Pow-R-Command

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An Eaton Green Solution

Pow-R-Command Family

Contents

An Eaton Green Solution

Product Overview

Pow-R-Command™ is a lighting control and energy management system that integrates branch circuit protection, control (switching and dimming) and metering into a single panelboard enclosure. The integrated design simplifies electrical distribution and control systems design, and eliminates separate equipment enclosures and associated wiring. Other benefits include reducing equipment wall space, installation labor and total installed cost. Pow-R-Command systems are designed to meet or exceed ASHRAE, IECC and LEED® requirements.

Pow-R-Command Intelligent Panelboards use Eaton Pow-R-Line® 1a and 2a lighting panelboard platforms to mount Pow-R-Command electronics and solenoid-operated controllable circuit breakers. Panelboard mains include 100 A to 400 A main lug and main circuit breaker configurations. Available voltages include 120/240, 208Y/120 and 480Y/277, single-phase and three-phase.

Panelboard options include installation of controllable and non-controllable circuit breakers, 200% rated neutral, metering and surge protection devices (SPDs).

Pow-R-Command intelligent lighting control panelboards are assembled in two basic configurations, Pow-R-Command Master and Expansion Panelboard. Pow-R-Command Master Panelboards are designed for standalone and networked systems. Master Panelboard components include controller with low-voltage power supply, Breaker Control Bus (BCB) and solenoid-operated controllable circuit breakers. Expansion Panelboards (PRCEP) are designed to directly connect to Master Panelboard via controller SLAN communications. Expansion Panelboard includes BCB and solenoid-operated controllable circuit breakers. Pow-R-Command systems are scalable using both Master and Expansion Panelboards to provide the right amount of control with reduced installed cost.

System Electronics

The 5th generation PRC "E" Series controller family includes PRC2000E, PRC1000E and PRC750E models. Specifiers and users select the controller to meet specific control and communication requirements. PRC-E controllers offer a broad range of schedule and occupant-based control. Network options include RS-485 and Ethernet. PRC-E controllers communicate with each other using powerful Pow-R-Command peer-to-peer protocol. All PRC-E controllers can be programmed, monitored and overridden using the onboard web pages through the controller maintenance Ethernet port using an industry standard patch cable. The PRC2000E model includes access to onboard web pages through the Ethernet network connector. PRC2000E model includes BACnet/IP for simple and straightforward integration with building management systems. All Pow-R-Command controllers can control up to 168 solenoid-operated controllable circuit breakers by connecting PRCEP panelboards using the controller SLAN sub-network communications port.

Breaker Control Bus electronics come in 9-, 15- and 21-circuit lengths depending on the size of the panelboard and are directly mounted to panelboard interior rails. BCBs are connected to the controller SLAN via 4-conductor cable and act as the interface between controller and controllable circuit breaker for providing status and control. Onboard power switching circuitry signals the controllable circuit breaker solenoid to switch the controllable circuit breaker ON and OFF. Each BCB is addressable between 1 and 8, allowing the controller to monitor and control up to 168 controllable circuit breakers. Pow-R-Command panelboards are assembled with one or two BCBs to offer the right amount of control.

Controllable Circuit Breakers

Controllable circuit breakers include standard circuit protection and control. Solenoid mechanism provides control, mechanical and electronic status and override lever. Controllable circuit breakers are available in 15–30 A, single-pole and two-pole configurations and are suitable for electrical distribution systems up to 480Y/277 Vac. Emergency lighting controllable circuit breakers are two-pole devices used for controlling dual purpose emergency lighting fixtures, Device includes non-switched pole to maintain power on the battery power sensing circuit and the second pole is controllable to switch the load ON and OFF.

Accessories

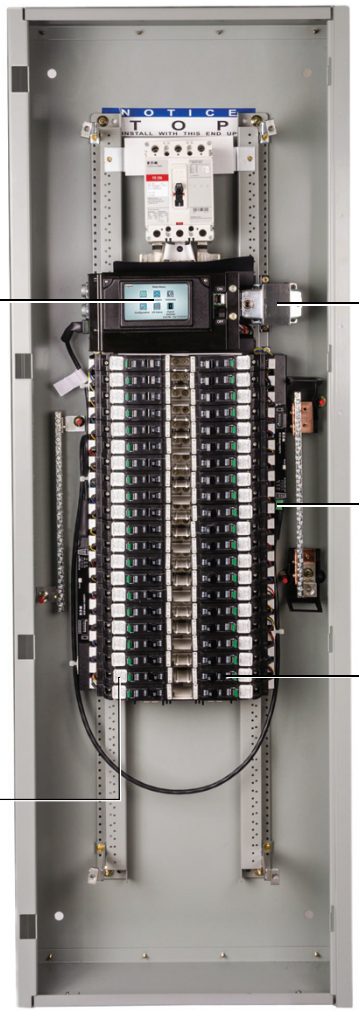
Pow-R-Command system accessories include override switches, analog I/O expansion module, switch override controller, master building lighting controller and communications devices.

Software

PRCE series controllers include an embedded web server. PRC systems are configured, programmed and monitored via a commonly used web browser. PRC Lighting Optimization Software (PRCLOS) is only recommended for remote connection to PRC1000E controller or existing legacy PRC100 and PRC1000 systems. Consult factory for more information.

Features

Pow-R-Command Master Panelboard Mounted Components



PRC-E panelboard system is controlled and monitored by microprocessor-based controller. Onboard time clock provides schedule-based control. Digital inputs are used for connecting low-voltage wallstations and occupancy sensors for override control. Analog I/O used for dimming and daylight harvesting control. Light level sensors are connected to analog inputs. Both fluorescent and LED lighting fixtures equipped with 0–10 Vdc dimming circuitry are connected to controller analog outputs. PRC-E controllers include backlit color LCD touchscreen and Maintenance Port for local programming, system monitoring and override control. User can locally access controller by connecting PC to controller front panel Maintenance Port using industry standard patch cable. Ethernet and RS-485 network connections located in controller low-voltage compartment provide remote access options.

Standard circuit breakers can be mounted to feed non-controlled loads.

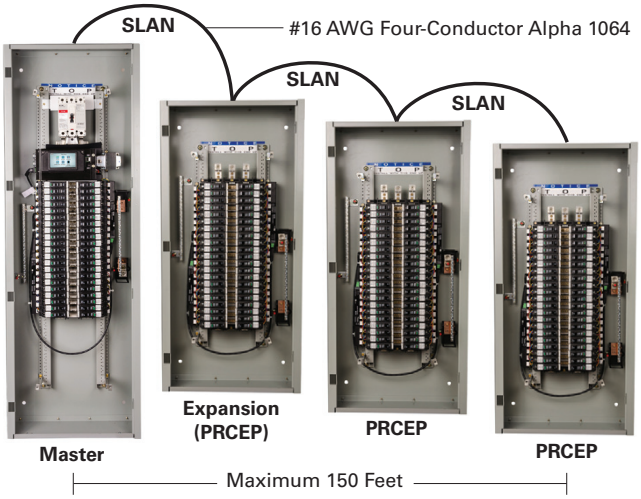
Low-voltage regulated power supply provides stable power for system electronics and reliable switching of solenoid-operated controllable circuit breakers.

Breaker Control Bus (BCB) electronics provide the control and monitoring interface between Pow-R-Command controllers and solenoid-operated controllable circuit breakers.

Single- and multi-pole solenoid-operated controllable circuit breakers provide branch circuit protection and control of connected loads.

Pow-R-Command Expansion Panelboard

Expansion Panelboard (PRCEP) includes Breaker Control Bus electronics and solenoid-operated controllable circuit breakers. Master and Expansion Panelboards are connected via SLAN communications sub-network to provide a scalable system architecture for cost-effective control solutions.



Consult factory for applications requiring longer distances.

Pow-R-Command Controllers

Pow-R-Command intelligent lighting control panelboards integrate branch circuit protection and control into a single panelboard enclosure to eliminate the need for mounting external time clocks with contactors or relay panels. Three 5th generation PRC-E series controller models are available to allow users and specifiers to select the controller that best fits the application.

PRC750E

- Microprocessor-based programmable lighting control system intended for standalone applications
- Designed with the electrical contractor in mind, it offers integral back-lit color LCD touchscreen display for simple, straightforward commissioning and startup
- Front panelboard programming can also be achieved by connecting the controller Maintenance Port to a laptop using an industry standard Ethernet patch cable
- Preconfigured web pages can be used to program, monitor and override the system
- Control options include schedule-based, occupant override and photocell control
- Sixteen two-wire low-voltage inputs are available for connecting wall stations, occupancy sensors and photocells
- Each controller can be connected to three Expansion Panelboards via SLAN communications to control and monitor up to 168 solenoid-operated circuit breakers

PRC1000E

PRC1000E is intended for use on existing PRC1000E, PRC1000 and PRC100 systems. Device includes all the features of the PRC750E controller with the addition of:

- Up to 120 controllers can be connected to the same Pow-R-Command RS-485 peer-to-peer network
- Powerful peer-to-peer protocol and network architecture allows schedules and external wiring device signals to be broadcast over the network to control any or all of the solenoid-operated controllable circuit breakers connected to the system. This system capability eliminates the need for changing the same schedule in multiple panelboards and requiring additional wiring devices to be directly connected to specific controllers
- Eight universal inputs can be programmed to accept either digital or analog external wiring devices. Compatible with low-voltage digital wiring devices like wall stations, occupancy sensors and photocells when programmed as digital inputs. When programmed as 0–10 Vdc analog inputs, indoor and outdoor photosensors can be connected for dimming and daylight harvesting applications
- Eight analog 0–10 Vdc outputs for connecting to fluorescent and LED lighting fixtures equipped with 0–10 Vdc dimming circuitry to meet dimming and daylight harvesting application requirements
- Compatible with existing PRC1000 and PRC100 systems

PRC2000E

Includes all the features of the PRC1000E controller with the addition of:

- Ethernet communications
- BACnet/IP communications protocol for integrating into building management systems
- Remote access to preconfigured web pages for programming, system monitoring and override control via Ethernet network connection
- Compatible with existing PRC2000 systems

Product Selection

PRC-E Controller

Pow-R-Command "E" Series controllers are available in three models and offer a range of features to meet a broad range of applications and meet energy codes.

Each PRC-E controller includes a backlit color LCD touchscreen, SLAN expansion network, schedule-based controls and two-wire low-voltage inputs for connecting occupancy sensors, wallstations and other building control signals.

The PRC-E Controller Selection Guide may be used to quickly identify the controller that best fits the application.

PRC-E Controller Selection Guide



Controller	PRCEP	PRC750E	PRC1000E	PRC2000E
Inputs				
Dry-contact inputs	—	16	8	8
Universal inputs, configurable dry-contact or analog 0–10 Vdc	—	—	8	8
Outputs				
Maximum number of controllable circuit breakers	—	168	168	168
Analog outputs, 0–10 Vdc, 80 mA sink or 40 mA source current ①	—	—	8	8
Power supply to power external devices, 100 mA at 12 Vdc/30 Vac	—	■	■	■
Power supply to power integrated Breaker Control Bus and SLAN V+ and V–	PRCEPP	■	■	■
Inputs and Outputs Accessory Modules				
Analog Expansion Module (PRCEAEM) w/ 8 universal inputs configurable as maintained dry-contact or analog 0–10 Vdc, 8 analog outputs 0–10 Vdc at 80 mA sink or source current ①②④	—	—	8 UI/8 AO ③	8 UI/8 AO
Switch Override Controller (PRCSOC) w/ 60 maintained dry-contact inputs, optional card includes 32 two-wire 24 Vdc outputs for status LEDs ③⑤	—	—	60 I/ 32 O	60 I/ 32 O
Control Logic				
Panelboard configurations include 18, 30, 42, 60, 72 and 84 circuits	—	■	■	■
Maximum number of control groups, 17–250 groups require PRCLOS software configuration	—	16	250	250
365-day time clock	—	■	■	■
Astronomical time clock with sunrise and sunset offsets	—	■	■	■
Schedules	—	250	250	250
Holidays	—	32	32	32
Automatic daylight savings time	—	■	■	■
Circuit breaker blink notice	—	■	■	■
Override time switches	—	■	■	■
Manual dimming and automatic daylight harvesting	—	—	■	■
Configurable source logic (OR, AND, XOR, XNOR, NAND and LAST EVENT)	—	—	■ ③	■

Notes

① Refer to driver/ballast manufacturer specs to calculate maximum connected load.
② Connects to controller MLAN network.
③ PRC1000E requires PRCLOS configuration software.
④ Maximum of seven PRCEAEM (PRC1000E maximum one PRCEAEM) connected to MLAN network.
⑤ Connects to controller RS-485 CNET network.
⑥ Maximum of eight meters with Modbus RTU communications.
⑦ Requires industry standard Ethernet patch cable.

PRC-E Controller Selection Guide, continued



Controller	PRCEP	PRC750E	PRC1000E	PRC2000E
Communications				
Expansion panelboard SLAN	■	■	■	■
Maximum Breaker Control Bus (BCB) per SLAN		8	8	8
Ethernet network	—	—	—	■
BACnet/IP protocol	—	—	—	■
Email notification, user configurable alarms	—	—	—	■
Pow-R-Command RS-485 (CNET)	—	—	■	■
Digital Switch Network (DSN)	—	—	■	■
MLAN communications to Analog Expansion Module (PRCEAEM) ①	—	—	■	■
MLAN communications to metering devices with Modbus RTU communications ②	—	—	—	■
Modbus TCP pass-through metering mode	—	—	—	■
Modbus RTU, Breaker Control Bus addresses 1–16	■	—	—	—
Local Programming				
4.3-inch backlit color LCD touchscreen	—	■	■	■
Front Maintenance Port (Ethernet) access to web server ③	—	■	■	■
PRC Lighting Optimization Software (PRCLOS), Maintenance Port (Ethernet) access ③	—	■	■	■
Password protection	—	■	■	■
Remote Programming				
Remote access to controller web server via Ethernet connection	—	—	—	■
PRC Lighting Optimization Software (PRCLOS)	—	—	■	—
Password protection	—	■	■	—
Memory				
SD card for logs and programming database (GB)	—	4	4	4
Onboard capacitor to power clock chip during power outage (days)	—	10	10	10

Notes

① Maximum of seven PRCEAEM (PRC1000E maximum one PRCEAEM) connected to MLAN network.

② Maximum of eight meters with Modbus RTU communications.

③ Requires industry standard Ethernet patch cable.

Externally Mounted Controllers

Externally mounted controllers (PRCEEC) are available for retrofit and renovation projects when existing panelboards do not have required controller mounting space. Externally mounted controllers include controller and control power transformer mounted in a NEMA 1 enclosure.

Eaton Pow-R-Line 1a and 2a lighting panelboards can be converted to Pow-R-Command Expansion Panelboards (PRCEP) in the field by mounting Breaker Control Bus (BCB) and controllable circuit breakers directly to the interior.

Externally mounted controllers are connected to the retrofitted PRCEP panelboard using the SLAN communications network.

PRCE Externally Mounted Controller

PRCE Externally Mounted Controllers

Controller Type	Connected System Voltage	Catalog Number
PRC750E with display	120 Vac	**PRC750EECD-120**
PRC750E with display	277 Vac	**PRC750EECD-277**
PRC1000E with display	120 Vac	**PRC1000EECD-120**
PRC1000E with display	277 Vac	**PRC1000EECD-277**
PRC2000E with display	120 Vac	**PRC2000EECD-120**
PRC2000E with display	277 Vac	**PRC2000EECD-277**

Breaker Control Bus

Breaker Control Bus (BCB) provides the electronic interface and power switching signal between the controller and solenoid-operated controllable circuit breaker.

BCB comes in three lengths to fit standard lighting panelboards and is mounted to the panelboard interior rails.Each BCB has a set of DIP switches to configure the device SLAN address between 1 and 8. BCBs are connected to the PRC-E controller using PRC-to-BCB and BCB-to-BCB SLAN cables in a daisy-chain network architecture. RUN, SLAN and PWR LEDs indicate BCB operating status.

Breaker Control Bus (BCB)

Breaker Control Bus (BCB)

Description	Controlled Circuits	Part Number	Catalog Number ①
9-circuit Breaker Control Bus	9	1A32374G13	**PRCBCB9R**
18-circuit Breaker Control Bus	18	1A32374G12	**PRCBCB15R**
21-circuit Breaker Control Bus	21	1A32374G11	**PRCBCB21R**

Note

① Includes mounting screws and remote-operated circuit breaker pigtail connector protective caps.

Controller and Breaker Control Bus SLAN Cables

Controller and BCB SLAN cables are used for connecting controllers to associated BCBs.

Each cable type is made in three lengths using Alpha 1064 4-conductor #16 AWG wire.

One pair of wires used for 30 Vac power with the second pair used to transmit and receive communications from connected controller.

Controller and Breaker Control Bus SLAN Cables

Controller and Breaker Control Bus SLAN Cables

Description	Catalog Number
Controller-to-BCB / 42-circuit	**PRCSLAN42**
Controller-to-BCB / 30-circuit	**PRCSLAN30**
Controller-to-BCB / 18-circuit	**PRCSLAN18**
Controller-to-BCB / 42-circuit with right BCB only	**PRCSLAN42R**
Controller-to-BCB / 30-circuit with right BCB only	**PRCSLAN30R**
Controller-to-BCB / 18-circuit with right BCB only	**PRCSLAN18R**
BCB-to-BCB / 42-circuit	**PRCSLAN42B**
BCB-to-BCB / 30-circuit	**PRCSLAN30B**
BCB-to-BCB / 18-circuit	**PRCSLAN18B**

Auxiliary Power Supply

Auxiliary Power Supply (PRCPS) is used to boost power on the SLAN. Master and Expansion Panelboards communicate over the SLAN via Alpha 1064 4-conductor #16 AWG cable. Recommended maximum SLAN length is 150 ft. One pair of wires provides power to BCB for switching controllable circuit breakers with the second pair used for controller to BCB RS-485 communications. The PRCPS can be used to power a single Expansion Panelboard or extend the SLAN an additional 150 ft. The SLAN can be extended up to 4,000 ft by using a PRCPS in each PRCEP.

Auxiliary Power Supply

Auxiliary Power Supply

Description	Catalog Number
PRC power supply 96 VA with 120/277 Vac input and 30 Vac output voltage	**PRCPS**

Controllable Circuit Breakers

GHQRD ①

	Number of Poles	Ampere Rating	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	120/240	277	277/480	Catalog Number
Single-Pole	1	15	65,000	65,000	14,000	—	**GHQRD1015**
		20	65,000	65,000	14,000	—	**GHQRD1020**
		30	65,000	65,000	14,000	—	**GHQRD1030**
Two-Pole	2	15	65,000	65,000	----	14,000	**GHQRD2015**
		20	65,000	65,000	----	14,000	**GHQRD2020**
		30	65,000	65,000	----	14,000	**GHQRD2030**

GHQRSP ②

	Number of Poles	Ampere Rating	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	120/240	277	277/480	Catalog Number
Single-Pole	1	15	65,000	65,000	14,000	—	**GHQRSP1015**
		20	65,000	65,000	14,000	—	**GHQRSP1020**
		30	65,000	65,000	14,000	—	**GHQRSP1030**
Two-Pole	2	15	65,000	65,000	—	14,000	**GHQRSP2015**
		20	65,000	65,000	—	14,000	**GHQRSP2020**
		30	65,000	65,000	—	14,000	**GHQRSP2030**

Notes

① Not recommended for existing PRC25, PRC100, PRC750, PRC1000 and PRC2000 systems. GHQRSP controllable circuit breakers are compatible with these systems.

② Compatible with existing PRC25, PRC100, PRC750(E), PRC1000(E), PRC1500(E) and PRC2000(E) systems. Recommend using GHQRD controllable circuit breakers for PRC-E systems.

BABRSP ①

	Number of Poles	Ampere Rating	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	120/240	Catalog Number
Single-Pole	1	15	10,000	—	**BABRSP1015**
		20	10,000	—	**BABRSP1020**
		30	10,000	—	**BABRSP1030**
Two-Pole	2	15	—	10,000	**BABRSP2015**
		20	—	10,000	**BABRSP2020**
		30	—	10,000	**BABRSP2030**
		40	—	10,000	**BABRSP2040**
		50	—	10,000	**BABRSP2050**

BABRP ②

	Number of Poles	Ampere Rating	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	120/240	Catalog Number
Single-Pole	1	15	10,000	----	**BABRP1015**
		20	10,000	----	**BABRP1020**
		30	10,000	----	**BABRP1030**
Two-Pole	2	15	----	10,000	**BABRP2015**
		20	----	10,000	**BABRP2020**
		30	----	10,000	**BABRP2030**
		40	----	10,000	**BABRP2040**

Notes

① Compatible with PRC25, PRC100, PRC750(E), PRC1000(E), PRC1500(E) and PRC2000(E) systems. Recommend using BABRP controllable circuit breakers for PRC25 systems.

② Compatible with PRC25, MTM6 and MTM4 controllers only. Not compatible with PRC750(E), PRC1000(E), PRC1500(E) and PRC2000(E) systems.

Emergency Circuit Breaker

The GHQRDEL and GHQRSPEL controllable circuit breakers are designed to meet NEC 700.12(F) for sources of power in unit equipment used for emergency lighting applications. The controllable circuit breaker includes both switched circuit for controlling lighting and standard non-switched circuit to provide power to the unit emergency charging and detection circuitry. Controllable circuit breaker includes a common handle tie and a common trip mechanism.

Emergency Circuit Breaker

GHQRD Emergency Circuit Breaker ①

Number of Poles	Ampere Rating	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 277	277/480	Catalog Number
2	15	14,000	—	**GHQRDEL2015**
	20	14,000	—	**GHQRDEL2020**

Emergency Circuit Breaker

GHQRSP Emergency Circuit Breaker ②

Number of Poles	Ampere Rating	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 277	277/480	Catalog Number
2	15	14,000	—	**GHQRSPEL2015**
	20	14,000	—	**GHQRSPEL2020**

Notes

① Compatible with PRC750E, PRC1000E, PRC1500E and PRC2000E systems. Not recommended for existing PRC100, PRC750, PRC1000 and PRC2000 systems. GHQRSPEL controllable circuit breakers are compatible with these systems.

② Compatible with PRC750(E), PRC1000(E), PRC1500(E) and PRC2000(E) systems. Not recommended for existing PRC100, PRC750, PRC1000 and PRC2000 systems. GHQRSP controllable circuit breakers are compatible with these systems.

Pow-R-Command Switches

Digital Switches

Pow-R-Command Digital Switches (PRCDS) are used for occupant override and light level control. PRCDS include digital and analog I/O and 12 Vdc external power source for connecting field wiring devices. The 12 Vdc external power source is used to power an occupancy sensor and digital input for monitoring occupancy status. Analog input is used to connect a light level sensor analog output for controlling lighting equipped with 0–10 Vdc dimming circuitry. Consult factory for maximum number lighting fixtures. Digital switches are connected to controllers' Digital Switch Network (DSN) via CAT6 cable with 23 AWG wire using standard RJ45 connectors. Each controller DSN supports connecting up to 99 digital switches. Onboard rotary switches allow addresses to be set in the field. LED backlit buttons provide real-time breakers and/or groups status. Each digital switch can have a title description using up to 16 characters. Pushbutton labels can have up to four characters. Standard font type is Helvetica regular bold.

Front View

Back View

Six-Button

Six-Button Engraved

Digital Switches ①②

Color	Number of Buttons	Catalog Number
Black	2	**PRCDS2B**
	4	**PRCDS4B**
	6	**PRCDS6B**
White	2	**PRCDS2W**
	4	**PRCDS4W**
	6	**PRCDS6W**
Almond	2	**PRCDS2A**
	4	**PRCDS4A**
	6	**PRCDS6A**
Ivory	2	**PRCDS2V**
	4	**PRCDS4V**
	6	**PRCDS6V**

Notes

① Not compatible with PRC750(E) controllers. Recommended for PRC1000(E), PRC1500(E) and PRC2000(E) controllers.
② Contact factory for custom labeling.

Digital Switch I/O Configuration

Pushbutton Configuration	Analog Input 0–10 Vdc	Digital Input 0–10 Vdc	Analog Output 0–10 Vdc	12 Vdc Output 20 mA Maximum
Two-button	■	■	■	■
Four-button	■	■	■	■
Six-button	■	—	■	■

Digital Switch Network Splitter

Digital Switch Network Splitter (PRCDSNS) is used as a convenient way to split the DSN into 2 legs to span in two directions.

If there are more than 50 Digital Switches connected to a controller, a splitter is recommended.

Consult factory for applications that may require this device.

Digital Switch Network Splitter

Digital Switch Network Splitter

Description	Catalog Number
Digital Switch Network Splitter	**PRCDSNS**

Digital Switch Network Power Injector

Digital Switch Network Power Injector (PRCDSNPI) is used to provide 24 Vac power on the DSN. A PRCDSNPI should be installed on the DSN before every 16th PRCDS or before the total length of DSN reaches 500 ft (whichever comes first).

Digital Switch Network Power Injector

Digital Switch Network Power Injector

Description	Catalog Number
Digital Switch Network Power Injector	**PRCDSNPI**

Low-Voltage Switch

Pow-R-Command Low-voltage Switch (PRCLS) includes momentary dry-contact pushbuttons used for inputs into the controller. PRCLS directly connect to controller digital and universal inputs.

Each PRCLS can have a title description using up to 16 characters. Pushbutton labels can have up to four characters. Standard font type is Helvetica regular bold.

Low-Voltage Switch

Termination Board

Low-Voltage Switch ①

Color	Number of Buttons	Catalog Number
Black	2	**PRCLS2B**
	4	**PRCLS4B**
	6	**PRCLS6B**
White	2	**PRCLS2W**
	4	**PRCLS4W**
	6	**PRCLS6W**
Almond	2	**PRCLS2A**
	4	**PRCLS4A**
	6	**PRCLS6A**
Ivory	2	**PRCLS2V**
	4	**PRCLS4V**
	6	**PRCLS6V**

Switch Wallplates

Fits rocker-style Decorator, Decora style switches. Screwless design is available in black, white, almond and ivory for 1-, 2- and 3-switch designs.

Switch Wallplates

Switch Wallplates

Color	Number of Switches	Catalog Number
Black	1	**PRCSWP1B**
	2	**PRCSWP2B**
	3	**PRCSWP3B**
White	1	**PRCSWP1W**
	2	**PRCSWP2W**
	3	**PRCSWP3W**
Almond	1	**PRCSWP1A**
	2	**PRCSWP2A**
	3	**PRCSWP3A**
Ivory	1	**PRCSWP1V**
	2	**PRCSWP2V**
	3	**PRCSWP3V**

Note

① Consult factory for custom labeling.

Analog Expansion Module

PRCE Analog Expansion Module (PRCEAEM) is used when the required number of analog inputs or analog outputs exceeds the PRCE master controller's maximum number of eight. Each PRCEAEM includes eight universal inputs and eight 0–10 Vdc analog outputs. Universal inputs are used to connect 0–10 Vdc analog devices, such as photosensors. Universal inputs can also accept 2-wire maintained dry-contact devices.

Analog outputs are used to connect LED and fluorescent lighting equipped with 0–10 Vdc dimming control circuitry. There is a maximum of 80 mA sink or source current per analog output channel. The PRCEAEM is shipped in a factory assembled NEMA 1 enclosure with 120 Vac voltage power supply.

PRCEAEM is connected to the PRCE controller MLAN network in a daisy-chain network architecture using Belden 3105A shielded twisted pair cable.

It can be mounted near the controller or remotely to reduce field wiring. Up to a maximum of seven PRCEAEMs can be connected to PRC2000E controllers. PRC1000E controller can accept a single PRCEAEM. Maximum overall network length of 4000 ft. PRCEAEM is configured using the PRC2000E controller web server interface. Pow-R-Command Lighting Optimization Software (PRCLOS) is required when connected to PRC1000E controller.

PRCEAEM Specification

- Eight universal inputs
  - Used to connect 0–10 Vdc analog photosensors or 2-wire maintained dry-contact devices
  - 18 AWG 500 ft maximum distance
- Eight analog outputs
  - Used to connect lighting fixtures equipped with 0–10 Vdc dimming circuitry
  - Maximum 80 mA sink or source current
  - 18 AWG 1000 ft maximum distance
- MLAN RS-485 network
  - Belden 3105A shielded twisted pair in a daisy-chain network architecture
  - 4000 ft maximum overall network length from PRCE controller
- Compatible with PRC2000E (maximum of seven devices) and PRC1000E (maximum of one) controllers
- Configured by using PRC2000E embedded web server or PRC1000E using PRC Lighting Optimization Software (PRCLOS)
- I/O status and control
  - PRC2000E controller web pages
  - PRC1000E controller using PRC Lighting Optimization Software
- Available in NEMA 1 enclosure with 120 Vac power supply (see table below)

PRCEAEM_E

PRCE Analog Expansion Module (PRCEAEM)

Description	Catalog Number
One analog expansion module, NEMA 1 enclosure with 120 Vac power supply	**PRCEAEM1E**
Two analog expansion modules, NEMA 1 enclosure with 120 Vac power supply	**PRCEAEM2E**
Three analog expansion modules, NEMA 1 enclosure with 120 Vac power supply	**PRCEAEM3E**
Four analog expansion modules, NEMA 1 enclosure with 120 Vac power supply	**PRCEAEM4E**

Note: Consult factory for non-standard configurations and enclosures.

Pow-R-Command Switch Override Controller

The Pow-R-Command Switch Override Controller (PRCSOC) can be used to connect digital and analog I/O to Pow-R-Command systems. This device is recommended when controller onboard digital and analog I/O has been exceeded or when there is an advantage to connecting remote I/O via a network connection. The PRCSOC is supplied with the controller, termination board, dual voltage 120/277 Vac power supply in a NEMA 1 enclosure. Optional 32-status LED output card is available.

The PRCSOC is connected to the Pow-R-Command system via the RS-485 network. Status and command signals are sent to the system using Pow-R-Command peer-to-peer protocol. The PRCSOC is configured using Pow-R-Command Lighting Optimization Software (PRCLOS).

All digital and analog I/O is connected using #18 AWG with maximum of 500 ft length. The PRCSOC features include:

- Sixty low-voltage two-wire maintained switch inputs for connecting wall stations, occupancy sensors and control relay outputs from building management systems
- Eight low-voltage two-wire universal (digital or analog) inputs. Analog field devices like light level sensors with 0–5 Vdc outputs can be connected for dimming and daylight harvesting applications
- Three low-voltage 0–10 Vdc analog outputs for controlling fluorescent and LED light fixtures equipped dimming circuitry; maximum of 40 each per output with optional dimmer cables
- Sixteen low-voltage two-wire 24 Vdc outputs to power status LEDs; optional to add 32 low-voltage two-wire 24 Vdc outputs to power status LEDs
- External 15 Vdc power source for powering occupancy and light level sensors and PRC auxiliary devices
- Connects to Pow-R-Command RS-485 network
- Communicates to the system using Pow-R-Command peer-to-peer protocol
- Configured by using Pow-R-Command Lighting Optimization Software
- Provided in a NEMA 1 enclosure
- Not compatible with PRC750(E) controllers

Pow-R-Command Switch Override Controller

Pow-R-Command Switch Override Controller

Description	Catalog Number
PRC Switch Override Controller without power supply mounted in NEMA 1 enclosure	**PRCSOCC**
PRC Switch Override Controller w/ 120/277 Vac power supply mounted in a NEMA 1 enclosure	**PRCSOCEC**
PRC Switch Override Controller w/ 120/277 Vac power supply, pilot output card mounted in a NEMA 1 enclosure	**PRCSOCECO**

Accessories

Ethernet Interface Module

Pow-R-Command Ethernet Interface Module (PRCEIM) allows access to the PRC controller RS-485 network when using a PC connected directly to the EIM Ethernet port or connected on a facility's Ethernet network.

PRCEIM can be used as the master scheduler and includes 250 unique schedules. The PRCEIM can be programmed to sync controller time clocks. This device is connected to the Ethernet network using standard CAT5 cable. The three-pin connector is used to directly connect to the Pow-R-Command RS-485 controller network.

The PRCEIM comes in a table top enclosure and should be physically located near an Ethernet hub or repeater, but the PC can be located anywhere on the Ethernet network. The PRCEIM will communicate at 10BASE-T and must have a fixed IP address assignment on the Ethernet network.

Ethernet Interface Module

Ethernet Interface Module ①

Description	Catalog Number
PRC Ethernet Interface Module mounted in table top enclosure	**PRCEIM**

Note

① Not compatible with PRC750(E) controllers. Recommended for PRC100 and PRC1000(E) controllers.

BACnet Interface Module

Pow-R-Command BACnet Interface Module (PRCBIM-1) is designed for simple BACnet integration without the need for extensive BACnet knowledge. The device maps Pow-R-Command controller points to BACnet/IP points of any RS-485 network connected Pow-R-Command controller. The PRCBIM-1 can map up to 50 points.

These points include status and control of individual controllable circuit breakers and groups of controllable circuit breakers. Input status is also included in the points map. Programming the device is accomplished by using Pow-R-Command Lighting Optimization Software (PRCLOS). The PRCBIM-1 includes two network connections.

The RS-485 connection is used for connecting the Pow-R-Command RS-485 network while the Ethernet 10BASE-T connection is used for connecting to the facility Ethernet network. The device requires a fixed IP address to be configured before connecting to the network.

BACnet Interface Module

BACnet Interface Module ①

Description	Catalog Number
PRC BACnet Interface Module	**PRCBIM-1**

BACnet Shadow Server

Pow-R-Command BACnet Shadow Server (PRCSS) is designed for simple BACnet integration without the need for extensive BACnet knowledge. The PRCSS maps Pow-R-Command controller points to BACnet/IP points. Up to 120 devices can be connected to a system. Each PRCSS has full access to all 150 points of the directly connected Pow-R-Command controller. These points include status and control of individual controllable circuit breakers and groups of controllable circuit breakers.

Input status is also included in the points map. Programming the device is accomplished by using Pow-R-Command Lighting Optimization Software (PRCLOS). The PRCSS includes two network connections. The RS-485 connection is used for connecting the Pow-R-Command RS-485 network while the Ethernet 10BASE-T connection is used for connecting to the facility Ethernet network.

The PRCBIM-1 includes two network connections. The RS-485 connection is used for connecting the Pow-R-Command controller while the Ethernet 10BASE-T connection is used for connecting to the facility Ethernet network. The device requires a fixed IP address to be configured before connecting to the network. Device power is supplied by controller 12 Vdc external power source.

BACnet Shadow Server

BACnet Shadow Server ①

Description	Catalog Number
PRC BACnet Shadow Server	**PRCSS**

Note

① Not compatible with PRC750(E) controllers. Recommended for PRC100 controllers. Consult factory for PRC1000(E) controllers.

Universal Ethernet Interface

The Pow-R-Command Universal Ethernet Interface (PRCUEI) is used in conjunction with the PRC5000(E) Advanced Lighting Controller to connect multiple RS-485 networks using the facility's Ethernet network via TCP protocol.

The PRC5000(E) can connect up to 16 Pow-R-Command RS-485 networks using a PRCUEI to connect each network. The PRCUEI supports up to 120 Pow-R-Command devices on each RS-485 network.

The device power is supplied by the controller 12 Vdc external power connection.

PC Central Software (PRCPCC01) is required for configuration and programming.

Universal Ethernet Interface

Universal Ethernet Interface ①

Description	Catalog Number
PRC Universal Ethernet Interface	**PRCUEI**

Universal Ethernet Router

Universal Ethernet Router PRCUER is intended for facilities where an Ethernet network is already installed.

The PRCUER extends the Pow-R-Command controller network by tunneling Pow-R-Command controller LAN control packets over existing Ethernet network using UDP Ethernet protocol. PRCUER devices extend the controller LAN transparently across Ethernet segments within the same subnet, allowing segments of the controller network to be physically separated from each other within a facility. Programming the device is accomplished by using Pow-R-Command Lighting Optimization Software (PRCLOS). The PRCUER includes two network connections.

The RS-485 connection is used for connecting the Pow-R-Command RS-485 network while the Ethernet 10BASE-T connection is used for connecting to the facility Ethernet network. The device can be configured for DHCP or be assigned a static IP address. Device power is supplied by controller 12 Vdc external power source.

Universal Ethernet Router

Universal Ethernet Router ①

Description	Catalog Number
PRC Universal Ethernet Router	**PRCUER**

Note

① Not compatible with PRC750(E) controllers. Recommended for PRC100 and PRC1000(E) controllers RS-485 networks.

PRC5000E Master Controller

Pow-R-Command 5000E Master Controller (PRC5000E) is capable of providing master scheduling control, load shedding and demand response, reporting, trend logging and implementing other control strategies.

PRC5000E Master Controller is commonly used to serve facility custom graphics via web pages. Authorized users can log into the device using a standard web browser for viewing custom graphics. System schedule changes and override controls can be made at the click of a button.

PRC5000E

PRC5000E Master Controller

Description	Catalog Number
Small Building Controller (web graphics) up to 20 CNET devices in enclosure	**PRC5000ESE**
Small Building Controller (web graphics) up to 20 CNET devices with I/O (7DO, 4AO, 4DI, 8UI) in enclosure	**PRC5000ESIE**
Small Building Controller (web graphics) up to 20 CNET devices with BACnet/IP in enclosure	**PRC5000ESBE**
Small Building Controller (web graphics) up to 20 CNET devices with I/O (7DO, 4AO, 4DI, 8UI) with BACnet/IP in enclosure	**PRC5000ESIBE**
Building Controller (web graphics) more than 20 CNET devices in enclosure	**PRC5000EE**
Building Controller (web graphics) more than 20 CNET devices with I/O (7DO, 4AO, 4DI, 8UI) in enclosure	**PRC5000EIE**
Building Controller (web graphics) more than 20 CNET devices with BACnet/IP in enclosure	**PRC5000EBE**
Building Controller (web graphics) more than 20 CNET devices with I/O (7DO, 4AO, 4DI, 8UI) with BACnet/IP in enclosure	**PRC5000EIBE**

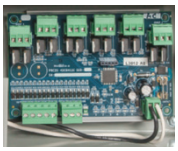
Suffix	Feature
S	Small Building less than 20 devices
B	BACnet/IP
I	I/O (7DO, 4AO, 4DI, 8UI)
E	Enclosure

PRC25 Controller

PRC25 controller and associated system components are available for repair and replacement.

Direct replacement for existing MTM-4 and MTM-6 controllers. Consult factory for more information.

PRC25



PRC25 Controller

Description	Catalog Number
PRC25 6-channel controller	**PRC25**

Lighting Optimization Software

Lighting Optimization Software (PRCLOS) is recommended for Pow-R-Command system users. Refer to Software Compatibility Chart.

PRCLOS allows users to set up, program and monitor their system. This basic software package is capable of recognizing and saving databases for a single site.

Software Compatibility Chart ①

Controller Model	Compatibility
PRC100	Yes
PRCSOC (Switch Override Controller)	Yes
PRCNIB (Network Interface Box)	Yes
PRCEIM (Ethernet Interface Module)	Yes
PRC750 ②	Yes
PRC1000 ③	Yes
PRC2000 ③	Yes
PRC750E ④⑤	Up to and including firmware version 7.1.0
PRC1000E ⑥	Yes
PRC2000E ⑤⑥	Up to and including firmware version 7.1.0

Lighting Optimization Software

Description	Catalog Number
PRC Lighting Optimization Software	**PRCLOS**

PC Central Software

PC Central Software (PRCPCC) is recommended for field technicians responsible for maintaining Pow-R-Command systems. Refer to Software Compatibility Chart.

PRCPCC allows users to set up, program and monitor their system with the added features of advanced diagnostics and programming capabilities. This advanced software package is capable of recognizing and saving databases for single or multiple sites.

PC Central Software

Description	Catalog Number
PC Central Software (single site)	**PRCPCC01**
PC Central Software (10 sites)	**PRCPCC10**

Desktop Computer

Recommended Minimum Computer Specifications

Although it is difficult to guarantee compatibility with all PC-compatible equipment, the basic installation is generally compatible with the following minimum specifications:

- Microsoft® Windows® operating system
- Intel i3 processor or equivalent
- 4 GB RAM
- 1024x768 or better display
- Ethernet network adapter
- USB port if connecting to legacy products

Lighting Optimization Software and PC Central Software is compatible with the following Microsoft operating systems:

- Windows Server 2008 R2, all 32- and 64-bit versions
- Windows 7, all 32- and 64-bit versions
- Windows 8.1, all 32- and 64-bit versions
- Windows Server 2012, 64-bit
- Windows 10, 64-bit

Smart Cable Programming Tool

Pow-R-Command Smart Cable (PRCSmartCable) is used for front panelboard programming PRC100, PRC750, PRC1000 and PRC2000 controllers.

The PRCSmartCable connects the local laptop USB port to controller Maintenance Port.

Smart Cable Programming Tool

Description	Catalog Number
PRC smart cable	**PRCSmartCable**

Notes

① Contact Pow-R-Command Tech Support for more information. 833-POW-R-CMD.
② Local access only through Maintenance Port. PC connection requires PRCSmartCable.
③ Optional local access through Maintenance Port. PC connection requires PRCSmartCable.
④ Local access only through Maintenance Port. PC connection requires industry standard patch cable.
⑤ Firmware version 7.2.0 and above not compatible with software. Controller configuration, programming, monitoring and override performed using commonly standard web browsers.
⑥ Optional local access through Maintenance Port. PC connection requires industry standard patch cable.

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* At Eaton, we believe that power is a fundamental part of just about everything people do. Technology, transportation, energy and infrastructure—these are things the world relies on every day. That's why Eaton is dedicated to helping our customers find new ways to manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. To improve people's lives, the communities where we live and work, and the planet our future generations depend upon. Because that's what really matters. And we're here to make sure it works.

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