

## Our Riglogger™ technology is a hands-off recording and data storage solution for use with the MHWirth drilling system.

Today's advanced control systems enable us to net a greater understanding of drilling operations. By capturing thousands of parameters, from operator inputs to component operating characteristics, the independent Riglogger™ system is designed to preserve the history of the drilling process.

The MHWirth Riglogger™ system continuously records up to 15 000 measuring points and captures events at a frequency of up to 50 Hz, ensuring a high data density. The data, typically IO or calculated values of analogue and digital formats, are normally collected directly from the PLC and are archived offshore for up to six months and onshore for up to ten years. Longer archiving times are available upon request. With this, a complete operational history of the monitored equipment is given.

Our Riglogger™ technology can also act as a third party integration hub and can interface with the rig's servers and provide data delivered from the drilling system.

Riglogger™ data can be replicated and stored on a secure onshore server on a regular basis. Our Global

Operational Support Center can instantly access the data and support incident investigations and troubleshooting, where code changes, alarms, key/button-logs or logics are available. If the Remote Diagnostic system is available and data replication has not yet taken place, our support team can manually trigger/retrieve the data in real-time.

Riglogger™ data enables in-depth analysis of the drilling operation and possible adjustments in handling the equipment to further improve your drilling efficiency. It provides relevant information on the condition of equipment and forms the basis for condition based maintenance (CBM).

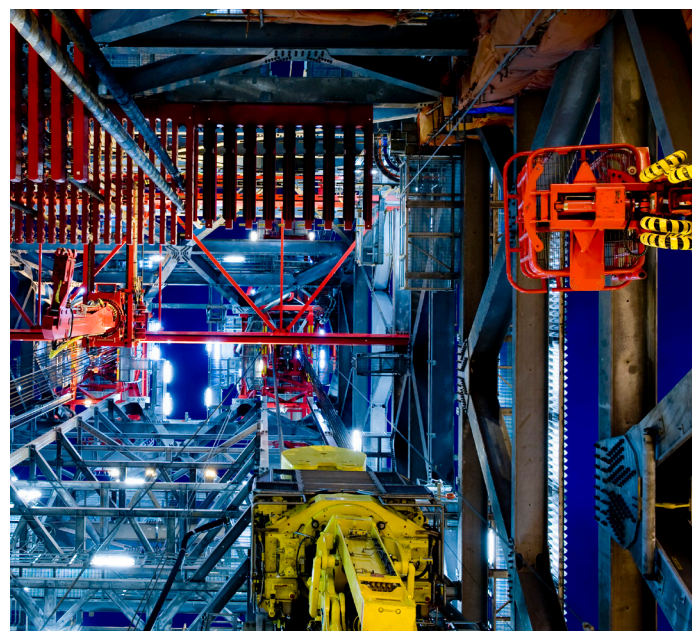
To allow you to improve your drilling process, our system has the option to share relevant data with you.

### MHWirth's Drilling Lifecycle Services

With a global footprint and a strong focus on the Total Cost of Ownership our Drilling Lifecycle Services are here to support you throughout the lifetime of your operation.

## Benefits

- Continuous data collection at up to 50 Hz frequency ensure high quality data over the full drilling process
- In-depth information on the condition and use of equipment allow for CBM and to identify potentials for performance optimization
- Immediate data access for MHWirth Global Operational Support Center for reduced cost and faster response time during incident handling
- A separate GPS NTP (Network Time Protocol) is used to guarantee that all signals are logged with correct timestamp
- Can be used as a third party integration hub. This opens up for other suppliers to use Riglogger™ for storing and forwarding signals to shore
- Riglogger™ data can be viewed using myDrilling™ Visualizer. Data viewed in myDrilling™ Visualizer can be exported to Excel (.csv file), a PDF or as an image



## Scalability

Our Riglogger™ architecture is customizable for integration to many corporate systems. It can be scaled to collaborate with other monitoring/data logging systems and protocols, e. g. OPC DA and SQL.

Direct access to raw data held on the Riglogger™ servers are restricted by design. However, it is engineered to support urgent access. The logged data can be accessed through the myDrilling™ Visualizer and a custom-designed, trusted data layer where portal access and replication can be enabled.

Our Riglogger™ technology is hosted from a standard 2U rack server located in the DrillView™ cabinet. The server receives live data from the equipment controllers through an ethernet connection to the DrillView™ and PLC network.

## Technical Features

Data extraction and storage from a specified set of controllers provide reliable and performance-driven data, for example from:

- Drilling Equipment Control System (DECS) which controls the topdrive and other drilling equipment
- Hydraulic Power Unit (HPU)
- Vertical Pipe Handling (VPH)

Example Data from Riglogger™

