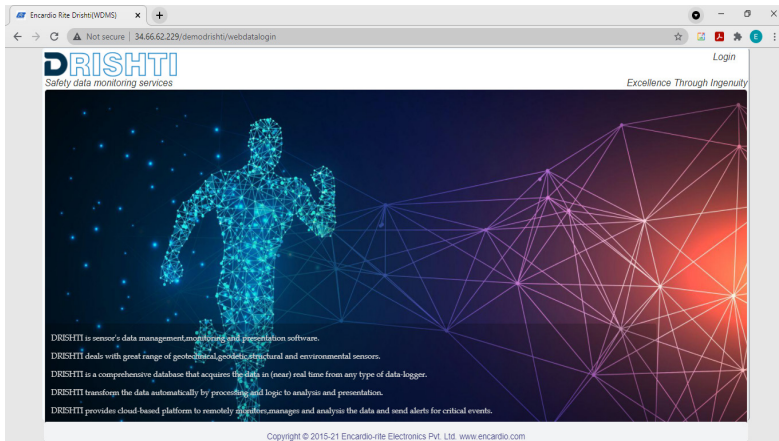


## Data Sheet



## DRISHTI

Data Management System

Real Time Web Based Data Monitoring With Automated Alerts Reliable Data AtFingertips 24x7

### INTRODUCTION

Encardio-rite offers Drishti, an advanced software to access and analyze real time data from mega civil engineering projects. It is a powerful tool, with very low downtime, that gives the user complete control of their project data with site specific graphs and table forms. The software can collect data from multiple sources used in hydroelectric, tunnel, high-rise structure, bridge, mining, nuclear power and landslide applications.

Drishti is one of the World's finest data management platform that can collect and process large amount of data to provide meaningful information at fingertips, 24x7, with instant alarms on critical events. The early warnings help in taking timely corrective actions to prevent damages, minimizing delays and operational costs. Drishti is developed in-house, with the expertise for over 55 years in the field.



## BENEFITS

- Single platform for comprehensive project data allows rapid evaluation, interpretation and decision-making
- Single portal to manage multiple projects
- Offers web service/cloud hosting and can also run on customer's server, giving full control of the system. Remote user web interface available
- Data validation and Outlier Screening is a powerful feature that filters out extreme values based on defined formula limits
- Webcam support to have a live visual feed from the project site
- Offers an interactive user interface, taking care of all database interactions automatically
- Variety of visualization and analysis tools to identify potential failure scenarios.
- User defined multiple graphs on single screen provide visual insight for analysis
- Real time multiple alarm setting ensures no critical information is missed.
- Create combined charts of related parameters; or from any combination of parameters and time period
- All key information can be viewed at a glance on customized screen options
- User can generate comprehensive report or a customized report quickly.
- Zoom-in view on both X-axis, Y-axis, Y-axis scaling for close inspection
- Virtual variable calculations available for corrections (temperature effect etc.) and re-calibration of sensor
- Moving average facility available
- Easy access to historical data
- Limitless space for data storage
- Easy access to data from anywhere through SHA-256 encrypt password-protected web interface
- Supports integration from 3rd party SQL databases and allows 'view only' SQL databases access to a 3rd party software
- Instant automatic alerts sent via SMS or email for data variations, missed data or sensor malfunction.

## FEATURES

### Multiple input source

- Supports almost all types of sensors and multiple data sources like:
- Dataloggers connected to geotechnical and structural, sensors
- RF nodes & gateway
- Robotic total station (geodetic data)
- Seismometers and accelerometers
- Weather station sensors
- Manual data inputs
- Images, layout drawings, manuals, calibration sheets, other documents and notes

### Scalable & intuitive

- Scalable to meet any project size, small or large; suitable for long term measurement.
- Using an intuitive interface, it takes a few clicks to configure data storage, data visualization and alarm settings.

### Geo-reference (Google) map

- Geo-reference (google) map not only provides complete instrumentation layout but also a quick access to sensor data on single click. The real time (latest) data values are presented in different colors depending on the alarm and update monitoring status. The historical data graphs can also be viewed with a single click.

### Real time charts

- XY Plot, Scatter (XY) plot, Bar Chart & Histogram
- Inclinometer vertical & horizontal displacement graphs
- 3D optical survey graphs in dx, dy, dz, as well as ddcl, ddh and dxth.
- User can save graph or export graph with tabular data instantly

### Thematic display

- In thematic display, the color intensity pattern is based on the data values changing between the defined maximum minimum ranges of values.
- It provides a visual impact with a particular pattern that is easy to understand at glance



### Dynamic graph

- User can select different parameters, even from different sites, and plot them on a single graph at run time for comparative study

### Displacement graph

- In-place inclinometer graphs can display readings from the chain of sensors as displacement graphs or as cumulative displacement graphs

### Graph zooming

- Specific part of graph can be zoomed in on X-axis or Y-axis for further inspection
- Y-axis scaling of graphs can be changed at run time

### Virtual variable

- Virtual variables can be used for powerful calculations for new analyses or to recalibrate data.
- It is easy to create a formula that has sensor readings from one or more dataloggers as input.

### Data validation and Outlier screening

- Drishti allows user to remove data noise or outliers and filter out random disturbances from sensor data with some specific formulas. Outliers are extreme values that deviate from other observations/overall pattern of data.

### Historical data

- Summarized information is available on data updates, alarms and site status.

### Real-time alerts

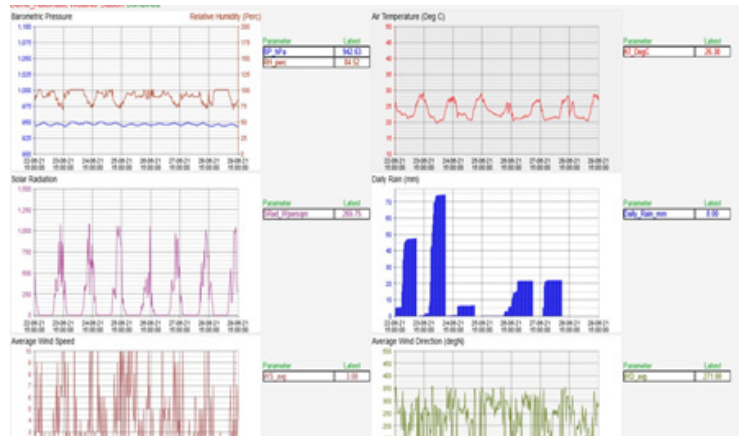
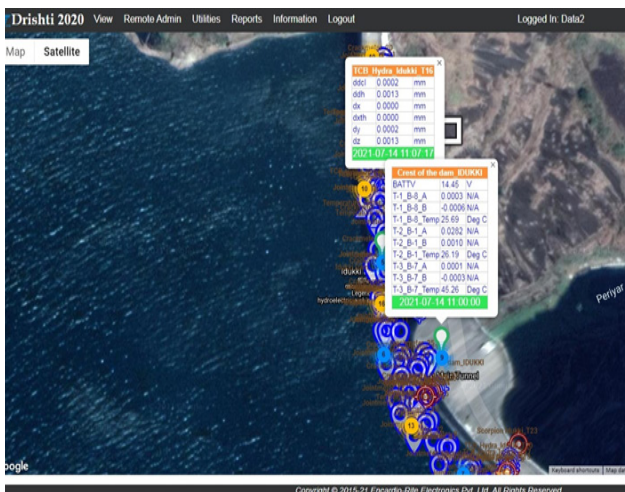
- User can set 3 levels of alarm, can select alarm recipients, define maximum delay time (for data collection), reminder intervals and no. of reminders
- Data quality ensured by setting up alarms for out-of-range sensor data.
- Boolean (conditional) alarm available. The alarm will trigger only in certain conditions, implemented on specified variables values.
- Alarm has escalation capabilities to multiple groups.
- Issues related to alarms are automatically logged.

### Reports

- User can generate reports with summaries on sites, data, parameters update status and alarm status.
- User can define summary actions to be performed (average, max., min.).
- Reports can be exported as a delimited text file or in Microsoft excel format.
- Report format can be customized as per user's need

### Access controls

- Strong administrative controls with customizable user access and functionality
- Any number of user profiles can be created with any combination of access rights - full access to stake holders, with limited access to other users.





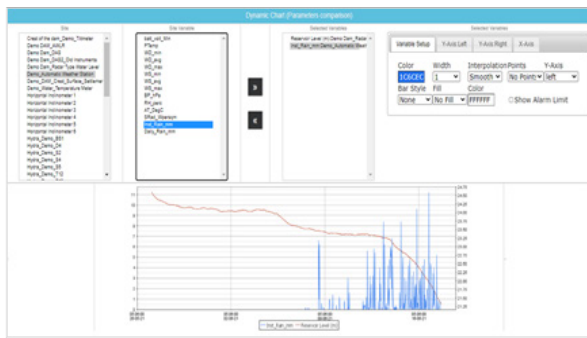
# DRISHTI SERVICE

Drishti data-management system runs on secure cloud server or locally on a customer’s server.

- Encardio-rite offers web based data management as a service through Drishti hosted on a reliable cloud server. Data is made available to multiple users 24x7 with very low downtime
- Drishti is also available as a data management software where data is required on local server. Drishti is installed locally to store the data in-house with required security levels.

Drishti service cost depends on following factors:

- Initial set-up and site configuration
- Annual subscription or monthly rental
- Number of sensors/parameters used at site
- Frequency of readings required
- Number and types of graphs required
- Customizations required



Dynamic chart selection



Historical data

- Types of alarm messages required –SMS, email or both. Cost will depend on number of SMS sent i.e. number of alarms generated x number of person.
- Support and Maintenance provided
- Updatations provided
- Training provided



Thematic display

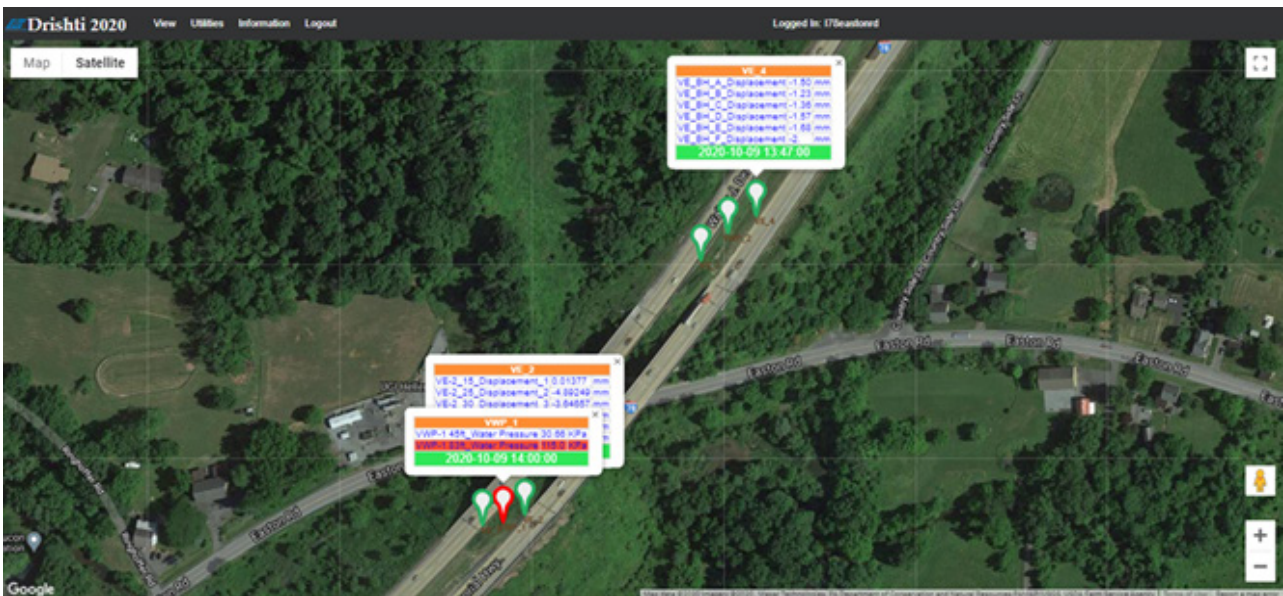


Graph zooming



## APPLICATIONS

- Critical applications where real time monitoring and early warning is required in order to protect life & valuable assets; minimize costs and delays
- Large civil engineering projects like a dam, barrage, tunnel – metro/ rail/road/sewer, mine, structure, high rise building, landslide area, slope, bridge and nuclear power plant monitoring.
- Existing infrastructures, assets, monuments
- Deformation monitoring of embankment, retaining wall, etc.
- Groundwater level monitoring



Real time data from I-78 Easton Road Bridge Abutment Project, USA

\*All specifications are subject to change without prior notice

DATASHEET | 1182-12 R02



TUNNELS



HYDROELECTRIC



CONSTRUCTION



STRUCTURAL



METRO & RAIL



BRIDGES



MINING

Encardio-Rite Group - India | Bhutan | Bahrain | Qatar | Saudi Arabia | UAE | Greece | Spain | UK | USA