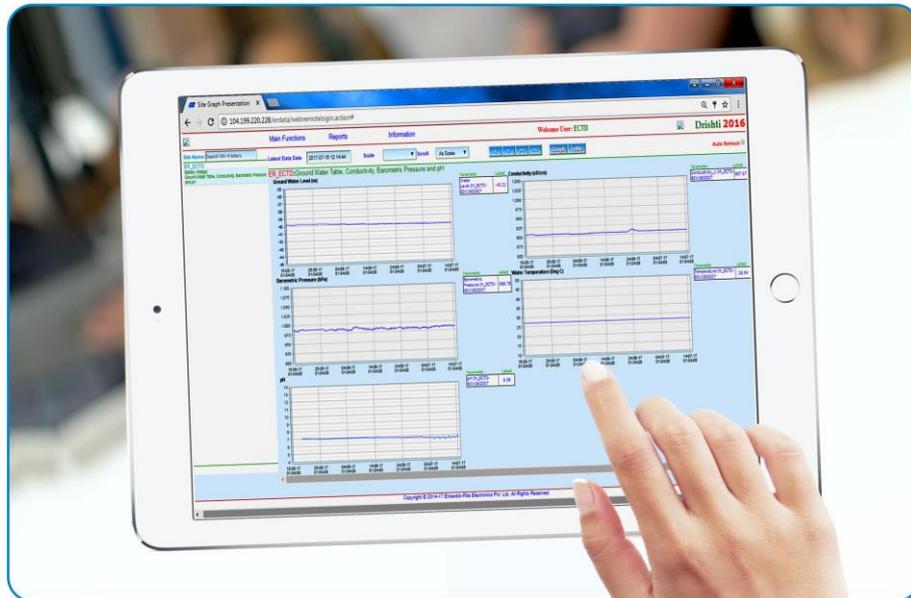


ONLINE WATER RESOURCE MONITORING



INTRODUCTION

Central Ground Water Authority (CGWA) of Government of India requires bulk users of ground water to install an **Automatic Online Web Data Monitoring System** for monitoring water table as well as the quantity of water pumped out of the borewell. Following is reproduced from sl. no. 8 of Guidelines dated November 16, 2015 issued by CGWA:

“All existing industries/projects which are drawing ground water and have not obtained NOC for ground water withdrawal from Central ground water authority, either due to its coming into existence prior to formation of CGWA or due to exemptions from obtaining NOC as per earlier guidelines, shall apply to CGWA for NOC for ground water withdrawal with immediate effect”.

Encardio-rite provides two options to monitor these parameters:

- Option 1: Model EWLR-101 Digital Water Level Recorder (DWLR) consisting of an absolute water pressure sensors connected to an automatic datalogger model ESCL-10VT-BX for ground water level monitoring
- Option 2: Absolute water pressure sensors with ultrasonic water meter connected to an automatic datalogger model ESDL-30VB for monitoring of ground water level and quantity of water pumped out.

The above systems can also monitor rainfall using model ERG-200 rain gage.

Data from the above systems are available online through a public cloud based web monitoring service.



ONLINE WEB BASED MONITORING OF GROUND WATER TABLE AND INTEGRATED WATER FLOW FROM TUBEWELL

ABSOLUTE WATER LEVEL SENSOR

Model EPP-30V, EPP-40V and EPP-60V absolute pressure sensors with an outer body of stainless steel cover the entire range required for any ground water level monitoring. The sensor is hermetically sealed by electron beam welding under a high vacuum of around 1/1000 Torr inside it. A thermistor is incorporated in the sensor for measurement of water temperature.

The absolute pressure sensor uses a four conductor Kevlar reinforced signal cable instead of a vented tube cable along with desiccant chamber. This results in an almost maintenance free system as no desiccant is to be periodically replaced to avoid moisture ingress in the vent tube and consequent blockage of the vent tube.

(Range: 0-10, 20, 35, 50, 100 m wcl)

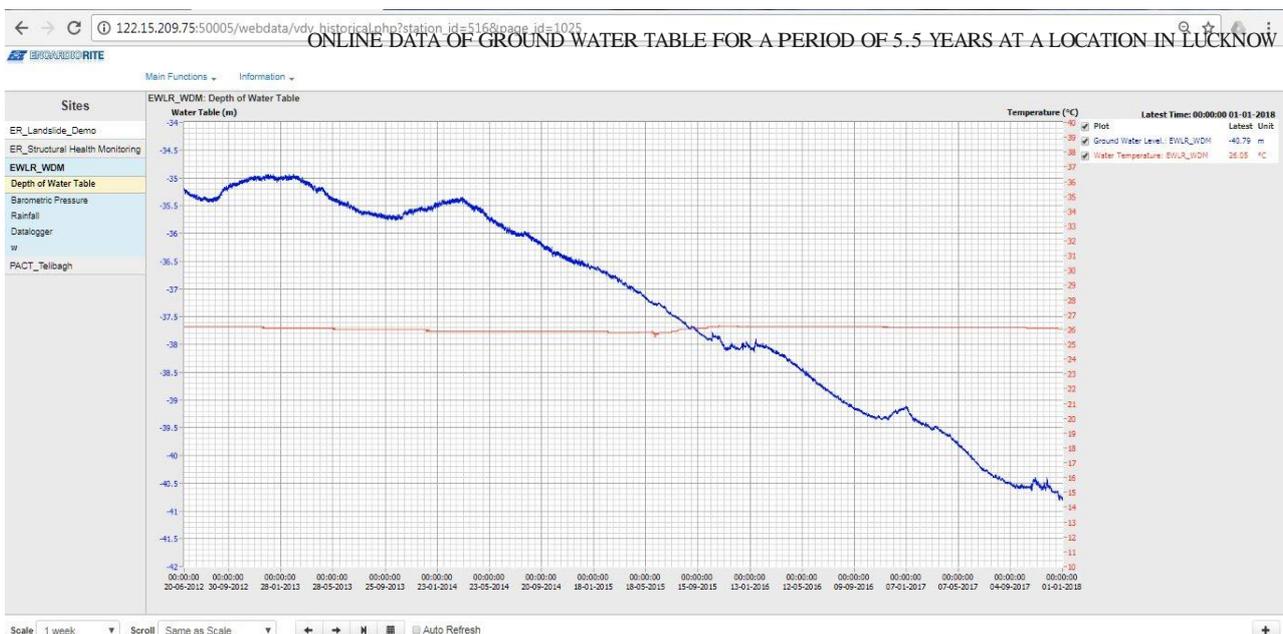
For saline/brackish water application, the model EPP-60V pressure sensor is available in a titanium body to cover ranges up to 50 m wcl.

DATALOGGER (WATER LEVEL)

Model ESCL-10VT-BX datalogger logs data from the absolute water level sensor and transmits it remotely to a PC/server at a remote location through a data SIM card. The measured data is stored, together with the current date, time and battery voltage, as a data record in the internal non-volatile memory (3 million data points) of the datalogger.

ESCL-10VT-BX has an in-built barometric pressure sensor that measures atmospheric pressure. The datalogger measures the output from the absolute and barometric pressure sensors as well as temperature and calculates the pressure in terms of water column after correcting for the measured atmospheric pressure and water density.

It has provision to operate on lithium cells, alkaline high power cells, mains or solar power. In case data is retrieved four times a day and transmitted once a day, the lithium batteries will last for more than five years.



ULTRASONIC WATER METER

Encardio-rite offers the most advanced integrated water flow measurement by using state-of-the-art ultrasonic technology. The water meter does not have any moving parts that can wear or tear thus providing a robust and accurate meter with almost no maintenance required.



EFM-10US water meter is specially designed for applications where conventional water meters fail due to harsh environment, solids in water, performance degradation, magnetic vandalism or incapability in leakage detection.

EFM-10US has an integral LCD totalizer. The nine digit LCD can display the integrated water flow, daily flow, monthly flow, reverse flow and more.

(Range: 25/8; 32/12.5; 40/20; 50/30; 65/50; 80/80; 100/125; 125/200; 150/300 mm/m³ per hour - pipe size/flow rate)

DATALOGGER (WATER LEVEL + WATER METER)

Model ESDL-30VB datalogger is designed to log data from sensors with SDI-12 interface. For connecting the absolute pressure sensor to it, a SDI-12 interface card is internally mounted in the datalogger. The water meter is connected to datalogger through an external SDI-12 interface card.

The data of water table and water flow are available on the same page of public cloud based web monitoring service, provided by Encardio-rite.

ESDL-30VB is a rugged datalogger and features a wide operating temperature range, dependable standalone operation, low power consumption, compatibility with many telecommunication options and flexibility to support a variety of measurement and control applications.

The data storage and battery back-up of ESDL-30VB is the same as that of model ESCL-10VT datalogger.

PUBLIC CLOUD BASED WEB MONITORING

Encardio-rite offers public cloud based web monitoring service to its customers for retrieving data from datalogger, 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 through in-house developed reporting software "DRISHTI".

The data can be accessed by authorized personnel by using a unique login ID and password from anywhere in the world over the internet using any 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 an annual rental has to be paid for accessing the data over the cloud as long as required.