insight technical services, inc.

Product Specification Sheet

WELL-Pack™

Features

- Based on 32 Bit SCADAPack32™ PLC.
- Designed for Wellhead facilities needing control and alarming.
- Valve Control for up to 3 Valves.
- Custody Transfer Gas Measurement.
- Water Measurement.
- Class 1 Div 2 Hazardous Area Rating.
- Operator Configurable Alarm Setpoints.
- Operator Configurable Shutdown Setpoints.
- PLC Programming experience not needed to Setup.
- Environmental Specification from -40 to 158 degrees.
- 3 Year Warranty on SCADAPack32 PLC.
- 3 RS-232, 1 RS-232/485, 1 Ethernet port.
- Modbus Communications Ready.
- SCADA Screens Available for Wonderware and CygNet.

The Insight Technical Services, Inc. (**itsi**) Well-Pack is a Wellhead Control System incorporating Custody Transfer Gas Measurement with wellhead control. The Well-Pack is designed for gas wells where more than local gas measurement is needed. The Well-Pack provides an Operator Control and Monitoring platform for controlling local valves, pumps, separators, and other wellhead operations. The Well-Pack is an ideal fit to the coalbed methane industry, as this one box can provide the ability to control all wellhead operations, and provide AGA Custody Transfer Gas Flow Measurement, and Water Measurement.

The Well-Pack was designed by **itsi** using the Control Microsystems, Inc. SCADAPack32® PLC as our foundation. Starting with the SCADAPack32® PLC, we have added our custom programming, and packaged the Well-Pack to be an off-the-shelf solution for your wellhead automation needs.

The base Well-Pack is equipped with 8 analog inputs, 4 Analog Outputs, 16 Digital Inputs, and 12 Digital Outputs. The base unit includes a full feature Cimrex Control Display, for local Operator interfacing. It also includes on front buttons for Hand, Off, Auto functions, as well as an Emergency Shutdown (ESD) button. The Well-Pack can be expanded as needed to fit any wellhead automation application.

Since the Well-Pack uses the SCADAPack32® processor, it has the ability to do flow measurement for up to ten meter runs. The RealFLO flow measurement supports all current AGA standards for custody transfer.

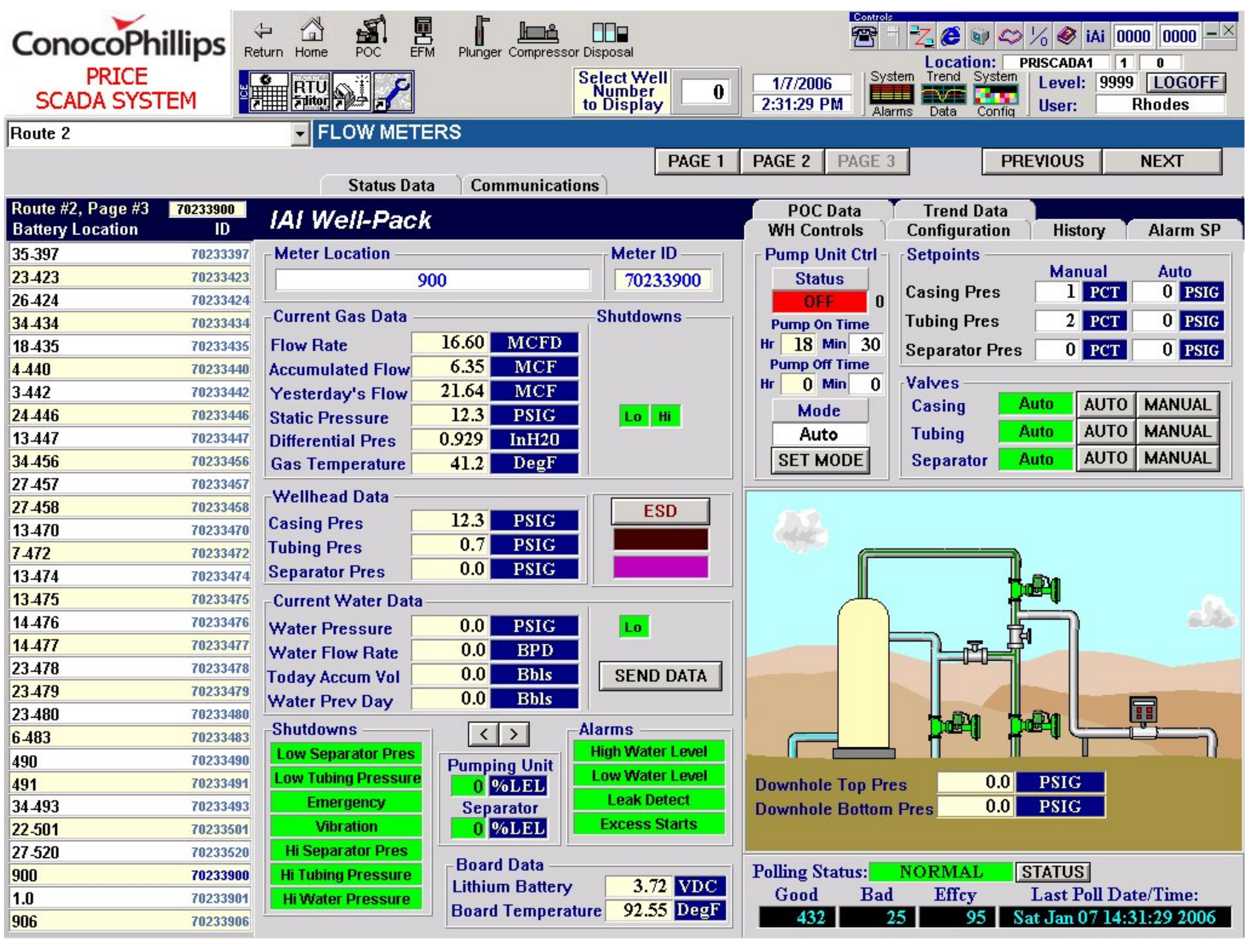
Well-Pack Configuration

The design of the Well-Pack incorporates the ability to program and operate the well at the field location, and provide all of the same functionality from the Host SCADA System.

On location the front of the Well-Panel is a four line display and control panel from which Operators can query current wellhead information, set alarms and operating setpoints, and do local control of the valves, pump(s), and other equipment. Local controls on the Panel provide Hand/Off/Auto functionality for the well, and an ESD button provides quick Emergency Shutdown capability as needed.

ITSI's sister company, Insight Automation, Inc. (IAI) has developed a Graphical User Interface for Wonderware InTouch as well as CygNet ETM. The GUI Interface extends the capability of the Well-Pack to the Field Office and beyond, providing the same information and field controls at the click of a mouse. All field and remote operations are password protected to assure that only qualified personnel are Operating and making adjustments.

This combination provides the ultimate capability and convenience for wellhead Monitoring, Alarming and Operating.



Well-Pack

The Well-Pack is user configurable to conform to the setup of any wellhead facility. In a typical unit there are 32 Analog Data Points available. Each analog typically has four alarm setpoints; a HiHi Shutdown, High Alarm, Low Alarm, and a LoLo Alarm. All of these points are Operator configurable from the Cimrex Control Display, or through your SCADA System.

Additionally the Well-Pack has a number of Discrete Inputs for discrete based alarms, such as pump vibration, pump statuses, thank levels, valve positions, etc.

Well-Pack Inputs

Cmd Word
Tubing Pressure
Casing Pressure
Separator Pressure
Water Pressure
Downhole Bottom Pres
Downhole Top Pres
Pumping Unit LEL
Separator LEL
Lithium Battery Voltage
PLC Board Temp
Shutdown Bit Word
Alarm Bit Word
Input Status Bit Word
Pump Status Bit Word
Current Water Flow Rate
Accum Water Volume
Prev Days Water Volume
Water Flow Turbine Factor
Current Gas Flow Rate
Accum Gas Volume
Current Days Gas Flow Time
Prev Days Gas Volume
Previous Days Gas Flow Time
Differential Pressure
Static Pressure
Gas Temperature
Specific Gravity
Prev Days Pump On Time
Todays Pump On Time in Mins
Nitrogen - N2
Carbon Dioxide - CO2
Hydrogen Sulfide - H2S
Water - H2O
Helium - He
Methane - C1
Ethane - C2
Propane - C3
nButane - C4
iButane - IC4
nPentane - C5
iPentane - IC5
Hexane - C6
Heptane - C7
Octane - C8
Nonane - C9
Pipe Diameter RB
Orifice Diameter RB
Tubing PCV Manual SP
Casing PCV Manual SP
Separator PCV Manual SP
Contract Hour
PLC Clock Minute
PLC Clock Hour
PLC Clock Day
PLC Clock Month
PLC Clock Year
PLC Clock Weekday
PLC Control Bit Word
Valve and PU Control Bit Word
Pump On Time Setpoint - Hours
Pump On Time Setpoint - Minutes
Pump Off Time Setpoint - Hours
Pump Off Time Setpoint - Minutes
Tubing Pressure Ctrl Auto SP
Casing Pressure Ctrl Auto SP
Separator Pressure Ctrl Auto SP
Tubing PCV Manual SP
Casing PCV Manual SP
Separator PCV Manual SP
Tubing Pressure Alm Low SP
Tubing Pressure Alm High SP
Casing Pressure Alm Low SP
Separator Pressure Alm Low SP
Separator Pressure Alm High SP
Water Pressure Alm LoLo SP
Water Pressure Alm High SP
Static Pressure Alm Low SP
Static Pressure Alm High SP
PU LEL Alm HiHi SP
Separator LEL Alm HiHi SP
Excess Restarts per Hour SP
Nitrogen - N2 SP
Carbon Dioxide - CO2 SP
Hydrogen Sulfide - H2S SP
Water - H2O SP
Helium - He SP
Methane - C1 SP
Ethane - C2 SP
Propane - C3 SP
nButane - C4 SP
iButane - IC4 SP
nPentane - C5 SP
iPentane - IC5 SP
Hexane - C6 SP
Heptane - C7 SP
Octane - C8 SP
Nonane - C9 SP
Pipe Diameter SP
Orifice Diameter SP
Water Flowrate Turbine Factor
Total of AGA8 Gas Comp to SP
Contract Hour SP
PLC Clock Minute SP
PLC Clock Hour SP
PLC Clock Day SP
PLC Clock Month SP
PLC Clock Year SP
PLC Clock Weekday SP
Current Water Flow Vol Today
Water Flow Vol Previous Day
Water Flow Vol 2 days ago
Water Flow Vol 3 days ago
Water Flow Vol 4 days ago
Water Flow Vol 5 days ago
Water Flow Vol 6 days ago
Water Flow Vol 7 days ago
LoLo Water Pressure Alm
Pumping Unit LEL Alm
Sep LEL Alm
Leak Detect
Excessive Restarts Alm
ESD Alm

Specifications

Well-Pack Specifications	
Wellhead Automation	Gas, Coalbed Methane, Oil, Water, H_2S Environments
Alarms	Operator Configurable Alarm Setpoints
Shutdowns	Operator Configurable Shutdown Setpoints
Shutdown Capture	First-Out Shutdown Capture, 10 Shutdown History
Bypass Timers	Configurable Short Timer and Long Timer Bypass Timers
Flow Measurement	Can do Custody Transfer Gas Measurement for up to 10 Meter Runs
Setup	No PLC Experience needed to install and setup unit
Documentation	Schematics and Wiring Instructions Included with each unit
SCADA Enabled	Pre-Configured SCADA Screens available for Wonderware and CygNet
Expandable	Well-Pack can be expanded as needed
Communications	Modbus Ready, 3 RS232, 1 RS232/485 Configurable, 1 Ethernet Port
Enclosure	NEMA 4X Hoffman Enclosure
Panel Wiring	Ready Wired for Field Installation. Field Connections Isolated from Internal wiring.
Terminals	Weidmuller Terminals and Fuse Blocks used internally.

SCADAPack32 Controller	
Processor	32 Bit CMOS 120 MHz clock
Memory	8Mb SDRAM, 4MB Flash , 1Mb CMOS RAM
Battery Backup	Lithium Battery retains contents for 2 years with no power
Analog Inputs	8 Analog Inputs (base), expandable to 64
Analog Outputs	4 Analog Outputs
Digital Inputs	16 Digital Inputs (base), expandable to 128
Digital Outputs	8 Digital Outputs (base), expandable to 32
Communication Ports	3 RS232, 1 RS232/485 Configurable, 1 Ethernet Port Standard
Baud Rates	Configurable from 300 to 115,200 Baud.
Power	11-30 VDC
Electrical Rating	Class 1 Div 2 Hazardous Area Rating
Environment	Rated for -40 to 158 degrees Fahrenheit

Cimrex Control Display	
Display Size	4 Line by 20 Character Display
Display Type	Liquid Crystal Diode (LCD)
Function Keys	5 Programmable Function Keys
Protocol Support	Modbus RTU
Backlight Life	50,000 Hours

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