sensia
Rockwell Automation + Schlumberger

+ LIFT CONTROL SYSTEMS

INTELLIGENT WELLSITE CONTROLLER

+ INSTRUCT ESP

APPLICATIONS

- Variable-speed motor control and protection
- Surface data acquisition for monitoring downhole gauges
- Wellsite interface for all artificially lifted wells and remote monitoring with real-time surveillance services.

BENEFITS

- Provides centralized data gathering and storage for optimization, engineering analysis, and troubleshooting, eliminating multiple surface components
- Installs directly in current UniConn* universal site controller installations

FEATURES

- Remote access and control capability from multiple SCADA systems and LiftWatcher service in parallel
- Plain-language, multilingual alarms and prompts, at-a-glance wellsite assessment, dedicated function keys, and color screen
- 1 GB of internal memory with a removable USB option (up to 32 GB), multiprocessor architecture ensuring smooth performance data logging and trending up to 32,000,000 data points
- Modular design that increases expandability and serviceability
- PC-based StarView* wellsite display software for device configuration, operation, and troubleshooting
- Acquisition system for Phoenix xt150* hightemperature ESP monitoring system and Phoenix CTS* cable-to-surface artificial lift downhole monitoring system when paired with system interface card
- Acquisition system for REDA* Hotline* hightemperature ESP systems and downhole gauges when paired with high-temperature interface card

The **INSTRUCT ESP intelligent wellsite controller** for artificially lifted wells provides a single platform for protection, control, and data acquisition. The unit can monitor multiple wells, operating data points, electrical system data, information from external analog or digital devices, data measured by the downhole monitoring system, and remote commands. Users can program alarm and trip settings locally or remotely. In its basic configuration, the Instruct unit is a variable-speed motor controller and data acquisition device.

The unit has built-in RS232 and RS485 ports for communication connections that can be used in a variable speed drive (VSD) application or for SCADA and LiftWatcher service connectivity.

The unit can be used as a stand-alone device to monitor up to four downhole tool systems. It can accommodate four analog and six digital input channels and provide two analog and three digital output channels, each individually configurable.

Unit upgrades are typically performed at the wellsite by using a removable USB drive or laptop computer. For remote monitoring and control, the Instruct unit can be connected to a SCADA system or the LiftWatcher service—or both in parallel, if required.

The **INSTRUCT ESP intelligent wellsite controller** replaces the multiple surface components commonly needed for data acquisition, monitoring, and control for VSDs and downhole gauges.

INSTRUCT ESP Intelligent Wellsite Controller Specifications†	
Dimensions	
Unit length, H × W × D, in [mm]	7.1 × 8.5 × 7.4 [180 × 216 × 187]
Unit weight, lbm [kg]	9.5 [4.3]
Faceplate length, H × W, in [mm]	7.64 × 10.59 [194 × 270]
Instruct unit option cards‡, mm	172 × 170 × 25
Standard option cards, mm	172 × 130 × 20
Power supply	
Alternating current (AC)	100- to 240-V rms, 75 W, both 50 and 60 Hz
Direct current (DC)	24 V ± 2%, 75 W
Temperature rating	
Operating range, degF [degC]	–40 to 167 [–40 to 75]
Storage range, degF [degC]	–76 to 185 [–60 to 85]
Expansion card rack	
No. of slots	Four
Cards available	Modbus RS-232 or RS-485 communication card, PIC, EIC, and HTIC cards, Modbus TCP/IP card
Feature card rack	
No. of slots	Two
Input/Output	
Digital output	Three channels per card, 100- to 260-V AC rms, 10- to 28-V DC, 3 A maximum
Digital input	Six channels per card, 24-V DC power internally supplied
Analog input	Four insulated per card, double-wire channels; 0- to 10-V DC (0 to 20 mA)
Analog output	Two individually configurable per card, 4- to 20-mA current loops
Maintenance port	
Connection	USB and standard serial port connector, DB9F, Modbus RS-232
Baud rate	300/600/1,200/2,400/4,800/9,600/19,200/38,400/57,600 bps
Serial communication	Data bit: 8; stop bit: 1; parity: none
Remote communication interface	
No. of channels	One to six
Protocol	Modbus RTU and Modbus TC/IP (with optional TCP/IP card)
Baud rate	300/600/1,200/2,400/4,800/9,600/19,200/38,400/57,600 bps
Serial communication	Data bit: 7/8; stop bit: 1/2; parity: none/even/odd
Interface	RS-232, RS-485, Modbus TCP/IP (one per communication card)
Gauge interface	
Types of tools supported	Phoenix xt150 system downhole gauge, Phoenix CTS system (all types), HTIC card
Interface	PIC, EIC, or HTIC card
Data logging/trending	
Logged events	Starts, stops, alarms, trips, set point changes, system resets
Number of logged channels	Up to 32 in parallel
Data storage capacity	32,000,000 data points
Sampling rate	Individual per channel (up to one sample/s)‡

† CSA certified and CE compliant
‡ Options include sampling only when motor is running and exceeding user-set deviation limits.