

Rig Remote Access, RRA

Technical specification



Optional function to remotely supervise drill rigs and for transfer of drill plan and log files to and from the drill rig.

Introduction

Using a standard PC, the drill rig is accessible over the work site network. All needed in the PC is a Remote Display Program and/or an FTP program. The full RRA package renders three main functions:

- Remote access to the menus on the drill rig display
- Transfer of data from and to the drill rig
- Integration of drill rig data into the administrative system on the work site

Features

» Production planning

- Drill rig is always online and the administrative system can be automatically updated with the latest information
- The drill rig operator has continuous access to the latest production planning
- Log files will be available for the planning department
- No PC-card or USB-stick handling

» Maintenance

- Diagnoses can be done remotely before an actual visit
- Service can be planned based on actual needs

Specifications

»Remote access to the menus

On the office computer it is possible to:

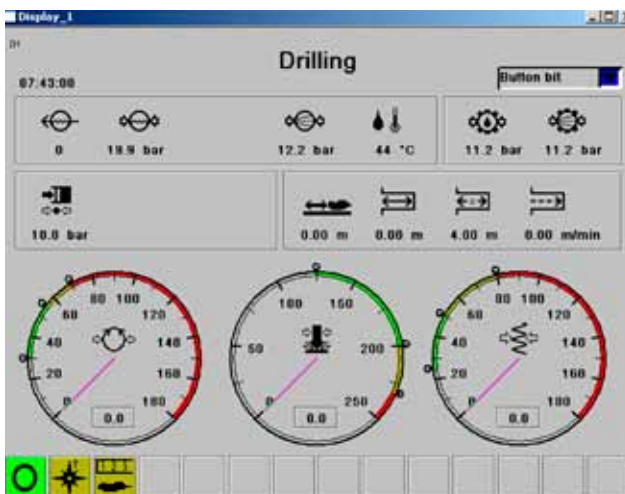
- Watch the manometer menu on the drill rig
- Watch the statistic information showing accumulated electrical motor hours, percussion hours and drill meters
- Initiate save of log files

For maintenance purposes it is possible to:

- Observe the fault finding menus
- Get information about the guards and alarms
- With the right authority, observe the sensors and parameters

Guards				
Sensor	Value	Module	Contact	Marking
Emergency stop tripped	0	D510	X11a	B133
Hydraulic oil filter clogged	0	D512	X24a	B139
Power supply alarm	0	D512	X0	B107
Hydraulic oil level low	0	D512	X14	B143
Hydraulic oil temperature high	0	D512	X6	B362
Compressor temperature high	0	D512	X24b	B366.1
Lubrication oil level low	0	D511	X15a	B380
Diesel engine	0	D510	X11b	B353
Electric motor	0	D510	X15a	B186.1

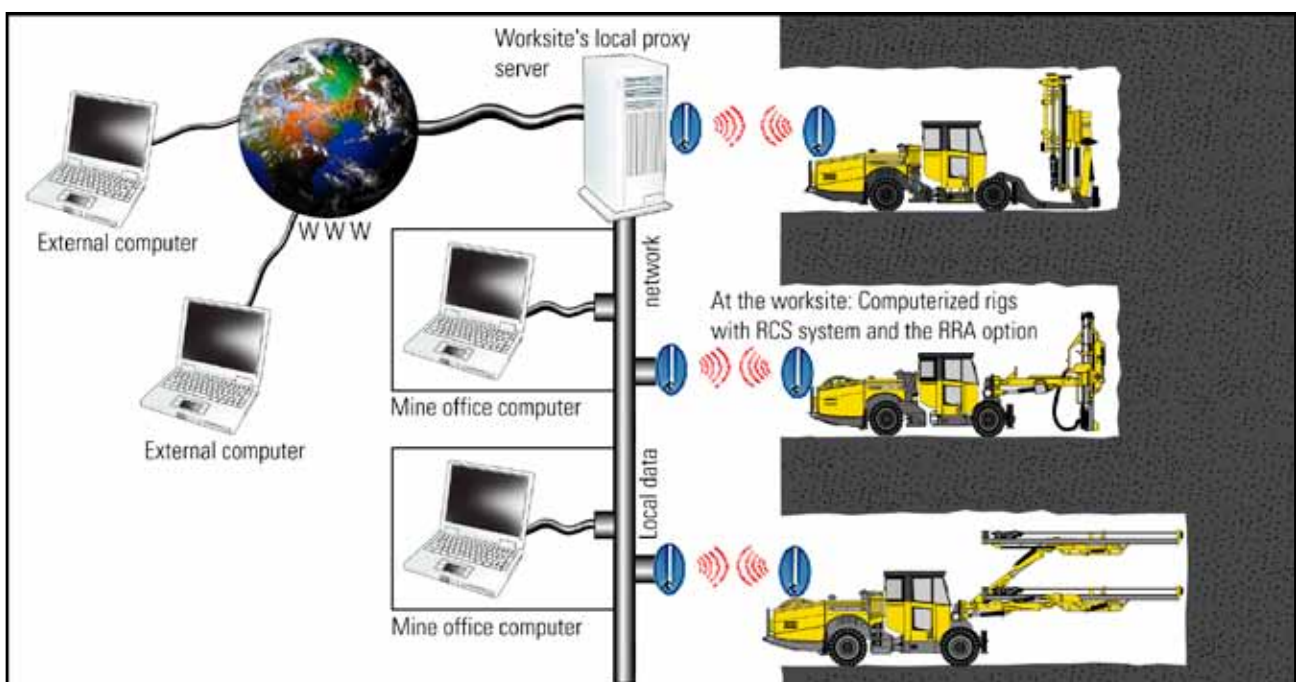
Guard menu.



Drilling menu.

Sensors				
Sensor	Value	Module	Contact	Marking
Boom swing	0.00 °	D120	X6	B300
Boom lift	-0.01 °	D120	X7	B301
Boom extension	0.00 m	D120	X11a	B386
Feed lift	0.00 °	D121	X7	B310
Feed swing	0.00 °	D120	X8	B309
Feed rotation	0.00 °	D121	X8	B302
Feed tilt	0.00 °	D121	X9	B303
Feed extension	0.00 m	D121	X11a	B305
Rig inclination sideways	0.00 °	D511	X8	B313
Rig inclination frontwards/backward	0.00 °	D511	X6	B312

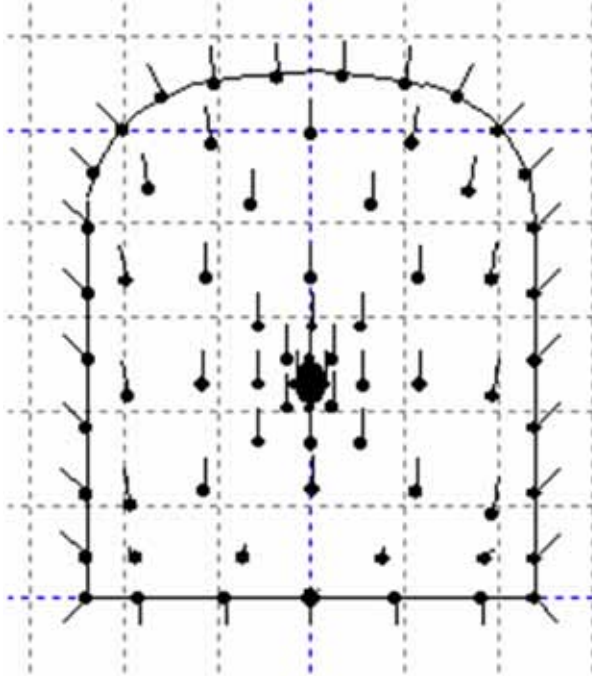
Sensor menu.



Example of a network with external connections as well as internal network and drill rigs.

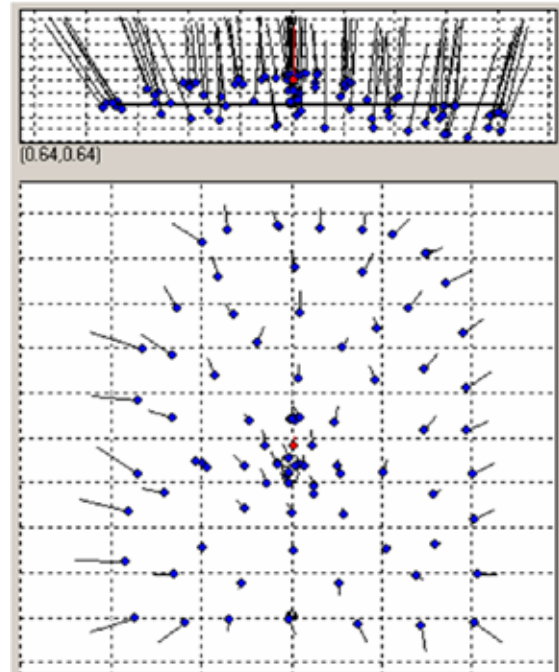
»Transfer of data

From the office computer it is possible to receive log files, such as round- MWD- and event logs, from the drill rig. It is also possible to transmit project data, such as work orders, drill plans and tunnel lines, to the drill rig. With this function the PC-card handling can be totally substituted with direct access.



»Integration of data

The drill rig data can be integrated into the administrative system on the job site. Production data can be retrieved for the production reports, for instance number of drilled versus planned holes, accumulated hours for electrical motors and percussion and drilled meters. Status of the guards on the drill rig can be polled. Round reports and log files can be uploaded and production data downloaded. This integration conforms to the IREDES online standards.



Specifications

» The RRA package contains:

- A CCI module to be mounted on the drill rig. The CCI module is a part of the Rig Control System and transfers data to and from the TCP/IP (Ethernet) network.
- Cable connection. A TCP/IP connection from the CCI module. The customer provides the complete network system.
- Remote Display program. The Remote Display is a software package on your desktop computer. Remote Display acts as an additional, imaginary, display unit of the drill rig. The Remote Display program looks for the specific IP-address of the drill rig.
- An FTP-server. A FTP-server is software, in the CCI unit, that transfers files to and from a standard FTPprogram on your desktop computer.



CCI module

Optional Equipment

» RRA Server

A program in the users' network that keeps track of when the drill rigs are online. The RRA Server exchanges information with the drill rigs as soon as the drill rig gets online.

» RS232 package

An RS232 connection on the CCI module. The customer provides the RS232 connection. This variant can be adopted to modem connections, data channels through a handheld radio and various other solutions. Detailed specification is mandatory before contract.

» WLAN package

A WLAN module, an antenna and cable harness to be mounted on the drill rig. The customer provides WLAN access points with coverage of the work area. Atlas Copco provides all up to and including the antenna on the drill rig.



WLAN module.

Requirements

The drill rig must be equipped with a control system of version RCS 3.0 or later. The computer models on the drill rig must have sufficient capacity (upgrade exist). The customer must provide the internal network on the work site. The network shall be able to supply TCP/IP communication directly to the drill rig or at a WLAN access point. Alternatively a network providing serial communication can be utilized.

The Rig Remote Access option is a system for remote supervision of the rig and for transfer of drill plan, however not for remote operation of the rig.

Terminology

CCI	Common Communications Module. The communication hardware integrated in the Rig Control System, RCS.
FTP	File Transfer Protocol
FTP program	A PC program that supports the FTP protocol and can transfer files over the Internet
IEEE 802.11™	Wireless Local Area Network
IREDES	International Rock Excavation Data Exchange Standard, http://www.iredes.org
MWD	Measurement While Drilling
PPP	Network Protocol
RS232	Network Protocol
RRA	Rig Remote Access, an option for communication with the drill rigs.
TCP/IP	Network Protocol
Web browser	Internet Explorer/Firefox/Mozilla etc.
WLAN	Wireless Local Area Network