ENCARDIO RITE

ONE STOP MONITORING SOLUTIONS | HYDROLOGY | GEOTECHNICAL | STRUCTURAL | GEODETIC

Over 50 years of Excellence through ingenuity

DATASHEET

WIRELESS TILT METER

MODEL ESDL-30MT

INTRODUCTION

Encardio-rite model ESDL-30MT wireless tilt meter is suitable for remote monitoring of small changes in inclination and vertical rotation of structures. It is a complete unit in itself to monitor tilt at any location, with one uniaxial or biaxial MEMS tilt sensor mounted inside it, along with inbuilt data storage and data transmission system.

With the real-time data collected from ESDL-30MT wireless tilt meter, the authorities can know about the slightest of change taking place in the project. This allows one to take timely decisions, increase safety, reduce project delays and be more cost effective.

FEATURES

- Stand-alone unit in weatherproof compact enclosure
- Provides reliable and high resolution readings with long term stability
- Easy to install, simple to use and user friendly configuration
- Wireless data transfer over long distances
- Battery life up to 5 years, depending upon applications
- Easy to monitor hard to access sites and tunnels remotely

APPLICATION

- Remote tilt monitoring of retaining walls and buildings
- Metros, tunnels, under-ground cavities, Dams
- High rise buildings, historical monuments, bridges and other such structures
- Monitoring stability of structures in landslide areas
- To monitor deformation of embankments, retaining walls
- Foundations, piles etc.

APPLICATIONS

Tilt changes in structures may be caused due to construction activities such as excavation; tunneling and de-watering that affect the ground that supports the structure. Changes in tilt may also result from loading of a structure, such as loading of a dam during impoundment, loading of a diaphragm wall during excavation or loading of a bridge deck due to wind and traffic. Data from the tilt meter provides early warning of threatening deformations, allowing time for corrective action to be taken or if necessary, for safe evacuation of the area

DESCRIPTION

Model ESDL-30MT wireless tilt meter consist of a uniaxial or biaxial MEMS tilt sensor, data storage system and modem, antennae for data transmission.

ESDL-30MT is of rugged construction and can be used in a variety of applications to provide accurate reliable data. It features a wide operating temperature range, dependable stand-alone operation, low power consumption, compatibility with many telecommunication options and flexibility to support a variety of measurement and control applications.

ESDL-30MT can be programmed to take measurements from 5 seconds to 168 hours in linear mode. The number of measurements taken per day should however be kept to a minimum as higher frequency of measurement drains the power supply battery at a faster rate.

All the measured data is stored, together with the current date, time and battery voltage, as a data record in the internal non-volatile memory of the ESDL-30MT tilt meter.

CONNECTION TO OTHER SENSORS

Model ESDL-30MT wireless tilt meter is a standalone unit for logging and transmitting tilt data. However, if required, it can connect, log and transmit data from nearby installed crack meter, another tilt meter or any others vibrating wire or resistive strain gage type sensor with SDI-12 interface.

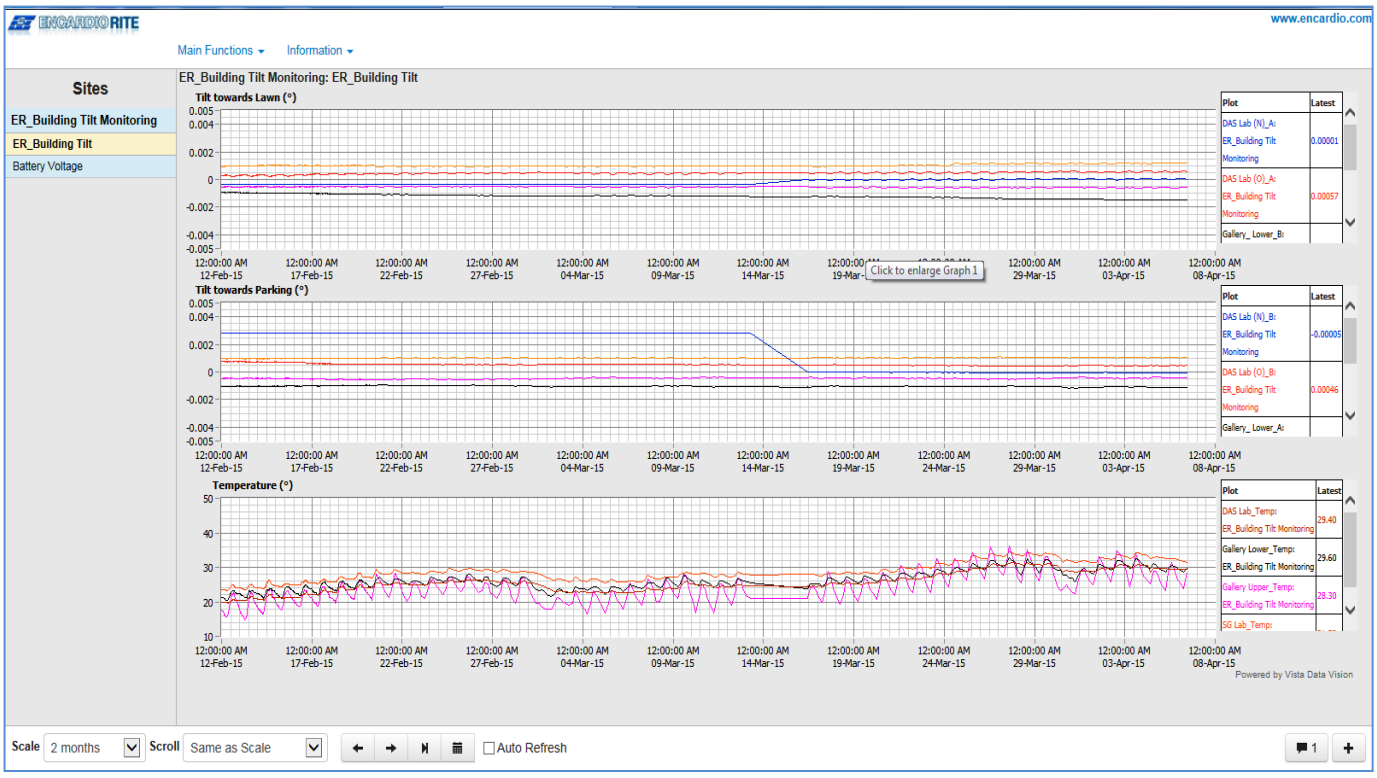
The SDI-12 serial digital interface requires only a three conductor cable to connect the required sensors to the tilt meter box. This has a great advantage as only one single three conductor cable is required to interconnect all the sensors and the ESDL-30MT wireless tilt meter in a serial bus.

SDI-12 is a multi-drop interface that can communicate with multi-parameter sensors. Multi-parameter means that a single sensor may return more than one measurement, like displacement and temperature from vibrating wire crack meter.

DATA RETRIEVAL ANsD TRANSMISSION

Telemetry through GSM/GPRS modem

In a location covered by any GSM/GPRS service provider, the data from the ESDL-30MT tilt meter can be transmitted remotely to a central PC, server or cloud server via a data SIM card (arranged by user).



Readout/data retrieval using laptop PC

The logged data from the ESDL-30MT tilt meter in the field can also be directly downloaded to a laptop/PC. Data can then be transferred to the central PC or server or cloud server from the laptop using either a USB pen drive or through Internet.

DATA PRESENTATION, ARCHIVING AND WORLD WIDE ACCESS THROUGH ENCARDIO-RITE PUBLIC CLOUD SERVICE

Encardio-rite offers public cloud based web monitoring service to its customers for retrieving data from ESDL-30MT wireless tilt meters, archiving the retrieved data in a SQL database, processing the data and presenting the processed data in tabular and most suitable graphical forms for easy interpretation of logged data. The tables and graphs related to any site or sites can be accessed by authorized personnel who can login to their site using the supplied login ID and access password from anywhere in the world over the internet. Users can have two types of access – any user with lower level access can only view or access the data whereas a higher level user has the authority to set or modify some of the settings.

No special software is needed for accessing the user sites as the information can be viewed using most standard and popular web browsers like Microsoft Internet Explorer, Mozilla Firefox, Google Chrome etc.

Encardio-rite cloud services work on a rental model. User has to pay a small setup fee for first time and then a monthly rental has to be paid for accessing the data over the cloud as long as required.

SPECIFICATIONS

Sensor	Integral uniaxial or biaxial tilt sensor
Range	± 15°
Resolution	± 0.05 mm/m (8 arc seconds)
Accuracy	± 0.1% fs
Scan/upload interval	5 seconds to 168 hours
Memory capacity	Flash Memory (64-Mbit); 2 Million data points
Data output format	CSV text file. Can be easily imported in many third party applications like Microsoft® Excel
Operating temperature range	- 30° to 70°C
Humidity	100 %
Power supply	2 x D size 3.6 V/19 Ah Lithium cells, or 2 x D size 1.5 V Alkaline high power cells, or 12V SMF battery chargeable from AC mains or solar panel
Housing	Corrosion resistant weather proof enclosure
Antenna (in telemetry option)	Built-in or separately mounted antenna
SDI-12 version	Version 1.3
Communication port	RS-232 (Standard) 115 kbps
Temp. measurement range	-20° to +70°C with 0.1°C resolution
Dimensions LxWxH	220 x 140 x 90 mm

**All specifications are subject to change without prior notice*

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