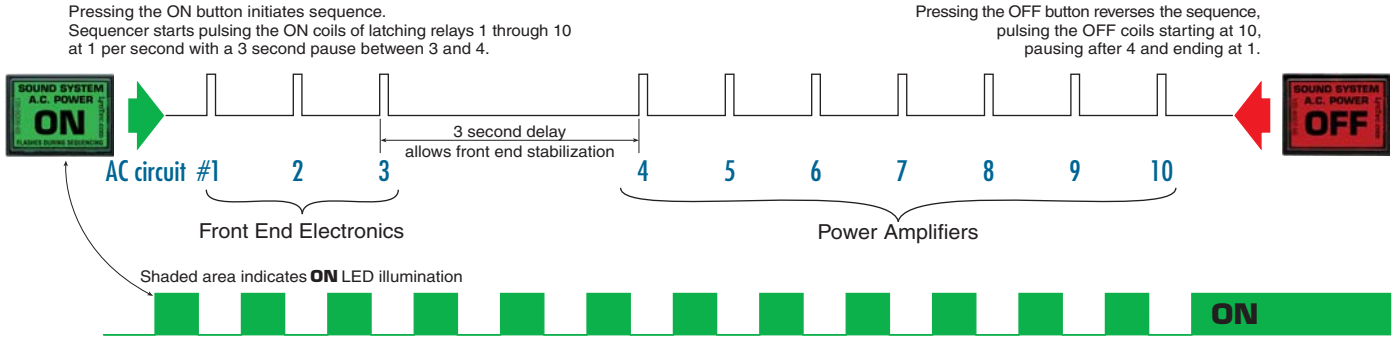
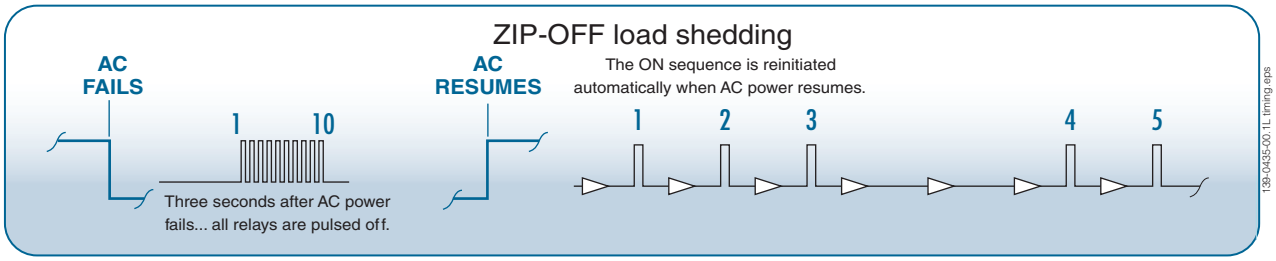
LynTec PDS-8 series Power Delay Sequencer

Relay based power sequencer for sound systems — Turns on front-end gear first, power amplifiers last
Protects expensive loudspeaker systems from damaging power-on or power-off click & pop transients

- Tested, complete package — low labor — mount next to any circuit breaker panel to sequence AC power "hot" lines
- Time proven, reliable, G-E RR7P3 latching relays snap in and have low voltage plug-in connectors
- Low power consumption — no continuous relay coil current — runs cool for long life
- Diagnostic LEDs and internal ON - OFF test switches speed installation for testing and troubleshooting
- Cabinet and all components connected to high voltage are UL listed — Electrician friendly
- 4, 8 or 10 20 A circuits — 120 or 240 volt models available
- Up to 6 **One Touch** remote control locations possible
- Kill function uses external contact for instantaneous shutdown.
- HurryOff function shuts down immediately if you hold down any OFF button for 2 seconds. *Great for **Ohh.... no.....** situations.*
- Daisy-chains for unlimited circuit count. Interfaces with LynTec MSLC, MSP, SLC, SP or multiple PDS-8**E** sequencing systems.

HOW IT WORKS





PDS-8 series INTERIOR and WIRING

This circuit breaker panel is shown for illustration purposes and is not sold by LynTec.

To avoid nuisance circuit breaker tripping on high inrush current devices, specify **H**igh **M**agnetic circuit breakers.

High Magnetic type breakers typically have the **HM** suffix such as Square D QO120**HM**, Cutler Hammer CH120**HM** or G-E THQL1120**HM**.

24 V — 40 VA Power transformer. Connect to 10A circuit breaker. Mark

SEQUENCER POWER

with supplied label.

DIVIDING WALL

LOW VOLTAGE SECTION

HIGH VOLTAGE SECTION

2 additional relays added to make it a PDS-810EK

Plenty of gutter space eases wiring

Relays tilted 15° for easy wire insertion

15A or 20A circuit breaker "hots" feed sequenced relays

Sequenced "hots" to receptacles

POWER led

Lever actuated cage-clamp terminal strips.

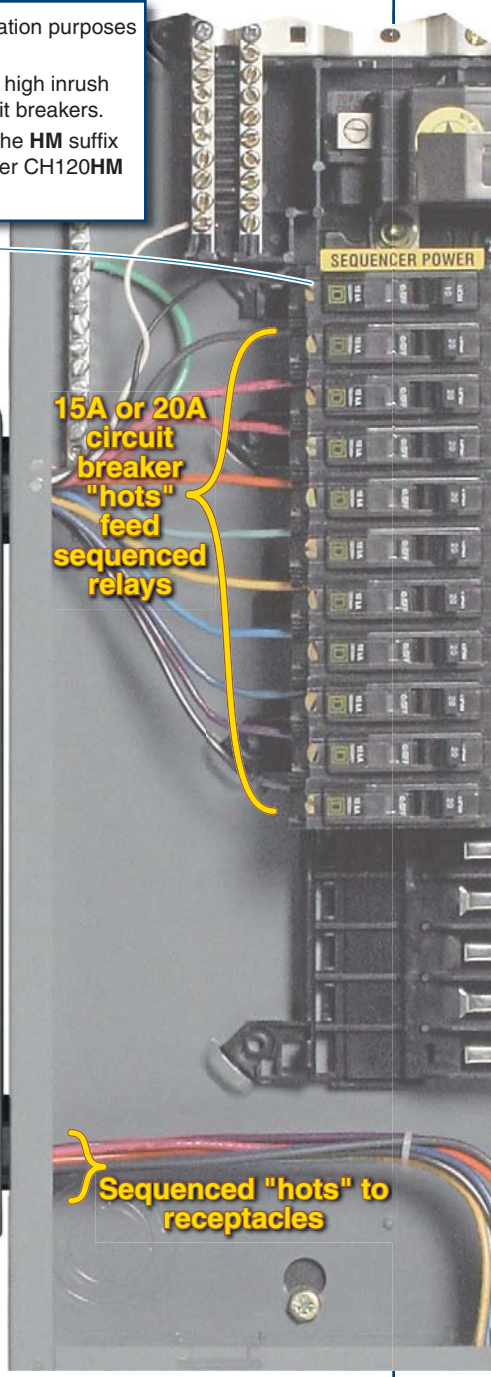
Press white levers toward board to insert stripped wire.

ON led Flashes during sequencing, stays lit at end of on sequence.

Test switches provide local control for troubleshooting remote switch wiring.

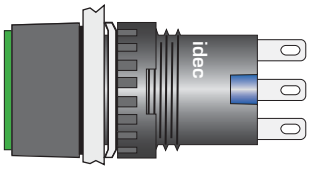
Expansion terminals for daisy-chaining to other LynTec sequencers

Connect **Kill** line to **Common** with external switch for immediate shutdown.
Kill led lights to indicate external switch closure. Sequence resumes operation when switch opens.



Supplied **SS-2** remote **S**witch **S**et — Actual Size

Wiring: Typically "half" of a Cat 5 cable.
4 conductors - 22-26 ga. - 5,000 ft. max.



Switches mount in 5/8" dia. round holes on 1" centers in material up to 1/4" thick. Solder wire connections.

G-E **RR7P3** Latching Relay

G-E RR7 Relay ratings

Power Contacts: Latching
20A Tungsten, 125Vac 1/2HP motor at 110-125Vac
30A Ballast, 277Vac 1 1/2 HP motor at 277Vac
30A Resistive, 277Vac
20A Ballast, 347Vac 1 1/2 HP motor at 220-277VAC
20A Resistive, 347Vac

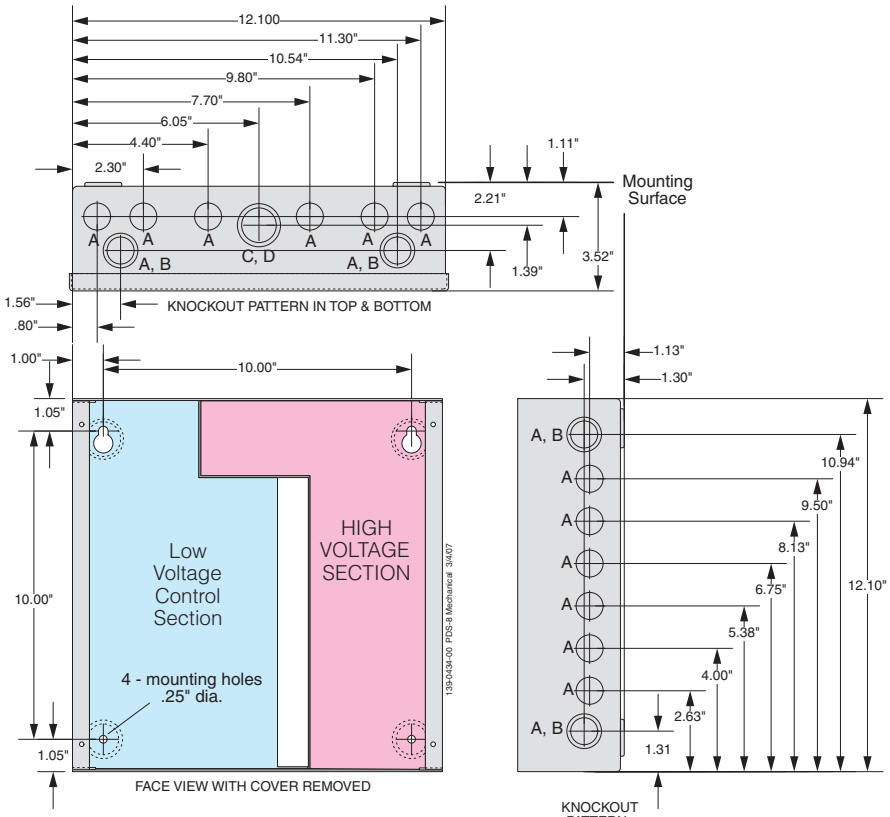
FOR COPPER WIRE ONLY

This product is NEC 110 Compliant when used in accordance with the following: Suitable For Use On A Circuit Capable Of Delivering Not More Than 10 kA Sym. Amps., 277 Volts Maximum.
UL Listed 508G Industrial Control Equipment — CSA certified

Low voltage characteristics — RR7P3
P3 suffix denotes a 3 pin, .156" AMP or Molex connector attached.

Actuating coils: 21-30 Vac (class 2) Momentary. OFF (1-black), ON (2-red), Common (3-Blue) 55-60 Ohms DCR, each coil.

PDS-8 series MECHANICAL



KNOCKOUTS				
SYMBOL	A	B	C	D
IN	.50	.75	1.00	1.25

Switch Set OPTIONS

SS-2PL or SS-32PL Locking Switch Set

SS-2PL is an **SS-2** Switch Set and a **KS-2L** mounted on a single gang stainless steel **PL**ate. The **SS-2** switches are momentary SPDT. The **KS-2L** Key Switch is SPDT.

SS-32PL is an **SS-32** Switch Set and a **KS-2L** mounted on a single gang stainless steel **PL**ate. The **SS-32** switches are momentary DPDT with a spare set of contacts for control of other equipment.

FOR CUSTOM PANELS BY OTHERS

SS-2 Switch Set
One supplied with each sequencing panel.

Mount in .625" dia. round holes on 1" centers in panel up to .25" thick.

The **KS-2L** Key Switch

Shown with tumbler position label for mounting in .64" x .75" double-D hole (preferred) or .75" dia. round hole in your custom panel.

OTHER LynTec SEQUENCING PRODUCTS

Ideal for new construction that requires a breaker panel anyway.

- **MSLC** series **Modular Sequencing Load Centers**
- **MSP** series **Modular Sequencing Panelboards**

  One-panel solution combines a circuit breaker panel with up to 5 ac power sequencers.

  ONE TOUCH controls - wide range of field-selected time delays and sequence step rates

  Utilize Square D panels and motorized, remotely operated, circuit breakers

  12, 24, 36 or 41 circuits — cascade (daisy chain) for more circuits

  Unlimited circuit design flexibility — One, two or 3 pole motorized (QOPL) or un-motorized (QO) circuits —15, 20 or 30 Amps per circuit

  Available in Single Phase, 3 wire, 120/240v., 3 Phase, 4 wire, 208Y/120v., or 60v—0—60v Balanced Power.

  Interface with PDS-8EK sequencer and earlier LynTec sequencers

- **MRTS Modular Rain Tight Sequencer**

  Add **One Touch** sequential control of motorized breakers to any Square D QO series panel.

- **LynTec also makes DMX controlled panels for individualized control of un-dimmed lighting circuits.**

http://www.lyntec.com/AllPanel.pdf

SPECIFICATIONS — LOW VOLTAGE SECTION — Class 2

RELAY CONTROL CIRCUITS

10 ON and 10 OFF RR7P3 relay coil drivers.

RELAY DRIVER CHARACTERISTICS

Each 3 pin header is connected to ON and OFF open collector NPN transistors. Built-in reverse EMF snubber diodes connect from the collector to the sequencer's built-in +35 volt supply.

Relay drive capacity: One RR7 coil (530 mA. max.) NEVER parallel relay coils!

Relay ON/OFF pulse width and spacing:
60 Hz supply: 66 msec., 1.06 sec. between pulses. (2.12 or 4.24 seconds optional)
50 Hz supply: 80 msec., 1.28 sec. between pulses. (2.56 or 5.12 seconds optional)

RELAY SOURCE — ZIP-OFF LOAD SHEDDING

The +35 volt internal dc relay supply has a PULSE CURRENT indicator for visual as well as aural troubleshooting. Each time the LED flashes a relay should click.

All latched-on relays are zipped-off 2 seconds after power fails, shedding the load. **ZIP-OFF** minimizes the surge load when power resumes.

The sequencer remembers if the system was ON and automatically re-sequences when power resumes. No manual reset is required.

Short protection: An incandescent lamp under the circuit board glows temporarily at initial turn-on, indicating normal capacitor charging. A short on the +35 vdc relay supply backlights a FAULT legend. When the fault clears, the FAULT lamp extinguishes and the sequencer resets.

REMOTE CONTROL CHARACTERISTICS

A momentary contact from **ON** or **OFF** to COMmon is required to toggle the latching pilot relay ON or OFF coils in the sequencer to start the sequence.

The **SS-2** Sequencer Switch Set (one set supplied, up to 6 supported) provides easy-to-mount switches, with built-in film legends, to remote control the AC power. Switches are IDEC AL6 series.

Mount in 5/8" diameter round holes on ≥1" centers.

Typical remote switch current: 9 milliamperes.

Minimum closure time to initiate sequence: 25 milliseconds.

Open circuit voltage appearing at **ON** and **OFF** terminals: +30 to +35 volts.

REMOTE PILOT LED OUTPUT

Pulsed 12 volts DC will drive remote pilot **ON** LEDs up to 200 ma. or 6 - SS-2's.
All pilot LEDs flash once per second during the sequence cycle.
All pilot LEDs glow continuously at the end of the ON cycle if the POWER VOUCHER terminals are bridged by a resistance lower than 100KΩ.
Output protection: Short circuit protected, automatically resets after fault clears.

LOW VOLTAGE CONNECTIONS

Relays: 3 position, .156" center male headers to mate with G-E RR7P3 relays.
Remote Control Wiring: 4 conductor, 22-26 gauge wire, solder to SS-2 Switch Set and connect to spring-lever actuated, cage-clamp terminals in the sequencer.

LOCATING RR7 RELAYS REMOTELY

In some instances it is desirable to locate one or two RR7 relays at a location other than the PDS-8EK cabinet. Example: Control room electronics need to be sequenced but they are located several hundred feet from the power amplifier racks. The PDS-8EK is located near the power amp racks. RR7's may be driven remotely via a 3 wire, low voltage cable for one or a 5 wire cable for two relays.

Wire sizing minimums: ≤75 ft. run, use 22 ga., ≤125 ft. run, use 20 ga., ≤200 ft., use 18 ga., ≤300 ft. run, use 16 ga. RULE: Keep loop resistance ≤2.5Ω.

Connect to PDS-8EK board mounted plugs with AMP or Molex 3 pin housing: Digi-Key WM2123-ND & 3 crimp pins per relay: Digi-Key WM2300-ND.
Digi-Key: 800-344-4539. Independent control of these remote relays is also possible. Example: Turn on control room only. Call LynTec for details.

POWER VERIFICATION — Optional

The **V+** and **V-** input indicates a completed sequence by switching the flashing **ON** LEDs to constant.

This AND type input is utilized when POWER VOUCHERs (now discontinued) are used to prove all sequenced relays are hot with no circuit breakers off upstream.

Typically, POWER VOUCHERs are plugged into each AC receptacle circuit, one per relay output, with their contacts in series across the V+ and V- input. When the ON sequence is completed AND all receptacles are energized , the pilot LEDs are lit continuously. Any un-energized POWER VOUCHER will extinguish the pilot LEDs, indicating that the system is not ON. The source of the failure is easily isolated by locating the unlit POWER VOUCHER.

Jumper the V+ and V- terminals if power verification is not used.

PDS-8EK POWER SOURCE REQUIREMENT

24 volts AC, 50/60 Hz, ≤ 6 watts.

SPECIFICATIONS — HIGH VOLTAGE SECTION — Class 1

AC POWER CONTROL

G-E RR7 Relay ratings — see page 2

NOTE Tungsten lamps have high inrush currents similar to power amplifiers.

SEQUENCER POWER TRANSFORMER

INPUT VOLTAGE	Standard PDS-8EK: 120 volts ±15% **ov**erseas PDS-8EK**ov**: 240 volts ±15%
FREQUENCY	50/60 Hz
OUTPUT VOLTAGE	24 volts @ 40 VA., 27 volts, No Load.
UL Listed	428L, Class 2 B6
CUL Listed (Canadian)	428L, Class 2 B6
	120 volt: (Dormeyer # DCT-40-120)
	240 volt: (Dormeyer # DCT-40-240)

The sequencer power transformer should be connected to a separate 10 Amp circuit breaker and labelled SEQUENCER POWER.

CABINET

G-E RBS2 REMOTE CONTROL CABINET — surface mount

Type 1 Enclosure "INDOOR USE ONLY" — UL Listing: 508G Industrial Control Equipment

MECHANICAL

Size: 12.4" square x 3.5" high max. Cover attached with 4 — 10-32 screws.

Mounting: Cabinet has 4 raised mounting dimples with 1/4" holes on 10" vertical and horizontal centers for surface mounting.

Orientation: Any position. Weight: 15 lb.

Shipping Weight: 17 lb. Shipping size: 15.5" x 15.5" x 6.5", .9 cu. ft.

SPECIFYING & ORDERING DETAILS

Any number of LynTec sequencers may be daisy-chain cascaded; **PDS-8EK**'s, **MSLC** & **SLC** series Sequencing Load Centers or **MSP** & **SP** series Sequencing Panelboards.

PDS-8EK Power Sequencing System
(**E**=**E**xpansion capability. All PDS-8's after 1/98 are **E**'s, **K= Kill** and HurryOff. All PDS-8E's after 8/03 are **EK**'s).

Includes: Cabinet and cover with the following installed: 120 v, 50/60 Hz power transformer, sequencer, and 8 ea. G-E RR7P3 relays. One SS-2 switch set is supplied.

PDS-8-**4**EK
Same as above but only loaded with **4** RR7P3 relays for four circuits.

PDS-8**10**EK
Same as above but loaded with **10** RR7P3 relays for ten circuits.

PDS-8EK**ov** or PDS-810EK**ov**
overseas part number suffix for 240v, 50/60 Hz operation.

SS-2 Switch **S**et.
OFF and illuminated **ON** switches with built-in film legends. One set included with each PDS-8EK system, Up to 6 total supported for multiple location remote control.

SS-2PL Locking Switch Plate (photo on page 3)
A locking key switch to restrict access installed with a SS-2 switch set in a single gang stainless steel wall plate. **ON** and **OFF** switches may be field rotated for horizontal mounting. All locks are keyed alike.

RR7P3 Latching relay. (**P3** = 3 pin, .156" **P**lug). (photo on page 2)
Two more RR7P3's may be added to the PDS-8EK in the field for a total of 10 circuits.

For more than 10 circuits, 208 v. circuits or 30A circuits see
MSLC series Sequencing Load Centers or **MSP** series Sequencing Panelboards
(photo on page 3).

www.LynTec.com
Voice **800-724-4047** • 913-529-2233 — Fax **888-722-4157** • 913-529-4157