

# CleanAIR HiBACK USB™

Data Logging and Alarm System for All Diesel Engines

## HiBACK USB™ Advantage:

- Monitors and Records Exhaust Backpressure and Temperature, Time, Date and Event Codes
- Warns Vehicle Operator of Backpressure or Temperature Problems
- Available with Optional Software for Real-Time Monitoring and Data Download – USB Interface
- Self-Diagnostics
- Works In Conjunction with CleanAIR PERMIT™ Filter

## Applications:

- For Use with PERMIT™ Filter

## The CleanAIR™ Difference:

- Custom Engineering and Design
- Integrated Manufacturing
- Durable Product Manufacturing for Operation Under Extreme Conditions

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For price quote, contact:

505-474-4120

800-355-5513

Fax 505-474-4046

information@cleanairsys.com

**CleanAIR**  
**SYSTEMS**

## The CleanAIR HiBACK USB™ – Monitors and Records Exhaust Backpressure, Temperature and Event Code

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.

## HiBACK USB™ Specifications

The unit is housed in an aluminum, water-resistant enclosure (5" x 5" x 2 1/2"), 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 Windows-based 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 display of exhaust temperature and backpressure, then download data directly to Microsoft Excel. (Optional software sold separately.)

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



The HiBACK USB™ Control Box

## The HiBACK USB™ Features:

- Self-diagnostics
- USB interface
- Large data storage: 26,000 lines of data (100 hours)
- Wide operational window: 10° F (12°C) to 130°F (55°C)
- External reset button
- Reverse voltage safety
- Event codes
- Optional user-friendly Windows-based software (available in two levels) with real-time 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



The CleanAIR HiBACK USB™ system for use with the CleanAIR PERMIT™ Filter

**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**

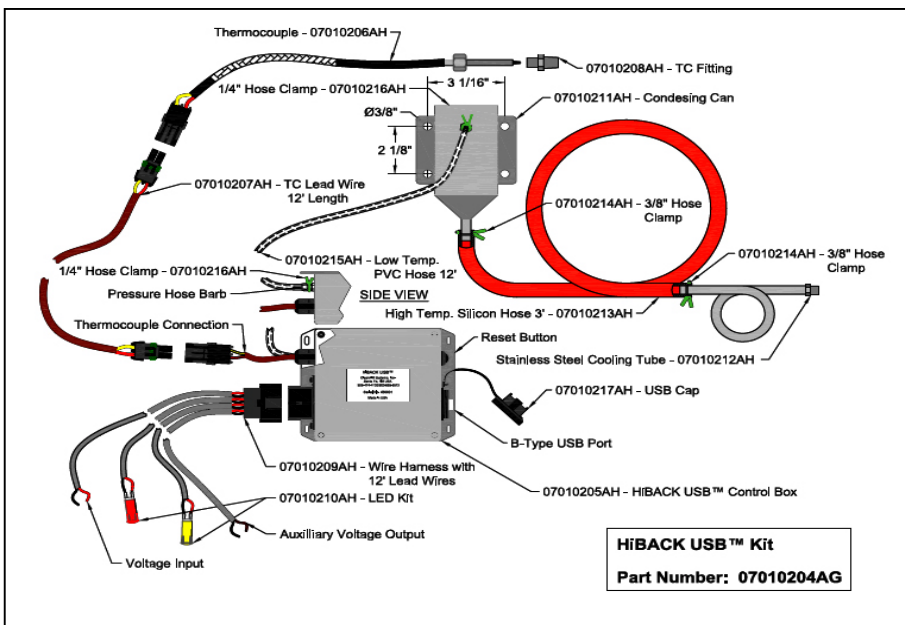
This feature allows the user to reset the HiBACK USB™ 2 times without connecting to a computer.

**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 Software Options (available in two levels)	HiBack USB™ Software Level I	HiBack USB™ Software Level II
Download Data to Excel	Yes	Yes
Real-time Monitoring	Yes	Yes
Reset Alarms	No	Yes
Change Logging Intervals	No	Yes



**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.

*Data download display in Microsoft Excel of exhaust temperature and backpressure data.*

BP	Temp	Date	Time	Event Code
24	244	1/6/2007	7:51	2
23	244	1/6/2007	7:51	2
23	245	1/6/2007	7:51	2
23	245	1/6/2007	7:51	2
24	246	1/6/2007	7:51	2
25	247	1/6/2007	7:51	2
25	248	1/6/2007	7:51	2
27	250	1/6/2007	7:51	2
27	251	1/6/2007	7:51	2
28	253	1/6/2007	7:51	2
28	253	1/6/2007	7:51	2
27	254	1/6/2007	7:51	2
28	255	1/6/2007	7:51	2
28	256	1/6/2007	7:51	2
29	257	1/6/2007	7:51	2
29	257	1/6/2007	7:51	2
29	258	1/6/2007	7:51	2
29	259	1/6/2007	7:51	2
28	260	1/6/2007	7:51	2
29	261	1/6/2007	7:51	2
30	262	1/6/2007	7:51	2