



KIS100
Power Gate Operator
Installation Manual

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PATENT PENDING



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Introduction

The KIS100 gate operator is a proven product that provides a user friendly, dependable and cost effective means of automating accordion gates used in residential and LULA elevators. It has passed an accelerated life test of 25 years of normal residential use (100,000 cycles).

This product conforms to UL508A, ASME A17.1A, ASME A17.5, CSA-B44-94, and CSA-C22.22, No. 14-M91.

Features & Benefits

- **Two Speed bi-directional gate operation**

- **Selectable Auto-Close feature**

Will automatically close the gate when the open signal is removed

- **Variety of Control Signalization**

The KIS100 can accommodate a variety of control voltages or dry contact signals.

- **Emergency Power Input**

In the event that the 110VAC power is interrupted, 24VDC may then be applied to operate the unit.

- **GAL type G gate switch (optional)**

Mounts within the KIS100 chassis

- **Micro-switch slow downs and limits**

Provide a simple and accurate means of decelerating and stopping the gate

- **Magnetic coupling of gate to operator**

Provides a simple and positive means of preventing damage or injury in the case of an obstruction. If the resistance to gate closure exceeds the magnetic coupler, the gate dis-engages and becomes a manual gate. There is nothing to get out of adjustment or reset. This coupling system also allows for moderate mis-alignment of operator and gate.

- **14" gate arm**

Reduces bottom hinge lag

- **Quiet Operation**

A precision ground lead screw drive system provides virtually silent operation.

- **Retrofit existing installations**

The footprint of the KIS100 is the same as the standard Accordion gate

- **PWM motor drive**

Provides quiet operation, longer motor life and reduced power consumption.



ATTENTION!

WARNING: The installation of this device should only be performed by a professional elevator technician that has a full understanding of this device's operation and function.

Note: If there is any doubt regarding the installation procedures, please call the factory for assistance. We are available M-F 8:00 am to 5:00 pm Central Time.

WARNING: Failure to comply with all instructions and "WARNING"(s) can result in a safety system compromise. This, in turn, can result in serious injury or death.

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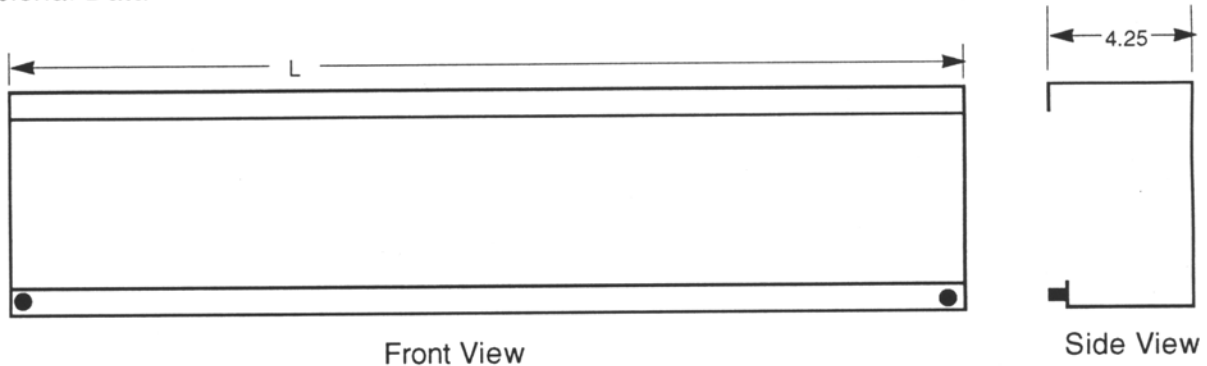
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Technical Specifications

| | |
|---------------------------|--------------|
| Input Power | 120VAC |
| Motor | 90VDC |
| Motor Drive | 1A(P.W.M.) |
| High Speed (nom.) | 107sec. |
| High Speed Adj. | 0-120% |
| Low Speed Adj. | 0-80% |
| Drive Belt | 0-Ring (343) |
| Control Interface Options | Dry Contact |
| | 120VAC |
| | 12/24 VDC |
| Gate Switch | GAL type G |

Dimensional Data



| Gate Travel | "L" |
|-------------|---------|
| 29 Inches | 36 1/2" |
| 32 Inches | 39 1/2" |
| 36 Inches | 43 1/2" |
| 42 Inches | 49 1/2" |



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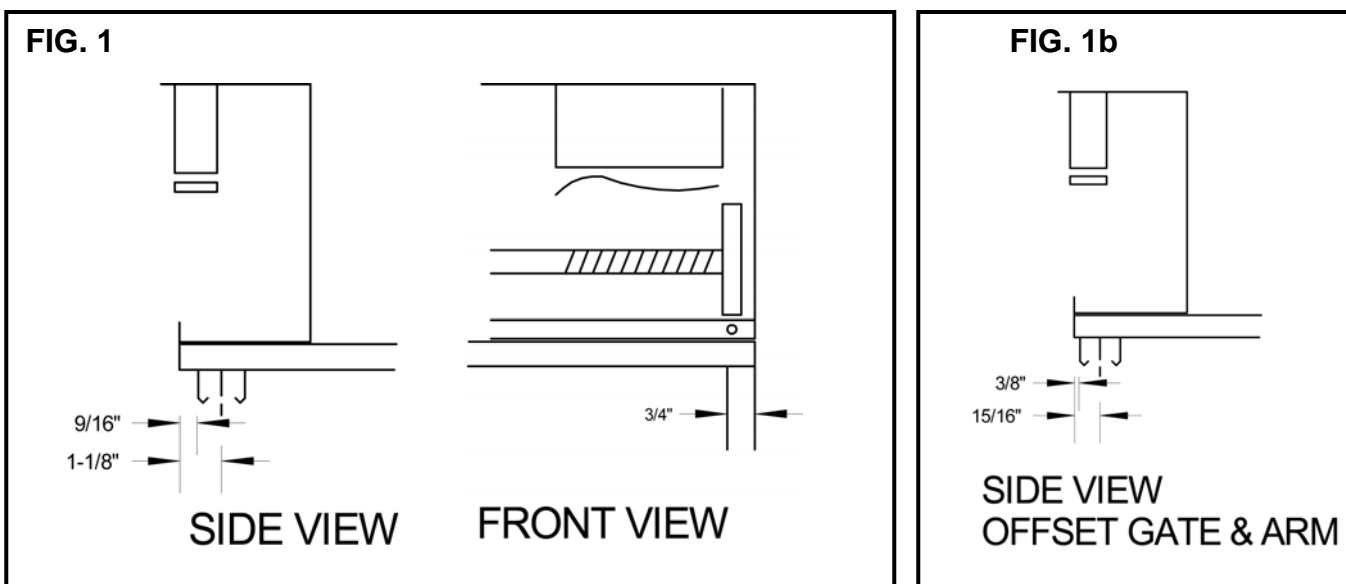
INSTALLATION - MECHANICAL

1. Unpack the unit, remove the cover, and check for any physical damage before proceeding.
2. Check to see that you have the correct hand unit. The operator is designed so the motor is on the stack side of the gate. The operator can be made to work on the opposite hand, but on most jobs it will require a large amount of overhang. The chassis is symmetrical; if necessary you can covert hand in the field, however this will VOID THE WARRANTY.
3. Operate the gate manually. The door must operate smoothly without any binding. Correct any problems with the gate before proceeding.
4. Mark a line on the car top corresponding to the centerline or the front edge of the gate track.
5. If the distance from the gate track centerline to the edge of the car top is more than 1 -1/8", there are two options: Shim out connecting arm (maximum recommended distance is 1/2"), or cut back the edge of the car top. If you need to cut back the car top, do so now - cut so there is 1-1/8" from the gate track centerline to the edge.

6. OFFSET GATE APPLICATION

For an offset gate, refer to Figure 1b. If the distance from the gate track centerline to the edge of the car top is more than 15/16", cut back the edge of the car top. As illustrated in Figure 1b, the gate track centerline to the car top edge should not exceed 15/16".

7. Place the operator on the cartop. Set the operator so the front edge is 1-1/8" (max) from the centerline or 9/16" (max) from the front edge of the gate track toward the inside of the car, and so the lead end is 3/4" past the gate strike. See Fig 1.



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INSTALLATION - MECHANICAL (CON'T)

7. Pull the gate to its fully closed position. Check that the drive nut is about 1/2" away from the closed side pillow block; manually rotate the lead screw if necessary (it will be easier to rotate with the drive o-ring removed). Place the gate arm magnet on the magnet flag; the middle of the magnet should be in the middle of the flag. Check that the gate switch is closed, but still has about 1/4" of follow-up. See Fig 2.

8. The gate arm should line up with the gate lead post. If not, minor adjustments can be made by simply moving the gate arm magnet around on the flag. Large adjustments will require repositioning of the operator.

9. With the operator and gate arm in position, mark through the mounting holes for drilling the car top and the gate lead post.

10. Move the operator so you can drill 1/8" pilot holes in the cartop and 1/4" through holes in the gate lead post. **BE CAREFUL NOT TO DRILL THROUGH THE CAR TOP IF THE HOLES WOULD BE VISIBLE.**

11. Attach the operator to cartop. #12 x 3/4 screws are provided for wood cartops. Attach the gate arm with 1/4" -20 x 1 1/4" carriage bolts and acorn nuts. See Fig. 3

12. Manually rotate the lead screw to open the gate about 1/2" from its fully closed position. Adjust the closed limit so that it "clicks" when the gate is about 1/4" from being fully closed; check by manually rotating lead screw.

13. Adjust the close slow down limit so that it is about 2" center-to-center from the closed limit.

14. Manually rotate the lead screw to about 1/2" from its fully open position. Adjust the open limit so that it "clicks" when the gate is about 1/4" from being fully open; check by manually rotating lead screw.

NOTE: LEAD SCREW ASSEMBLY IS SELF-LUBRICATING. LUBRICATION IS NOT RECOMMENDED.

NOTE: IF NEEDED, PETROLEUM JELLY CAN BE USED TO LUBRICATE THE GUIDE RAIL.

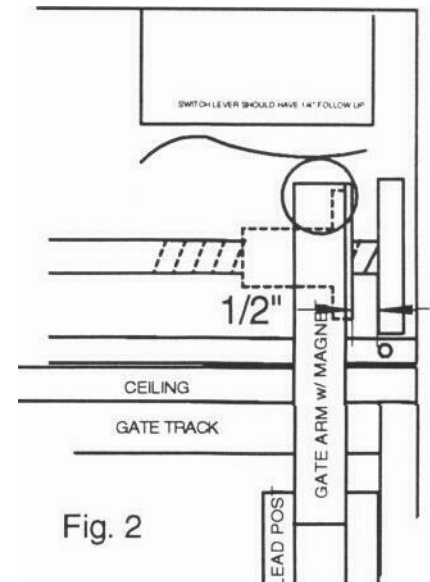


Fig. 2

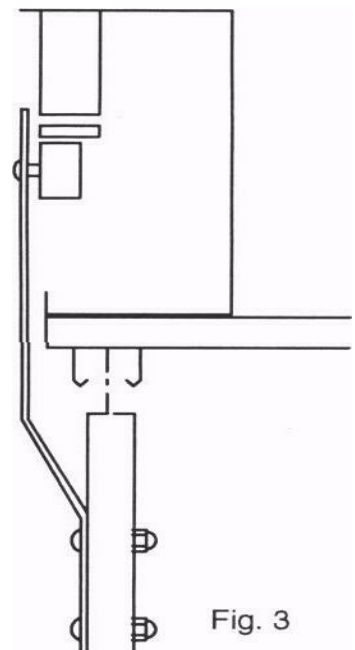


Fig. 3

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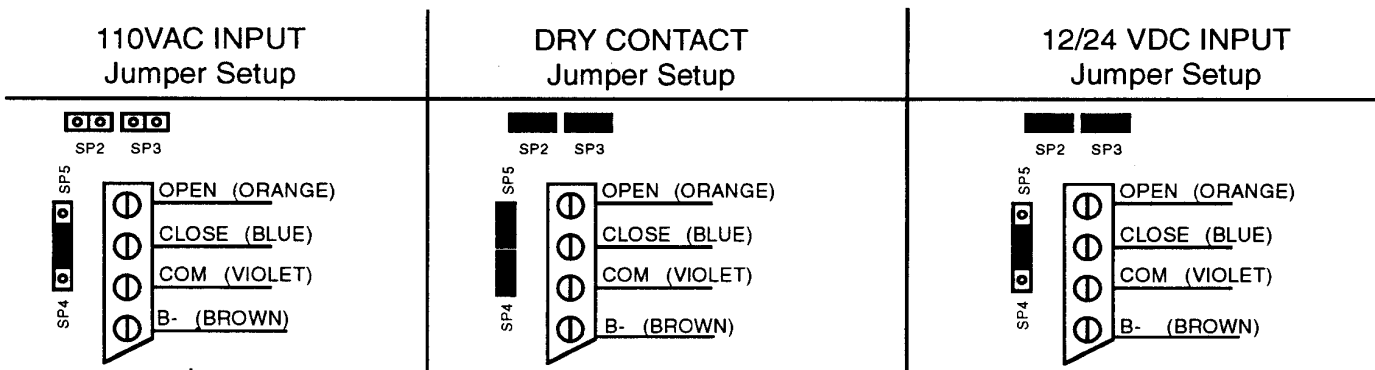
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INSTALLATION - ELECTRICAL

1. The KIS100 is field wired including the gate switch if so equipped. Run field wires from operator through conduit or greenfield. 2-1/2" knockouts are provided in the chassis for an appropriate fitting.
2. Ground the chassis per code.
3. Verify 120VAC power before connecting the operator.
4. Verify the type and voltage of control signal being used, refer to the Field Connection Diagrams.
5. There are 5 jumpers on the board:
 - SP1: Auto close; with this jumper installed the operator will automatically close when there is no signal to open. Remove if controller provides an independent close signal, or for testing and adjusting.
 - SP2-SP5: Are used to select the control signalization. Refer to the Field Connections Diagrams below for the various configurations.
6. To test unit, set speed pots in the middle of their range. Then use on board toggle switch to open and close the operator. Adjust the speed control and limit switches as necessary.
7. Connect wiring from elevator controller to interface board. Reinstall SP1 if using only an open signal from the controller.
8. Test the unit for automatic operation and replace cover.

Field Connection Diagrams



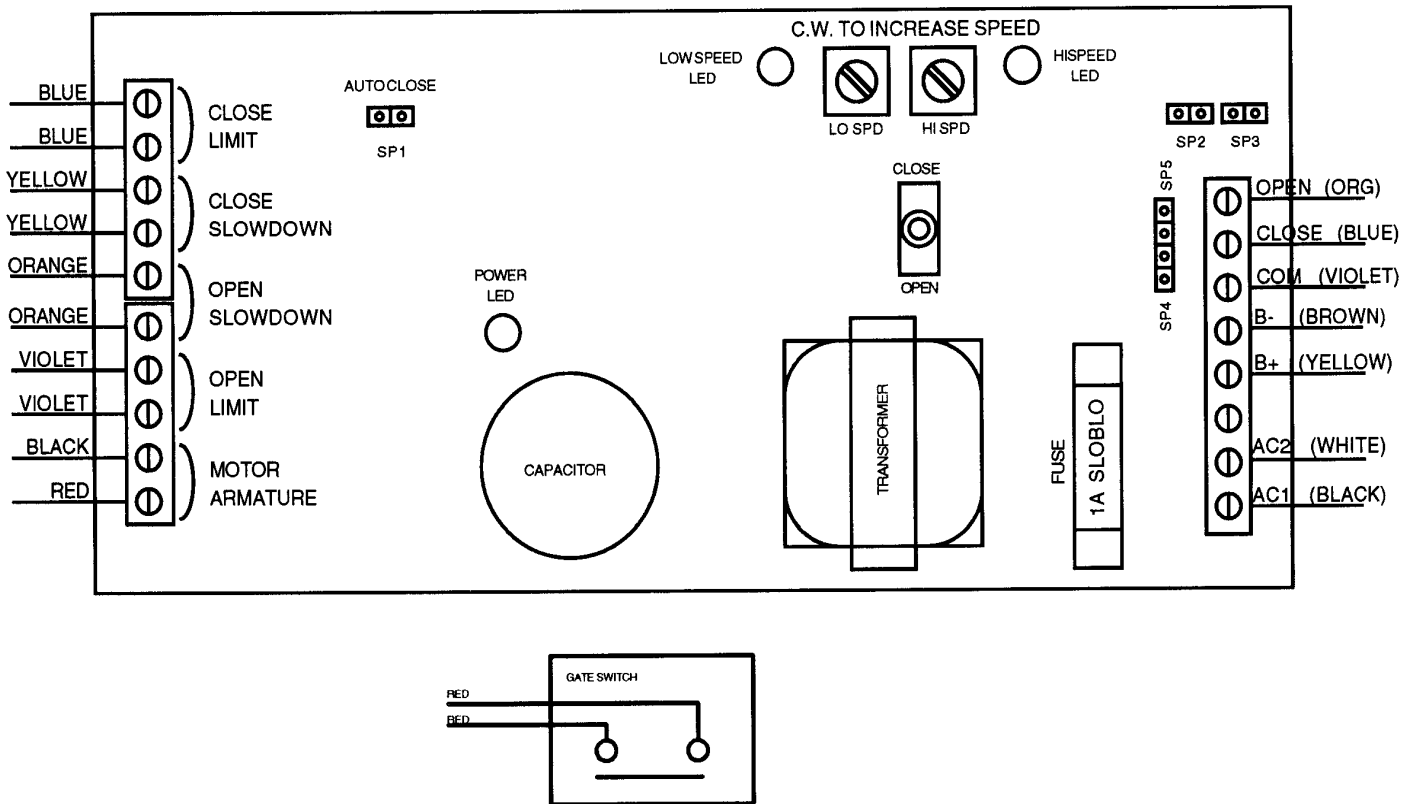
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Electrical Schematic



- AUTO CLOSE: Installing jumper SP1 enables this feature.
- Terminals "B+" and "B-" are the 24VDC Emergency Power Inputs.

Do not operate at any higher voltage.

WARNING: 110VAC Line voltage and 24VDC Emergency Power must not be present at the same time. If they are, **BOARD DAMAGE WILL OCCUR.**

- Jumpers SP2 thru SP5 are used to select the control signalization.
- Factory jumper setup is for Dry Contact signalization and Auto Close enabled.

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TROUBLESHOOTING

| Problem | Possible Cause | Corrective Action |
|--|-----------------------------------|---|
| No Function | No power | Verify 120VAC between "AC1" & "AC2" |
| | Fuse | Check Fuse "F1" |
| | Controller Signal | Check operation with test switch |
| | Faulty Limit | Verify that limits are closed when not actuated |
| No High Speed | Faulty Slow down | Verify that slow downs are open when not actuated |
| No low speed | Slow down not actuating | Verify that the cam engages the slow down |
| | Faulty Slow down | Verify that slow downs have continuity when actuated |
| Motor turns but no gate movement | Loose Pulleys | Verify that the drive and driven pulley's are tight on their shafts |
| | O-Ring | Check for loose or missing o-ring |
| | Gate | Check gate for excessive bind |
| Reverse operation | Board wiring or controller wiring | Check operation with test switch |
| | | DOWN is open. Swap M+ & M- if necessary |
| Excessive breakaway force | Step 1 | Put small washers on the magnets opposite the flag. If force is still excessive, go to step 2 Remove a magnet. If force is still excessive, put small washers on the remaining magnet opposite the flag. |
| | Step 2 | |
| Board is powered but motor does not engage | Unit has stalled out | Step 1: Shut off power supply to unit. Step 2: Identify and remove the cause of the stall. Step 3: Power unit back up. |

ATTENTION!

If the resistance to gate closure exceeds the magnetic coupler, the gate dis-engages from the operator and becomes a **MANUAL GATE**. Advise the user that they must do one of the following:

- Close the door manually to run the elevator
- Cycle the door to re-engage the magnetic coupler.



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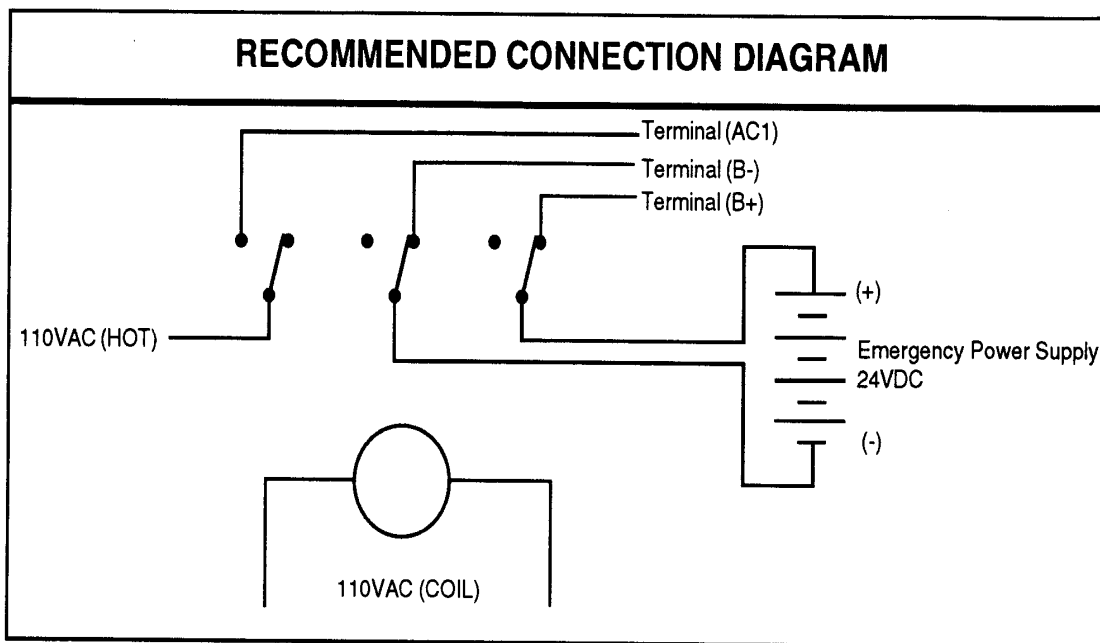
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Emergency Power Connections

General information:

The KIS100 has the ability to operate at 24VDC in the event 110VAC power is lost. The unit will operate at a reduced speed when powered by 24VDC. Terminals B+ and B- are the battery inputs.



Recommended Relay: Omron LY3 or equivalent

NOTE: It is vital that B+ and B- are not connected to the battery when 110VAC is present on the board.

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