

Energy Monitoring Power Conditioner & Controller 200

- > Rack-mountable power conditioner and controller
- > Eight switched rear panel outlets, arranged in banks of two
- > Adjustable turn-on delay and remote switching per each of three banks
- > One unswitched front panel outlet
- > Built-in current sensing and energy monitoring
- > Line voltage monitoring
- > Professional grade surge protection
- > UL® 1449 Type 3 compliant
- > Thermal breaker overload protection
- > Adjustable over-voltage and under-voltage cutoff
- > EMI and RFI noise filtering
- > Wiring fault detection^[3]
- > Ambient temperature sensing and over-temperature cutoff
- > Ping monitoring (device lockup detection and reboot)
- > Built-in energy usage and event logging
- > Front panel main power switch and status indicators
- > Easy setup and operation via web browser
- > Crestron® control system integration via Ethernet or Cresnet®
- > Remote management via MyCrestron.com, Crestron Fusion® Cloud, or SNMP^[2]
- > Single-space 19 inch rack-mountable
- > Rated 15 Amps at 120 Volts AC
- > Limited Lifetime Product Warranty
- > Limited 5 Year Connected Equipment Protection Warranty



The PC-200 is a professional grade, rack-mountable power conditioner and controller designed to provide 120 Volt AC power distribution, switching, surge protection, noise filtering, and energy monitoring for **Crestron® control systems**, AV systems, computers, and other equipment. Eight switched outlets are provided on the rear panel, plus a single unswitched convenience outlet is provided on the front. All nine outlets are protected, filtered, and monitored. The switched outlets are arranged in four banks of two, three of which are turn-on delay-adjustable when controlled from the front panel power switch. The same three outlet banks are also individually controllable via a control system to enable selective switching of devices, on/off power sequencing, load-shedding, and other custom power control functionality.^[1]

Built-in RMS voltage and current monitoring enables logging and reporting of the line voltage, current, power, and energy usage at the input. An external temperature sensor is included to keep tabs on heat conditions within the equipment rack or room. Network connectivity allows for setup and operation using a web browser, with extensive custom control and monitoring capabilities enabled through integration with a Crestron control system, the MyCrestron.com residential monitoring service, the Crestron Fusion® Cloud enterprise management service, or an SNMP client.^[1,2]

Power Conditioning

A quality power conditioner is an essential component of any professional system to prevent sudden equipment failure due to lightning and electrical disturbances, to prolong the lifespan of that equipment, and to maximize overall system performance during everyday operation. The PC-200 includes the following power conditioning features:

- **Surge Protection** — Provides protection against surges and spikes in the AC power line caused by lightning and other electrical disturbances
- **Under/Over Voltage Cutoff** — Shuts off power to the rear panel outlets if the line voltage strays beyond the normal operating range, which is adjustable on the PC-200
- **Thermal Breaker** — Disrupts power to all outlets in case of an overload condition
- **EMI/RFI Noise Filtering** — Prevents electromagnetic and radio frequency interference that can negatively impact sound and video quality
- **Wiring Fault Detection** — Detects faulty wiring of the incoming AC power line and shuts off power to the rear panel outlets until the fault is corrected^[3]

Four-Stage Adjustable Turn-On Delay

The switched outlets on the PC-200's rear panel are arranged in four banks, with two outlets per bank. When operated by its front panel power switch, the first bank turns on immediately while the other three banks can be configured to turn on in any order according to the delay time set for each bank. Each bank is independently adjustable to provide up to 10 seconds of delay before turning on, ensuring that the connected equipment gets powered up in proper order with sufficient time for each piece to stabilize. This helps to prevent dangerous transients that can damage delicate components and potentially trip the main circuit breaker. It can also help to prevent audible pops and thumps through connected audio equipment at power-up. Delayed turn-on is initiated by turning on the front panel power switch, or by applying power to the main line input following a power outage or through an externally switched circuit.

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Front View



Rear View

Three Remote-Controllable Switched Outlet Banks

When connected to a local area network, three of the four outlet banks on the PC-200's rear panel can be turned on or off independently using a web browser or control system. The other bank is always on as long as the front panel switch is turned on. This energy-saving feature allows select components to be powered down when not needed. Through integration with a control system, custom functionality can be programmed to enable control from a [touch screen](#), [keypad](#), [remote](#), or [mobile device](#). Sequential power-up and power-down functionality can be enabled through programming of the control system. For systems employing a backup generator or UPS, load-shedding can be performed to shut down unnecessary components during a power outage.^[1]

Energy Monitoring

By sensing the incoming line voltage and the total device load, the PC-200 facilitates a host of solutions for monitoring, automating, and troubleshooting a system.

- Voltage monitoring allows fluctuations in the power line to be tracked and logged, helping to identify and document problems with the power utility or building wiring.
- Energy monitoring provides the real power consumption (watts), current draw (amps), and energy usage (watt-hours) for all of the connected devices combined.
- By connecting and testing one component at a time, the PC-200 allows power-hungry equipment to be identified and replaced with more efficient equipment.
- High inrush current devices can be identified to assist in optimizing the configuration of power sequencing schemes.
- Overall energy usage can be tracked and logged to identify trends and reform energy-wasting behaviors.
- System usage can be tracked to inform the scheduling of maintenance and future purchasing decisions.
- An alert notification can be sent if there's a sudden or abnormal drop in current draw, potentially indicating a device has been shut off improperly or disconnected due to theft (effective only when outlets are switched on).

Ambient Temperature Sensing

The PC-200 offers a complete equipment protection solution by monitoring the ambient temperature within the equipment cabinet or room to prevent overheating. The included temperature sensor connects to the rear of the PC-200 and features a choice of magnetic or adhesive mounting for easy placement within a typical equipment rack enclosure. The over-temperature cutoff threshold can be set to shut down power to the system if conditions exceed a safe operating temperature. Through a control system, the temperature measurement can be utilized to regulate the operation of cooling fans or air-conditioning equipment to keep equipment running cool.

Ping Monitoring

No matter how well a system is designed and programmed, even the finest control system or computer has the potential to lock up and stop responding once in a while. The PC-200 can be configured to detect an unresponsive device by sending it a ping command at regular intervals. If the ping request is not returned after four tries, the outlet bank feeding the monitored device cycles off and on to reboot the device, quickly restoring normal operation without any human intervention.

Built-In Logging

Events such as power surges, over/under voltage conditions, over-temperature conditions, ping failures, outlet switching activity, and sudden changes in current draw (indicative of a device being improperly shut off or disconnected) can all be logged as they occur to document the time and cause of problems and to track system usage. All sensor readings are logged at a configurable interval as short as five seconds providing a minimum of one week's worth of data. Logs can be retrieved periodically to record a detailed history of events and energy usage over time.

Remote Management & Control

The PC-200 integrates neatly into any system or facility. Used alone, it can be set up and managed through a web browser. It can also be configured to send email notifications in case of certain specified events. Integration with the MyCrestron.com residential monitoring service provides a cloud based solution for homeowners to monitor and manage the PC-200 as part of a complete Crestron home automation system. Or, [Crestron Fusion Cloud](#) provides an enterprise solution for corporations and universities to manage rooms using the PC-200 throughout a building or campus. Built-in SNMP support enables integration with third-party IT management software,

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allowing network administrators to manage one or many networked PC-200s in an IT-friendly format. And of course, the PC-200 can be integrated with a Crestron control system via Ethernet or Cresnet® to enable control and monitoring through a touch screen, handheld remote, or mobile device.^[1,2]

UL® 1449 Certified

The PC-200 has been tested and certified by UL as compliant with the UL 1449 safety and performance standard for surge protective devices (SPD).

SPECIFICATIONS

Power Conditioner

Maximum Output Current, Total: 15 Amps @ 120 Volts AC
Maximum Output Current, Per Outlet/Bank: 15 Amps @ 120 Volts AC (subject to a maximum total output current of 15 Amps for all outlets combined)
Filtration: 40 dB @ 100 kHz, 50 dB @ 300 kHz, with 50 Ohm load
Surge Protection Modes: L-G, L-N, N-G
Surge Protection Shutoff: Shuts off rear outlets if surge protection is compromised
Energy Dissipation: 2000 Joules per Mode
Clamping Voltage: 370 Volts
Clamping Time: 1 ns
Wiring Fault Detection: Shuts off rear outlets if a wiring fault is detected at the input^[3]
Voltage Sensing Range: 90.0 to 160.0 Volts rms $\pm 1\%$, measured at input
Current Sensing Range: 0.4 to 15.0 Amps rms $\pm 1\%$ (resistive), measured at input
Ambient Temperature Sensing Range: -13.0° to $221.0^{\circ} \pm 4^{\circ}$ F (-25.0° to $105.0^{\circ} \pm 2^{\circ}$ C)
Under Voltage Cutoff: Adjustable 90 to 110 Volts, shuts off rear outlets if input drops below set value
Over Voltage Cutoff: Adjustable 130 to 147 Volts, shuts off rear outlets if input exceeds set value
Over Temperature Cutoff: Adjustable -13.0° to 221.0° F (-25.0° to 105.0° C), shuts off rear outlets if input exceeds set value
Turn-On Delay Adjustment: 0.1 to 10.0 seconds, adjustable per each of rear outlet banks "DELAYED ON 1 – 3"

Power

Line Power: 15 Amps @ 120 Volts AC, 60 Hz
Cresnet Power Usage: 0 Watts

Communications

Ethernet: 10/100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, TCP/IP, UDP/IP, CIP, DHCP, SSL, TLS, SNMP, web server, SMTP e-mail client, web browser setup and control, Crestron control system integration, Crestron Fusion Cloud monitoring, MyCrestron.com monitoring^[2]
Cresnet: Cresnet slave mode

Connectors

120V~ 15A 60Hz: (1) Attached 9.8 ft (3 m) grounded AC power cord with NEMA 5-15P plug, line power input
SWITCHED ON 1: (2) NEMA 5-15R AC power outlets; Locally switched 120 Volt AC power outlet bank
DELAYED ON 1 – 3: (6) NEMA 5-15R AC power outlets; Comprises three banks of two switched 120 Volt AC power outlets; Locally switched with adjustable turn-on delay per bank; Remote switchable per bank
TEMP: (1) 2-pin 3.5 mm detachable terminal block; Connection for external temperature sensor (included)
Y, Z, G: (1) 3-pin 3.5 mm detachable terminal block; Cresnet slave port
LAN: (1) 8-pin RJ45 jack; 10Base-T/100Base-TX Ethernet port
G: (1) 6-32 screw; Chassis ground lug
ALWAYS ON (front): (1) NEMA 5-15R AC power outlet; Unswitched 120 Volt AC power outlet

Controls & Indicators

PWR: (1) Bi-color green/amber LED, indicates line power is present, illuminates amber when the power switch is off and while booting, illuminates green when the power switch is on and the unit is operating normally, turns amber if the rear outlets have been shut off due to a fault condition
FAULT: (1) Red LED, indicates any of the following fault conditions: surge protection is compromised, line and neutral are reversed, or no ground is detected^[3]
PROTECT: (1) Green LED, indicates surge protection is fully functional
SHUTDOWN: (1) Amber LED, indicates power to the rear outlets is shut off due to an over-voltage, under-voltage, over-temperature, line input miswire, missing ground, or compromised surge protection fault condition
HW-R: (1) Recessed pushbutton, initiates a hardware reset of the internal CPU (does not affect outlets)
SETUP: (1) Recessed pushbutton & red LED, for touch-settable ID (TSID) and Ethernet autodiscovery
Power Switch: (1) Rocker switch, "On" position initiates turn-on delay sequence to the rear panel outlets, "Off" position turns all rear outlets off immediately
THERMAL BREAKER (rear): (1) Disrupts power to all outlets in case of an overload condition, press to reset after overload condition is resolved
LAN (rear): (2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity

Environmental

Temperature: 32° to 113° F (0° to 45° C)
Humidity: 10% to 90% RH (non-condensing)

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Construction

Chassis: Steel, black finish

Front Panel: Extruded aluminum, black finish, polycarbonate label overlay

Mounting: 1 RU 19-inch rack-mountable (rack ears included)

Temperature Sensor: Adhesive or magnetic mount, 9.8 ft (3.0 m) attached lead

Dimensions

Height: 1.73 in (44 mm)

Width: 17.32 in (440 mm), 19.00 in (483 mm) with rack ears

Depth: 10.56 in (269 mm)

Weight

8.2 lb (3.8 kg)

Compliance

UL 1449 Type 3 Listed

MODELS

Available Models

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Notes:

1. Crestron control system and custom programming sold separately.
2. Email notification and direct integration with MyCrestron.com, Crestron Fusion, and SNMP will be enabled through a future firmware update. Alternately, these services can be integrated now through a Crestron control system with custom programming.
3. Detects most input line wiring faults. Does not detect neutral/ground reversal. Does not discern between ground connections at the AC power line, chassis, or connected equipment (a ground connection at any point will be detected by the PC-200 as normal). The installer is responsible for proper wiring and grounding of this and all connected equipment according to applicable electrical codes, accepted guidelines, and best practices. Proper wiring and function of the AC power source should be verified prior to connecting the PC-200 or any other equipment. Use of this product does not negate the responsibilities of the installer and end-user to exercise all appropriate and required measures for safe and reliable installation and operation.

This product may be purchased from an authorized Crestron dealer. To find a dealer, please contact the Crestron sales representative for your area. A list of sales representatives is available online at www.crestron.com/salesreps or by calling 800-237-2041.

The specific patents that cover Crestron products are listed online at: patents.crestron.com.

Certain Crestron products contain open source software. For specific information, please visit www.crestron.com/opensource.

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