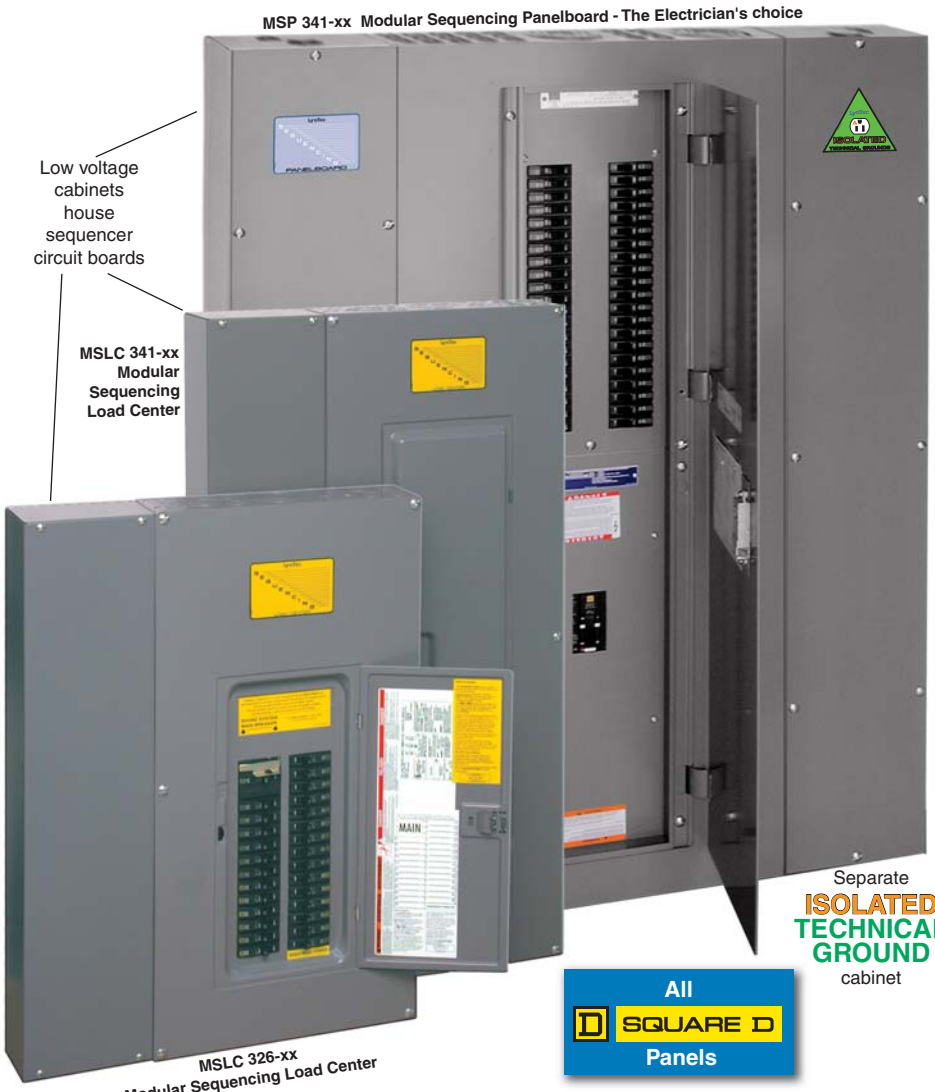
All sound systems need a power panel - why not have ONE TOUCH AC power control?

Motorized circuit breakers sequence sound system AC power!



LynTec Modular Sequencing series panels add branch circuit sequencing to the main and branch circuit breaker functions normally found in a Load Center or Panelboard.

How they work

Applies AC to low level, front-end electronics... waits for them to stabilize... (clicks and pops are ignored by un-powered power amplifiers)...

AC is then sequenced to power amplifiers to spread high inrush currents over time.

Protects valuable loudspeaker systems by delaying turn-on until all low level equipment has stabilized.

ONE TOUCH
REMOTE POWER CONTROL

SHOWN ACTUAL SIZE

Green LED illuminated — Red

SS-2 Sequencer Switch Set
One SS-2 switch set is supplied with each panel.

LynTec
Modular Sequencing series Power Panels

BENEFITS

✔ **ONE TOUCH remote power control**
- Immediate visual feedback provided by flashing **ON** switch.
- Light stays **ON** to verify sequence completion.
- Process is reversed for turn-off sequence.
- May be controlled from one to six locations.
- Multiple sequencing panels may be daisy-chained for larger systems.

✔ **Reduced installation labor**
- One wall-mounted, sequenced power panel feeds AC power to all rack and console receptacles.

✔ **Low power consumption**
- **BMB** (Bolt-on) and **MB** (Clip-on) series motorized circuit breakers require no holding current (like DC relays) or heat sinks (like solid state relays).
- Runs cool — lasts long.

✔ **Automatic load shedding and *BROWNOUT* protection**
- A voltage sensing system automatically sheds the load when AC mains voltage drops below 95 volts for 2 seconds.
- Capacitor-stored energy zips-off all circuits 2 seconds after power fails.
- The system automatically re-sequences without operator intervention when stable voltage (above 105 volts for 5 seconds) resumes.
- Reduces the start-up load for auxiliary power units.
- Smart wake-up is ideal for unattended systems.

✔ **Kill**
- Emergency instant shutdown may be triggered by an external contact closure.
- System automatically re-sequences when contact opens.

✔ **HurryOff — *Ohh..... no..... switch* – Kill without restart**
- By holding ***any*** OFF switch down for 2 seconds, the operator can trigger an instant shutdown with no automatic restart.

Planning and Layout Worksheet — As-built door label

MSP 141-xx Sound System Sequencing Panel

Breaker types, sizes, positions and connections

Job_____

Panel _____

Comments_____

_____

by_____ Date_____

Transfer as-built information to the door label upon completion.

Keep this sheet for as-built documentation

Available as PDF download

www.lyntec.com/139-0340_MSP141Plnr.pdf

Low voltage control Wiring Diagram located inside left cover.

www.lyntec.com/139-0327_SequencerLV_Wiring.pdf

LynTec

MSP 141-xx (65k AIR main)

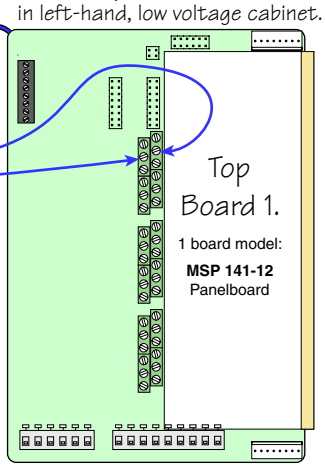
Modular Sequencing Panelboard

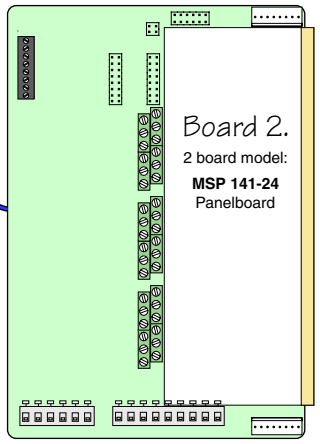
Each motorized breaker is controlled by a sequencer.
As-built door label example:
Step #__1a__ (1a) {# in parenthesis is *suggested* breaker connection in sequencer}.
Bold line around box ☐ is the *suggested* sequencer board: #1(Top), #2, #3, or #4.
Fill in ■ box to indicate which sequencer board this breaker is connected to.

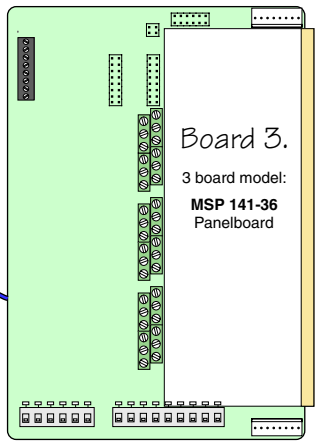
Which Board?

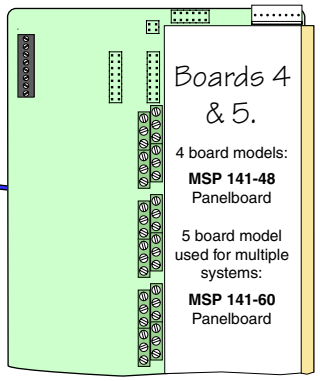
1	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(1a)	2	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(1b)
3	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(2a)	4	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(2b)
5	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(3a)	6	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(3b)
7	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(4a)	8	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(4b)
9	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(5a)	10	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(5b)
11	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(6a)	12	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(6b)
13	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(1a)	14	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(1b)
15	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(2a)	16	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(2b)
17	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(3a)	18	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(3b)
19	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(4a)	20	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(4b)
21	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(5a)	22	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(5b)
23	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(6a)	24	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(6b)
25	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(1a)	26	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(1b)
27	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(2a)	28	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(2b)
29	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(3a)	30	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(3b)
31	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(4a)	32	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(4b)
33	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(5a)	34	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(5b)
35	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(6a)	36	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(6b)
37	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(1a)	38	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(1b)
39	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(2a)	40	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(2b)
41	_____Amp.☐Un-motorized. ☐Motorized-Step # ____(3a)	**SEQUENCER POWER** 10A un-motorized breaker supplied installed.	

MS-12 Sequencer circuit boards in left-hand, low voltage cabinet.

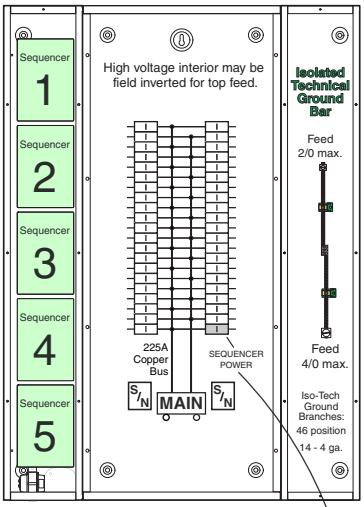








Cabinet outline
Surface mount only
Outside dimensions
36" w., 50" h., 6.13" d.



NQOD Panel
225A Copper Bus
#4 — 300 kcmil Al/Cu

Main Breakers available
QGL22**xxx** series — All 65k AIR
Part# suffix — **Bold face** = Amps
-MQG20**70**, -MQG20**80**, -MQG20**90**,
-MQG21**00**, -MQG21**10**, -MQG21**25**,
-MQG21**50**, -MQG21**75**,
-MQG22**00**, -MQG22**25**.

Outline Drawing

LynTec
MSP 141-xx (25k AIR main)
[Special order, NCNR]

Square D NQOD MB Panel
with LynTec sidecars.

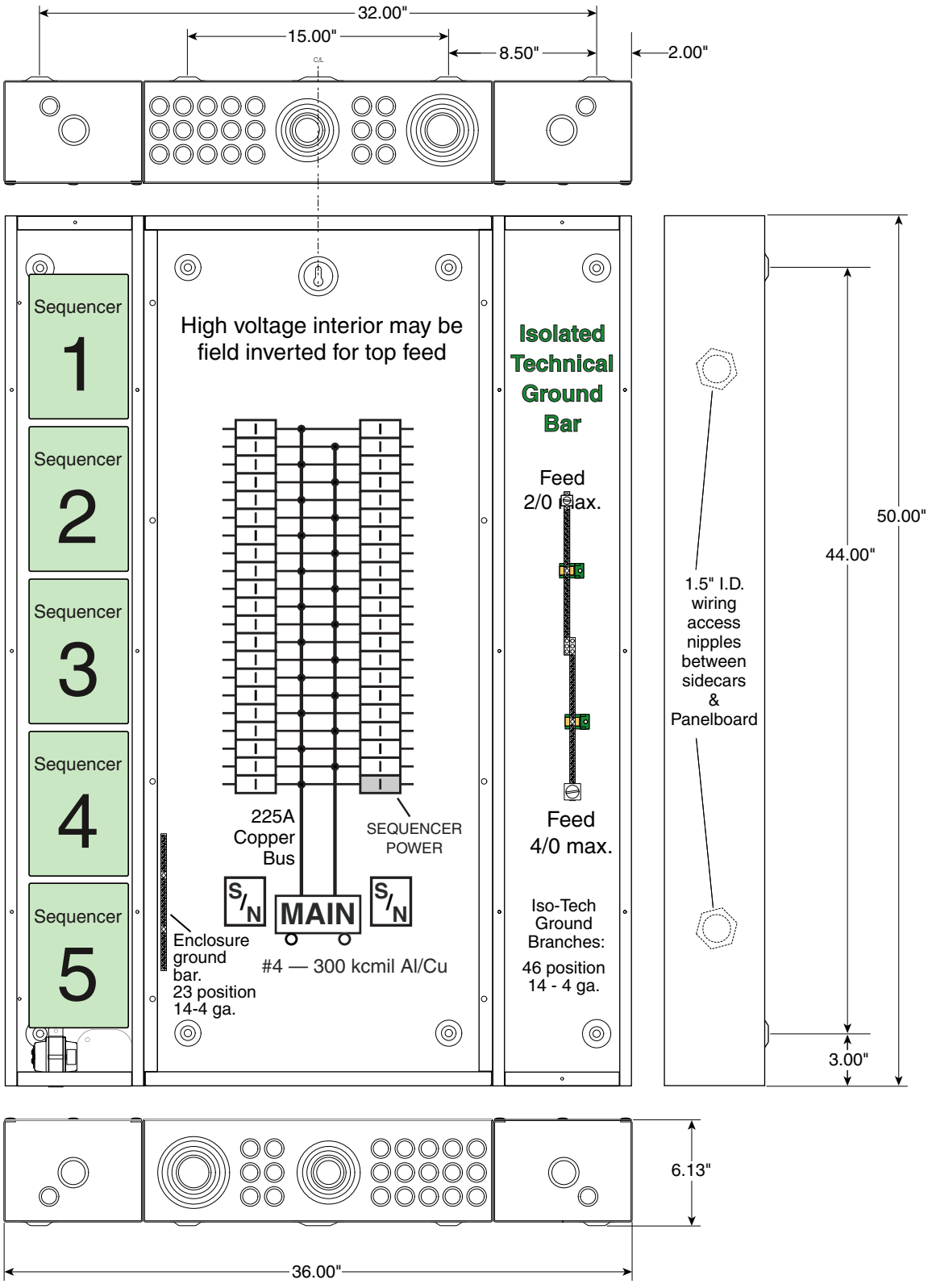
225A Copper Bus

Main Breakers available

QGL22**xxx** series — All 65k AIR

Part# suffix — **Bold face** = Amps
-MQG20**70**, -MQG20**80**,
-MQG20**90**, -MQG2**100**,
-MQG2**110**, -MQG2**125**,
-MQG2**150**, -MQG2**175**,
-MQG2**100**, -MQG2**200**,
-MQG2**225**.

Outside dimensions
36" w., 50" h., 6.13" d.



Thermal-magnetic Molded Case Circuit Breakers

250 Ampere Frame
Class 734

QDL & QGL

2 and 3-pole
70–250 Amperes

POWERPACT Q-frame▲ —250 A, Thermal-magnetic (240 Vac)

Current Rating @ 40°C	AC Magnetic Trip Settings		D Interrupting	G Interrupting
	Hold	Trip	Catalog Number	Catalog Number
2-pole, 240 Vac				
70	1000	1800	QDL22070	QGL22070 ++
80	1000	1800	QDL22080	QGL22080 ++
90	1000	1800	QDL22090	QGL22090 ++
100	1200	2400	QDL22100	QGL22100 ++
110	1200	2400	QDL22110	QGL22110 ++
125	1200	2400	QDL22125	QGL22125 ++
150	1200	2400	QDL22150	QGL22150 ++
175	1200	2400	QDL22175	QGL22175 ++
200	1200	2400	QDL22200	QGL22200 ++
225	1200	2400	QDL22225	QGL22225 ++
250	1200	2400		

LynTec
MSP 139
Use a 2 pole, back-fed main breaker, rated at 100 AMPS or less.

QO2xxxVH Series
22kAIR

LynTec
MSP 119
MSP 141
++ All models 70-225A
Special order, **NCNR**
Non **C**ancelable
Non **R**eturnable

Current Rating @ 40°C	AC Magnetic Trip Settings		D Interrupting	G Interrupting
	Hold	Trip	Catalog Number	Catalog Number
3-pole, 240 Vac				
70	1000	1800		QGL32070
80	1000	1800		QGL32080
90	1000	1800		QGL32090
100	1200	2400		QGL32100
110	1200	2400		QGL32110
125	1200	2400		QGL32125
150	1200	2400	QDL32150 +	QGL32150
175	1200	2400	QDL32175	QGL32175 +
200	1200	2400	QDL32200 +	QGL32200
225	1200	2400	QDL32225 ➤	QGL32225 +
250	1200	2400		

LynTec
LCLC 326
MSLC 326
MSLC 338
MSP 338
Use a 3 pole, back-fed main breaker, rated at 100 AMPS or less.

QO3xxxVH Series
22kAIR

LynTec
LCLC 341
MSLC 341
➤Standard
+ Optional from stock

LynTec
MSLCH 341
+ Optional from stock

▲ Replacement lugs are not available for POWERPACT Q-frame circuit breakers. Lugs for the POWERPACT Q-frame circuit breakers accept (1) #4–300 kcmil.

Interrupting Ratings (kA)

	QD	QG
240 V	25	65

For **Branch Breaker Series Ratings**
see http://www.lyntec.com/139-0407_Series_Ratings.pdf

Series Ratings

For NQOD and NF Panelboards
Class 1630, 1670

SQUARE D
www.SquareD.com
For the most up-to-date information

This page contains UL Tested and Certified series combination ratings for panelboards. These ratings apply to either an integral main located in the same enclosure or a remote main located in a separate enclosure.

NQOD Series Ratings

Maximum System Voltage AC c	Maximum Short Circuit Current Rating (RMS Symmetrical)	Integral or Remote Main Circuit Breakers and Remote Main Fuses	Branch Circuit Breaker Designations and Allowable Ampere Ranges ab			
			Type	1-pole	2-pole	3-pole
120/240 1Ø	22k	MG	QO (B)	15–30 A	...	...
	42k	HD, JD	QO (B) PL	15–30 A	15–60 A	15–30 A
	65k	HG, JG	QO (B) PL	15–30 A	15–60 A	15–30 A
	100k	HJ, JJ	QO (B) PL	15–30 A	15–60 A	15–30 A
	125k	HL, JL	QO (B) PL	15–30 A	15–60 A	15–30 A
120/240 1Ø 208Y/120	100k	DJ 400 A	QO (B) QO (B) GFI QO (B) VH QO (B) AFI	15–70 A 15–30 A ... 15–20 A	15–125 A 40–60 A 150 A ...	... ... 15–150 A ...
		QJ	QO (B) QO (B) AS QO (B) GFI QO (B) PL QO (B) VH QO (B) AFI	15–70 A 15–30 A 15–30 A 15–30 A ... 15–20 A	15–125 A 15–30 A 15–60 A 15–60 A 150 A ...	15–30 A 15–30 A ... 15–30 A 35–150 A ...
208Y/120	18k	LA/LH (L) 34200MC LA/LH (L) 34225MC LA/LH (L) 34250MC LA/LH (L) 34400MC	QO (B)	15–30 A	15–30 A	15–30 A
LynTec models LCLC 326 MSLC 326 MSLC 338 MSP 338 MSP139	22k	UMB-xx QO (B) VH MB-xx	QO (B) QO (B) AS QO (B) GFI QO (B) PL QO (B) AFI	15–70 A 15–30 A 15–30 A 15–30 A 15–20 A	15–125 A 15–30 A 15–60 A 15–30 A ...	15–100 A 15–30 A ... ...
	22k	Q2-Hf	QO (B) QO (B) GFI QO (B) AFI	15–70 A 15–30 A 15–20 A	15–100 A 15–30 A ...	15–30 A ... ...
LynTec models LCLC 341 MSLC 341	25k	UMB-xx QD MB-xx	QO (B) QO (B) AS QO (B) GFI QO (B) PL QO (B) VH QO (B) AFI	15–70 A 15–30 A 15–30 A 15–30 A ... 15–20 A	15–125 A 15–30 A 15–60 A 15–60 A 150 A ...	15–30 A 15–30 A ... 15–30 A 35–150 A ...
LynTec models MSLC 113 MSLC 127 MSLC 129 are series rated 22k AIR. see QO130Mxx on pg 1-3 of Digest	25k	ED, FDf	QO (B) QO (B) GFI QO (B) AFI	15–70 A 15–30 A 15–20 A	15–125 A 15–60 A ...	15–100 A ... ...
	25k	KDf	QO (B) QO (B) AS QO (B) GFI QO (B) AFI	15–70 A 15–30 A 15–30 A 15–20 A	15–125 A 15–30 A 15–60 A ...	15–100 A 15–30 A ... ...
	25k	HD, JD	QO (B) QO (B) VH QO (B) GFI QO (B) AFI QO (B) H QOB2150VH	15–70 A ... 15–30 A 15–20 A	15–125 A ... 15–60 A ... 15–100 A 150 A	15–100 A 35–150 A ... ...
240	42k	LA, MA	Q2L-Hf QDL	... ...	110–225 A 70–225 A	110–225 A 70–225 A
		MG	QO (B) VH	15–30 A	15–30 A	15–30 A
		HD, JD	QO (B) PL	15–30 A	15–60 A	15–30 A
	42k	LC 600 A Maximum	QO (B) QO (B) VH QO (B) GFI QO (B) AFI	15–70 Ad 15–30 A 15–30 Ae 15–20 A	... 15–125 A 15–60 A ...	... 15–100 A (3P 208 V Max.) ... ...
	65k		QO (B) VH QO (B) GFI QO (B) AFI	15–30 A 15–30 Ae 15–20 A	15–125 A	15–100 A (3P 208 V Max.) ... ...
	65k	DJ 400 A	QO (B) QO (B) VH QO (B) H	15–70 A	15–125 A 150 A 15–100 A	... 15–150 A ...
	65k	EG, FGf , KGf	QO (B) QO (B) GFI QO (B) AFI	15–70 A 15–30 A 15–20 A	15–125 A 15–60 A ...	15–100 A ... ...
	65k	QG	QO (B) QO (B) AS QO (B) VH	15–70 A 15–30 A ...	15–125 A 15–30 A ...	15–30 A 15–30 A 35–150 A
		BMB-xx QG, HG, JG	QO (B) GFI QO (B) PL QO (B) AFI	15–30 A 15–30 A 15–30 A	15–60 A 15–60 A ...	... 15–30 A ...
LynTec models MSLCH 341 MSP 119 MSP 141 LCP 341 MSP 341	65k	BUMB-xx HG, JG	QO (B) QO (B) VH QO (B) H QOB2150VH	15–70 A	15–125 A ... 15–100 A 150 A	15–100 A 35–150 A ... ...
	65k	FCL22___ KCL22___ FCL32___ KCL32___	QO (B) QO (B) AS QO (B) GFI QO (B) AFI	15–70 A 15–30 A 15–30 A 15–20 A	15–100 A 15–30 A 15–30 A ...	15–100 A 15–30 A ... ...
	65k	400 A Max. Class J or T6 Fuses	QO (B) VH QOB-VH QO (B) AFI	15–30 A ... 15–20 A	15–125 A 150 A ...	15–100 A ... ...
	100k	FCL24___ KCL24___ FCL34___ KCL34___	QO (B) QO (B) AS QO (B) GFI QO (B) AFI	15–70 A 15–30 A 15–30 A 15–20 A	15–100 A 15–30 A 15–30 A ...	15–100 A 15–30 A ... ...
	100k	200 A Max. Class T3 Fuses	QO (B) AFI	15–20 A	...	...
	100k	EJ, FJf	QO (B) QO (B) GFI QO (B) AFI	15–70 A 15–30 A 15–20 A	15–125 A 15–60 A ...	15–100 A ... ...

QOBxxx (B) = BUMB series **B**olt-on, **U**n**M**otorized **B**reaker
-**x**xx = poles. x**xx** = trip current.
[1 pole] **BUMB-15, BUMB-20, BUMB-30**
[2 pole] **BUMB-215, BUMB-220, BUMB-230**
[3 pole] **BUMB-315, BUMB-320, BUMB-330**

QOxxx = UMB series clip-on, **U**n**M**otorized **B**reaker
-**x**xx = poles. x**xx** = trip current.
[1 pole] **UMB-15, UMB-20, UMB-30**
[2 pole] **UMB-215, UMB-220, UMB-230**
[3 pole] **UMB-315, UMB-320, UMB-330**
All 15 & 20 A breakers are **HM** (High Magnetic)

NQOD Series Ratings (Continued)

Maximum System Voltage AC c	Maximum Short Circuit Current Rating (RMS Symmetrical)	Integral or Remote Main Circuit Breakers and Remote Main Fuses	Branch Circuit Breaker Designations and Allowable Ampere Ranges ab			
			Type	1-pole	2-pole	3-pole
240	100k	HJ, JJ	QO (B) QO (B) VH QO (B) GFI	15–70 A ... 15–30 A	15–125 A ... 15–60 A	15–100 A 35–150 A ...
	125k	HL. JL	QO (B) PL QO (B) AFI QO (B) H QOB2150VH	15–30 A 15–20 A	15–60 A ... 15–100 A 150 A	15–30 A ... ...
	200k	FI, KI	QO (B) QO (B) AS QO (B) GFI QO (B) AFI	15–70 A 15–30 A 15–30 A 15–20 A	15–125 A 15–30 A 15–60 A ...	15–100 A 15–30 A ... ...
	200k	Maximum Fuses 200 A Class J or T6 400 A Class T3	QO (B) QO (B) AS QO (B) GFI	15–70 A 15–30 A 15–30 A	15–125 A 15–30 A 15–60 A	15–100 A 15–30 A ...

▲ Suffixes HID, SWD and SWN may also be applied to the applicable branch circuit breakers shown above, except suffix SWN may **NOT** be applied in combination with LC main circuit breakers.
■ Where QO (B) circuit breakers are shown above, QO (B) H, QO (B) VH, and QH (B) circuit breakers may also be used.
◆ For shown circuit breakers rated less than this maximum voltage, the indicated short circuit current rating also applies, but at the voltage rating of the circuit breaker.
★ Only 15–30 A circuit breakers may be used when the LC circuit breaker is rated 450, 500 or 600 A.
▼ Circuit breakers may not be used when the LC circuit breaker is rated 450, 500 or 600 A.
△ Obsolescent. Contact your nearest Square D/Schneider Electric sales office for replacement circuit breaker. One-pole FJ circuit breakers are still available.
Where QO(B) GFI circuit breakers are shown above, QO(B), EPD circuit breakers may also be used.

NF Series Ratings

Maximum System Voltage AC	Maximum Short Circuit Current Rating (RMS Symmetrical)	Main Type	Branch Type	Poles
240	65,000	EG, FH, FGf , KH, LH, MH, MX, HG, JG	EDB, EDB-EPD	1, 2 & 3
		EG	ECB-G3	
	100,000	EJ, FC, FJf , KC, LC, LX, HJ, JJ	EDB, EDB-EPD, EGB	
		EJ, FC, KC, HJ, JJ	ECB-G3	
	125,000	HL, JL	EDB, EDB-EPD, EGB, ECB-G3	
	200,000	FI, KI, LI, LXI	EDB, EDB-EPD, EGB, EJB	
		FI, KI	ECB-G3	
480Y/277	35,000	EG, FGf , KH, LH, HG, JG	EDB, EDB-EPD	1, 2 & 3
		EG, HG, JG	ECB-G3	
	65,000	EJ, FC, FJf , KC, LC, LX, HJ, JJ	EDB, EDB-EPD, EGB	
		EJ, FC, KC, HJ, JJ	ECB-G3	
	100,000	HL,JL	EDB, EDB-EPD, EGB	
	200,000	FI, KI, LI, LXI	EDB, EDB-EPD, EGB, EJB	
		FI, KI	ECB-G3	
600Y/347	18,000	HG, JG, MG	EDB, EDB-EPD	1, 2, 3
	25,000	EJ, FI, KH, KL, LC,. LE, LX, LI, LXI, HJ, JJ	EDB, EDB-EPD, EGB	
		LH	EDB(15–70 A), EGB	
	35,000	LC, LE	EDB, EDB-EPD, EGB, EJB	
	50,000	HL, JL	EDB, EDB-EPD, EGB	
	65,000	FI, KI	EDB, EDB-EPD, EGB, EJB	
		LI, XI	EJB	
		Remote Main Fuse		
240	200,000	200 Ampere Maximum Class J or T (600V)	ECB-G3	1, 2 & 3
480Y/277	100,000	400 Ampere Maximum Class J or T (600V)	EDB, EDB-EPD, EGB, EJB	1, 2 & 3
	200,000	200 Ampere Maximum Class J or T (600V)	EDB, EDB-EPD, EGB, EJB	
	200,000	200 Ampere Maximum Class J or T (600V)	ECB-G3	
600Y/347	200,000	200 Ampere Maximum Class J or T (600V)	EDB, EDB-EPD, EGB, EJB	1, 2 & 3

QOBPLxxx-5393 = BMB series **B**olt-on, **M**otorized. (REMOTELY OPERATED)
-**x**xx = poles. x**xx** = trip current. **-5393** suffix denotes special 60" control wires.
[1 pole] **BMB-15, BMB-20, BMB-30**
[2 pole] **BMB-215, BMB-220, BMB-230, BMB-240, BMB-250, BMB-260**
[3 pole] **BMB-315, BMB-320, BMB-330**

QOPLxxx-5393 = MB series clip-on, **M**otorized. (REMOTELY OPERATED)
-**x**xx = poles. x**xx** = trip current. **-5393** suffix denotes special 60" control wires.
[1 pole] **MB-15, MB-20, MB-30**
[2 pole] **MB-215, MB-220, MB-230, MB-240, MB-250, MB-260**
[3 pole] **MB-315, MB-320, MB-330**

LynTec overprint: 139-0407-02 Series Ratings 10/31/06
For most current version see http://www.lyntec.com/139-0407_Series_Ratings.pdf

LynTec overprint document # 139-0216-08.1 48840-496-04
11/2003
Cedar Rapids, IA, USA

Instruction Bulletin

ECN N353

QO-PL (Plug-on), QOB-PL (Bolt-on) Powerlink® Remotely Operated Circuit Breakers

(Use in Type QO Load Centers and Type NQO, NQOB, and NQOD Panelboards)

Retain for future use.

REQUIREMENTS

Remotely Operated Circuit Requirements

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, BURN, OR EXPLOSION.

When servicing a branch circuit fed by a remotely operated circuit breaker, move handle of remotely operated circuit breaker to OFF position. Do not rely on remote operation to open circuit breaker.

Failure to follow these instructions will result in personal injury or death.

POWERLINK® QO(B)-PL Remotely Operated Circuit Breakers require a power supply capable of delivering at least two amperes at 24 Vdc for a minimum of 50 milliseconds. One-, two-, and three-pole circuit breakers all have one internal motor, and power requirements are the same regardless of the number of poles and ampere ratings.

The required power supply ampacity and control device contact rating are determined by the number of circuit breakers to be switched simultaneously (i.e., four circuit breakers switched simultaneously require a power supply and a control device contact rated 8 amperes minimum). The control device may be either a normally-open (NO)/ normally-closed (NC) contact; a single-pole, double-throw switch (SPDT); or other three-wire control device.

CIRCUIT BREAKER INSTALLATION

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

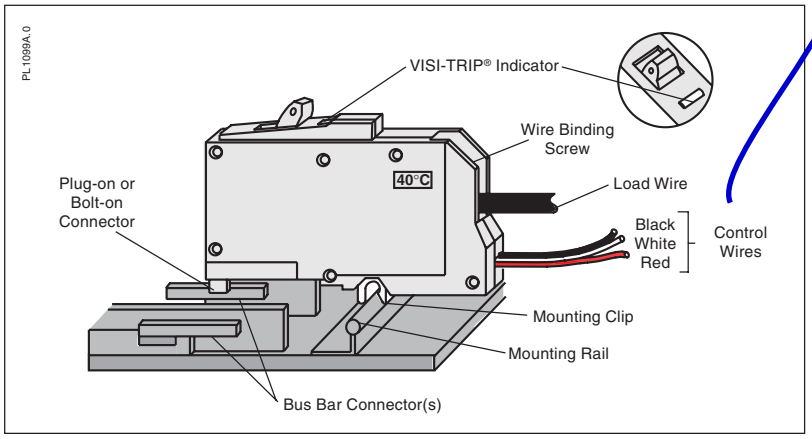
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.
- This equipment must be installed and serviced only by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

Failure to follow these instructions will result in death, or serious injury.

1. Turn off all power supplying this equipment before working on or inside equipment.
2. Before installing circuit breaker turn circuit breaker handle to OFF position.
3. Remove panelboard cover and deadfront. Verify power is off with voltage meter before proceeding.

All LynTec supplied breakers have special 60” control wires. (Square D standards are 18”.)

Installation of circuit breaker into panelboard/load center (refer to figure below)



4. Except for remotely operated connections, QO(B)-PL remotely operated circuit breakers are installed in a panelboard/load center the same as conventional QO(B) circuit breakers.

Connection of remotely operated circuit (refer to the figure on next page)

5. Assure that power supply and control device meet requirements listed under "Remotely Operated Circuit Requirements."

See page 2 for LynTec part number explanation

CIRCUIT BREAKER INSTALLATION

CAUTION

HAZARD OF CIRCUIT BREAKER DAMAGE.

Connect the 24 Vdc remote control wiring as shown on this page.

Failure to follow these instructions can permanently damage the remotely operated circuit breaker.

6. All wiring and splicing must comply with applicable code requirements for Class 1 circuits. Refer to paragraph 373-8 and article 725 of the National Electrical Code.

7. Three #18 AWG control wires are attached to the remotely operated circuit breaker for connection to the power supply and remote control device and should be cut to the required length to reach the splice connections. Use #18 AWG or larger conductors with 600 V insulation and approved wire connectors for splices.

8. Connect the black lead of the remotely operated circuit breaker to the negative (-) terminal of the 24 Vdc power supply. Connect the red lead of the remotely operated circuit breaker to the positive (+) terminal of the 24 Vdc power supply. Connect the white lead of the remote control device. The remote control device provides connections between either positive or negative potential of the power supply and the white wire of the remotely operated circuit breaker, as appropriate.

9. Applying the positive potential of the power supply to the white wire (contact closure between the red wire and white wire) will operate the remote mechanism of the circuit breaker to the OFF position. Applying the negative potential of the power supply to the white wire (contact closure between the black wire and the white wire) will operate the remote mechanism of the circuit breaker to the ON position. A control circuit utilizing a normally open (NO)/normally closed (NC) contact is illustrated below.

NOTE: The remote mechanism will not move the circuit breaker handle. Also, the remote mechanism cannot turn power ON when the circuit breaker is tripped (VISI-TRIP® flag indicator showing) or when the circuit breaker handle is in the OFF position.

Installation of the trim and operational checks

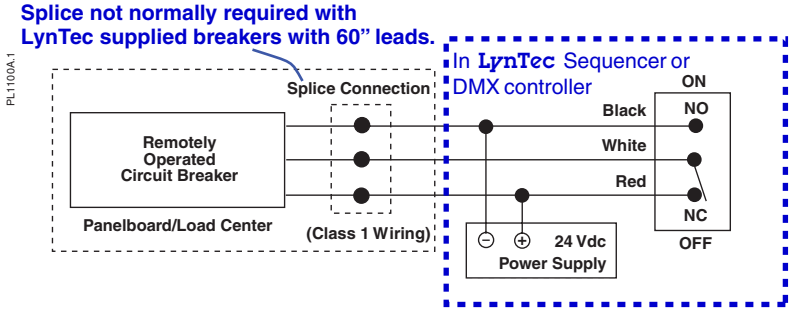
10. Remove corresponding twist-out from panelboard trim and replace trim.

11. Turn power to panelboard on.

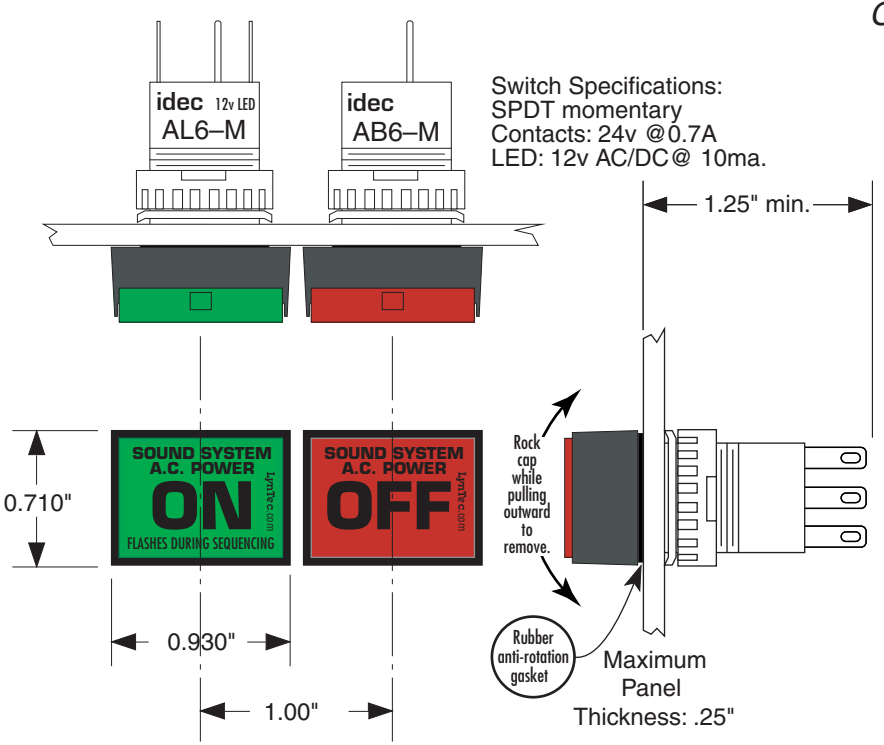
12. Turn remotely operated circuit breaker handle to the ON position.

13. Turn power to the remotely operated circuit on and test this circuit, turning remotely operated circuit breaker off remotely, then on remotely. If power to remote controlled circuit breaker load does not switch off and on, turn off power to remotely operated circuit and panelboard and check wiring.

NOTE: A power supply is available from Square D Company, Cat. No. QOPLPS (plug-on) or QOBPLPS (bolt-on).

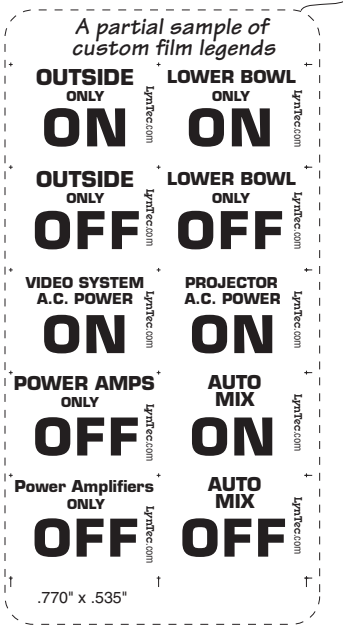


Square D Company
3700 Sixth Street SW
Cedar Rapids IA 52404 USA
1-888-SquareD (1-888-778-2733)
www.SquareD.com



Custom switch legends you can print on your laser printer

See http://www.lyntec.com/139-0309_CSLF-1_Film.pdf



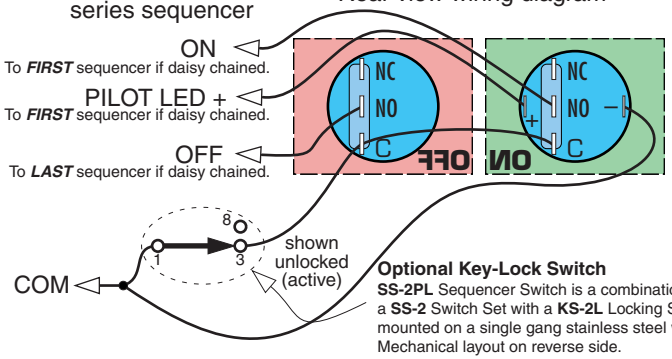
LynTec

A.C. Sequencing Systems

Wire requirements
Switch set to sequencer: 4 conductors.
Between daisy chained sequencers:
9 conductors, 11 if Power Vouchers are used.
Up to 2500 ft. run: 24 ga.
2,500 to 3,750 ft. run: 22 ga.

To **LynTec** **PDS, MRTS, MSLC, SLC, MSP** or **SP** series sequencer

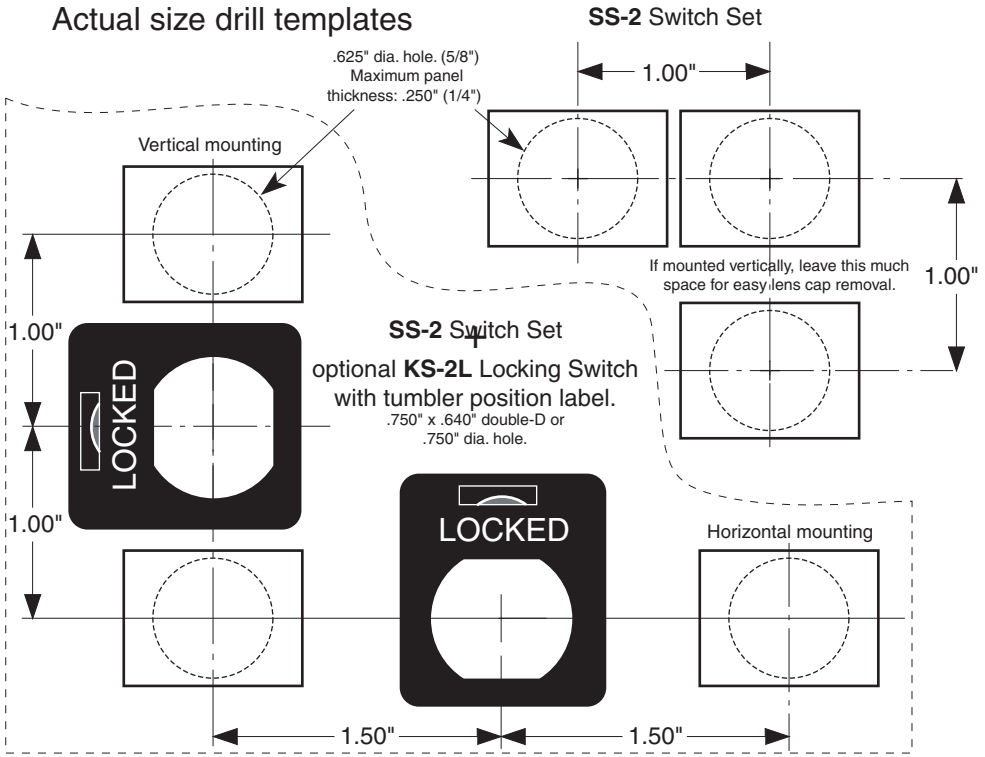
Rear view wiring diagram



Optional Key-Lock Switch
SS-2PL Sequencer Switch is a combination of a **SS-2** Switch Set with a **KS-2L** Locking Switch, mounted on a single gang stainless steel wall plate. Mechanical layout on reverse side.

See reverse side for multiple switch set wiring.

Actual size drill templates



LynTec

one

SS-2 Sequencer Switch Set

Up to 5* additional remote control locations may be added to the system with additional switch sets or with other momentary switches.

139-0252-11.1 SS-2 insert 4/12/05

Multiple Sequencer Hookup Diagram
For **LynTec MSLC** and **MSP MODULAR** and **PDS-8EK** Power Sequencing Products

Showing Low-Voltage Remote **ON**/**OFF** Control and Daisy-Chain Wiring

Custom switch legends you can print on your laserprinter
See http://www.lyntec.com/139-0309_CSLF-1_Film.pdf

For **single** sequencer board hookup connect OFF switch normally open to OFF.

FIRST Sequencer Board (Top)

PILOT LED (green)

Cage clamp terminal blocks. Press white levers back with small straight-blade screwdriver to insert stripped wires.

These expansion terminals on the top or middle boards are NOT used when the cascade connectors are used to daisy-chain boards within a cabinet.

NOT in PDS-8EK
See daisy-chain connections below for wiring between PDS-8s or multiple cabinets.

Power & Kill Connector (4 pin) — Com, 24v AC, N/C, Kill

Cascade Connector (4 pin) — Busy, Carry, V–, OFF

One set of the **ON** and **OFF** switches shown below are supplied *unmounted* as a **SS-2** Switch Set with each LynTec sequencer cabinet. Mount in 5/8" dia. round holes in panels up to 1/4" thick.

LynTec Model **SS-2PL** Locking Swich Set. (Optional)

Test button

+5v CMOS Logic output. Mimics Pilot LED. 3.3KΩ source impedance. (For touch panel drive)

When sequencers are daisy-chained ***avoid*** using these test switches.

Use the *first* **ON** test switch and the *last* **OFF** test switch to avoid confusing operation.

For multiple control points add **SS-2**'s or **SS-2PL**'s. Parallel connect P lines.

connections, rear view

To run each sequencer board as a separate system, remove the ***right*** Cascade Connector. Connect ON, Pilot, Com & OFF to switch set.

To isolate the **Hurry-Off** and **Kill** functions, unplug ***left*** Power & Kill Connector and move to the left one step, mis-mating to eliminate the board-to-board Kill connection.

LAST Sequencer Board (Bottom)

These expansion terminals on the ***bottom*** board are only used for daisy-chain connections when more than one cabinet is used.

Power & Kill Connector (4 pin)

Cascade Connector (4 pin)

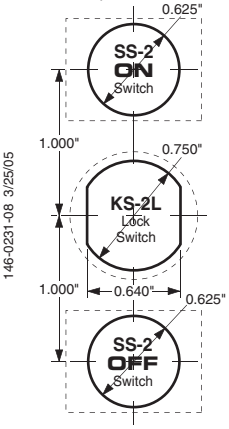
OFF Test button

Install Jumper in LAST sequencer board only if POWER VOUCHERs are not installed.

Kill — Fire alarm shutdown
External contact closure lights the red Kill LEDs and kills all sequenced power.

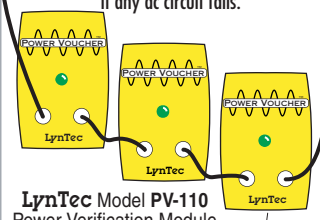
Contact opening restarts the ON sequence.

Switch layout for field constructed panel mounting. 1/4" max. panel thickness.



146-0231-08 3/25/05

Optional Power Vouchers verify all circuits are hot and no circuit breakers are tripped.
ON light won't lit at end of ON sequence if any ac circuit fails.

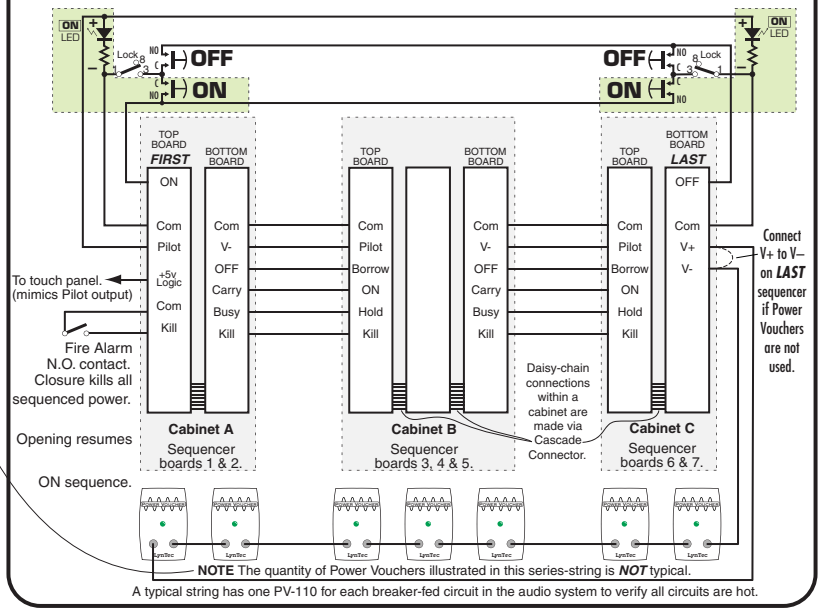


LynTec Model **PV-110** Power Verification Module (Optional)

See next page for enlarged daisy-chain hookup

Low voltage control wire: 24 gauge minimum, 5,000 ft. loop max.

A typical three panel, daisy-chained, system with two locking control locations.



NOTE The quantity of Power Vouchers illustrated in this series-string is ***NOT*** typical.
A typical string has one PV-110 for each breaker-fed circuit in the audio system to verify all circuits are hot.

Parallel connect additional SS-2 switch sets for multiple remote control locations.
4 conductors, 24 ga., 5,000 ft. loop max.

Maximum number of switch sets:

All LynTec sequencers support 6 switch sets.

LynTec
Lenexa, KS (Central time zone) U.S.A.
Voice **800-724-4047** or 913-529-2233
Fax **888-722-4157** or 913-529-4157
www.**LynTec**.com

139-0252-11.2 SS-2/SS-2PL Insert 4/12/05
See http://www.lyntec.com/139-0252.pdf *for latest version.*

A typical LynTec three panel, daisy-chained system with two locking control locations.

For Timing Diagram and Logic levels
See **http://www.lyntec.com/139-0266_Seq_Timing.pdf**

Wire Requirements for Remote Controls

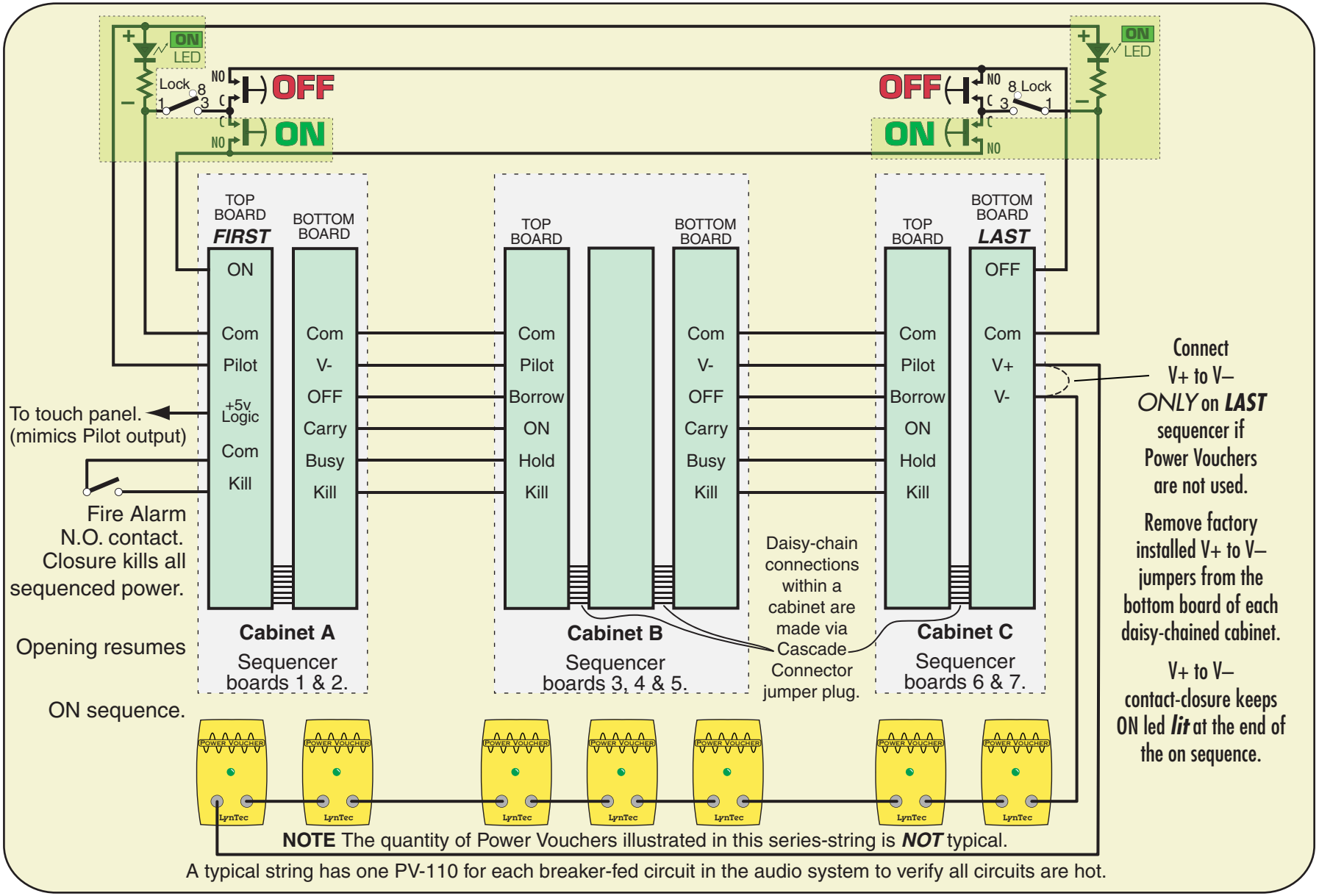
Basic system ON/OFF Control from one panel only....4 conductors

Basic + Kill Add Kill function .....6 conductors
2 conductors to Kill control location

Remote control at both ends .....9 conductors

Kill, Remote control both ends, full power verification .....11 conductors

Low voltage control wire: 24 gauge minimum, 5,000 ft. loop max.



NOTE The quantity of Power Vouchers illustrated in this series-string is ***NOT*** typical.

A typical string has one PV-110 for each breaker-fed circuit in the audio system to verify all circuits are hot.

Built-in Kill, Hurry-Off and **ZipOff** (PANIC) switch option

for **MSLC and MSP and PDS-8EK** series AC SEQUENCING SYSTEMS

What the functions do

Kill — EMERGENCY SHUTDOWN

Provides an *IMMEDIATE* shut down method for the sound system at the command of a fire alarm, emergency announcement system, or ZipOff switch.

Optional **ZipOff** switch, **ZOS-5K**

Provides a full AC Power shutdown within 250 milliseconds after the **ZipOff** button is pushed.

In case of a runaway oscillation or other unexpected signal which could damage the loudspeakers if sustained...

Lift the protective cover and press the ZipOff button... it latches down and lights red. The AC power sequencing system immediately zips off.

Press again to unlatch... the light goes out and the sequencer restarts to repower the system.

or

Use the new **Hurry-Off** function at any OFF switch.

MULTI-BOARD SHUNT **R**

The Kill line is an 11 ma. current source from each MS-12 Modular Sequencer or PDS-8 EK board

A voltage sensor on the Kill line determines the Kill threshold.

The Kill line has an open circuit voltage of 28 volts which must be pulled down to less than 10.5 volts to generate a Kill function. Grounding the Kill line to Common will always kill the system instantly. This current source may also be used to light the Zip-Off switch's, red LED.

The red ZipOff LED only requires 10 ma. For systems where multiple-board system's Kill lines are paralleled, a 9 v. voltage regulator chip is installed in the **ZOS-5K** which will automatically shunt the excess source current of up to 5 boards. For more than 5 boards an additional resistor must be used in parallel with the ZipOff switch LED. To prevent damage due to overheating the voltage regulator chip, the resistor should be installed as shown with ***full length leads*** to get the heat source away from the switch.

Total Number of boards	Shunt Resistor required		
1-5	none		
6	820Ω, 1/4w	16	75Ω, 2w
7	430Ω, 1/4w	17	68Ω, 2w
8	270Ω, 1/2w	18	62Ω, 2w
9	200Ω, 1/2w	19	56Ω, 2w
10	150Ω, 1/2w	20	56Ω, 2w
11	150Ω, 1w	21	51Ω, 2w
12	120Ω, 1w	22	47Ω, 2w
13	100Ω, 1w	23	47Ω, 2w
14	92Ω, 1w	24	43Ω, 2w
15	82Ω, 1w	25	39Ω, 2w

Hurry-Off

The MS-12 Modular & PDS-8EK Sequencing boards have a new Hurry-Off function. If you ***hold down*** any OFF switch for two seconds, a "Kill without restore" function is triggered. The system shuts down within 250 milliseconds and doesn't restart until you give it a new ON command. Kinda like a DSP undo command.

How they work

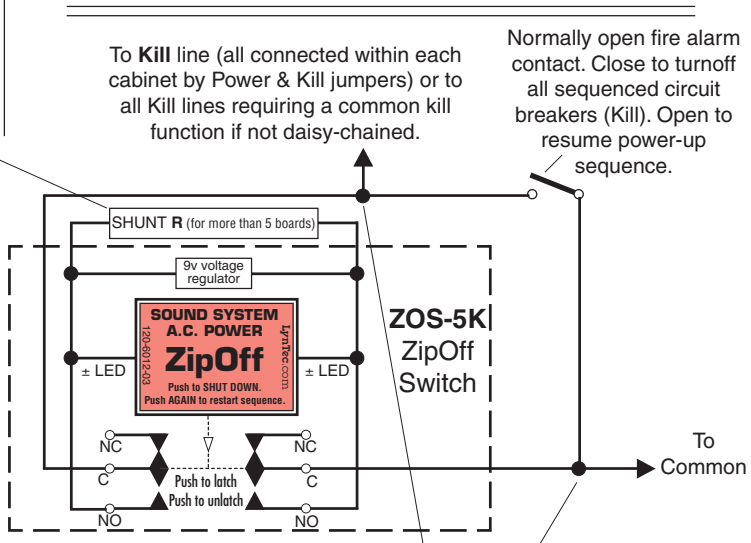
All LynTec sequencing systems have the ZipOff load shedding feature. The older SLC, SP and PDS-8's implemented it by interrupting 24v ac power.

The newer Modular sequencers, the MSLC and MSP series and the PDS-8EK, load shed when power fails, but also have a **Kill** function that is triggered by grounding the **Kill** line.

The red **Kill** LED, adjacent to the Kill terminal on the board, lights and Zip-Off is immediate. The kill line is a low current line. Long control wiring may be used without concern for loop resistances up to 32Ω. (22 gauge, up to a 1,000 ft. run [2,000 ft. loop] or a 680 ft. run of 24 ga).

The ON/OFF *latching* pilot relay remembers that the sequencer was ON. When the **Kill** line is opened, the ON sequence repeats, bringing the AC power back on.

For the Modular series control boards the **ZipOff** switch connects the Kill line to common, through the Zip-Off switch's LED, initiating the Kill function.



Wiring pictorial on reverse side

What to specify or order

For **ZipOff** switch order **ZOS-5K**. (services up to **5 K**ill equipped boards)
Includes switch with ZipOff film legend and flip up security cover.
Switch mounts in 5/8" round hole in panels up to 3/16" thick.
ZOS-5K Contractor C.O.D. price: $40.
Delivery: Stock.

www.LynTec.com

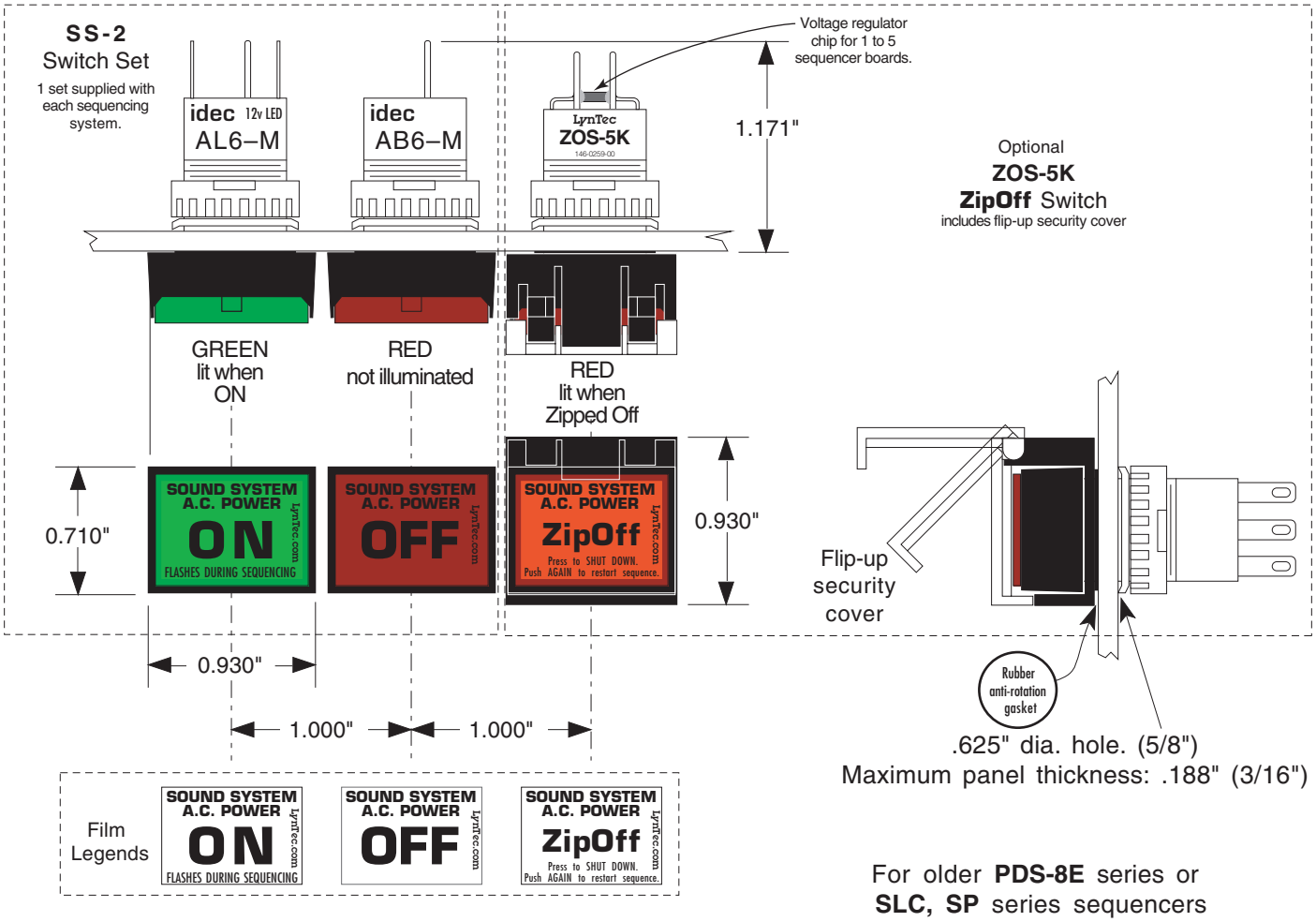
8401 Melrose Drive • Lenexa, KS 66214 • Voice **800-724-4047** or 913-529-2233 • Fax **888-722-4157** or 913-529-4157

139-0256-05.1 7/7/04 *See* **http://www.lyntec.com/139-0256_ZOS-5K.pdf** *for latest version.*

LynTec

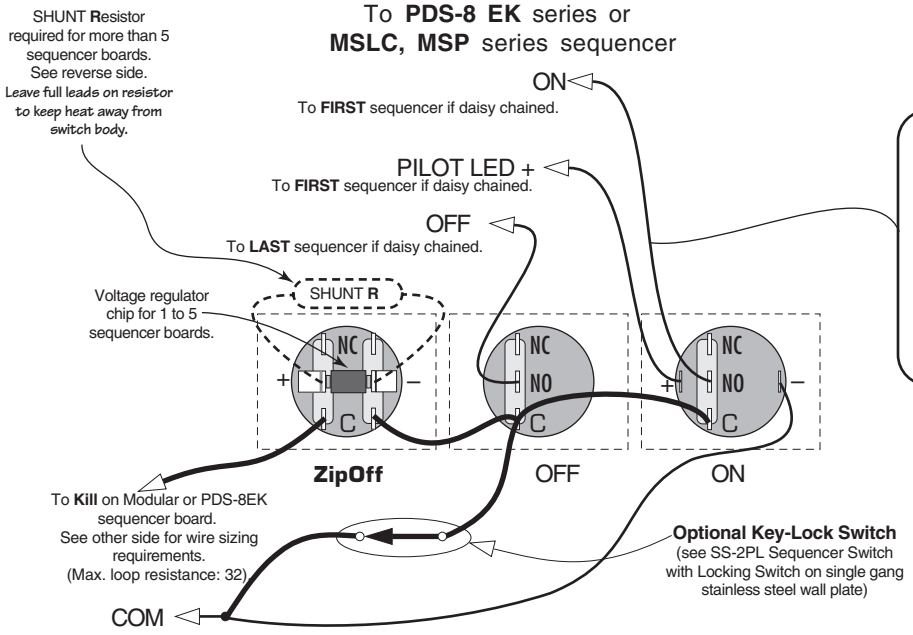
for **Modular** A.C. Sequencing Systems, models **MSLC, MSP** & **PDS-8EK**.

ON, **OFF** and **ZipOff** switch mounting & wiring



For older **PDS-8E** series or **SLC, SP** series sequencers see
http://www.lyntec.com/139-0137_ZOS-1.pdf

Wiring pictorial - Rear view



Wire requirements
Switch set to sequencer: 4 conductors.
Between daisy chained Modular sequencers:
9 conductors, 11 if Power Vouchers are used.
Up to 5,000 ft run: 22 ga.,
5,000 to 7500 ft. run: 20 ga.
7,500 to 10,000 ft. run: 18 ga.
See other side for **ZipOff** wire sizing.