DESIGNING POWER CONTROL SOLUTIONS WITH LYNTEC

Thank you very much for your consideration in working with LynTec. Our motto is Power Control Simplified! I trust that after reviewing this document you will agree. This paper is designed to help you through the design process using LynTec power control systems.

SECTION ONE: INITIAL QUESTIONS FOR ELECTRICAL REQUIREMENTS

1. **Installing a new electrical system or looking to add control to an existing electrical system?**
   - A. New Build – motorized circuit breaker panel
   - B. Retrofit – relay panel
   - C. Retrofit with Square D Circuit Breaker Panel – add control directly to existing panel
     - i. Square D "NQ" or "NF" series panels, the traditional circuit breakers may be swapped out for motorized circuit breakers
     - ii. LynTec control sidecar added to the panel
2. **How many circuits are you trying to control and what is the total circuit count?**
   - A. Panelboard configurations: 30-84 circuits
   - B. Load Center configurations: 26-41 circuits
   - C. Wall-mounted Relay configurations: 4-64 circuits
   - D. Rack-mounted Relay configurations: 4 circuits (10 units can be networked together)
3. **What size breakers or relays are needed?**
   - A. Motorized and unmotorized circuit breaker options
     - i. 15A, 20A or 30A and 1, 2 or 3 pole options
     - ii. Bolt-on motorized/unmotorized breakers for panelboards
     - iii. Snap-in motorized/unmotorized breakers for load centers
     - iv. Larger Circuit breakers (over 30 amps) can be incorporated into the control system through high current outbound contact closures.
     - v. Mix-n-match motorized and unmotorized breakers within a single unit.
   - B. Relay options include: 30A resistive, 20A or 30A general use
4. **Where are the panels going to be located if using multiple units within a single venue?**
   - A. RPC "Master and Slave" configurations: up to 167 circuits controlled by single unit
     - i. Decreases wiring needs and "Slave" panels are significantly cheaper
     - ii. Criteria: panels are less than 200 feet apart and no more than 8 address strips
     - iii. Link is a 3-minute video that goes more in-depth as to if a slave panel would design. https://youtu.be/OGH-6r5Bsw8
   - B. Daisy Chain the Modular Sequencing lines (MSP, MSLC, PDS) for a single sequence chain

C. Whole Venue Control – mix-n-match networkable product lines (RPC, RPCR, NPAC) onto a single platform interface for whole venue control from a single point of contact

i. Control Zones can be established across multiple units for system wide zones

ii. No Network Wiring – units "talk" over the network via on-board web-servers.

5. How do you want to control the circuits?

A. The RPC, RPCR and NPAC (Networkable products)

i. Internal Controls Options

A. Self-contained solutions do not require 3rd party control

B. Each unit has an individual on-board web server with a unique IP address for access to the Graphical User Interface (GUI)

C. Each unit can be controlled by any laptop, tablet, smart phone using the GUI; Android/ Apple phone apps available for zone control

D. Astronomical Clock – includes sunrise and sunset timing

ii. External Protocol Control Options

A. DMX-512, sACN (E1.31), RS-232 (except for NPAC), Telnet, IP/HTTP or contact closures all within a single unit.

B. Both AV and Lighting circuits controlled within a single unit.

C. Up to 12 zones can be established per system

D. Patented Zone Control Platform enables each zone to have a unique control protocol.

E. IP/HTTP – Crestron, QSC, AMX, etc. – "GET" codes upon request

iii. Software included – no extra packages/training/commissioning to purchase.

iv. ETL Listed UL-924 (except NPAC)

A. Emergency auto-on for egress lighting standard on RPC and RPCR

B. Please notify if you're planning to use an RPC/RPCR for UL-924 lighting

B. Single Control Protocol Product Lines

i. Modular Sequencing (MS)

A. Simple dry contact closure inputs to trigger sequencing

B. Controllable configurations: 12, 24, 36 or 48 Circuits

C. Set jumper positions for step-rates – up to 8 minute delay

D. Reverse sequencing standard (on = 1-10, off = 10-1)

ii. Lighting Control (LC)

A. DMX-512 (via Phoenix connection)

B. Controllable configurations: 10, 20, 30, 40 or 50 circuits

C. Set jumper positions to designate DMX addresses for control

a. 10 circuits per board, circuit 1 designates the DMX addresses for the other 9 circuits on that board (i.e. jumper set on address 1, automatically making circuits 2-10 set to DMX addresses 2-10)

b. Second – fifth control boards can start at different addresses

D. ETL Listed UL-924

a. Emergency auto-on for egress lighting standard for Panels, Load Centers and Relay's

b. Please notify if you're planning to use for UL-924 lighting

iii. Serial Control (SC)

A. RS-232 capable

B. Controllable Configurations: 10, 20, 30, 40 or 50 circuits

C. Address each board individually

D. Assign channels to individual circuits per board.

C. "ON" and "OFF" Switches are available through LynTec in wall-mounted or rack-mounted options for the RPC, RPCR, NPAC or MS series.

6. What type of electrical service are you working with?

A. 3-Phase standard (Single Phase Panels and Load Centers are special order)

B. Voltage requirements – up to 480/277V

C. Main Circuit Breakers – up to 400 amperes

D. Main Lug Only (MLO) available

E. Feed Through Lug (FTL) or Sub-Feed Through Lug (SFL) available

7. Transformers – Integrated Power Center (IPC)

A. Square D Isolation and Step-down transformer packaged with a LynTec Panel.

i. Single Enclosure with Panels sitting on top of the transformer

ii. Assembled and tested in-house so you save money and time on the installation and setup

iii. 40% less linear wall space used

B. Wide range of configuration options and combinations available

C. IPCs and Transformers are built to order

SECTION TWO: INSTALL AND INTEGRATION

1. No factory commissioning required for all product lines

A. Product lines designed for Integrator commissioning and start-up

B. Factory commissioning optional.

SECTION TWO: INSTALL AND INTEGRATION

2. RPC, RPCR and NPAC
    - A. Fully assembled and tested in-house
        - i. Electricians only need to wire Hots and Neutrals for RPC and RPCR
        - ii. NPAC doesn't require Electrician for installation
    - B. Plug in an Ethernet cord to connect to local network
    - C. Log onto the GUI using the IP Address on the controller's LCD screen
    - D. Assign each individual panel a unique IP address on the Network/Setup tabs
    - E. Whole Venue Control set up on "Network" tab on GUI
        - i. Allows integrators to mix-and-match networkable product lines
        - ii. Log onto GUI for largest panel and select "Master" box under the Network/Setup tabs
        - iii. Input other unique IP addresses from "Slave" panels into "Master" interface
        - iv. Hit "Scan New Circuits"
        - v. "Slave" panels found via network and circuits are brought onto single GUI
    - F. Zoning, sequencing, power control still needs to be setup using the GUI by the integrator after hardware installation is complete.
        - i. For help setting up Zones, Control Protocols or navigating the GUI, please click on the link below to go to LynTec's video library and watch the "RPC Setup" series of videos – 15 minutes in total
        - ii. https://lyntec.com/video-library/
3. Legacy Panels and Load Centers (MS, LC, SC)
    - A. Legacy Panels and Legacy Load Centers will require breaker assembly and wiring.
    - B. Setup Controls: Section 1-5-B
4. Legacy Relay Panels
    - A. Legacy Relay Panels assembled and tested in-house
    - B. Electricians only need to wire hots and neutrals
    - C. Setup Controls: Section 1-5-B
5. SurgeX sidecars
    - A. RPC and Panelboards – factory assembled but electrician needs to connect wiring.
    - B. Can be installed with Relay panels – enclosures may not match in size
6. IPC Systems
    - A. Wire feed service to transformer and branch wiring out from the panels to the outlets
    - B. Set up controls based on panels specified