

# BATTERY-PACK



The Battery-Pack provides autonomous local and/or remote control of Oil and Water Tank Battery installations. It is designed to work at Wellhead, Central Tank Battery Facilities, or Multi-Well Pad Installations. The Battery-Pack is designed in three base models as well as customized models that best suit your needs.

All Battery-Pack models are designed with an all weather protected, local user control interface. Displays can vary from simple line displays up to full color touch interface displays.

All Battery-Packs are typically UL Certified, with a Class1, Div2 Classification rating with intrinsically safe circuit extensions for Class 1, Div1 connections to the tank level sensors.

## Battery-Pack 100

Multi-well tank monitoring using wireless I/O. Support for up to 32 tanks, using either the Accu-Tech or OleumTech wireless tank level solutions. Supports four local wireless gas flow measurement runs.

## Battery-Pack 200

Designed for Wellhead Tank Battery Monitoring. 2 Oil and 2 Water Tanks and all on-site wellhead controls and alarms for pumps and other facilities. Can interface and control Lufkin POCs.

## Battery-Pack 300

Our Flagship Controller, designed to work from the Wellhead to the Tank Battery. Supports 6 Oil, 4 Water Tanks, and all on-site wellhead controls and alarms for pumps and other facilities. Can interface with remote wells using the *Starter-Pack* interfacing to any wellhead scenario.



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## Battery-Pack 100

The Battery-Pack 100 is designed for tank monitoring using wireless I/O. It can be scaled from a single tank up to 32 remote tanks using a variety of different wireless remote I/O solutions. The Battery-Pack 100 continually communicates to each tank level device. The Battery-Pack 100 can send shutdown commands to groups of devices based on received information from the received Tank level/temperature information. These devices can be well valves, mainline valves, pump off controllers, plungers or other devices capable of receiving Modbus commands. The Battery-Pack 100 is designed to work primarily with two wireless solutions, the OleumTech and the Accu-Tech wireless tank level sensors. These are the two leading wireless tank level measurement companies on the market today. ITSI provides these products as an integrated part of the Battery-Pack 100 solution. Additionally there are other wireless I/O devices that can interface into this unit for pressures and temperatures, as well as on site controls as may be needed.

- Local user interface via 2x20 LCD Keypad Display.
- Supports multiple tank level wireless I/O solutions
- Support for up to 32 remote tanks or other wireless remote devices
- Security features programmed into unit, including alarms and shutdown options for local and remote devices such as pumping units, compressors, wells shut in, and valves
- 8 Shutdown Groups
- Support for 4 Meter Runs, which can be sales meters, check meters, etc.
- Register programming for local user interface display
- Real-time data display for local user interface
- Collected data can be retrieved via Modbus protocol using either RS232 or Ethernet communications connecting to a Host SCADA System.

## Battery-Pack 200

The Battery-Pack 200 is designed for smaller tank battery facilities that are typically located at a well location. It is limited to 2 oil tanks and 2 water tanks; however, it has full capabilities for monitoring and controlling the well location and tank battery, providing alarms, shutdowns, and on location controls. The Battery-Pack 200 can interface into a Lufkin POC and provide automated control for high tank level shutdowns in the event of a high tank level and provide alarms and real-time data to a Host SCADA system. Additional alarms and shutdowns are provided for other on location facilities.

- 2 Tank Level
- 1 Casing Pressure
- 1 Circulating Pumps
- 1 Heater Treater
- Supports Electric and Gas driven Pump Off Controller (POC) installations
- 2 Saltwater Tanks
- 1 Line Heater
- 1 Saltwater Pumps
- Support for up to 1 local meter run
- 1 Tubing Pressure
- 2 Separators
- 1 Chemical Pumps

## Battery-Pack 300

The Battery-Pack 300 is designed for large tank battery facilities that have satellite wells that feed into the local tank battery. The local tank battery can also have a well on site. The Battery-Pack 300 can also be used in multi-well horizontal “PAD” configurations where many wells are drilled on one large well site with a single group of tanks that the product feeds into.

The Battery-Pack 300 can run stand alone as a single large tank battery monitoring box, but it is also designed and programmed to work in conjunction with the Starter-Packs, which are located at remote wells providing remote control of the wellhead itself. The Battery-Pack 300 and the *Starter-Pack* communicate to each other using Modbus communications typically using spread spectrum radios providing each other with information in which they been pre-programmed to do.

### Available Tank Battery Information

- 6 Oil Tank Level
- 2 Separator Pressures
- 4 Lead Line Pressures
- 4 Chemical Pump Flow Rates
- Local Casing Pressure
- 4 Saltwater Tanks
- 1 Heater Treater Pressure and Temperature
- 2 Circulating Pump Pressures, and Flow Rates
- Local Tubing Pressure and Flow Rate
- 4 Lead Line Pressures

### Available EPU Information

- Local Engine Fuel Pressure
- Local Engine Oil and Pressure and Temperature
- Local Engine Water Temperature
- Local Engine Exhaust Temperature
- Engine Speed

### Other Available Information

- PLC Battery Voltage, Storage Battery Voltage, Charge Voltage and Current, PLC Clock Information, and Ambient Temperature
- Optional support for up to 4 AGA Gas Meters Additions

### Features for both the Battery-Pack 200 and Battery-Pack 300

- Local user interface is a 6 inch color touchscreen.
- Security features programmed into unit, providing alarms and shutdowns for all critical points
- Local configurable shutdown settings for critical shutdown conditions
- Local configurable alarm settings for critical alarm conditions
- All alarms and shutdowns are displayed locally
- Controls for Local and Remote Well Start/Stops
- Configurable control settings from local interface
- Real-time data display for local user interface
- Collected data can be retrieved via Modbus protocol using either RS232 or Ethernet communications connecting to a Host SCADA System
- Heartbeat interface for fulltime safety with Starter-Pack to assure communications is always monitored between the two devices (Battery-Pack 300 Specific)
- Supports Electric and Gas driven Pump Off Controller (POC) installations with optional *Starter-Pack*.

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## Battery-Pack 300

The Battery-Pack 300 has the ability to have Satellite wells connect to it using the Starter-Pack units. There is support for up to six wells. This can be wells that are equipped with up to four electric powered rod beam pumping units, and/or one well that is equipped with a gas powered rod beam pumping unit, and/or one well that is equipped with a hydraulic pumping unit. Each well can also have local tanks, and there is support for collecting wellhead pressures, temperatures, control pumps and valves, as well as other local on-site control capability.

- Support for 4 *Starter-Pack EPU* Units (Electric Pumping Units)
- Support for 2 *Starter-Pack GPU* Units (Gas Pumping Units)
- Support for 1 *Starter-Pack HPU* Unit (Hydraulic Pumping Unit)

\*Custom Battery-Pack Solutions Available – Contact Insight Technical Services, Inc. to specify a custom solution.

\*\*See the *Starter-Pack Brochure* for more information pertaining to its operation, or call for more information.

### Common Battery-Pack Specifications:

Battery-Pack is built on the SCADA-Pack PLC Platform with the following Specifications  
32-bit CMOS microcontroller, Non Volatile RAM CMOS RAM with lithium battery retains contents for 2 years with no power  
Serial Port COM1 Configurable RS-232 or RS-485, 2 wire half duplex or 4 wire full/half duplex  
Serial Ports COM2, COM4 • RS-232, DTE, 8 pin modular jack, full or half duplex with RTS/CTS control  
Serial Port COM3 Located on 5604 I/O module. Same specifications as COM2 and COM4  
Baud Rates COM1, COM2, COM4 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200  
Baud Rate COM3 1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200  
Serial Protocols Modbus RTU, Modbus ASCII, DNP3, DF1, PPP  
Ethernet Port RJ45, 10BaseT  
Network Protocols IP: ARP, TCP, TFTP, UDP, ICMP  
Ethernet Port Protocols Modbus TCP, Modbus RTU in UDP, Modbus ASCII in UDP, DNP in TCP, DNP in UDP  
Wireless1 Spread spectrum radio at 900MHz2 and 2.4GHz2  
Environment 5% RH to 95% RH, non-condensing, -40°C (-40°F) to 70°C (158°F)  
Power Input 11 - 30 VDC, 4.3W typical (10.8W full I/O capacity in use )

Base Battery-Pack Models are UL Certified, Insight Technical Services, Inc. is a UL Certified Manufacturing Facility  
Nema 4X Enclosure, Suitable for use in Class I, Division 2, Groups A, B, C and D Hazardous Locations  
Systems can be ordered, 120 VAC, 24 VDC, 12 VDC. Charging systems available. Solar calculations available per region  
Spread Spectrum and Licensed Radios available upon request as specified



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