



Penn Commercial Refrigeration Controls



Smart. Sophisticated. Complete.

The power behind **your mission**





PENN® control products bring you a full range of solutions for temperature, pressure and air flow controls.



Commercial refrigeration

Explore cost-effective solutions to keep walk-in coolers, freezers and reach-in cases performing reliably.

Avoid product loss, extend equipment life, and meet energy efficiency goals with dependable PENN commercial refrigeration controls.



Evaporator control

Optimize use of refrigerant with precision evaporator controls that help you keep refrigeration equipment running reliably and energy-efficiently.



Refrigerated cases

Meet operating requirements for refrigerated cases in retail and other environments, protecting your products and your investment in equipment.



Condenser control

Control pressure, temperature and flow to keep condensers running efficiently in changing load and ambient temperature conditions.



Walk-In coolers and freezers

Temperature control is key to cost-effective operation of walk-in coolers and freezers. Keep fans running, protect compressors and detect refrigerant leaks.



Convenience stores

Convenience stores have unique refrigeration needs, from beverage coolers and beer caves to deli cases and reach-in displays. Proper equipment controls can make a visible difference at the bottom line.



Supervisory controls

Discover easy-to-use controls that maximize efficiency and savings for HVAC, refrigeration, and lighting equipment.

Verasys® building controls are the first plug-and-play system, empowering you to configure a vast array of controls without tools or engineering, for one building or an entire enterprise.

Coolness, controlled

TC series

Remove the risk of guesswork with PENN TC Series Refrigeration and defrost Controllers, a full line of microprocessor-based, programmable operating controls for commercial refrigeration equipment.

Reputation is at stake every time food and beverages are served, and that's why maintaining ideal product temperature is key. PENN TC Series controllers are designed to easily and efficiently maintain optimal temperature in commercial refrigerators, prep tables and freezers.

Equipped with capacitive touch keys and a large LED display, PENN TC Series controllers are designed with optional inputs and corresponding output relays to control and optimize refrigeration system performance.

Depending on the model, a TC Series controller can manage the defrost cycle (active or passive), evaporator fan and alarm functions, and case lighting - a lot of power from a single smart device.

TC Series controllers are designed for panel mounting with included snap-in brackets. All TC controllers use industry standard NTC type temperature sensors, which are available with various IP ratings and cable lengths.

TC3 controller models are available with built-in RS485 Modbus communications or the option of adding communications with a TCIF adapter. This full line of microprocessor-based, programmable case temperature controllers offers three platforms and a host of options.

Patented capacitive touch keys and a large LED display increase programming ease and accuracy. Input/output options can extend control to system components such as fans and lights.

It's coolness, controlled—your way.



Food service

Keep foods safe and avoid spoilage with precision temperature and monitoring controls.



Heating/Cooling control

Keep hot foods hot and cold foods cold—efficiently and cost-effectively.



Beverage

Brewing processes require precision performance, and PENN controls deliver.



Fermentation control

Achieve and maintain proper temperatures to ensure consistent results.



Temperature control

Stay on top of changing temperatures to protect products and processes.

Capillary and space thermostats

A19 and A28 Capillary and space thermostats

These thermostats are available with fixed or adjustable differential. The various control ranges cover a broad range of temperature applications with a minimum number of models.

On request a built-in high or low limit stop is possible and can be adjusted quickly and easily in the field. All models have a universal way of adjustment.

For this purpose a knob and sealing cap are enclosed.

- Liquid filled sensing element
- Dust tight Penn switch
- Front adjustment



Freeze protection

270XT Mechanical thermostats, IP30

These controls are designed for protection against freeze up of hydronic heating coils, cooling coils and similar application.

Sensing element is 3 or 6 meters long to permit attaching across the surface of a coil to guard against freezing at any point. When any 30 cm or more of this element senses a temperature as low as the control setpoint, it will "switch off".

A special version is available with bulb and 2 m capillary, range 24 to 18 °C for clamp on or immersion purposes.

SPDT change over contacts permit the use of an alarm signal.

- Dust tight PENN switch
- SPDT contacts
- 270XTAN provided with trip-free manual reset
- Controls have adjustable range





HVAC

Find the controls you need for your application or environment to increase efficiency, enhance reliability and promote productivity.



Heating

Ensure dependable operation of commercial and industrial process equipment.



Cooling

Explore rugged, sustainable solutions that promote operational efficiency.



Humidity Control

Humidify and dehumidify as appropriate to enhance equipment operation.

Condenser fan speed controller

P315 Direct-mount pressure actuated for EC motors

The P315 models are designed for speed variation of electronically commutated (EC) motors. Head pressure control of a refrigeration system, through speed variation of the fan on an air-cooled condenser, results in optimum performance throughout the year.



P215PR Direct-mount single phase controller

These controllers are designed for speed variation of single-phase motors, especially for fan speed control on air cooled condensers.



Head pressure control of a refrigeration system, through speed variation of the fan on an air-cooled condenser, results in optimum performance throughout the year.

P216 Condenser fan speed controller

A pressure actuated device, gives the most direct and fastest response to pressure variations in the refrigerant system.

The controller varies the supply voltage to the motor from 30% to at least 95% over the proportional band using the phase cutting principle.



P266 Pressure Actuated Single Phase Digital Controller

The P266 is a cost-effective, weather-resistant, durable motor speed control.



It is designed for approved single-phase, Permanent Split-Capacitor (PSC) motors commonly used in a wide variety of refrigeration and air conditioning condenser fan applications.



Agriculture

From drying crops to raising animals, PENN controls help increase efficiency and sustainability while managing operational costs.



Drying control

Crop-drying controls streamline the process, enhancing safety, and increase energy efficiency, improving operational costs.



Animal husbandry

Appropriate temperature ranges can promote increased productivity, protecting stock and optimizing water use.

Electronic pressure transducer

P599 series

The P599 series is compact, economical, rugged, direct-mount pressure transducers designed for use in commercial and industrial refrigeration and air conditioning applications. These transducers provide a proportional analog signal based on the sensed pressure.

The P599 series transducers feature environmentally protected electronics with stainless steel construction.

The digitally compensated P599 transducers are highly accurate over a broad temperature range, resisting the effects of wide ambient temperature swings, high humidity, condensation and icing.

- Industrial duty design
- 10 million plus full scale pressure cycle rated life span
- Approved for today's refrigerants
- Environmentally protected electronics
- Wetted materials approved
- ATEX certified



Adjustable oil protection switch

These controls are designed to give protection against low net lube oil pressure on pressure lubricated refrigeration compressors.

These controls measure the pressure differential between the pressure generated by the oil pump and the refrigerant pressure at the crankcase.

A built-in time delay switch allows for pressure-pick up on start and avoids nuisance shutdowns on pressure drops of short duration during the running cycle. When the compressor is started, the time delay switch is engaged.



P28
Oil protection



Adjustable differential pressure switch

P232 and P233 Sensitive differential

This (differential) pressure switch is used to sense flow of air, single or differential air pressure.

The series P233A/F can also be used to detect small positive gauge pressure or to detect a vacuum.

- Easy to read setpoint scale
- Large wiring space
- Versatile mounting options



P74 Differential pressure

These controls are designed to sense pressure differences between two points and may be used as operating or limit controls.

Typical applications are to detect flow across a chiller or water cooled condenser, to detect flow in a heating system and sensing lube oil pressure differential on refrigeration compressors. The P74 series incorporate two opposing pressure elements and an adjustable range setpoint spring with a calibrated scale.

Process control and manufacturing

Keep equipment operating reliably, safely and efficiently, supporting consistent outcomes from process start to finish.



Heating

Ensure dependable operation of commercial and industrial process equipment.



Boiler control

Safety, efficiency and sustainability are essential to effective boiler operation, and PENN controls deliver.



Modulating water valves

Pressure actuated valves for commercial applications

V46, 2-way

These valves control the quantity of water to a condenser by directly sensing pressure changes in a refrigerant circuit. They can be used in non-corrosive refrigerant systems. Valves designed for salt-water applications are available.



V48, 3-way

These water valves are especially designed for condensing units cooled either by atmospheric or forced draft cooling towers. They may be used on single, or multiple condenser hook-ups to the tower.

Flow control

Maintain proper flow of air or liquid to support processes and protect equipment.



Ventilation controls

Ensure the proper environment for safe, efficient equipment operation and process completion.

Adjustable pressure switches

The P77, P78, P735 and P736 series pressure controls may be used for control functions or limit functions, depending on model number.

All models are provided with alarm contacts.

All standard models have phosphor bronze bellows and brass pressure connections.

Models for use with ammonia are provided with stainless steel bellows and connectors.



ATEX-certified P77X and P78X adjustable pressure switches offer superior reliability and safety for most common refrigerants and flammable options used in HVAC/R systems.

The robust, long-lasting enclosure construction and generous wiring space provide extra peace of mind in hazardous environments.



Data centers

Use PENN controls to support best practices in maintaining data center environments—enhancing security while increasing efficiency.



Cooling control

Keep data center cooling equipment operating reliably and securely.

Flow control

Control the flow of fluids or air for efficient, reliable, safe equipment operation.

Flow switch for liquid

The F261 liquid flow switches can be used in liquid lines carrying water, sea water, swimming pool water, ethylene glycol or other liquids not harmful to the specified materials.

F261



F262

Air flow switch

The F262 series detect airflow or the absence of airflow by responding only to the velocity of air movement within a duct.

The single-pole, doublethrow (SPDT) switch can be wired to open one circuit and close a second circuit for either signaling or interlock purposes.

Airflow failure during the normal operation of air handling systems may cause overheating, coil icing, or other conditions that may be detrimental to the equipment.

Compact, lightweight and reliable

P100

Encapsulated pressure controls

Compact, lightweight, accurate, and easy to install, our ATEX-certified P100 series encapsulated pressure controls are available in a wide variety of pressure connection styles, electrical ratings, and switch actions.

Compatible with most common natural and flammable refrigerants and typically used for low- and high-pressure controls, our P100 series can be tailored to fit switch point requirements for commercial HVAC/R applications.

The P100 Controls may be used for control Computer room air conditioning, Refrigeration/Air conditioning condensers, Commercial refrigeration, Ice machines, Food service equipment.



- Compact size and light weight
- Encapsulated, dust tight switch IP67
- Broad variety of electrical and pressure connections
- Manual reset models have a trip-free design
- Models with gold-plated contacts available upon request
- Approved according to PED 2014/68/EU Cat. IV
- ATEX Certified models available

Field and cold room controllers

System 450

Modular Electronic Controls

System 450™ is a family of modular, digital electronic controls that is easily assembled and set up to provide reliable temperature, pressure, and humidity control for a wide variety of Heating, Ventilating, Air Conditioning and Refrigeration (HVACR) and commercial/industrial process applications.

The System 450 control system is designed to replace System 27 modular control system, and provide many additional features and benefits with less than a dozen model variations. All System 450 control modules are multipurpose and field configurable out-of-the-box; each module is designed for use in temperature, pressure, and humidity systems. A System 450 control system can be easily assembled and configured to monitor and control temperature, pressure, and humidity simultaneously.

A single C450 control module can be set up as a stand-alone control or connected to expansion modules to control up to ten outputs based on any of the three available inputs. A control system may consist of relay outputs (Single-Pole, Double-Throw [SPDT]), analog outputs (0–10 VDC or 4–20 mA), or any combination of relay and analog outputs.

- Durable, compact modular design with plug-together connectors and DIN rail or direct wall mount capability
- Multipurpose, field-configurable modules designed for global use
- Backlit Liquid Crystal Display (LCD) and four-button touchpad user interface
- Up to three inputs and up to ten outputs (relay or analog)
- Versatile, all-in-one, stand-alone control modules
- An extensive suite of compatible temperature and humidity sensors as well as pressure transducers
- High input signal selection
- Differential control
- Adjustable user-defined reset setpoint (C450R only)
- Adjustable minimum and maximum setpoint temperature (C450R only)
- Selectable warm weather shutdown temperature (C450R only)
- Adjustable setback temperature (C450R only)





About Johnson Controls:

At Johnson Controls, we transform the environments where people live, work, learn and play. From optimizing building performance to improving safety and enhancing comfort, we drive the outcomes that matter most. We deliver our promise in industries such as healthcare, education, data centers and manufacturing. With a global team of 100,000 experts in more than 150 countries and over 130 years of innovation, we are the power behind our customers' mission. Our leading portfolio of building technology and solutions includes some of the most trusted names in the industry, such as Tyco®, YORK®, Metasys®, Ruskin®, Titus®, Frick®, Penn®, Sabroe®, Simplex®, Ansul® and Grinnell®.

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