

# Mining Industry



Customer: INCO Engineering s.r.o.  
Country: Czech Republic  
Year of implementation: 2012



## 24/7 Remote Diagnostics

INCO Engineering s.r.o. is the leading producer of technology for mining hoists and equipment for vertical, inclined and horizontal transport in underground mines and open pit mines. The product portfolio includes hoists with frictional discs, drum hoists, skips, cages and other transport containers, winding pulleys, mine-signaling systems, etc. The company has delivered over 700 hoists as well as a number of other mining products to many countries all over the world.

For its machinery installation in three different locations (Orsk in South Ural, Krasnokamensk, both in Russia, and Ostrava, Czech Republic), INCO engineering developed in cooperation with mySCADA Technologies a system to remotely access INCO machinery on these locations and log its operational parameters.

### Configuration



Online monitoring

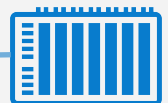


GSM 3G



mySCADA Box 3G

Ethernet/IP



ControLogix PLC



## FUNCTIONALITY

- remote PLC programming
- recording of production run hours
- reporting of daily and monthly workloads
- monitoring of excessive overload of the hoist
- predictive failure diagnostics
- operator actions logging to identify human errors

## Customer requirements

The major requirement of the customer was to have remote access to the installed mining hoists during the 2-year warranty term. With the remote access, INCO Engineering gained full control and remote diagnosis over its technology. By on-line monitoring and data logging INCO Engineering not only minimized any possible disputes with the customers such as damages caused by overloading the machinery equipment above the maximum certified load capacity, but also provided immediate remote diagnostics to avoid systems failures.

## Technical specification and implementation

mySCADA boxes with 3G modem were installed and connected to customer's PLCs from Rockwell Automation controlling the drum hoists. On locations without mobile network, mySCADA Box was connected through local network. INCO Engineering staff was provided with a technical training. The installation on site was supported by mySCADA technicians. All upcoming questions were discussed with mySCADA Technologies technical department and solved within reasonable time to set the equipment into operation.

## mySCADA Box

- advanced HMI interface
- multiple PLC protocols
- data logging up to 28mio of records
- complex alarm system
- trends, reports, data analysis
- secure user access
- visual programming
- box side scripts
- integrated secure web server
- advanced routing options
- 3 types of VPN tunnels
- remote access
- integrated 3G/4G modem
- CISCO VPN compatible
- M2M Gateway

## HARDWARE PARAMETERS

Dual core 1.0 GHz CPU (Cortex A9 with ULP GeForce GPU)

512 MB DDR RAM, 1GB industrial NAND Flash

up to 3x10/100 Mbit Ethernet interface

up to 4xRS232 and 2xRS485 serial ports

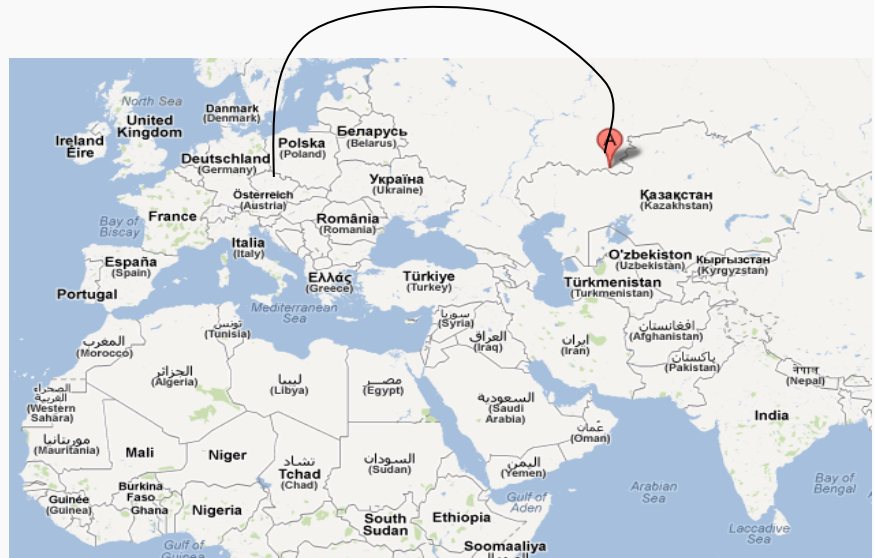
micro SD card

3G/4G modem with dual SIM option

12-48 VDC

Industrial temperature range on request

## Remote maintenance over 2.500 miles!



## RESULT

INCO engineering got all the advantages of remote maintenance over 2.500 miles 24/7 through a secure VPN (IPsec) communication link. The company achieved significant savings on both travel expenses and time as its technicians were able to diagnose the machinery on-line status or review the history of alarms and events with integrated software mySCADA Reports from their office in Czech Republic. With logged series of events, any machinery failure, uncertified operations or prediction of possible failure was easily monitored and analyzed. INCO engineering also remotely readjusted or updated any settings of their PLCs to carry out the final fine tuning of all processes.