



Infodat™

Innovative. Powerful.

Instrumentation Control Systems Integrator

Capabilities & Past Track Record

Jan 2017

About Infodat

- ❑ Premier Systems Integrator in Industrial Automation/Control/Instrumentation space since 2002
- ❑ Turnkey Cloud based Industrial Internet Solutions Provider

Our vision is to enable **enterprises achieve more**, by leveraging our expertise as a premium Systems Integrator capable of applying **cutting edge Industrial IoT technologies**.

Integrating (physical + digital) Big Data Analytics = Achieve More



Expertise – LabVIEW & NI Technologies

- ❑ **Custom control software development**, system integration, and consulting services.
- ❑ **Embedded Systems for Monitoring and Control** using software and reconfigurable I/O (RIO) hardware, PLCs, PC-based systems, and single-board computers (SBCs) with the specialization of custom hardware
- ❑ **Automation Control Integration of Industrial and Embedded Networks** using communication protocols like CAN, CANopen, PROFIBUS, DeviceNet, Modbus, MQTT, AMQP, and EtherCAT.
- ❑ **Wireless Sensor Networks** that can extend the reach of a system by wirelessly monitoring assets or environment with reliable, battery-powered measurement nodes, featuring industrial ratings and local analysis and control capabilities.
- ❑ **Marshalling Cabinets & Human Machine Interfaces (HMIs)** development of robust, reliable operator interfaces and visualization systems with HMIs and various touch panel computers



Expertise

- ❑ Process Automation Systems; related Hardware Software and services
- ❑ PLC as well as related HW/SW, services, I/O and bundled HMI
- ❑ Other Control HW Components such as 3rd party I/O, signal conditioners, intrinsic safety barriers, networking hardware, unit controllers and single/multiple loop controllers
- ❑ AC Drives, Pumps & Motors
- ❑ Process field instrumentation such as temperature, pressure transmitters, flowmeters, level transmitters and associated switches
- ❑ Control Valves, actuators, sensors and positioners
- ❑ Automation related software: Process Control, Simulation, 3rd party HMI, ERP integration packages, Custom software development
- ❑ Processing equipment such as mixers, vessels, heaters
- ❑ Electrical equipment such as low-voltage switchgear etc.
- ❑ Condition Monitoring Systems, Predictive Maintenance Solutions

Infodat Advantage

Our solutions provide substantial benefits

❑ Reduced Costs / Low TCO

- Expertise working with NI, Siemens, Rockwell/Allen-Bradley etc Instrumentation Systems
- Reuse of technological know-how and solutions

❑ Mitigate Project Risk

- Full responsibility for entire instrumentation project
- Multiple vendor management

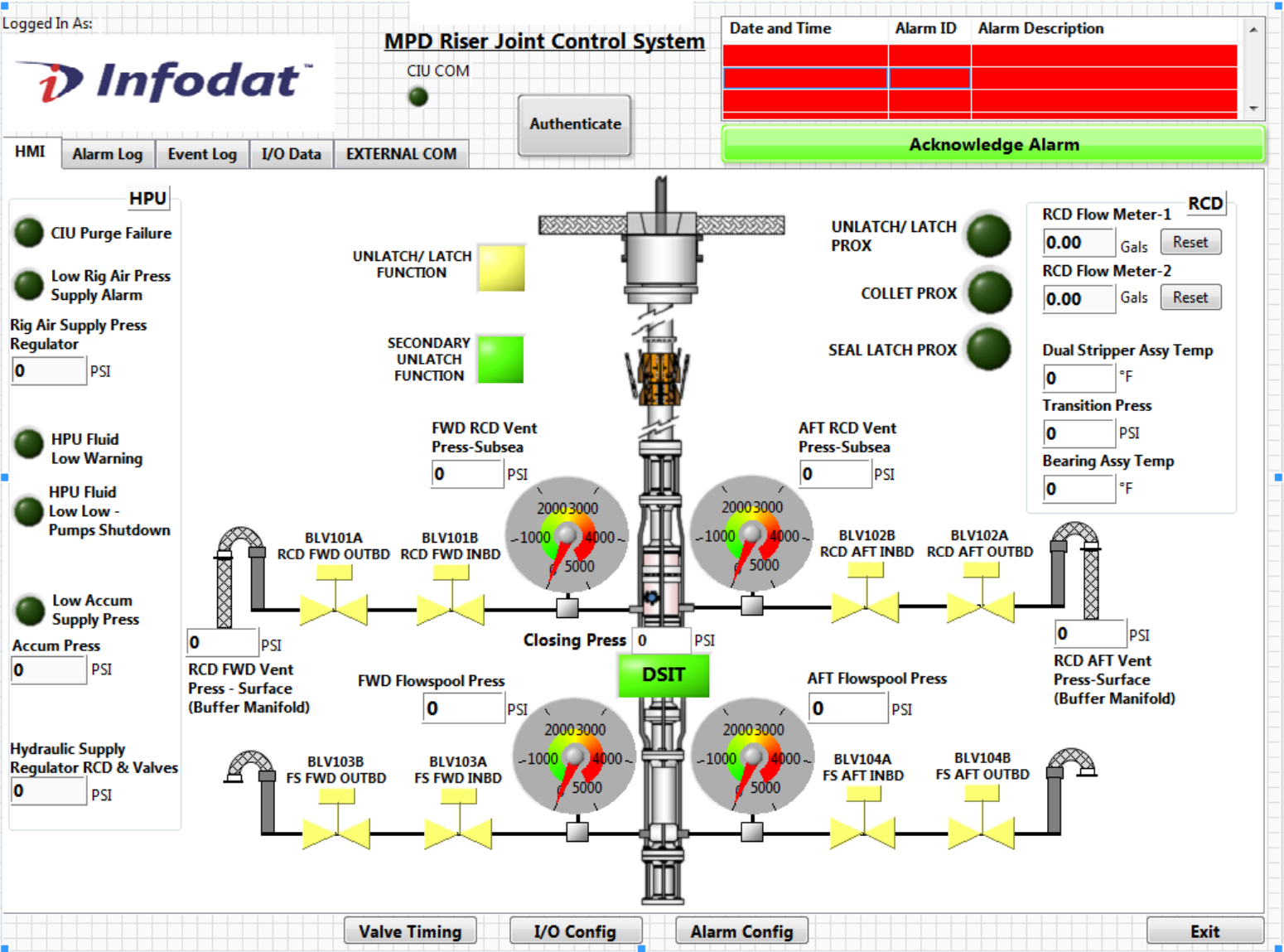
❑ HSE Standards & Specification Compliance

❑ Dedicated Project Management

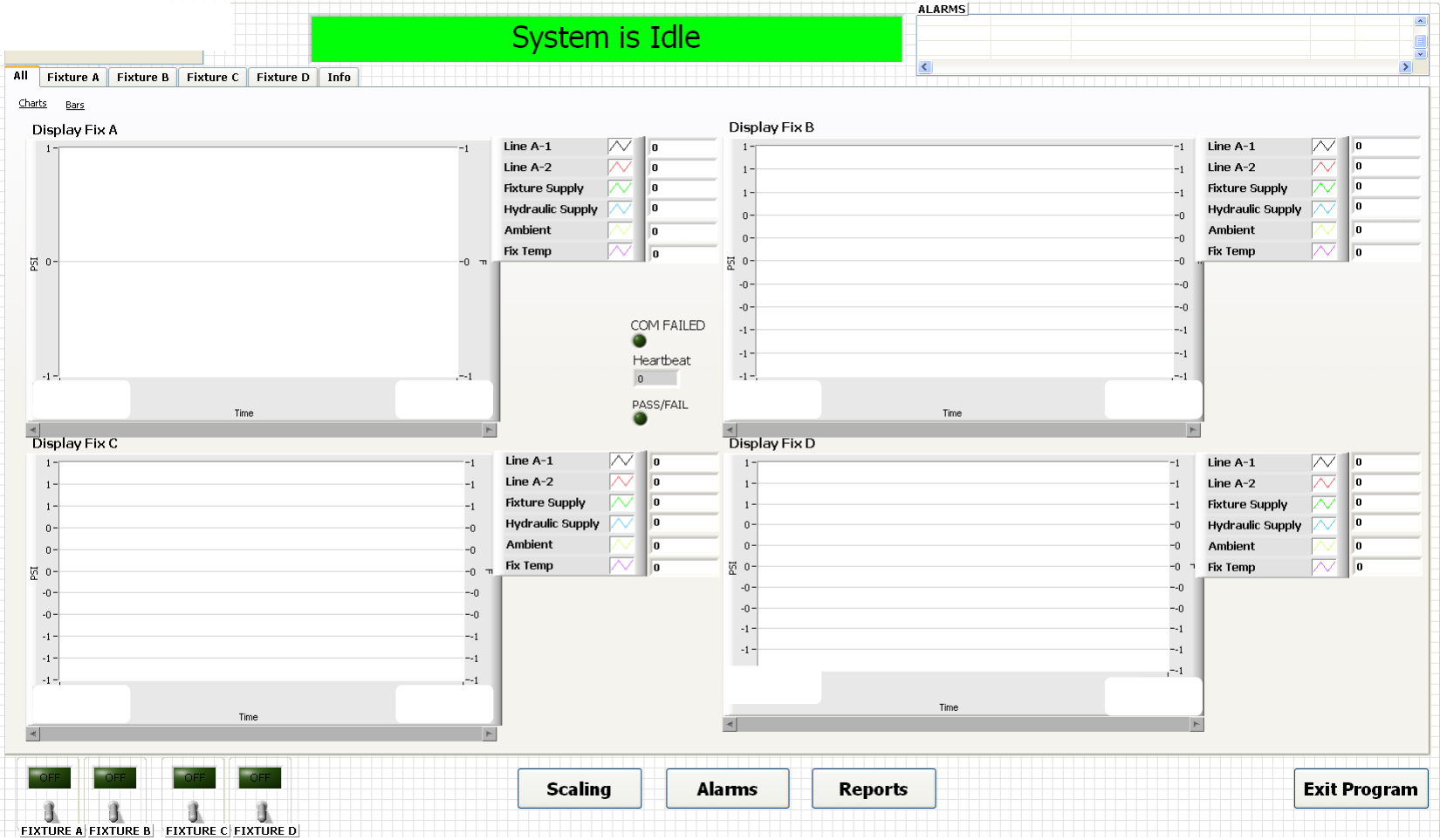
- Apply Lessons Learnt / Execution Plans / Detail Procedures Reports / Interface Management
- Streamlined Reporting / Update Meetings / Communications Management

❑ Standardized instruments which reduce service costs later

Projects – MPD Riser Joint Control System



Projects – Packer Control System



Projects – Packer Control System

System is Idle

ALARMS

All Fixture A Fixture B Fixture C Fixture D Info

Fixture

Line A-1 0 Max 0 Min 0
 Line A-2 0 Max 0 Min 0
 Fixture Supply 0 Max 0 Min 0
 Hydraulic Supply 0 Max 0 Min 0
 Ambient 0 Max 0 Min 0
 Fix Temp 0 Max 0 Min 0

Ramping Duration 0
 Ramping Step Duration 0
 Stabilizing 0
 Holding Timer 0
 Healing Duration 0
 Holding after Test Done 0
 Stopping 0

FIXTURE CONTROL

Fixture A SOVs

Pump Upper Limit Cell 1 (PSI) Air Pump Pres Adjust I/P 1 (PSI) Top Vent Setpoint (PSI)
 0 0 0
 Pump Lower Limit Cell 1 (PSI) Hyd Regulator Adjustment (PSI) Bottom Vent Setpoint (PSI)
 0 0 0

START TEST Change Temp Set Point Fix A 0 STOP PUMP

Ext Pressure 1 0 Ext Pressure 4 0
 Ext Pressure 3 0 Ext Pressure B 0 Fix A Delta Pressure (PSI) 0

View

OFF OFF OFF OFF
 FIXTURE A FIXTURE B FIXTURE C FIXTURE D

Scaling Alarms Reports Exit Program

Projects – Subsea Well Control Panel / System

set time	set date	area	value	setpoint	description
11:24:24 AM		Valves	1.000000	1.000000	CIV Pressure Failed
11:24:23 AM		Valves	1.000000	1.000000	PWV LVM Failed
11:24:22 AM		Valves	1.000000	1.000000	DHCIV LVM Failed
11:24:22 AM		Valves	1.000000	1.000000	PWV Pressure Failed

ESD NORMAL
PSD NORMAL
FA-1 NORMAL

Main Menu Communication
Field Overview Alarm Summary
Login Exit Application
Acknowledge Alarm

InfoDat

System controls & monitors a Subsea Control Module (SCM) using proprietary Communication Protocol using Modbus TCP/IP.

Capability to do historical and real time trends, setup alarms, look at the alarm history and alarm summary in real time.

Projects – Subsea Well Control Panel / System

set time	set date	area	value	setpoint	description
		Valves	1.000000	1.000000	DHCIV UVM Failed
		Valves	1.000000	1.000000	ABV UVM Failed
		Valves	1.000000	1.000000	AMV UVM Failed
		Valves	1.000000	1.000000	PWV UVM Failed

ESD NORMAL

PSD NORMAL

FA-1 NORMAL

Main Menu

Communication

Field Overview

Alarm Summary

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Exit Application

Acknowledge Alarm

SUBSEA WELL CONTROL PANEL

The diagram illustrates a subsea well control system. It features a central vertical wellbore with several valves and components:

- Top Section:** PSV (Pressure Safety Valve), CIV (Chemical Injection Valve), PWV (Production Wing Valve), and POV (Production Orifice Valve).
- Production Line:** A horizontal line leading to 'TO PRODUCTION' with a pressure indicator 'PP (psi)' set to 0.
- Down Hole Section:** DHCIV (Down Hole Chemical Injection Valve) and AMV (Annulus Master Valve).
- Annulus Section:** ABV (Annulus Bleed Valve) and SCSSV (Subsea Choke Solenoid Valve).
- Pressure Indicators:** AP (psi) is set to 0.

Abort Shutdown Sequence

Abort

Valve Operation

Valve Name: ABV

Configuration

Signature Operation

Last Valve Operated: CIV

View Signature

Read New Signature Save Signature

HPU Data

Function	Value
HP header first pressure cut	0
HP header second pressure cut	0
LP header first pressure cut	0
LP header second pressure cut	0
Tubing pressure	0
Annulus pressure	0
Hearbeat	33
HP header first pressure cut Alarm Set Point	15
HP header second pressure cut Alarm Set Point	13
LP header first pressure cut Alarm Set Point	14
LP header second pressure cut Alarm Set Point	16

Projects – Perforation Test System

Indicators | Chart | XY Graph | ISCO Pump
Perforation setup and shooting test
System is Idle

Test Duration
00:00:00

SWB
0

SWB Accum
0

ISCO Pump
constant
OFF flow press
Rate Time Status

Max Pressure: 1950
Flow Rate or Pres: 0.00

Conf (psi)
0

Pore Far
0

Pore Near
0

DP1
0.0

DP2
0.0

VFR1
0.0

DEN1
0.0

Effective
0

Effective from Pore Far/SWB
SWB

Heater ON/OFF
OFF

Test Type
Perforation setup and shooting

Confining SP 0	Confining High 0	Conf Goal 0	ABSOLUTE/ EFFECTIVE ABSOLUTE
Conf ON/OFF OFF	Confining Low 0	Conf Rate (psi/min) 0	
Pore Far SP 0	Pore Far High 0	PF Ramp OFF	SWB/DOME DOME
PF ON/OFF OFF	Pore Far Low 0	Pore Far Rate (psi/min) 0	
SWB SP 0	SWB HIGH 0	SWB Ramp OFF	SWB Goal SWB Rate (psi/min) 0
SWB ON/OFF OFF	SWB LOW 0	SWB Rate (psi/min) 0	

Perm calc channel selection: DP1 (B7)

Logging Control
Define New Test/LOG

Normal LOG: ON

Sampling Rate: 60 Samples/min (1 sec. int.)
Fast Log: OFF

Flow Rate Control
Data path

Pump Dump Loop Counter: 0

- Pump Dump Loop Running?
- ISCO Loop Running?
- Auto Ramping Loop Running?
- Data Display Loop Running?
- Control Loop Running?
- Display Only Loop Running?
- Log Loop Running?
- DAQ Loop Running?

Skin Temp: 0.0
Fluid Temp: 0.0
Skin Target: 0.0
Fluid Target: 0.0

Config
Exit

Projects – Perforation Test System

Indicators | Chart | XY Graph | ISCO Pump

Perforation setup and shooting test

System is Idle

Pump status.

Operation status: S

Control status: R

Problem status: F

Digital input string: 11111001

DATA FILE NAME (*.CSV): DATA

Analog input Voltages.

ANLG1 = pin 21, P114: -0.31

ANLG2 = pin 15, P107 auxiliary DB25 connector and analog input 3 of the accessory connector: -0.88

ANLG3 = analog input 2 of the accessory connector: -0.80

ANLG4 = analog input 1 of the accessory connector: -0.86

ANLG5 = pin 2, P107 auxiliary DB25 connector: -0.61

Multipump data.

Flow rate (liters/min): 0.00000E+0

Pressure (psi): -4.00000E-1

Total volume (liters): 0.00000E+0

DATA LOGGING OFF

SAMPLE TIME, ms: 500

TOTAL TIME, ms: 19401945

A

Pressure A: -0.40 psi

Volume Remaining: 767.04541 ml

Flow Rate A: 0.0000 ml/min

Run Duration: []

PUMP STOPPED REMOTE CONTROL (RS - 232) NO PROBLEM

1240-052, MODEL 1000D PUMP

Mode: Constant Flow

Flow Rate Setpt: 0.0000 ml/min

Pressure Setpt: 1900.00 psi

Refill Rate Setpt: 408.0000

STOP/RUN: STOPPED - press to RUN

B

Pressure A: -15.00 psi

Volume Remaining: 478.55835 ml

Flow Rate A: 0.0000 ml/min

Run Duration: []

PUMP STOPPED REMOTE CONTROL (RS - 232) NO PROBLEM

1240-052, MODEL 1000D PUMP, REV=M

Mode: Constant Flow

Flow Rate Setpt: 0.0000 ml/min

Pressure Setpt: 1.00 psi

Refill Rate Setpt: 408.0000

STOP/RUN: STOPPED - press to RUN

C

Pressure A: 0.00 psi

Volume Remaining: 0.00000 ml

Flow Rate A: 0.0000 ml/min

Run Duration: []

No Pump Attached

Mode: Constant Flow

Flow Rate Setpt: 0.0000 ml/min

Pressure Setpt: 0.00 psi

Refill Rate Setpt: 0.0000

STOP/RUN: STOPPED - press to RUN

CONTIN CONST FLOW

REMOTE

Reconfigure

Alarm Limits

Quit

Config

Exit

Projects – Tube Reactor & Temperature Control

CURRENT TIME

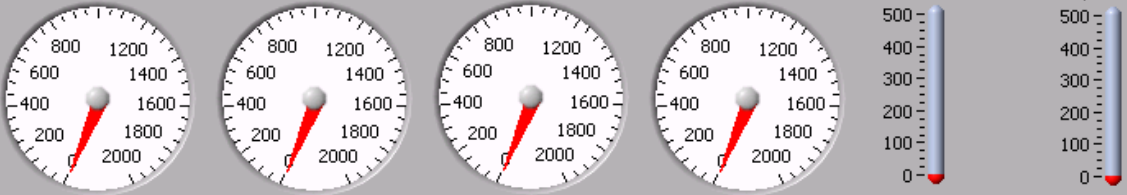
AUTO CALIBRATION

EXIT

Connected
cRIO

BTFR REACTOR

Pressure A1 (psi) Pressure A2 (psi) Pressure B1 (psi) Pressure B2 (psi) Temp A (deg C) Temp B (deg C)



SP Heater A (deg C) SP Heater B (deg C)
0 0

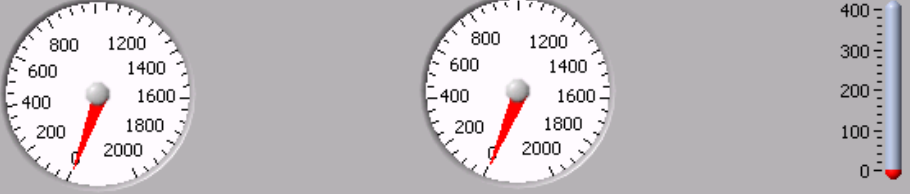
SP Heater A (mA) SP Heater B (mA)
0 0

DATA FILE NAME BTFR

START BTFR **STOP BTFR**

PARR REACTOR

Surge Vessel Pressure (psi) Reactor Pressure (psi) Reactor Temp (deg C)



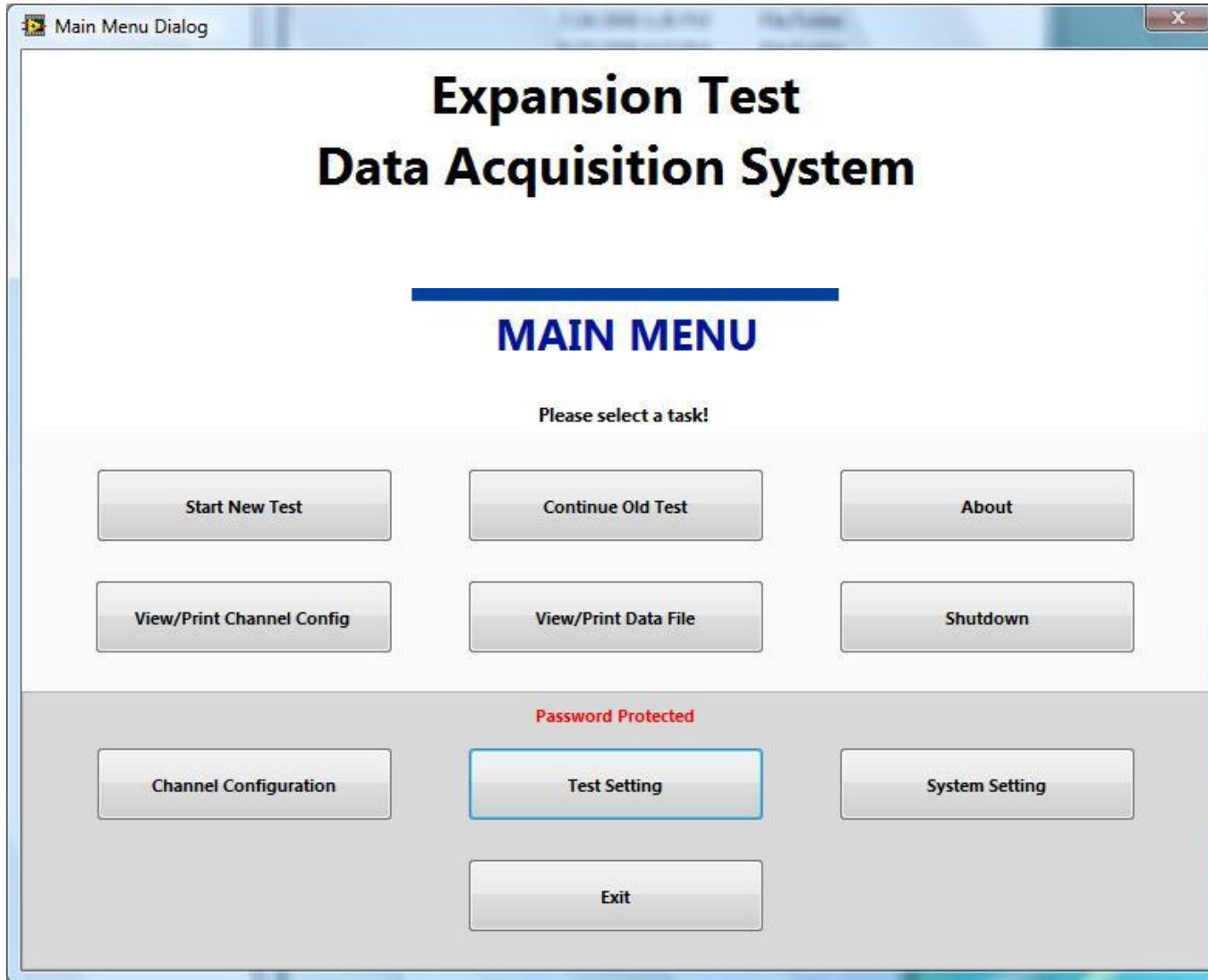
SP Reactor Heater (deg C)
0

SP Reactor Heater (mA)
0

DATA FILE NAME PARR

START PARR **STOP PARR**

Projects – Expansion Test Data Acquisition System

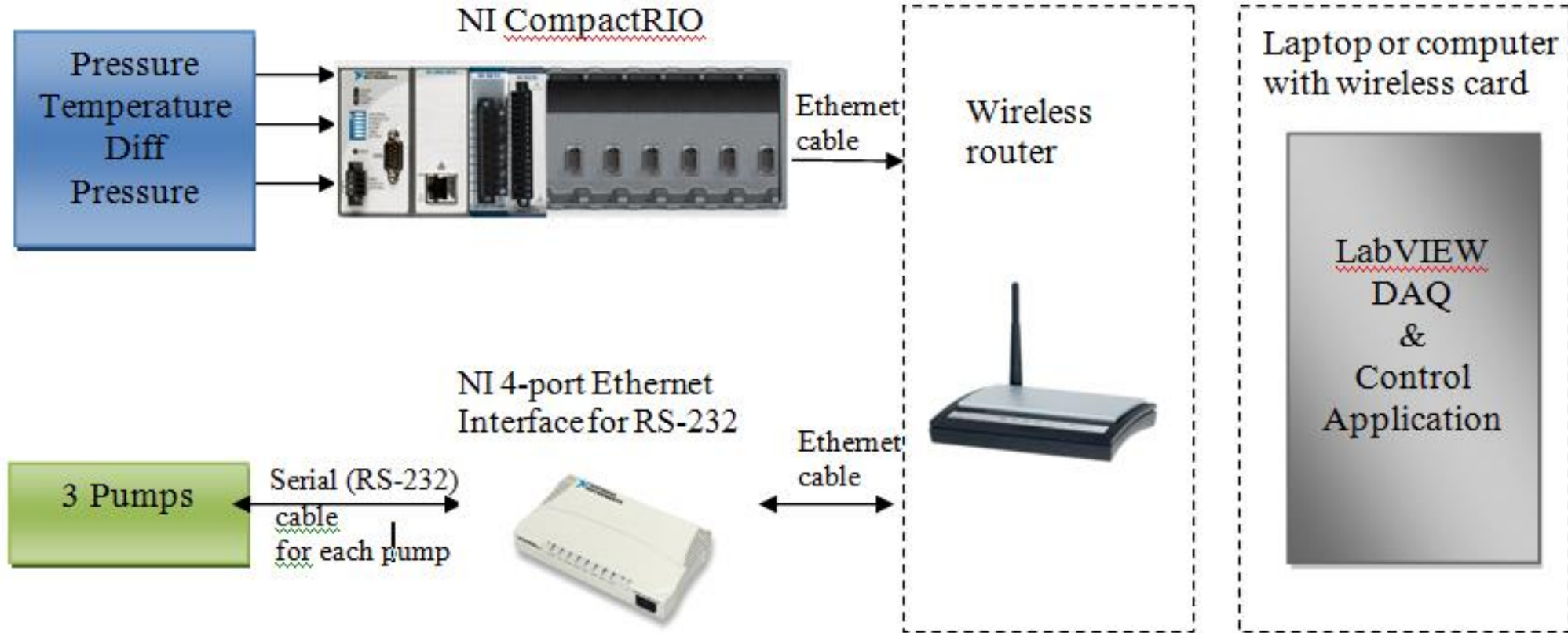


- Data acquisition and control system to run tests for inspection and testing pipeline services
- Print Custom made Reports
- Store Data
- Flexibility in selection on channels
- Various administrator access levels
- Plotting of data on graphs
- Alarming

Projects – Hydrocarbons Testing Control System



Projects – Tube Block DAC System



Projects – Core Flood Application System

Main | Chart

DATA FILE NAME: **CALC SCALING**

Expt Time (min): STEP TIME (min): Expt Time Rem(min):

Pumps: Valco1 Gilson

PARAMETERS

Pump A (ml/min): Pump B (ml/min): Pump A Fluid: Safety Pressure (psi): Step Time (min):

Min O/B (psi): Max O/B (psi): Change Fluid Name A: Max Core Pressure (psi): Log Rate (s):

Step Number: **ADD STEP** Step Number: **DELETE STEP** **CLEAR ALL STEPS**

EXPERIMENT TABLE

Pump Rate (ml/min)	Fluid	Max Core P (psi)	Time (min)	Step No
A	A			

CURRENT PUMP RATES (ml/min)
A: B:

OVEN
SOFTWARE CONTROL: OFF **MANUAL CONTROL: OVEN ON**

Pressure Gauges:
Exterior Pressure (psi): Core Pressure (psi):

START EXPERIMENT **PAUSE** **SKIP CURRENT STEP** **STOP EXPERIMENT** **EXIT**

Projects – Tube Block DAC System

The interface is titled "Main.vi" and has two tabs: "Main" and "Chart".

DATA FILE NAME: [Empty text field]

AUTO CALIBRATION: [Button]

REPORT: [Button]

STEP TIME (min): [Spin box]

CURRENT TIME: 11:58:00 PM

PUMP COM PORTS: COM3, COM4, COM5 (each with a dropdown arrow)

Connected: RIO, Pump 1, Pump 2, Pump 3 (each with a green indicator)

Parameters:

- Starting conc (ppm): 0
- Time Per Test (min): 0
- B (ml/min): 0
- Max DP (psi): 0
- conc (ppm): 0

Buttons: ADD STEP, DELETE STEP, CLEAR ALL STEPS

EXPERIMENT TABLE:

Conc (ppm)	A (ml/min)	A2 (ml/min)	B (ml/min)	Time (min)

Buttons: START EXPERIMENT, PAUSE, SKIP CURRENT STEP, STOP EXPERIMENT

PUMPS:

- A Flow (ml/min): 0
- A2 Flow (ml/min): 0
- B Flow (ml/min): 0
- A Press (psi): 0
- A2 Press (psi): 0
- B Press (psi): 0

Temperatures:

- Oven Temp (deg C): [Gauge]
- Temp2 (deg C): [Gauge]

Pressures:

- Pressure (psi): [Gauge]
- DP (psi): [Gauge]

EXIT: [Large button]

Projects – Test Certification System

Test Program

Data Control Chart Graph Info

Sampling Rate: 10 Samples/min Data File Path

Loading direction

Tension
 Compression

Speed (RPM)

0 250 300 350 400 450 500 550 600

MOVE

SET HOME

Profile

Test Type

Ramp
 Ramp and Hold
 Ramp and Cycle

ID

0

Diameter (in)

0

Gage length (in)

0

Preload Stress (KSI)

0

Preload Rate

0

Maximum Stress (KSI)

0

Extension rate

0

Minimum Stress (KSI)

0

Relax Rate

0

Cross Section Area

3.14

Hold Duration (s)

0

Cycles

0

Method

Time Based

error out 2

status	code
<input checked="" type="checkbox"/>	0

source

Motor Rate (in/rotation) 0.00201

LVDT (in) 0

Stress (KSI) 0 Load (lbs) 0 Deflection (in) 0 Temperature (F) 0 Pressure (PSI) 0

START TEST PROFILE CONFIG SCALING STOP PROGRAM

Our Other Offerings

❑ TurnKey Industrial Internet Solutions Provider

- Industrial Automation & Control Systems
- Remote Monitoring Solutions
- Predictive Maintenance Solutions
- HSE & Regulatory Compliance
- Asset Management
- Fleet Tracking & Logistics Management



Do you know what IIoT is?

What is Industrial IoT (IIoT) ?



- a) Take the exponential growth in data volumes—that is, “Big Data”— available to companies in almost every industrial sector.
- b) Add the growing technology capabilities in the area of analytics—the ability to analyze data for insights.
- c) Finally, add in the context of industries where equipment itself or patient outcomes are at the heart of the business.

The resulting sum of those parts gives you the Industrial Internet.

connect - monitor - analyze - predict - optimize

Where is IIoT being applied ?

Priorities: 1-3 years	Aviation	Wind	Power Generation	Power Distribution	Oil & Gas	Rail	Manufacturing	Mining
Increase profitability through improved resource management	61%	71%	56%	59%	56%	67%	58%	55%
Gain a competitive edge	58%	55%	53%	69%	50%	50%	76%	48%
Improve environmental safety and emissions	39%	61%	50%	75%	59%	43%	52%	58%
Gain insights into customer behaviors, preferences and trends	58%	61%	47%	56%	38%	60%	70%	39%
Gain insights into equipment health for improved maintenance	55%	48%	34%	56%	47%	73%	67%	39%
Drive operational improvements and workforce efficiencies	42%	48%	41%	72%	44%	53%	55%	64%
Create new business opportunities with new revenue streams	45%	61%	34%	53%	47%	40%	52%	58%
Meet or exceed regulatory compliance	32%	39%	41%	63%	50%	33%	39%	39%

■ Highest-ranked priorities Source: Accenture

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