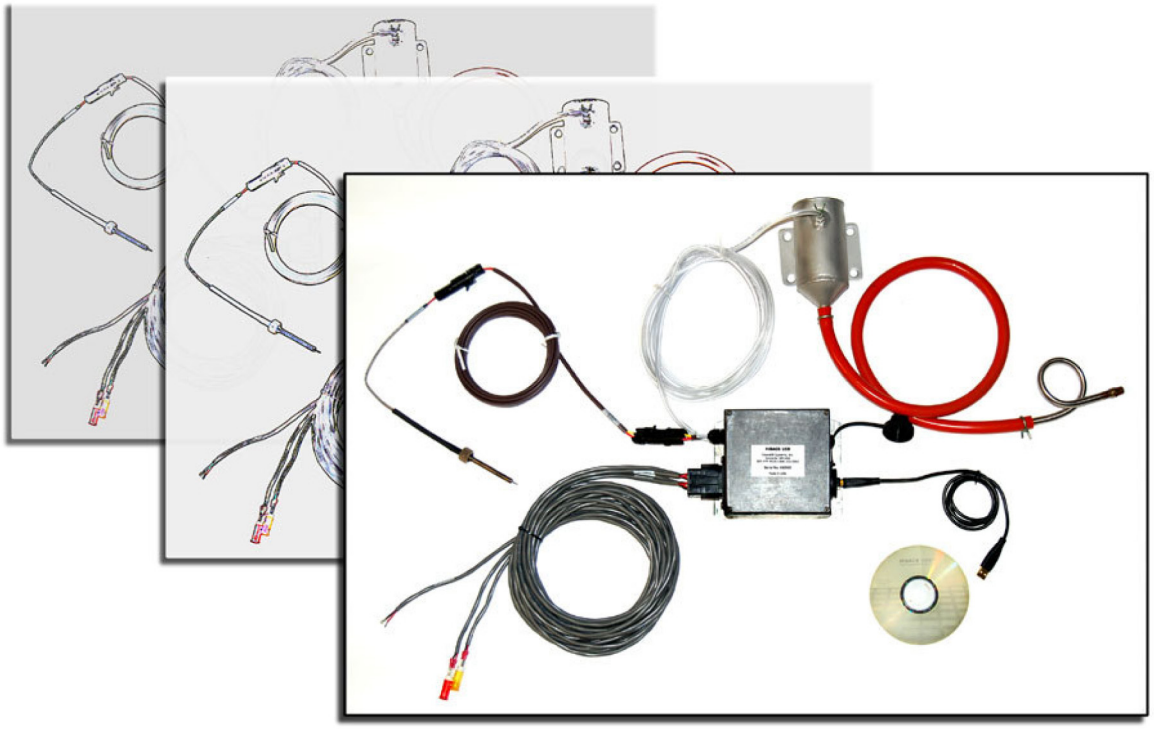


The CleanAIR HiBACK USB™

Data logging and Alarm System for Diesel Engines

The HiBACK USB™ is a microprocessor-based data logger and alarm system designed to record and monitor exhaust backpressure and temperature. Monitoring these engine exhaust parameters provides useful information about engine performance as well as the performance of a CleanAIR Systems emissions control device.

The HiBACK USB™ unit can warn the operator of possible problems with the emissions control device such as plugging or excessive backpressure on the engine. It can also track the duty cycle of the engine and allow analysis for operation time, exhaust temperature and backpressure profiles. Data collected by the HiBACK USB™ can be downloaded to a computer for detailed analysis using optional software.

The HiBACK USB™ Features:

- Self-diagnostics
- USB interface
- Large data storage: 26,000 lines of data (100 hours)
- Wide operational window: -12°C (10°F) to 55°C (130°F)
- External reset button
- Reverse voltage safety
- Event codes
- Optional user-friendly Windows-based software (available in two levels) with realtime monitoring (software sold separately)
- Quick-release connections
- Water-resistant enclosure and connections
- Fast processor power: the ability to data log up to 1 sample per second

Monitors & Records

Exhaust Backpressure, Temperature and Event Codes

CleanAIR SYSTEMS
A Caterpillar Company

www.cleanairsys.com 505-474-4120 800-355-5513 information@cleanairsys.com

Backpressure Alarm Outputs

The HiBACK™ unit has three outputs available for operator usage. All outputs are pre-set before the unit is delivered.

Output 1: Triggers a yellow LED. This output is set 10% below the maximum recommended backpressure. Allows the user time to analyze data and service the filter if needed.

Output 2: Set at the maximum recommended backpressure limit. When this level is reached a red LED is illuminated. User must shut down and service the filter.

Output 3: A voltage output for customer use. Can be used to interface with the engine ECM to initiate a power de-rating mode, turn on an audible alarm, or send a signal to a remote operator.

External Reset Button

This feature allows the user to reset the HiBACK USB™ 2 times without connecting to a computer.

Self Diagnostics and Event Codes

The HiBACK USB™ includes the capability to self-diagnose temperature and backpressure sensing problems that may occur with the HiBACK USB™. A series of event codes will illuminate yellow and red LED's in different sequences depending on the diagnostics being detected.

The HiBACK USB™ is sold only for use with products manufactured by CleanAIR.

HiBACK USB™ Specifications

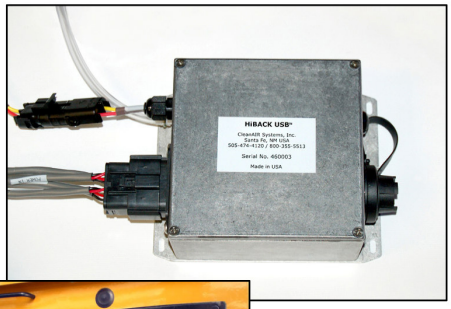
The unit is housed in an aluminum, water-resistant enclosure (5" x x5" x 21/2"), and operates on 10 to 28 VDC. At 12 V, the unit requires 200 milliamps. Power to the unit is only required when the engine is in operation. The operating temperature range is -12°C (10°F) to 55°C (130°F).

Measurement for temperature is made by a K-type thermocouple, and backpressure is measured with a transducer. There is enough memory to record 26,000 lines of data. A line of data is made up of individual readings for exhaust pressure (inches of water), exhaust temperature (°C), date, time (hours: minutes), and event code. Typically, 100 hours of operating time is stored before the memory is filled. When the memory is full the program overwrites the oldest data. Data can be downloaded directly to the user's desktop for analysis through the USB port using optional interactive Windowsbased software that interfaces with the device. With a simple USB connection, optional software and 10VDC to 28 VDC power, the user can view a real-time load data directly to Microsoft Excel. (Optional software sold separately.)

Self-diagnostic features for troubleshooting are also included with the HiBACK USB™.

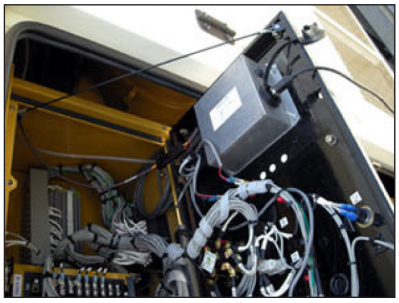
Monitors & Records

Exhaust Backpressure, Temperature and Event Codes



Top: The HiBACK USB™ Control Box

Left: Control Box mounted on engine control panel



HiBACK USB™ control box mounted on engine control panel

HiBACK USB™ Installation Kit

- HiBACK USB™ control box
- K-type thermocouple and bushing
- 12' TC lead wire
- 12' Wiring Harness
- LED Kit
- Stainless steel water condensing unit
- 3/8" stainless steel cooling tube with fitting
- High temperature silicone hose
- Low temperature PVC tubing
- Optional software for real-time monitoring and data download.

To submit an online request for pricing, go to www.cleanairsys.com/rfp.asp

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