

INTEGRATED PROGRAMMING, MAINTENANCE, TROUBLESHOOTING AND OPTIMISATION OF THE DRILL MONITOR SYSTEM (DMS)



WHAT YOU WILL LEARN:

- Be able to describe the hardware and software architecture of the DMS:
- Describe the hardware (Unitronics Vision 120, wiring and sensors) and software (ladderlogic programming)
- Be able to apply know-how on programming the DMS
- Have learnt how to efficiently troubleshoot and maintain a typical DMS
- Have the skills to write simple DMS ladderlogic programs
- Be able to competently install wiring of inputs/outputs from the DMS to sensors

WHO SHOULD ATTEND:

- Consulting engineers
- Design engineers
- DCS personnel
- Electrical engineers
- Engineering managers
- Instrumentation and control engineers
- Instrumentation technicians
- Process control engineers
- Process control operators
- Shift electricians
- Trades staff working with or near PLC's



Technology Training that Works

The Workshop

This intensive workshop is aimed at assisting you – the engineer and technician working with the DMS in applying an integrated approach to maintaining, troubleshooting and programming the OPLC units. The OPLC (Operator Interface Programmable Logic Controller) operates in the same way as a normal PLC but has a Liquid Crystal Display (LCD) incorporated in to the front panel. The V120 OPLC incorporates 10 digital inputs 2 analogue inputs and 6 relay outputs. By means of the use of an extender module, further inputs can be input to the OPLC. This is done through an IO-ATC8 which allows the connection of eight 4-20 mA input channels. The OPLC is programmed using a Windows based ladder logic. This ladder logic programs the manner in which the OPLC scans the inputs, processes the data collected from the inputs, then produces outputs by either switching on relays, or displaying text or graphics on the LCD display.

Pre-requisites

A basic electrical knowledge would be useful but is not essential and some background in working with Allen Bradley PLC-5's and SLC-500's.

Practical Sessions

This is a practical, hands on workshop enabling you to work through practical exercises which reinforce the concepts discussed. Over 65% of the workshop time is spent on practical sessions and will focus on:

- **Configuring and programming a DMS and testing its operation**
- **Troubleshooting sensors, wiring and DMS code**
- **Configuration and programming DMS Operator screen**

To gain full value from this workshop, please bring your laptop/notebook computer.



The Program

INTRODUCTION

- Fundamentals of operation of DMS
- Block diagram of typical DMS system (processor/memory/I/O)
- Power Supplies

DMS HARDWARE

- Planning of program
- Program layout
- Data structure
- I/O addressing
- Processor status registers
- Fundamental instruction set
- Bit (e.g. coils) and word type instructions
- Timers and counters
- Comparison operators
- Data handling operations
- Program control
- Editing a program
- Documentation of a program
- Communications (RS-232/Cell phone)

DMS SENSORS

- Location, wiring and operational description of:
 - Key switch
 - Engine air filter front
 - Engine air filter rear
 - Compressor air filter
 - Low fuel
 - Alternator fail
 - Engine coolant level
 - Compressor oil filter
 - Low water injection water
 - Hydraulic oil temp high
 - Hydraulic oil filter bypass
 - Engine oil temp high
 - Low hydraulic oil level
 - Compressor oil temp high
 - Engine oil pressure low
 - Engine coolant temp high

GOOD INSTALLATION PRACTICE

- Location of hardware
- Good wiring practice
 - Cable spacing
 - Power distribution
 - Wire numbering
- Reducing noise and interference
- Screening and shielding
- Earthing and grounding

GOOD PROGRAMMING HABITS FOR DMS

- Keeping track of addresses and data used
- Looking ahead – how will programs be maintained
- Practical methods to improve program quality
 - Organisation of code
 - Thorough documentation
 - Simplifying changes

DMS OPERATOR INTERFACE

- Creation of simple graphic displays
- Configuring of alarms
- Organising display data
- Linking displays

TROUBLESHOOTING DMS, SYSTEM CHECKOUT AND TESTING

- Typical tips and tricks
- Development and verification of code
- Testing procedures
- Discrete I/O
- Analog I/O
- I/O channel and power supplies
- Processor problems

SUMMARY, OPEN FORUM AND CLOSING

On-Site Training

- ✓ SAVE over 50% by having an IDC workshop presented at your premises.
- ✓ Customise the training to YOUR workplace.
- ✓ Have the training delivered when and where you need it.

Contact us for a FREE proposal.