

# LCN ELECTROHYDRAULIC POWERED SYSTEMS

## ELECTRIC AUTO EQUALIZERS

These Auto Equalizer products are an addition to the original pneumatic drive system. People moving through a door can use it as a normal rack & pinion door closer or, at the touch of a button, open the door automatically. An integrated digital control suite provides all electrical control functions. These self-contained units are suitable for use on single leaf doors or pair of doors where each leaf is equipped with an operator. The operator provides all the control and power elements into a single operator package, only some actuators are required to complete the system.

- ▶ Introduced in 1995
- ▶ Two surface mount models available. The 4630 mounts on the pull side of the door and the 4640 series mounts on the push side of the door.
- ▶ Integrates a modified heavy-duty 4040 series cast iron cylinder. The 4040 series closer has been independently tested to 10 million cycles.
- ▶ Mounting plate and cover end caps are only available in a powder coat black finish.
- ▶ 4600 Electric Operators are not approved for smoke evacuation systems.

## UNIQUE FEATURES

### ▶ Digital Control Box

Provides exceptionally precise control of a large range of built-in functions combined with superior durability and performance. Visual indications and digital readouts of all control function settings and activity make adjustments easy, fast and accurate.

### ▶ Dual Independent Program Memories

Each unit is pre-programmed to factory default settings. The installer can adjust the unit to meet the job site requirements. These field settings are locked into the computer's memory. Any subsequent field adjustments replace the original field adjustments. The factory settings are always retained in memory and can be recalled to replace the field settings in just seconds, restoring the unit to its original programming.

### ▶ On-Board Diagnostics

Sophisticated built-in diagnostics program monitors the system microprocessor, power supplies, drive system and actuators circuitry. Reduces the time required to make sure the installation is complete and correct.

### ▶ On-Board Power Supply

Provides both 12V DC and 24V DC outputs to power card readers, manual actuators and other peripherals.

### ▶ "Plug & Play" Sensors

Motion sensors and safety sensors feature a 'plug and play' concept allowing fast and accurate wiring connections in only seconds.

### ▶ "No Destruct" Drive System

Specially designed motor and clutch assembly provide a 'breakaway' function that reduces the chance the operator will be damaged in an abusive application. If a vandal tries to force the door closed while it is trying to open, the clutch mechanism prevents damage. The door is never out of control because the heavy duty 4040 closer is always operable.

### ▶ Electronic Circuit Protection

The high voltage input circuit is protected by an electronic circuit breaker. The low voltage output circuits by self-resetting fuses.

### ▶ Visual Function Indicators

LED's allow direct observation of these inputs:

- input power
- fire alarm input
- normal trigger (actuator) input
- sequential trigger (actuator) input
- hold open/alternate action (actuator) input
- lockout timer
- safety sensor (clear) input
- safety sensor (active) input

### ▶ Programming Mode

Allows tailoring the following functions to meet specific site conditions:

- hold open time
- 90° slow down time
- one shot input [ON or OFF]
- Exterior mode [ON or OFF] function to accommodate momentary resistance, like wind gusts, during the opening swing.
- electric strike delay timer
- electric strike 3 second power function [ON or OFF]
- sequential trigger delay timer
- alternate action timer
- lockout timer

## ELECTRIC AUTO EQUALIZER SYSTEMS

- ▶ Originally introduced in 1995.
- ▶ Exceeds proposed ANSI cycle test standard of 300,000 full load automatic operating cycles. Integrated LCN 10 million cycle heavy duty 4040 door closer.
- ▶ Power operation plus full door control.
- ▶ For all applications, single or multi-door projects.
- ▶ Opening time to backcheck no faster than 3 seconds.
- ▶ Opening time 4 seconds or more to fully open.
- ▶ Must remain fully open for at least 5 seconds.
- ▶ Closing time from 90° to 10° no faster than 3 seconds.
- ▶ Less than 15 pounds-force to stop door's motion.
- ▶ Kinetic energy must not exceed 1.25 lbf-ft.
- ▶ In event of failure; less than 15 lbf. to release latch, less than 30 lbf. to put door in motion, less than 15 lbf. to fully open door systems.

*Continued on page 36*

# LCN ELECTROHYDRAULIC POWERED SYSTEMS

## STANDARDS, LISTINGS & APPROVALS

- ▶ UL listed for self-closing doors without hold open under "SWINGING DOOR CLOSERS (GVEV)" file R1943.
- ▶ Tested and certified under ANSI Standard A156.19. Refer to Section 2.1 and consult factory for details.
- ▶ ANSI Standard A117.1, Section 4.13.13
- ▶ ADA law, Section 4.13.12.
- ▶ UBC 7.2 (1997) for positive pressure plus UL 10B and UL 10C listing.
- ▶ Wiring is compliant with both UL 325 and the NEC. Separation of high and low voltage.
- ▶ Consult the factory for other listings such as; cUL, Department of Labor and Industry of the Commonwealth of Pennsylvania, The Board of Standards and Appeals of the City of New York, Fire and Panic Safety Standards of the California State Fire Marshal.
- ▶ UL Listed for Fire Rated Door Operators with Automatic Closers, File No. (GUJY).

## WARRANTY

- ▶ 2 year limited warranty. See General Section for complete details.

## MAINTENANCE

- ▶ Operators mounted according to the LCN installation instructions require no periodic maintenance or adjustments.
- ▶ Monthly, quarterly and annual visual inspections are recommended.
- ▶ No service contracts.

# LCN ELECTROHYDRAULIC POWERED SYSTEMS

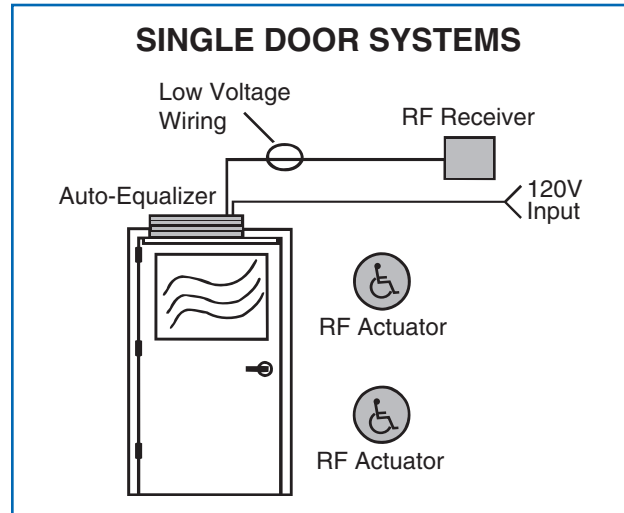
These pages illustrate examples of typical Electric LCN systems. Please consult your local SSC representative or LCN for assistance with specific installations and material requirements.

## SINGLE DOOR SYSTEM

- ▶ An Interior Door.
- ▶ No guide rails or safety devices.
- ▶ Free Swinging (or Dogged) Door.

### How It Works

Wireless RF actuators with receiver, powered by the Auto Equalizer simplify installation and minimize installation costs. For automatic door operation, touching either actuator signals the receiver and controller module to open the door to 90°. The door is held there until the system times out, then full spring power is applied to reliably close and latch the door. Door opening speed and hold open time are adjustable on the controller. Closing power and speed are adjustable on the cylinder assembly. If not actuated, the Auto Equalizer functions as a full featured door closer.



### BILL OF MATERIALS

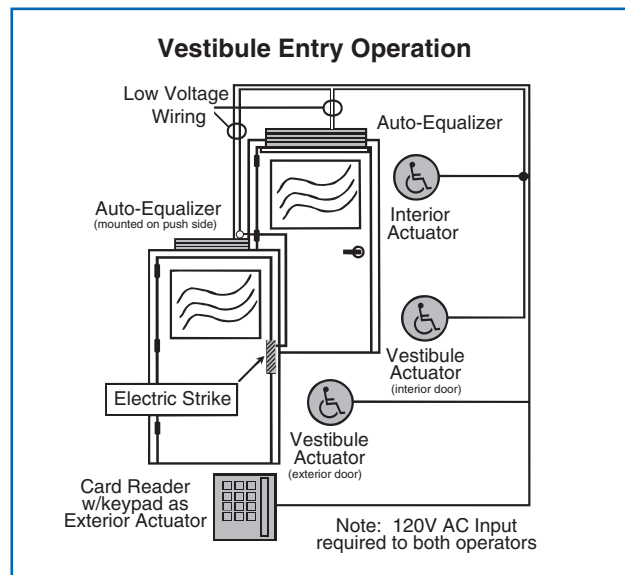
Qty.	Part No.	Description
1	4631	Auto Equalizer
2	8310-3856WS	RF Actuators
1	8310-865	RF Receiver

## VESTIBULE ENTRY SYSTEM

- ▶ Exterior & Vestibule doors.
- ▶ Sequential Operation.
- ▶ No guide rails or safety devices.
- ▶ Controlled Access, Free Egress.

### How It Works

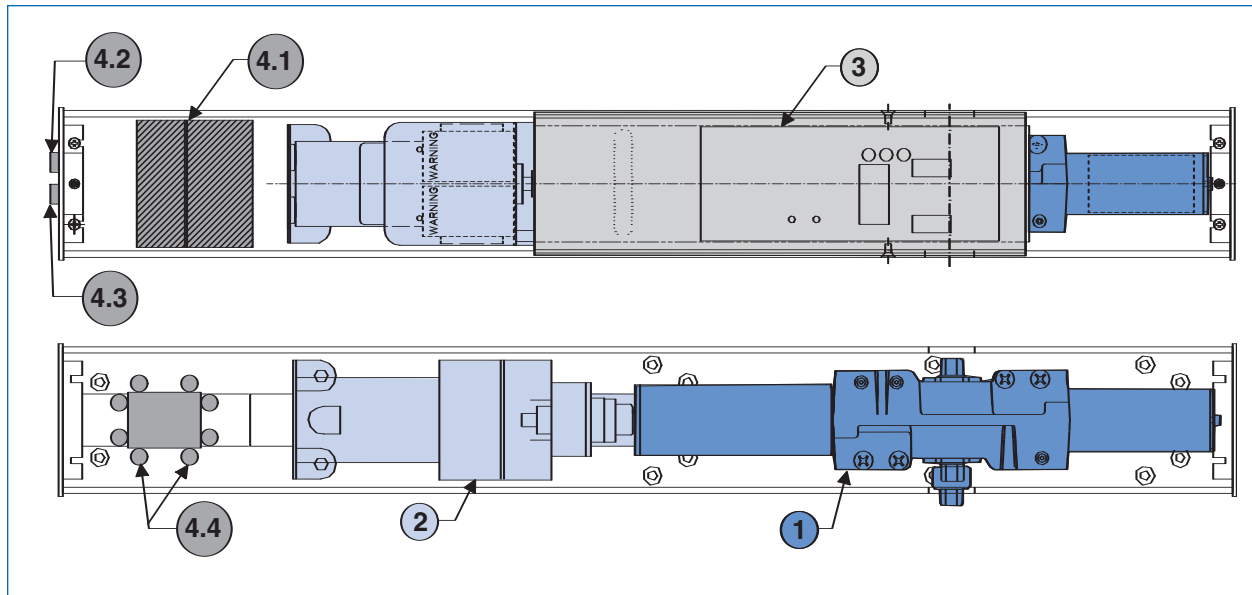
This installation provides both accessibility and security for building occupants. The Auto Equalizer controller module provides both the power and coordination for card reader and electric strike applications. A built-in delay allows the strike to release before the door begins to open. Two interconnected Auto Equalizers provide sequential operation in both directions. Vestibule actuators allow single door ingress/egress from the vestibule as needed. *Note: An EL device requires a separate power supply.* If not actuated, the Auto Equalizer functions as a full featured door closer.



### BILL OF MATERIALS

Qty.	Part No.	Description
1	4642	Auto Equalizer (exterior)
1	4631	Auto Equalizer (interior)
3	8310-856	Wall Plate Actuators
		Other products from Von Duprin and Locknetics

# LCN 4630/4640 ELECTROHYDRAULIC POWERED SYSTEMS



## 1 DOOR CLOSER ASSEMBLY

- ▶ Based on a heavy duty 4040, cast iron cylinder with all-weather fluid for consistency and reliability.
- ▶ Rugged drive mechanism provides the connection to the electric motor assembly.
- ▶ Fully adjustable, independent hydraulic regulation controls the door to minimize the chance of damage to the door and frame assemblies.

## 2 ELECTRIC MOTOR/CLUTCH ASSEMBLY

- ▶ Highly efficient motor combined with a custom designed gear system provides exceptionally quiet and smooth operation.
- ▶ Special clutch transmits the power and provides a unique "breakaway" function that prevents damage to the operator, door and frame if a vandal forces the door closed during the powered opening swing.

## 3 DIGITAL CONTROLLER MODULE

- ▶ Digital Control Suite
- ▶ Dual Independent Program Memories
- ▶ On Board Diagnostics
- ▶ Visual Function Indicators
- ▶ Adjustable Programming Modes

## 4.x FIELD WIRING

- 4.1 ▶ Input power; 120V AC @ 1.5 amperes.
  - ▶ On-board, low voltage power supply provides both 12V and 24V DC @ 1.0 ampere (maximum combined load) for LCN actuators, RF receivers, and electric strikes or magnetic locks.
  - ▶ Circuit breaker switch and self-resetting fuses protect input and output power from voltage spikes.
  - ▶ Terminal strips simplify field wiring.
- 4.2 ▶ On/Off Switch (red)
- 4.3 ▶ Hold Open Switch (black)
- 4.4 ▶ Separate conduits for high voltage power and low voltage power and signal wiring meet UL and National Electrical Code requirements.

# LCN ELECTROHYDRAULIC POWERED SYSTEMS

## LCN DIGITAL CONTROL BOX

### Opening Speed Adjustment

Limited to a minimum of 3 seconds to backcheck (approx. 70°)

### Opening Force Adjustment

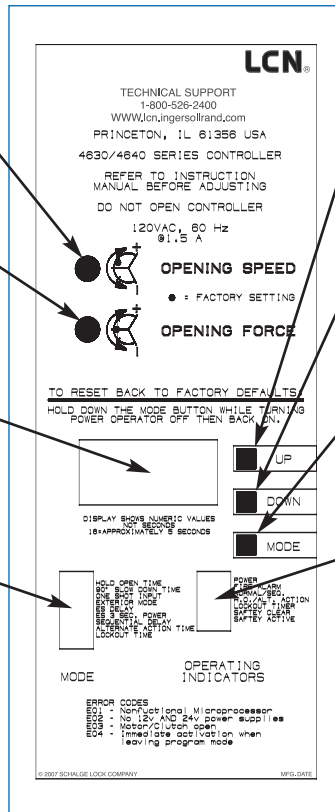
Maximum of 15 lb-f to stop door swing

### Time Display

Displays numeric value relating to timing adjustments (16 = approx. 5 seconds)

### Mode Indicator

Indicates programming mode currently being displayed



### Up Button

Increases time or changes from OFF to ON when programming

### Down Button

Decreases time or changes from OFF to ON when programming

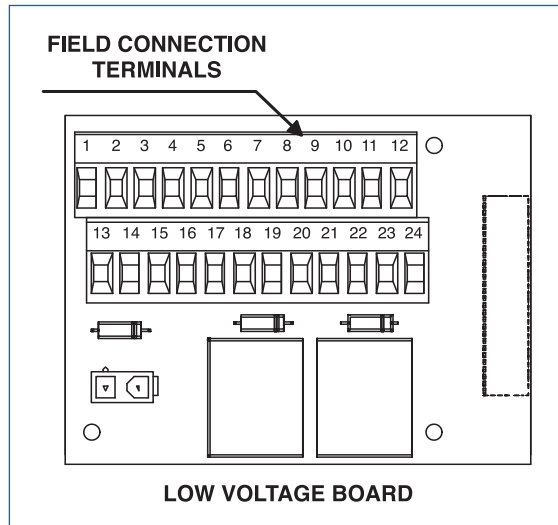
### Mode Button

Advances through programming setups on Mode Indicator

### Operating Indicators

Displays operating information about internal functions and external hardware

## LCN LOW VOLTAGE (CLASS 2 NEC) ELECTRICAL CONNECTIONS



### FUNCTION

Actuator - Normal Input (N.O.)  
Actuator - Sequential Input (N.O.)  
Actuator - Alternate Action (N.O.)  
Actuator - Continuous (N.O.)  
Sequential Output  
Stop Side Safety (N.O.)  
Swing Side Safety (N.O.)  
Fire Alarm Contact (N.C.)  
Auxiliary Relay Contacts(5 amp max)

E.S. Relay Contacts(5 amp max)

12V DC & 24V DC Negative\*

12V DC Positive\*

24V DC Positive\*

### TERMINAL

16 & 17 or 18 & 19  
8 & 19  
15 & 17  
6 & 17  
9  
19 & 20  
19 & 21  
13 & 14 (Fire Shunt)  
10 - Common  
11 - N.O.  
12 - N.C.  
22 - Common  
23 - N.O.  
24 - N.C.  
2, 4, 13, 17, & 19  
5 & 7  
1 & 3

\* Note: 1 Amp max load between 12V and 24V DC outputs