



WHITE KNIGHT®

CLOSED-LOOP CONTROLLER

Automatically Maintain Pressure or Flow Rate

The programmable CPC-1 monitors and controls pneumatic pump systems to provide complete closed-loop control. It automatically adjusts to maintain system pressure or flow rate using feedback from a pressure transducer (no delay) or flow meter (two second signal delay). It also supports supply pressure control operation to manage the system without feedback control. <https://wkfluidhandling.com/cpc-1>



Closed-Loop System Setup



CPC-1 sends analog signals to an electro-pneumatic proportional regulator. The regulator applies pressure to the pump. The pump pressurizes the fluid line. Sensors in the fluid line send analog signals to the CPC-1, which adjusts to repeat the process. The CPC-1 also communicates to external alarms, a PLC, or Windows-based computer, allowing it to integrate with various tools. <https://wkfluidhandling.com/closed-loop>

Features & Benefits

- Automatically maintains flow or pressure
- Plug-&-Play integration with standard protocols
- Flow stability in pressure changes independent of filter loading, viscosity, or temperature
- Adjustable flow rate or pressure set point
- Maintains line pressure in dead-head without continued cycling of the pump
- Maintains delivery liquid pressure as demand and line restrictions change
- Software interface simplifies system setup
- Real-time feedback for supply pressure, flow rate, line pressure, and temperature
- Switch control modes quickly and easily
- Customizable alarms for control limit, system limit, maintenance, and leak detection
- Parallel operation with multiple pumps
- Supports White Knight bellows pumps

Power Requirements

- Power consumption is ~2.5 watts; max of 4 watts.
- High-power sourcing outputs (12 –24 VDC, 500 mA)
- Low-power outputs (5 –24 VDC, 25 mA)

Communications

Setup with Windows computer via standard RS-232 protocol or 10/100 Base-T Ethernet port. It supports automatic IP Address assignment over DHCP Network.

Wiring Connections

Digital I/O Connections: 44 Pin HD D-Sub Connector

Digital Inputs Include:

- Turn on pressure control
- Turn on flow control
- Turn on set supply air
- Turn on set point change via Analog input
- Leak sensor input
- Reset leak sensor alarm
- Proximity sensor input left
- Proximity sensor input right

Digital Outputs Include:

- Pressure control on
- Flow control on
- Supply air on
- Alarm: Leak detected
- Alarm: Out of control limits
- Alarm: Near System Capacity
- Solenoid: Left signal
- Solenoid: Right signal

* Digital inputs are configurable to voltage reference high or low.

* Digital outputs are configurable to be voltage source or sink.

* Digital ports must be powered with an external source.

Analog I/O Connections: 26 Pin HD D-Sub Connector

Analog Inputs Include:

- Flow meter signal
- Pressure transducer signal
- Temperature sensor
- Desired set point

Analog Outputs Include:

- Flow meter signal
- Pressure transducer signal
- Temperature signal
- Air regulator signal

* Analog inputs can be configured to be 0-5 VDC, 0-10 VDC, or 4-20 mA.

* 4-20 mA output requires the optional WK signal converter.

Configuration Options

24 VDC 60 with external power supply



Breakout board to screw terminals



Digital I/O cable to wire leads

