

LynTec Remote Power Control Relay Panel (RPCR)

1) General

- a) LynTec RPCR panels provide remote on and off circuit control, utilizing remote controlled electro-mechanical air gap relays, in a single enclosure.
- b) The wall mount panel shall be the RPCR Unit as manufactured by LynTec, or equal. RPCR panels shall be ETL Listed, and shall be so labeled when delivered.
- i) The RPCR-64 panel shall consist of any combination of 64 single-pole or double pole relays, control electronics, power supply, and enclosure.
- ii) The RPCR-48 panel shall consist of any combination of 48 single-pole or double pole relays, control electronics, power supply, and enclosure.
- iii) The RPCR-32 panel shall consist of any combination of 32 single-pole or double pole relays, control electronics, power supply, and enclosure.
- iv) The RPCR-24 panel shall consist of any combination of 24 single-pole or double pole relays, control electronics, power supply, and enclosure.
- v) The RPCR-16 panel shall consist of any combination of 16 single-pole or double pole relays, control electronics, power supply, and enclosure.
- vi) The RPCR-8 panel shall consist of any combination of 8 single-pole or double pole relays, control electronics, power supply, and enclosure.

2) Mechanical

- a) Panels shall be no larger than:
 - i) RPCR-64 20" W x 49" H x 4" D
 - ii) RPCR-48 20" W x 49" H x 4" D
 - iii) RPCR-32 20" W x 34" H x 4" D
 - iv) RPCR-24 20" W x 34" H x 4" D
 - v) RPCR-16 15" W x 22" H x 4" D
 - vi) RPCR-8 15" W x 15" H x 4" D
- b) Panel shall be constructed of 16-gauge steel. All panel components shall be properly treated; primed and finished in fine-textured, scratch resistant paint or rust resistant galvanized coating. The entire unit shall surface mount.
- c) Knockout ports shall facilitate conduit entry and vertical mounting. The front panel door shall be hinged as well for full front access to input, output and data connections. Access is limited by a keyed lock cylinder.
- d) The unit shall ship with covers allowing controlled access to the wiring. Separate covers are provided for access to the Type 1 line voltage wiring.
- e) Relays and supporting interior may be removed to facilitate installation of the enclosure.

3) Thermal

- a) The panel shall be convection cooled. No fans or other powered ventilation shall be allowed.
- b) The panel shall operate safely in an environment having an ambient temperature between 32°F (0°C) and 104°F (40°C), and humidity between 10-90% (non-condensing).

- 4) Electrical
 - a) All Type 1 components shall be Panasonic Electric Works WR series relay devices or equivalent.
 - b) The panel shall switch 120/208 or 277/480 VAC 60 Hz supplied circuits.
 - c) The panel control electronics shall operate on single phase, 120-347V AC 60Hz fed from a 15 amp circuit breaker. Fault current protection shall be 18,000 AIC @ 120 VAC.
 - d) The individual remote controlled relays shall contain electrically driven, mechanically held contacts with ampacity ratings of 30 amps at up to 240VAC or 20 amps at 480 VAC. Each remote controlled relay shall have an integral manual override switch with on/off status indication.
 - e) The remote controlled relay shall be Panasonic Electric Works WR series with the following minimum ratings:
 - i) Snap-in mounting to the enclosure
 - ii) SWD (Switching Duty) UL Rated
 - iii) HID (High Energy Lighting) UL listed
 - iv) Single pole 18kAIR @ 277 VAC
 - v) Two-pole 5kAIR @ 277 VAC
 - vi) 60,000 mechanical operations at full load current.
 - f) All line, neutral and ground terminals shall accept up to 12 AWG wire.
 - g) Control wiring shall land on removable headers for easy contractor installation (On-board DMX, Serial, BACnet and I/O and Input terminations).
 - h) Ethernet connectivity shall be an RJ-45 jack.
 - i) A voltage barrier shall be provided to separate Type 1 and Type 2 sections of the panel.
- 5) Electronics
 - a) The RPC controller shall have a power status LED indicator (Orange) and a DMX status LED indicators (Green) or BACnet indicator (Yellow). Two yellow navigation buttons and a two line by 16 character backlit LCD shall be provided for system monitoring and control status. Green and red test buttons are provided for local control and diagnostics.
 - b) The panel shall receive:
 - i) ESTA DMX512-A control protocol. Addressing shall be set via internal web page.
 - ii) EIA RS-232 serial control protocol. Baud rate shall be set via internal web page.
 - (a) Crestron formatted control commands
 - (b) AMX formatted control commands
 - (c) Properly formatted commands by others
 - iii) PLASA E1.31 (sACN) streaming ACN control protocol. Universe and address shall be set via internal web page.
 - iv) BACnet MS/TP and IP control protocols. Addressing variables shall be set via internal web page.

- v) TCP/IP
 - (a) HTTP Graphical User Interface (GUI) via a commercially available web browser (Provided by others).
 - (b) HTTP Get commands to direct the operation and receive status of individual remote controlled relays or zones.
 - (c) Telnet formatted serial control protocol. Default is port 23.
 - (i) Crestron formatted control commands
- c) The remote controlled relays shall respond to control changes in less than 25 milliseconds. DMX512 update speed shall be 40Hz.
- d) 2,500V optical isolation shall be provided between the DMX512 inputs and the control electronics as well as between control and power components.
- e) The panel shall have a UL 924-compliant contact input for use in Emergency Lighting systems. The panel shall respond to the contact input by switching selecting remote controlled relays on. The emergency lighting status shall be maintained for the duration of the contact closure and will not be modified by any other input during the emergency lighting duration. Each remote controlled relay can be selected for activation upon contact input.
- f) An internal astronomical clock shall provide up to 84 events to be automatically adjusted for Sunrise and Sunset times based on the physical location of the panel and calendar date. The internal schedule feature shall allow an offset of up to 3 hours, by 15 minute steps, before or after actual Sunrise or Sunset times. Access to the internal schedule and selecting the physical location of the panel shall be through the internal web page.
- g) It shall be possible to define up to 12 zones using the GUI. Zones shall be programmable by manually selecting one or more remote controlled relays to be included in the zone. 8 to 64 remote controlled relays can be located in one physical enclosure. Each zone can be associated with a discrete control protocol.
- h) Selecting Sequenced operation shall allow the choice of order and delay time between remote controlled relay operations.
- i) Selecting Grouped operation shall default to 25ms delay time between remote controlled relay operations.
- j) Each zone sequence shall be controlled by up to six remote switch sets or other low voltage contact closures within 5,000 feet of the controller.
- k) Status indication of the zone shall be displayed by the illumination of the "ON" button illumination circuit.
 - i. Steady green shall indicate all relays in the zone are on
 - ii. Slow flashing (1 Hz) shall indicate relays have been directed to change state
 - iii. Thirty-eight (38) 3-wire input/output terminals for connection to external low voltage control devices may be provided. Each may be configured as:
 - (a) Normally Open (NO) 2-wire maintained input
 - (b) Normally Closed (NC) 2-wire maintained input
 - (c) Normally Open (NO) 2-wire momentary "toggle on" input
 - (d) Normally Open (NO) 2-wire momentary "toggle off" input
 - (e) Three-wire momentary input operation

- (f) 100 milliamp, 50 volt, Open Collector (OC) output
 - (g) Up to 16 Dry Contact 1 amp relay Type C contacts output
 - (h) Up to 16 N-channel 100v, 20 amp rated Field Effect Transistor (FET) output
 - l) The unit shall always power-up in the last used mode and settings and shall be ready for use without user intervention. The Power Restore behavior setting shall ensure the unit restores to its previous state (preset, sequence) when power is cycled.
 - m) The unit shall always turn off those remote controlled relays that were added to the Brown Out protection group when the incoming voltage falls below the user defined threshold. When power is restored the controller will wait for the delay time entered in the GUI and then sequence those remote controlled relays in the predetermined order ready for use without user intervention. The Brown Out Behavior setting shall ensure the unit restores to its previous state (preset, sequence) when incoming power is restored. Reserve power for these operations shall be provided by a non-lead, non-acid, power buffer with adequate reserve power to complete the directed operations.
 - n) Panel setup shall be user programmable utilizing the graphical user interface. The control panel shall provide the following setup features:
 - i) Selection of desired control protocol per zone.
 - ii) DMX Address. Remote controlled relays are discrete addresses.
 - iii) E1.31 Universe and channel address.
 - iv) RS-232 baud rate.
 - v) BACnet address and baud rate.
 - vi) Individual settings for DMX "On" and DMX "Off" threshold level, per controllable circuit.
 - vii) Static or Dynamic IP address.
 - viii) Brown Out group inclusion.
 - ix) Emergency Off group inclusion.
 - x) Emergency Lighting group inclusion.
 - xi) Power Up Behavior.
 - xii) Restore Defaults (Recovery).
 - xiii) Astronomical Time of Day operation with separate "on" and "off" control.
 - o) The controller shall be capable of switching up to 64 remote controlled relays on or off at once, or in a user-selectable delay period of 0.025 seconds to 8 minutes, per remote controlled relay.
- 6) UL Listing
- a) All LynTec RPCR panels shall meet the requirements of Underwriters Laboratories Standards:
 - i) 489
 - ii) 508A
 - iii) 924
- 7) Warranty
- a) Manufacture shall warrant specified equipment to be free from defects in materials and workmanship for five (5) years from the date of purchase for control electronics and a period of fifteen (15) months for devices manufactured by Panasonic Electric Works.