



A Rockwell Automation Company

Canrig Drilling Technology Ltd. RIG 180

The Client:

Canrig Drilling Technology Ltd. is a Western Canadian manufacturer of Top Drive Drilling Rigs. Canrig's Top Drive design has been utilized around the world in areas such as The North Sea, Aman, The United States, and Venezuela. This Top Drive design allows the use of smaller diameter drilling pipe and the easy recovery of drill core samples.

Canrig Top Drives are currently being installed in custom rigs designed and built by Dreco.

The Requirement:

This particular Drilling Rig was constructed for Nabors Drilling in Texas. The drilling rig needed to handle slim hole drill stem of small diameter at great depths and be capable of retrieving core samples easily while drilling. The operation of the drilling rig was to be as completely automated as possible. All automation was to be controlled by Programmable Logic Controllers (PLC). Pipe handling, as well as the drilling process, was also automated. The PLC was also required to

communicate to a generator skid PLC to control the various operations of the three diesel powered generators.

A final requirement of this drilling rig was the capability of modular assembly to allow the modules to be transported by helicopter or truck to remote areas of Venezuelan jungle.

The Design Solution:

One PLC 5/30 was used to control the generator skid. This PLC would control start-up and shutdown of the three generators, as well as load shedding. The PLC communicates to the operator console via the Allen Bradley remote I/O highway. All operating data is sent to the operator console PLC for data logging and control purposes.

A second PLC 5/30 was used in the operators console to provide a data contractor for the DMACS workstation. This PLC is also connected to the operators controls to provide all manual and automatic control of the drilling rig. The operators console was divided into two sections. One section is used by the driller to perform all drilling and coring maneuvers.

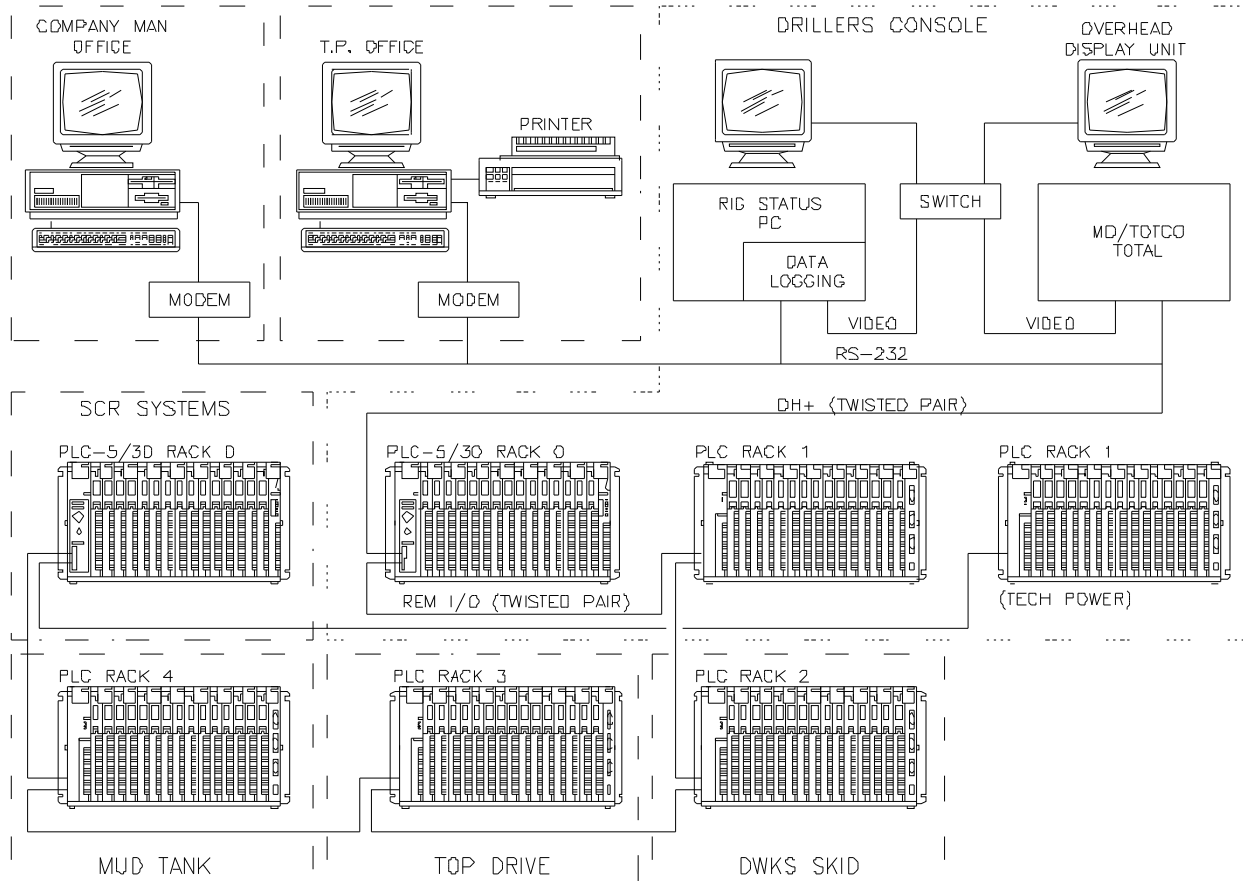
The second section is used by the pipe handler to perform all pipe handling in and out of the rig. The pipehandler also controls the core removal.

The DMACS workstation is used to graphically display the operation of the drilling rig. This workstation also is used to change operating set points and alarm set points. A logging printer connects to this workstation and allows all alarms and set point changes to be logged. The second workstation is located in the rig managers office and is used to monitor daily rig operation.



A Rockwell Automation Company

Canrig Drilling Technology Ltd. RIG 180



System Specifications:

- 2 - Allen Bradley PLC 5/30
- 2 - DMACS Workstations
- 1 - MD TOTCO Workstation
- 4 - Remote Drops
- 1 - Power Control Panel
- 100 - Digital Inputs
- 80 - Digital Outputs
- 48 - Analog Inputs
- 2 - VHSC High Speed Counters
- 3 - Variable Frequency Drives
- 20 - Motors
- 10 - Graphics Pages

For further information or to contact a Hinz office near you, please check our website at:

www.hinz.com