteries
2 to 5 channels	1100g without batteries
ENCLOSURE	Aluminium alloy
TEMPERATURE RANGE	-40 to +85 ºC
RATING	IP67, Higher protection on request

www.hoskin.ca | sales@hoskin.ca | 905-333-5510
Vancouver | Oakville | Montréal

Wi-SOS 480 Wireless Monitoring System

Specifications

GATEWAY

ISM Sub 1 GHz band, sensitivity up to -137 dBm

Detachable omnidirectional ½ λ dipole

Integrated GPS antenna

GNSS High Sensitivity GPS module

POWER

Power supply: 48 V DC PoE

Nominal: 3 Watts

DC power supply (ex.: solar panel use): 11 to 30 Volts

PHYSICAL PROPERTIES

Size: 210 x 310 x 170 including mounting kit

Weight: 2 kg including mounting kit

IP67 rating

Operating range: -20 to + 60 ºC

NETWORK INTERFACES

10/100 Ethernet WAN (RJ45 PoE)

Integrated 3G Modem & Antenna (HSDPA, EDGE, GPRS) quad band

CONFIGURATION APP

Simple and fast connection to datalogger

Runs only on Android devices

Easy sensor configuration: ID, sampling rate, sweep, etc.

Checks radio signal coverage & records coordinates (GPS)

Downloads data & sends by e-mail or saves it on the Android device

Takes current reading

Updates datalogger firmware

Wi-SOS 480 Wireless Monitoring System

Specifications

WEB PLATFORM/SOFTWARE	
NETWORK AND ASSET MANAGEMENT SOFTWARE	
Network communications configuration and control	
Datalogger and sensor attributes display	
Datalogger configuration	
Sensor data in real time	
Conversion of raw sensor data in engineering units	
Manual and automatic data download in .csv	
Data transmitted in a secure manner	
Sensor data visualisation and download (tables and graphs)	
Topological view	
Creation of virtual variables	
Configuration of alarm thresholds	
Alarms sent to stakeholders by email	
Automatically generated reports (tables, graphs and notes)	
RADIO SPECS	
ISM sub 1 GHz operating frequency bands adjustable to territory requirements	
No repeaters needed	
Sensitivity : up to -137 dBm	
Transmission: +14 dBm high efficiency / +20 dBm	
Maximum link budget: 151 dB	
Remote sampling rate change	
RANGES	
LONG RANGE RADIO	
Open field	15 Km
Urban	4 Km
Manhole (Urban)	2 Km
Tunnel	4 Km