

TYPE A: SINGLE VERTICAL RISING SASH FUME HOOD

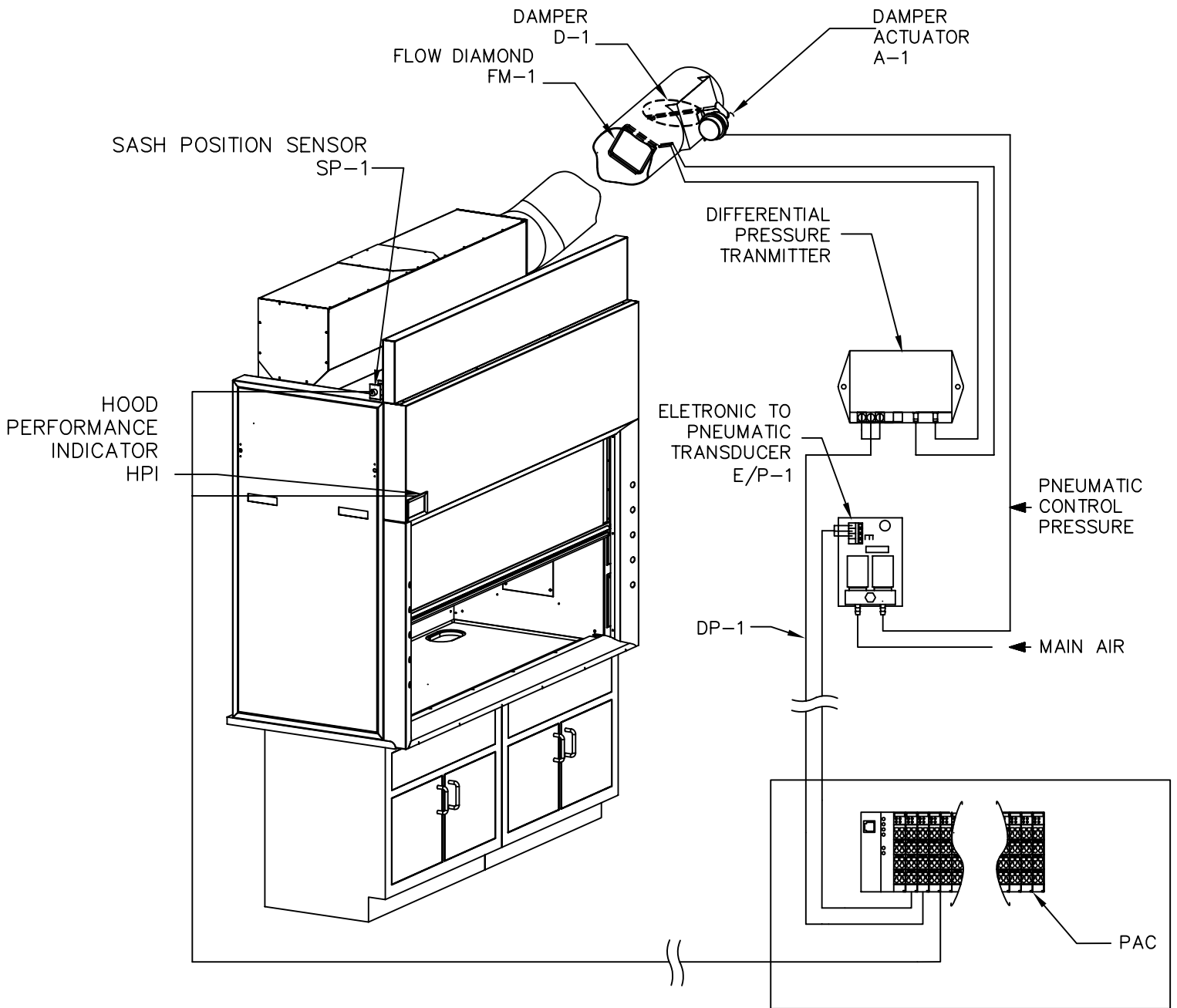
BILL OF MATERIALS

QUANTITY	PRODUCT	DESCRIPTION
1	MOD-18000	Differential Pressure Transmitter
1	EPT-11100	Electric to Pneumatic Transducer
1	PIC-1600	Fieldbus Controller (PAC)
1	SPS-3000	Sash Position Sensor
1	HPI-25500	Hood Performance Indicator

SEQUENCE OF OPERATION:

- A. PAC maintains fume hood inferential face velocity constant by modulating damper D-1 in the hood exhaust in direct proportion to the hood sash opening signal determined by Sash Position Sensor (SP-1) to produce and maintain constant fume hood face velocity at any hood sash opening.
- B. The voltage output signal from SP-1, when supplied a regulated dc power supply, produces and transmits to the PAC a signal linearly proportional to the fume hood sash opening.
- C. PAC calculates needed hood exhaust set point flow (cfm) based on SP-1 hood sash position, hood width, and set point face velocity (typical 100 lfpm).
- D. Differential pressure transducer connected to flow diamond (FM-1) installed and as a part of the fume hood exhaust valve assembly, senses flow induced differential pressure across FM-1, transmitting an input control flow signal to PAC.
- E. PAC receives DP-1 input control flow signal from differential pressure transducer and calculates metered hood exhaust flow, then compares this to sash position set point flow and then calculates new value for output control flow signal
- F. Output control flow signal from PAC is transmitted to electronic to pneumatic transducer (E/P-1), and with E/P-1 supplied with a regulated 20 psig main air, E/P-1 transmits a pneumatic control pressure to modulate damper actuator.
- G. PAC, on the basis of continuously monitored flow signal and calculated fume hood face velocity, transmits performance signal to Hood Performance Indicator (HPI) mounted on the fume hood face to continually display either (toggled) hood calculated face velocity or hood set point exhaust flow. Continuous hood exhaust operation status is indicated through the green, yellow or red lights. If PAC cannot achieve and maintain set point exhaust flow within error or time response limits, HPI activates an audible alarm, user silenceable and automatically reset self with restoration of proper PAC control.
- H. *With activation of an internally mounted hood "heat switch", the PAC serving the fume hood(s) of incidence shall take over ride control of the hood(s)' exhaust flows by modulation of D-1 in the hood exhaust VAV box to its full flow position. PAC shall send alarm signal to BAS. Upon deactivation of the switch, PAC shall resume hood controls to the normal control state and cease alarm signal to BAS.
- I. With the activation of Emergency Purge, PAC shall override all output control flow signals to fume hood located within room to modulate exhaust damper to full open position. PAC shall send alarm signal to BAS for notification of Emergency Purge. Upon deactivation of the Emergency Purge, PAC shall resume all fume hood flow to their normal control states and cease Emergency Purge alarm status to BAS.
- J. On loss of power, fume hood exhaust damper shall fail in the full open position

* Denotes non-standard optional features



SCALE: NONE

SINGLE VERTICAL RISING SASH FUME HOOD

REFERENCES:
 15990
 15992-A
 15992-B
 15992-C

NOTES: EXHAUST VALVES AVAIL. IN GALVANIZED,
 PVC COATED GALVANIZED, STAINLESS
 STEEL 304 AND 316. PAC IS UNDEDICATED

SOURCE: ACCU*AIRE CONTROLS
 U.S. PATENT #: 5,205,783, & 5,312,297

SECTION: 15970 - CONTROL SYSTEMS

DETAIL: SINGLE VERTICAL RISING SASH FUME HOOD

BLOCK SIZE: 1
 REV: 2/16/07, SC

TYPE-A