# CAT-PACK


Cat–Pack provides remote monitoring of the compressor catalyst system, monitoring pre and post catalyst temperatures and differential pressure across the catalyst, O2 voltage and run-time. This data is then logged locally and provided as a local download, or can be transmitted as Modbus data to a central SCADA system.

There are three Cat-Pack models that provide different features, although all three feature the full capabilities that provide for compliance within RICE Regulations.

All Cat-Packs are typically UL Certified, with a Class1, Div2 Classification rating.

**There are three variations of the Cat-Pack, the Cat-Pack 100, Cat-Pack 200, and the Cat-Pack 300. All three units use the same algorithms required by RICE Regulations, and provide multiple days of historical data for catalyst temperatures and differential.**

### Cat-Pack 100

The Cat-Pack 100 is a compact, low cost unit which has a small display and limited amount of operator interface functionality.

### Cat-Pack 200

The Cat-Pack 200 has a full color interface and provides a full operator interface screen with local historical trends for local analysis.

### Cat-Pack 300

The Cat-Pack 300 is the same as the Cat-Pack 200, only it includes a Master Unit with wireless Slave Units that install at each compressor. This is intended for multiple compressor installations of two to six compressors on a single location. Multiple Cat-Pack 300 units can be added at even larger stations.

# CAT-PACK

## Cat-Pack 100

The Cat-Pack 100 is a low cost, single engine monitoring system. It includes the full capabilities that provide for compliance within RICE Regulations, but is designed as a more economical solution for smaller single compressor installations. This unit has a small local user interface with a limited amount of operator interface capability.

- Local user interface via 2x20 LCD Keypad Display
- Monitors pre and post catalyst temperatures, differential pressure across catalyst, O2 voltage, and compressor runtime
- Provides 30 days of data logging.
- Collected data can be retrieved via Modbus protocol using either RS232 or Ethernet communications connecting to a Host SCADA System or from a local USB local communication port download

- **Cat-Pack 100 I/O Parameters**
  - Catalyst Differential Pressure
  - Pre-Catalyst temperature
  - Post-Catalyst temperature
  - Solar Battery Voltage
  - Oil Pressure Switch
  - Compressor Kill Command
  - 4 Spare Selectable DI/DO

## Cat-Pack 200

The Cat-Pack 200 is a fully configurable, single engine monitoring system. This unit has a large color local user interface that provides full local user control capability, as well as local trends for the catalyst differential pressure and temperatures. An optional Cat-Pack 200 is available that will interface to a Murphy AFR Controller utilizing the Cat-Pack's color interface single point interface. The Cat-Pack 200 unit includes the full capabilities that provide for compliance within RICE Regulations.

- Local user interface is a 6 inch color touchscreen
- Monitors pre and post catalyst temperatures, differential pressure across catalyst, O2 voltage, and compressor runtime
- Provides 90 days of data logging
- Security features programmed into unit, including alarm and shutdown options for the compressor when temperature and differential readings are out of compliance.
- Local trending provided through local 6 inch color display interface
- Collected data can be retrieved via Modbus protocol using either RS232 or Ethernet communications connecting to a Host SCADA System or from a local USB communication port download

- **Cat-Pack 200 I/O Parameters**
  - Catalyst Differential Pressure
  - Pre-Catalyst temperature
  - Post-Catalyst temperature
  - Solar Battery Voltage
  - Oil Pressure Switch
  - Compressor Kill Command
  - 6 Spare Selectable DI/DO

## Cat-Pack 300

The Cat-Pack 300 is a fully configurable, multi-engine monitoring system, capable of monitoring up to six compressors with a single Master Unit. The Cat-Pack 300 has one Master Unit which has a large color local user interface that provides full local user control capability, as well as local trends for the catalyst differential pressure and temperatures. Each compressor is then equipped with a Slave Unit which connects to the measurement equipment gathering the catalyst differential and pressure information, and radios this information back to the Master Unit. The Master Unit then provides the logged data to be locally downloaded through a USB connection, or sent back to a local Host SCADA System. The Cat-Pack 300 includes the full capabilities that provide for compliance within RICE Regulations.

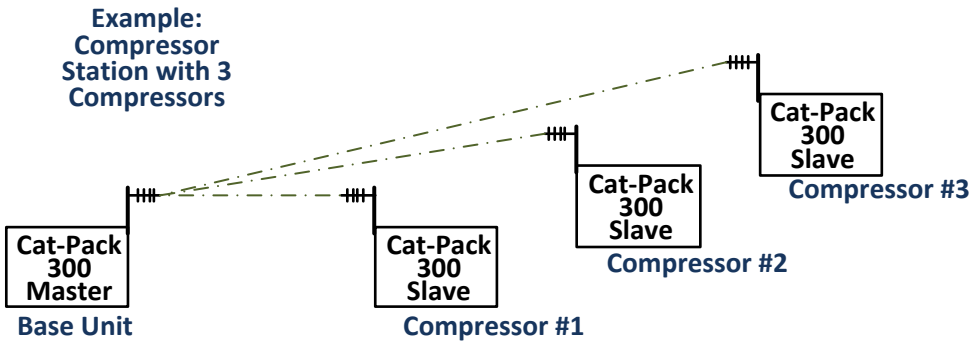
Master Unit Features

- Local user interface is a 6 inch color touchscreen
- Displays pre and post catalyst temperatures, differential pressure across catalyst, O2 voltage, and compressor runtime for each compressor
- Provides 90 days of data logging
- Security features programmed into unit, including alarm and shutdown options for the compressor when temperature and differential readings are out of compliance.
- Local trending provided through local 6 inch color display interface
- Collected data can be retrieved via Modbus protocol using either RS232 or Ethernet communications connecting to a Host SCADA System or from a local USB local communication port download

Remote Unit Features

- Monitors pre and post catalyst temperatures, differential pressure across catalyst, O2 voltage, and compressor runtime.
- Transmits collected data to Master Unit continuously on a round-robin polling basis, connected via radio using Modbus communications.

- **Cat-Pack 300 I/O Parameters**
  - Catalyst Differential Pressure
  - Pre-Catalyst temperature
  - Post-Catalyst temperature
  - Solar Battery Voltage
  - Oil Pressure Switch
  - Compressor Kill Command



# CAT-PACK

## RICE REGULATIONS

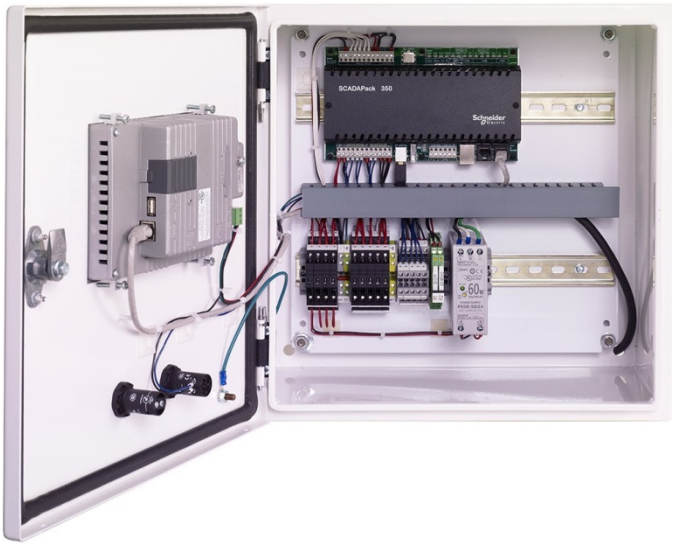
The Cat-Pack Products have been designed to provide data that meets compliance standards as set by the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engines (RICE). These standards have been constantly changing and as such, understandings to these regulations should always be interpreted by each buyer to assure that this product meets your expectations. Insight Technical Services, Inc. provides this product as a tool to help the end user to be more productive and to do be able to do their job more efficiently, but we do not guarantee that this product's calculations and recording standards will absolutely meet all State and Federal regulatory standards.

National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines:
http://www.epa.gov/ttn/atw/RICE/RICEpg.html

### Common Cat-Pack Specifications:

Cat-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 Cat-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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