



**Description**

GTecLink is a data acquisition and monitoring system which combines state-of-the-art wireless monitoring and advanced software tools. It is widely recognized as the leading solution for connecting and monitoring infrastructures in remote locations.

GTecLink devices are battery-powered and equipped with long-range, low-power wide area network (LPWA) radio communications and are compatible with a wide range of geotechnical sensors. The software suite is web-based and facilitates real-time data

capture and analytics. It is also possible to set automatic alarms to make operations safer.

Mining and construction companies and operators of bridges, tunnels, dams, railways and many other inaccessible assets can now work with reliable data. Having access to this information and real-time insights enables operators to anticipate needs, manage their workforce, diminish risks, and even prevent disasters.

**Features**

- Long-range communication of over 9 miles / 15km
- Low-power, up to 10 years of unattended runtime
- Wireless LPWA communication
- Supports most structural and geotechnical sensors (vibrating wire, digital, analog)
- Integrated alarm system
- User-friendly web software

**Benefits**

- Remotely monitor hard-to-access infrastructures
- Cover a wide area of installed geotechnical sensors
- Easily add or remove sensors to an existing installation
- Save resources through fast implementation
- Decrease costs through easy maintenance
- Diminish risks and make operations safer



Comprehensive information about this product and our full range is available at [soilinstruments.com](http://soilinstruments.com)  
If you would like to speak with someone directly please call +44 (0)1825 765044 or email [sales@soilinstruments.com](mailto:sales@soilinstruments.com)

## Digital Node

### Channels

RS485	1 Full or Half duplex
SDI-12	2

### Power Supply

V DC	12
Max. mA	120

### Supported Sensors

GeoSmart	Up to 10 sensors, or 50 sensors with solar or A/C charging
Smart IPI-PRO	Up to 30 sensors, or 50 sensors with solar or A/C charging

### Other

Sampling Rate	30 seconds to 1 day
Data Storage	Up to 200,000
Time Sync	Better than +/-10 seconds
Operating Temperature	-40°C to +50°C
IP Rating	67

### Battery Life estimation\*\* Soil Instruments Inclinator Systems

Number of sensors	6 hours frequency	30 minutes frequency	3 minutes frequency
10 (GeoSmart)	> 10 Years	1 Year	1.25 Months
10 (Smart IPI-PRO)	> 10 Years	1.2 Years	1.5 Months
30 (Smart IPI-PRO)	4.5 Years	4.5 Months	18 Days

## Gateway

### Base Station

Frequency	ISM Sub 1 GHz band, sensitivity: down to -137 dBm
Antenna	Detachable omnidirectional 1/2 dipole
GPS	GNSS High Sensitivity GPS module, intergrated antenna

### Power

Supply	48V DC PoE
Power	3 Watts
DC Power supply(Ex: solar panel use)	11 to 30 Volts

### Network interfaces

	10/100 Ethernet Wan (RJ45 PoE)
	Intergrated 3G Modem & antenna(HSDPA, EDGE, GPRS) quad band

### Other

Size	210x310x170mm including mounting kit
Weight	2kg including mounting kit
Operating Temperature	-20°C to +60°C
IP Rating	67

\*\* estimations for 4 x Saft LHS 14 batteries . Based on laboratory conditions.



### Associated products

For details on:

Catalogue Number:

Vibrating Wire Sensors	E7, E10, E13, E17, J1, J2, J3, J4, L2, P6, P9, P10, S8, ST1, ST2, ST3, ST4, ST5, T3, W4, W9 & W16
In-Place Inclinator Systems	C2 & C12
4-12 mA Sensors	L3, T2 & W12

View our full product range on [soilinstruments.com](http://soilinstruments.com)



THE TECHNICAL RATING FOR THIS PRODUCT:

**INTERMEDIATE**

As the correct installation of any monitoring sensor or system is vital to maximise performance and accuracy, Soil Instruments makes the following recommendations, for the skill level of the installation contractor.

#### ADDITIONAL SUPPORT

We offer installation and monitoring services to support this system. For more information please email : [sales@soilinstruments.com](mailto:sales@soilinstruments.com) or call **+44 (0) 1825 765044**

**ADVANCED**

The installer is trained and experienced in the installation of this type of instrument or systems, and is ideally a specialist Instrumentation and Monitoring contractor.

**INTERMEDIATE**

The installer already has previous experience and/or training in the installation of this instrument or system.

**BASIC**

As a minimum the installer has read and fully comprehends the manual, and if possible has observed these instruments or systems being installed by others.

## Vibrating Wire Nodes 1 or 5 CH

### Vibrating Wire

Excitation	+/-5V
Range	300-7000Hz
Resolution	0.12Hz
Accuracy	0.018%FS

### Thermistor

Range	0 ohm to 4 Mohm
Resolution	1 ohm
Accuracy (20°C)	0.05°C (0.04% FS)

### Barometer

Range	300-1100hPa
Relative Accuracy <sup>2</sup>	+/-0.12hPa

### Other

Sampling Rate	30 seconds to 1 day
Data Storage	Up to 200,000
Time Sync	Better than +/-10 seconds
Operating Temperature	-40°C to +50°C
IP Rating	67

### Battery Life estimation\*

Channels and Sampling	Batteries*	Life Estimation*
1 CH 5 min	1 Cell	0.9 Years
1 CH 1 hr	1 Cell	3.5 Years
1 CH 6 hr	1 Cell	4.6 Years
5 CH 5 min	4 Cells	2.2 Years
5 CH 1 hr	1 Cell	7.1 Years
5 CH 6 hr	4 Cells	>10 Years

## Tiltmeter Node

### Tiltmeter

Range	+/-15°
Type	MEMS Biaxial
Accuracy (+/-5°)	0.03%FS/0.004°
Accuracy Full Range	0.17%FS/0.025°
Resolution	0.001°
Repeatability	0.005°
Temperature Sensor Accuracy	+/-0.5°C
Temperature Sensor Resolution	0.1°C

### Battery Life estimation\*

Sampling Rate	Barcelona Temperature Profile*	Singapore Temperature Profile*
5 min	1.2 Years	1.1 Years
1 hr	5.8 Years	4.7 Years
6 hr	8.3 Years	6.4 Years

\* estimations for 2 Saft LHS 14 batteries



## Analog Node 4 CH

### Power Selectable for Each Channel

V DC	5, 12, 24
Max mA	60

### Voltage

Range V DC	+/-10, +/-1.25 (8x)
Accuracy (-40 to +85°C)	+/-0.05%FS

### Current Loop 2-3 Wire

Range	4-20mA
Accuracy (0 to +50°C)	+/-0.05%FS

### Potentiometer

Accuracy (0 to +50°C)	+/-0.02%FS
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### Full Wheatstone Bridge

Accuracy (0 to +50°C)	+/-0.1%FS
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### Thermistor

Accuracy (0 to +50°C)	+/-0.2%FS
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### PT100

Accuracy (20°C)	+/-0.8%FS
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### Other

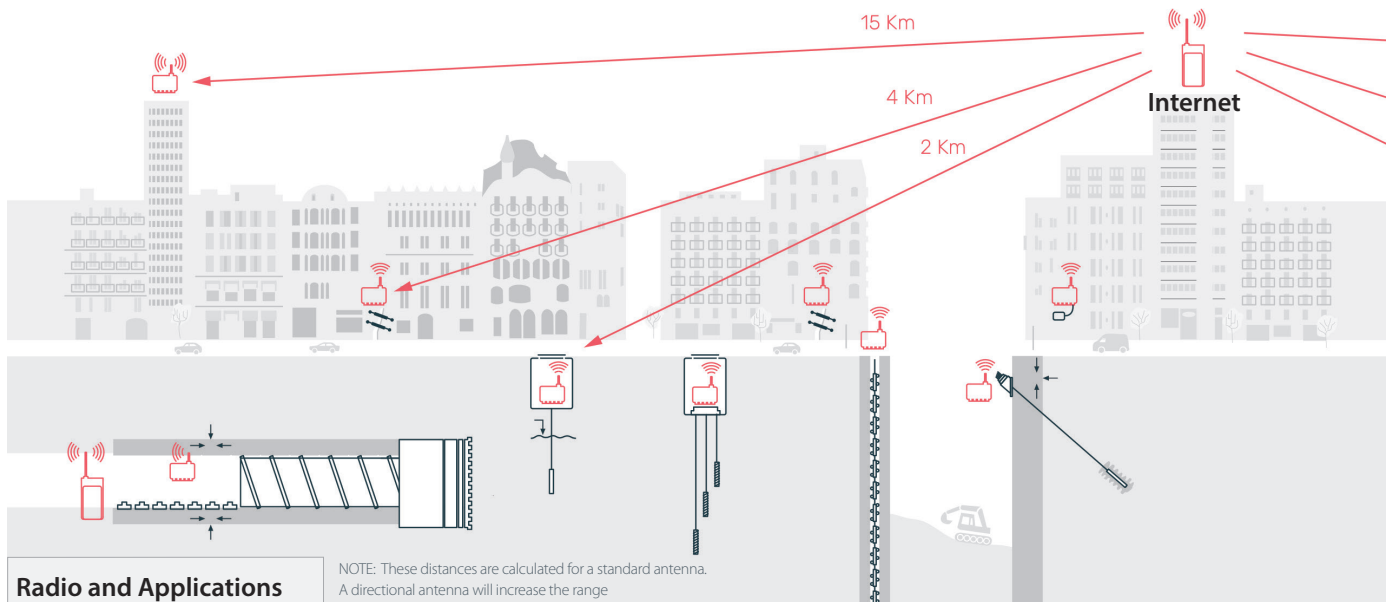
Sampling Rate	30 seconds to 1 day
Data Storage	Up to 200,00
Time Sync	Better than +/- 10 seconds
Operating Temperature	+40°C to +50°C
IP Rating	67

### Battery Life estimation\*\*

Channels and Sampling	Current @12V @24mA	Current @24V @24mA	Voltage @12V @24mA	FWB @5V @0.7k	Pot @5V @1.5k
Warm up time	1 Second	1 Second	1 Second		
1 CH 5 min	6 Months	4 Months	5 Months	1.5 Years	1.5 Years
1 CH 6 hr	>10 Years	>10 Years	>10 Years	8.5 Years	>10 Years
4 CH 5 min	1.5 Months	39 Days	2 Months	1.5 Months	7 Months
4 CH 6 hr	8 Years	6.5 Years	>10 Years	8.5 Years	>10 Years

\* estimations for Saft LHS 14 batteries Typical europe radio configuration. Spreading factor 9, radio transmit power 14dBm. Based on laboratory conditions. Consumption varies depending on the sensor used. Sampling rate and environmental and wireless network conditions.

\*\* estimations for 4 x Saft LHS 14 batteries. Based on laboratory conditions. <sup>2</sup>950-1050 hPa at 25°C.



## Radio and Applications

NOTE: These distances are calculated for a standard antenna. A directional antenna will increase the range

### Long Range Radio

Open Field	15 km
City Street	4 km
Manhole in a City	2 km
Tunnel	4 km

### Radio Specs

ISM sub 1 GHz operating frequency bands adjustable to each territory requirements  
 No repeaters needed  
 High sensitivity: down to -137dBm  
 Transmission: +14 dBm high efficiency / + 20 dBm  
 Maximum link budget: 151 dB / 157 dB  
 Remote sampling rate change  
 Bidirectional communications capabilities

## Ordering Information

### Nodes

D9-VW-5	GTecLink Vibrating Wire Node - 5 Channels
D9-VW-1-ALUM	GTecLink Vibrating Wire Node - 1 Channel (alum)
D9-VW-1-POLY	GTecLink Vibrating Wire Node - 1 Channel (poly)
D9-ANALOG-4	GTecLink Analog Node - 4 Channels
D9-DIGITAL	GTecLink Digital Node
D9-GEOSMART	GTecLink GeoSmart Node with Rechargeable battery(solar panel not included)
D9-TILT-BIAX	GTecLink Wireless Tiltmeter - Biaxial
D9-PICO	GTecLink Piconode
D9-LASER	GTecLink Wireless Laser Distance Node

### Gateways

D9-GATE-868	GTecLink Gateway 868 MHz (CE)
D9-GATE-915	GTecLink Gateway 915 MHz (FCC/IC)
D9-GATE-923	GTecLink Gateway 923 MHz (Asia/Pacific)

### Accessories

D9-EX-WM	GTecLink External Mounting Brackets (set of 2) for wall mounting
D9-POLY-WM	GTecLink Wall Brackets (4 poly brackets and screws)
D9-PM-35	GTecLink Alum Plate for pole mount < 35mm
D9-PM-50	GTecLink Alum Plate for pole mount < 50mm
D9-COM-NM	GTecLink Comm Cable - Type B Mobile to Node
D9-COM-NM1	GTecLink Comm Cable - Type C Mobile to Node
D9-GATE-LPANT	GTecLink Gateway Lightning Protection for Antenna
D9-GATE-LPETH	GTecLink Gateway Lightning Protection for Ethernet
D9-TILT-HZM	GTecLink Wireless Tiltmeter Horiz Mounting Plate
D9-TILT-VTM	GTecLink Wireless Tiltmeter Vert Mounting Plate
D9-TILT-VTPM	GTecLink Wireless Tiltmeter Vert Pole Mounting Plate
D9-BATT-C	Saft LSH 14 C Lithium Battery

**soil**  
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