Fume Hood Display (FHD500)

The Fume Hood Display 500 Series (FHD500) is a color touch-screen display used on fume hoods in conjunction with Phoenix Controls Venturi valves, sash sensors, and Zone Presence sensors for airflow controls and monitoring. The FHD500 supports fume hood control monitoring with constant volume valves (CV), two position valves, drive applications, or variable air volume venturi valves (VAV).

The Fume Hood Display is specifically designed to work with the Phoenix Controls Actuator Control Module (ACM) as part of the Critical Spaces Control Platform (CSCP). The FHD500 addresses concerns for safety and energy savings while providing an easy-to-read touch display. Modern visual and audible alerts provide unmistakable indication of fume hood safety and energy usage. The home screen displays the fume hood's face velocity or airflow, indication of Normal, Alarm, or Hibernation modes as well as additional information pertinent to safety and operation of the Fume Hood.

The FHD500 has the capability to show face velocity or airflow, relative sash position, hood state, and has a face velocity indicator gauge. FHD500 can also be programmed to show only the status with a color indication of hood state, configurable from the menu.

FEATURES

- Programmable to show occupancy state, hood status, and a rotating display.
- Modern and elegant 4" diagonal touch screen.
- Vibrant background colors easily delineate between normal, alarm, and hibernation conditions.
- Supports constant volume (CVV), VAV, and drive applications.
- On-screen programming reduces start up time.
- Audible alarming quickly alerts users of pressurization issues.
- BACnet Communication allows BMS to monitor conditions.
- Analog output.
- Dry contact output.

ENERGY SAVINGS

- Hood energy waste indicator alerts users of energy waste conditions and instructs to take action to reduce energy consumption.
- Night energy waste alerts users when the room lights are not illuminated and instructs the user to lower the sash.
- Hood hibernation enables reduced fume hood energy consumption when there are no safety concerns by positioning the airflow valve to minimum airflow or shut off.

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SPECIFICATIONS

Power
24 Vac (+/- 10%), 50/60Hz, Class 2 Transformer ONLY
360mA Max (8.68 VA) @ 24 Vac
Display Power: 355mA Max (8.5 VA) @ 24 Vac

Communications
MS/TP Baud Rates: 9,600 19,200 38,400 76,800 115,000 (Auto-Discovery)

Operating Temperature
32 to 122°F (0 to 50°C)

Storage Temperature
-40 to 150°F (-40 to 65.5°C)

Operating Humidity
10% to 90% relative humidity (Non-condensing)

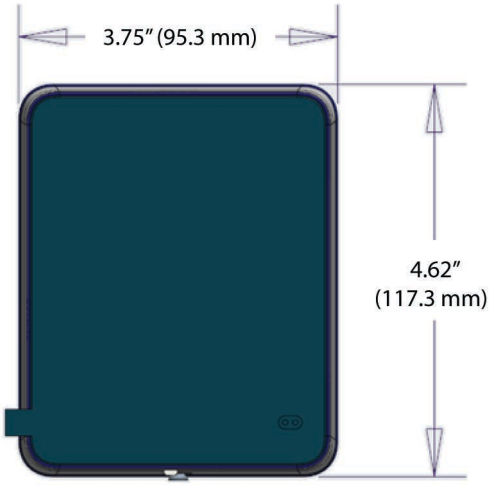
Monitor Display
24 BPP TFT display with CTP, 480x480 pixel, 4" diagonal viewing area, Dimmable LCD. IP54 rated

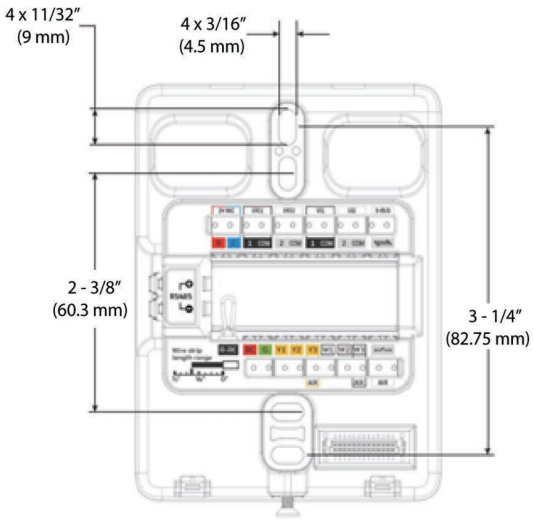
Monitor I/Os
UI1 and UI2, UI01 and UI02
- Voltage Input (SELV)
  - 0-10V, ±5% of full scale
- Digital Input
  - Dry contact closure
  - Open circuit (≥100K ohms)
  - Closed circuit (≤100 ohms)

DO Switch
- Relay Output, 1 Amp Max. @ 24Vac

Washdown and Chemical Resistance
- Monitor: IP54 rated against dust and liquid penetration

DIMENSIONS



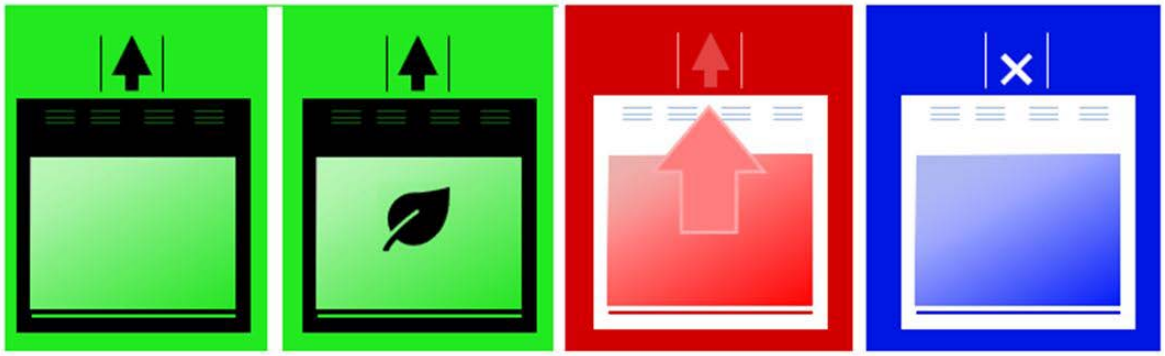


FHD SCREEN DISPLAYS

The on-screen display is configurable for either icons or simple text. If configured for icons, the information display is still present on the lower left of the screen.

Example Sash Icons

NOTE: If the sash icon is enabled, the sash position on the icon approximates the reported position as <1%, 1 - 33%, 34 - 66%, 67 - 99%, >99%.



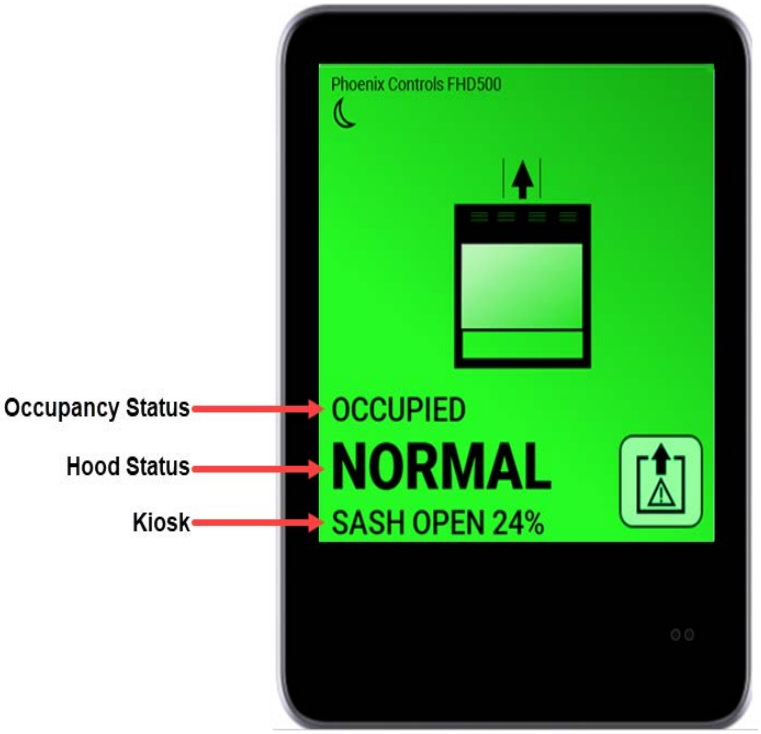
Normal	Normal operation - Setback, Flow Override, Face Velocity	Alarm - Exhaust Override, Remote Exhaust Override	Hibernation

Example Simple Text Screens

The Override button available (lower right) on the first two screens changed to cancel exhaust on the third screen.

Example Gauge Screens

Information Display



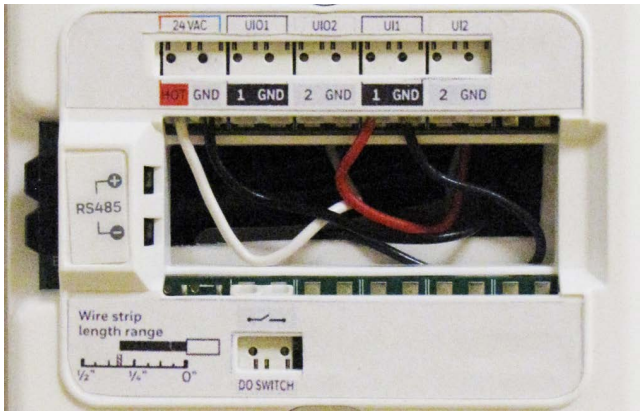
Occupancy Status - The Occupancy display shows the word OCCUPIED only if a ZPS is enabled and its state becomes occupied. If the ZPS occupancy state is anything else, this area will be empty.

Hood Status - The displayed text shows the current hood status. This same data is shown in the center of the screen if the display type is set to Text Only (no sash icon displayed).

Kiosk - The data displayed depends on the current mode and whether any alarms exist that have been set to display. Data is refreshed at 2 second intervals.

Mode	Kiosk Display
Normal or Setback (No Alarms)	Sash position.
Normal or Setback (One or More Alarms)	Alternates between sash position (%) and alarm.
Hibernation	Text message: OPEN SASH TO RESUME OPERATION. *NOTE: Hibernation mode is only possible for a VAV. For other applications (drive, CVV, 2-state), hibernation mode is disabled and hidden.*
Emergency Overrides (Local or Remote)	Toggle between two Emergency messages. Only a local emergency causes the exhaust override button to pulse and show the exhaust cancel icon.
Manual Overrides (No Alarms) Flow Override or Face Velocity Override	Alternates between sash position (%) and override messages.
Manual Overrides (One or More Alarms) Flow Override or Face Velocity Override	Alarm Output must be enabled. Alternates between sash position (%) and override messages. Alarms can be configured for Sash Height, Diversity, Night Energy Waste, Energy Waste, Broken Sash, Control Fault.
Unlinked	No information, FHD500 is not connected.
Fail-Safe	Shows HOOD IN FAIL-SAFE and toggles between Fail-Safe messages if two messages are used.

INPUTS/OUTPUTS



Terminal	Description	Board Identification	
24 Vac	Power Terminal	Hot	GND
UIO1	Universal Input/Output	1	GND
UIO2	Universal Input/Output	2	GND
UI1	Universal Input	3	GND
UI2	Universal Input	4	GND
DO Switch	Generic, Programmable	DO Switch	
RS485+	BACnet MS/TP Communication Positive	BACnet Communications	
RS485-	BACnet MS/TP Communication Negative		

WIRING

Wiring for the FHD500 should be done with an 18 - 22 gauge AWG (0.5 - 0.75 mm) wire. For wiring details, see the FHD500 Installation Guide (MKT-0528).

REGULATORY COMPLIANCES

WEEE Directive 2012/19/EC
Waste Electrical and Electronic Equipment Directive
At the end of the product life dispose of the packaging and product in a corresponding recycling center. Do not dispose of the unit with the usual domestic refuse. Do not burn the product.

Certificates: CE, FCC, ICES, UL/cUL, RoHS3, REACH, Prop 65

EU Contact Address:
Pittway Tecnologica Srl
Via Caboto 19/3
34147 Trieste TS
Italy

ORDERING GUIDE

FHD 500 - DHV

PRODUCT FAMILY
FHD = Fume Hood Display

NETWORK AND FHD PROTOCOLS
500 = BACnet MS/TP with BLE (Bluetooth Low Energy)

OPTIONS
DHV = DHV Interface card in enclosure. Typically used with retrofits to replace Analog HV card when a HUB is not needed.

HUB = Fume Hood HUB: Enclosure and interconnect PCB for connecting power communication, and signal between sash sensors, ZPS, FHD, and Fume Hood ACM. Used primarily for retrofits. DHV card NOT included.

HUV = Fume Hood HUB with DHV included: Enclosure and interconnect PCB for connecting power, communication, and signal between combination sash sensors, ZPS, FHD, and Fume Hood ACM. Used primarily for retrofits.

RD1 = Retrofit stainless surface plate to cover FHD1xx recess mounting holes.

RM1 = Retrofit stainless surface plate to cover FHMx00 and FHMx10 recess mounting holes.

RM3 = Retrofit stainless surface plate to cover FHMx30 recess mounting holes.