



TJERNLUND CPC-3

Constant Pressure Controller

For modulating draft and combustion air systems



Problem: Traditional chimneys and louvers cannot adjust to changes in burner firing rates, temperatures, winds and building pressures that can negatively affect burner performance. What's more, these fixed systems are often unable to successfully handle common venting of multiple heaters.

Solution: The CPC-3 functions as the brains of Tjernlund's "smart" mechanical vent systems. It simultaneously monitors and adjusts fan speed to maintain optimum draft and/or combustion air.

This second generation, patented controller sets new standards for venting system control, ease of installation and operation.

Other Essential Draft and Combustion Air System Components

Auto-Draft®
Inducers



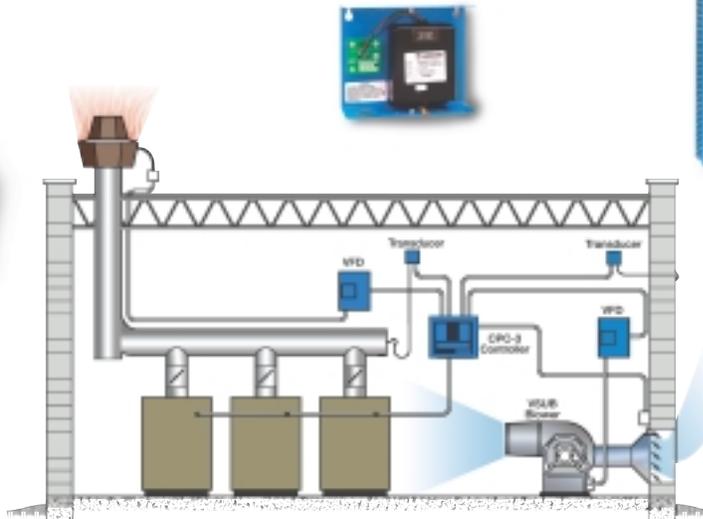
TD-Series
Pressure Transducers



VFD-Series
Variable Frequency Drives



VSUB Universal
Blowers



CPC-3 controlled vent systems save money

Reduce installation costs

A CPC-3 Controlled System can more than pay for itself. Here's how:

Without CPC-3 Controlled System:

Three boilers and two water heaters at a combined firing rate of 3,800 MBH. Original design specified 90 feet of 22" diameter AL29-4C positive pressure insulated stack.

Installed cost for stack..... \$41,000

With CPC-3 Controlled

System: Revised design with VSAD-10 Auto-Draft Inducer allowed stack diameter to be reduced to 14".

Installed cost for stack and VSAD-10 Auto-Draft® Inducer.. \$30,000

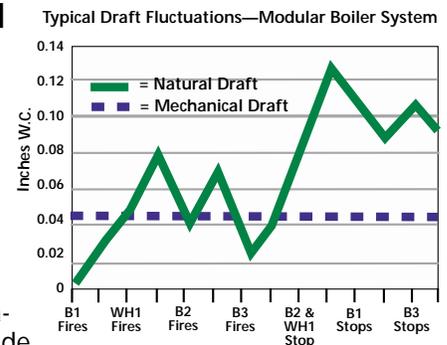
Also add benefits of optimum draft and efficiencies for the operating life of the boilers and water heaters.

SAVE
27%

Increase efficiency for energy savings

Traditional Chimney

As different heaters sequence, the resulting changes in flue gas volume and stack temperature create wide swings in natural draft, reducing heater efficiencies.



Modulating CPC-3 Controlled System

As different heaters sequence, the resulting changes in flue gas volume and temperature are automatically compensated for. The CPC-3 modulates the inducer or blower to independently maintain draft and/or combustion air set points. Heaters operate at peak efficiency every cycle, service calls are reduced, and heater life is extended.

System operation and equipment selection

Description

The CPC-3 simultaneously monitors and controls draft and/or combustion air pressures. It modulates the speed of an Auto-Draft inducer and/or Universal blower to maintain a user programmed set point. It also can control a motorized damper/louver, its end-switch, or react to the contacts of a CO detector and disable interlocked heaters. It features a built in alarm and alarm contacts. Beyond boilers and water heaters, CPC-3 controlled systems are commonly used to vent banks of commercial clothes dryers and also multi-story exhaust chases.

The CPC-3 includes four heater interlock terminal strips. By adding EXP-4E expansion modules up to 16 individual heaters can be interlocked.

Sequence of Operation

- 1 Upon a call for heat from an interlocked burner the CPC-3 references the vent system draft and/or combustion air pressure as measured by the TD-Series Pressure Transducer and activates the Variable Frequency Drive.
- 2 The VFD quickly speeds up the inducer/blower until the vent system draft and/or combustion air set point is reached. When the set point is reached the CPC-3 completes the circuit to the interlocked burner allowing the normal firing sequence to resume.
- 3 Additional burner stages will create a momentary decrease in vent system pressures, causing the inducer/blower to speed up to maintain the set point. If sufficient natural draft and/or combustion air is present, the CPC-3 will deactivate the inducer/blower until it is needed. The interlocked burners will be deactivated if the vent system draft set point cannot be maintained.

How to select the correct equipment

Selecting the right system components for your application is as easy contacting your local Tjernlund Specified Systems Rep or our factory @ 800-255-4208. Whether your application needs are draft, exhaust, combustion air or a combination, we are here to make your job easier. Give us your job parameters and we will select the best system for your application, normally the same day! You can also access our web site at www.tjernlund.com for sample specs, submittals, fan curves, wiring schematics and installation instructions.

Installation ease and flexibility

Tjernlund modulating draft inducers and combustion air blowers are available in two designs and many capacities to fit virtually any project requirement:

VSAD-Series (draft only): Rooftop or side wall outdoor mount with capacities up to 3,000 CFM. Multiple units can be mounted on a collector box where requirements exceed the capacity of a single model. Available in 230 or 460 VAC.

VSUB-Series (draft or combustion air): Rooftop outdoor mount, floor or ceiling indoor mount with capacities up to 6,000 CFM. Multiple units can be ducted to collector box where requirements exceed the capacity of a single model. Available in 230 or 460 VAC.



Based on feedback from installers, we have incorporated features into the CPC-3 that simplify job site wiring and system commissioning.

- Terminal strips rated for 12 gauge wires.
- Color and alpha/numeric coded terminal strip.
- Solid state power supplies with automatic reset short circuit protection.
- Single power feed for entire system.
- Quick connect VFD communications cable (eliminates 10 connections at VFD).
- VFD and limit circuit status lights indicate correct field wiring.
- Faulted VFD can be reset from CPC-3 keypad.
- Verify and change motor rotation from CPC-3 Controller.
- 30 minute keypad lockout.



Wiring harness facilitates field wiring and correct connections.

Total system control and operator friendly

Programming Options

- Draft Pressure set point
- Combustion Air Pressure set point
- Pre and Post Purge
- Automatic or Manual operation
- Combustion air modes of operation include "Open" room pressure or ducted "Sealed" pressure for sealed combustion burners
- Auxiliary Device Interface for motorized louver or CO detector



Features:

- Large lit display and easy to use soft touch keypad.
- Primary functions can be programmed via dedicated keys, eliminating scrolling through multiple screens.
- Four burner interlock terminal strips compatible with millivolt, 24 volt, 115 volt or 230 volt burner control circuits.
- Add up to 3 EXP-4E's for a total of 16 heaters.
- LED status indicators show which interlocked burners are calling for heat and when the CPC-3 safety circuit approves burner operation.
- Additional LED's indicate limit(s) status, VFD operation and fault status.
- Correct Inducer/Blower rotation is determined by display prompts and changed through DIP switches on the circuit board.
- System fault diagnosis readout and retrieval.
- Built-in alarm alerts building maintenance personnel if system faults. Alarm relay also allows interface with building management system.

Popular system accessories

ABD-Series Balancing Baffles

- Used to balance individual vent connector pressures when a common manifold serves multiple heaters or dryers.



RMK & WMK-Series Mounting Kits For Auto-Draft® Inducers

- RMK-8, 10 & 12 roof mount kits adjust from 9" to 24" in height.
- WMK-8, 10 & 12 wall mount kits simplify inducer mounting & reduce clearances from exterior combustible wall surfaces.



EXP-4E Heater Interlock Expansion Module

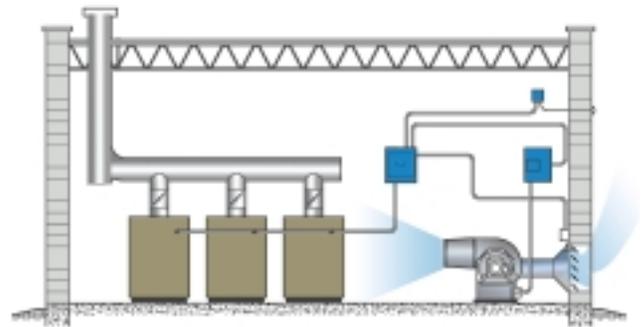
- Interlocks 4 additional heaters. Add up to 3 EXP-4E's for a total of 16 heaters.
- Expansion modules include communications and power leads.



Specify CPC-3 controlled combustion air systems

Traditional combustion air delivery methods don't complement new heater designs:

- Wind speed and direction can negatively affect the volume of combustion air supplied.
- In cold climates, uncontrolled air entering traditional louvers can lead to frozen pipes.
- Sealed combustion heaters are designed for dedicated combustion air ducts, not shared ductwork.
- Large louvers can be a security risk.



Count on Tjernlund for outstanding technical support

Assistance is available by phone:
800.255.4208, Email: fanmail@tjfans.com
or on the Internet at www.tjernlund.com

A key part of our products is the support that we provide throughout the specification, submittal, installation and operating life.

Typical value added support that we offer includes:

- Application assistance
- Inducer/blower selection calculations for draft and combustion air
- Vent and duct diameter selection
- Control and Interlock wiring diagrams
- System commissioning
- System troubleshooting
- Consistently stocked product and parts

Represented by:



Our Sales Engineers are available M-F 7:30 to 4:30 PM CST.

Tjernlund is represented by over 50 sales offices for local assistance.



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