

**MODULARM**

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**KITCHEN BRAINS®**

## INSTALLATION GUIDE

### DL-35™ Door Monitor



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for future reference.  
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24/7 Toll-Free Technical Support  
**1-800-243-9271**  
(from the U.S., Canada and the Caribbean)

## NOTICES

**Before you start, please read these instructions thoroughly in order to obtain maximum benefit from the capabilities that this product offers.**

Thank you for purchasing the DL-35™ Walk-in Door Monitor. This product was designed with four objectives: energy savings, operator safety, to make certain normally manual functions automatic and to train personnel to keep door closed. When fully utilized, the DL-35 integrates a Door Ajar Alarm, a Panic (Entrapment) Alarm, and automatic control of compartment lights into a single unit that is easy to install and use. Most importantly, it addresses issues for which it is designed at the right location: at the door itself.

## OPERATION

Status of the door is monitored with provided low voltage magnetic contacts. Additional contacts may be added to monitor multiple doors. (A low current electromechanical switch, opening when the door is opened may also be utilized.) An internal relay inside of the DL-35 provides automatic control of compartment lights.

## MONITORED CONDITIONS

SYSTEM FUNCTION	DOOR CLOSED *1 (NORMAL OPERATION)	DOOR OPENED	DOOR OPENED FOR TOO LONG (ALARM DELAY TIMES OUT)	DOOR CLOSED
<b>DOOR AJAR ALARM</b>	No alarm	Audible alarm delay activates. (Field adjustable, 5-45 minutes.) See diagram on page 5.	Audible alarm activates.	Alarm functions reset. No alarm.
<b>INTERIOR LIGHTS</b>	OFF	ON	ON	Lights turn off 10 minutes after door is closed. (Unless optional IP-1 is pressed if installed.)

\*1 Door closed at any time always restores normal operation. (No Alarm, Lights Off.)

## OPERATION OF THE OPTIONAL IP-1 ILLUMINATED PUSHBUTTON: MOUNTS INSIDE OF WALK-IN!

In order to increase product capabilities, the DL-35 has been designed to accept a low voltage, Illuminated Pushbutton as an additional means of device activation. The Illuminated Pushbutton is an optional accessory, (Part # IP-1), and when utilized is to be mounted **inside** of the monitored compartment. A piezo horn is also incorporated into the IP-1. Added functionality offered by the IP-1 is as follows:

### WITH THE DOOR OPEN:

With the door opened, IP-1 functions are dependent on the status of the **Pushbutton Enable Jumper**. (labeled "PB Jumper" See Diagram on page 5.) If the Pushbutton Enable Jumper **is not** clipped, (default), pressing the IP-1 with the door open when a Door Ajar Alarm occurs **will** reset the alarm and restart the alarm delay timer. This can be done repeatedly and is useful when a door is opened for a prolonged period of time such as loading or unloading. If the Pushbutton Enable jumper **is** clipped, pressing the IP-1 with the door open when a Door Ajar Alarm occurs **will not** affect DL-35 operation. Therefore, when a Door Ajar Alarm occurs, the door must be closed to terminate the alarm and restore normal operation.

## OPERATION OF THE OPTIONAL IP-1 ILLUMINATED PUSHBUTTON (CONTINUED)

### WITH THE DOOR CLOSED:

(Operation of the IP-1 with the door closed is not affected by the Pushbutton Enable Jumper. IP-1 functions with the door closed are always as follows:)

When the door is first closed, the horn in the IP-1 beeps on and off so as to draw attention to the IP-1 and to the Pushbutton Label. The Pushbutton Label instructs personnel inside of the compartment to press the button in order to keep the lights on with the door closed. (Label is in English and Spanish.)

1. If the IP-1 is **not** pressed within 40 seconds, the horn stops beeping and the lights turn off automatically after 10 minutes.
2. Pressing the IP-1 with the door closed keeps interior lights on (or turns them on if they are off) and starts the **Automatic Panic Alarm timer**. (Timer delay is 20 minutes, non-adjustable.)
3. If personnel remain in the compartment for 20 minutes with the door closed, the IP-1 horn begins to beep again. **Re-pressing** the button silences the horn and resets and restarts the Automatic Panic Alarm Timer. This may be done repeatedly.
4. **Automatic Panic Alarm** – If the button is not re-pressed within 40 seconds from when the IP-1 horn begins to beep, the horn and the LED on the DL-35 activate immediately to draw attention to the walk-in. **Automatic Panic Alarm is a safety feature** to protect an individual who may have been injured or is otherwise disabled inside of the walk-in.
5. **Manual Panic (Entrapment) Alarm** – Activated by pressing the IP-1 for 2 seconds (as described on the Pushbutton Label). This causes immediate activation of the LED and the audible alarm on the DL-35 and is **provided as a safety feature** for situations where personnel may be trapped inside of the walk-in.

**Note: In all of the above, exiting the compartment and closing the door automatically restores normal operation.**

## INSTALLATION

**Installation Tip: If desired, and if door configuration permits, switch part of magnetic contacts may be mounted inside of the DL-35 enclosure. This will not affect operation of the magnetic contacts and will make for a cleaner installation.**

1. **Magnetic Contacts:** Magnetic Contacts may be mounted with adhesive backing or with provided screws. Mount magnet part of contact onto edge of door, as far away from the hinged side as possible. The magnet part of the contact may also be mounted onto the edge of the unhinged side of the door, preferably as high on the door as possible so as to minimize the possibility of damage. Mount switch part of contact onto door frame, directly adjacent to the magnet, positioned so that **contacts close (make contact) when door is closed**. When mounted, gap between magnet and switch should not exceed 1.25" when door is closed.  
**NOTE:** On steel doors, the steel of the door may reduce this operating gap. Position accordingly.
2. **DL-35 Enclosure:** Remove the faceplate. If switch part of magnetic contact **is not** mounted inside of the DL-35, the enclosure may be mounted in any appropriate location on the front of the walk-in. If switch part of magnetic contact **is** mounted inside of DL-35, position the DL-35 enclosure adjacent to the magnet mounted on the walk-in door and mount the switch on the inside side wall of enclosure, positioned so that **contacts close when door is completely closed**. A meter on resistance scale or a continuity checker is helpful in checking magnetic contacts for proper operation. A temporary power cord to the DL-35 may also be used to help in positioning contacts as follows: When contacts are placed properly, the LED on the DL-35 will turn on when door is open and turn off when door is closed.
3. **IP-1 Illuminated Pushbutton:** Mount the IP-1 **inside** of the walk-in next to the unhinged side of the door frame.

## WIRING (See diagram on back of instructions)

All line voltage and signaling wiring connected to the DL-35 through any side wall must be enclosed in conduit with suitable fittings for connection of conduit to the DL-35 enclosure.

### LOW VOLTAGE CONNECTIONS:

(See the 2 Green Terminal Strips inside of the unit.)

Strip insulation on wires approximately ¼". Terminal Strip connections are made by pressing down on the respective actuator button with a small screwdriver and inserting the wire into the hole below the actuator. Removing the screwdriver pressure will clamp the wire. Do not insert wire too far or you may clamp onto insulation. Tug gently on wires to make sure connections are secure.

1. **Magnetic Contacts:** Connected to the Door Switch Terminal Strip.

**NOTE:** Multiple Contacts wired in series may be used for multi-door compartments. Any door so connected and opened or closed will be sensed by the DL-35.

2. **IP-1 Illuminated Pushbutton:** The Pushbutton comes with a pre-connected, 8' length of 4 conductor wire. Connect to the **PB switch** Terminal Strip observing the color code as shown on the diagram on the back of these instructions. (Left to right: Black, White, Red & Yellow.) The color code is also printed on the DL-35 circuit board.

**NOTE:** The path for this wiring or any wiring which enters the DL-35 enclosure from within the monitored compartment must be sealed with silicone to keep moisture out of the DL-35.

### LINE VOLTAGE CONNECTIONS:

(Use top knockout for access.) Connections are typically made through ½" thin wall conduit. Provide 120VAC for DL-35 operation and connect to black and white wires. (Current required: 80ma.) Connect the green screw inside of the DL-35 enclosure to earth ground. Control contacts for lights are dry contacts, normally open. **Dry Contacts function as switches and the DL-35 does not provide any power to the lights being controlled.** Connect accordingly as shown on the diagram using insulated female .250" connectors sized for the gauge of wire that you are using. It is recommended that wiring be kept short, approximately 6-8" in length. When the DL-35 is being used to operate lights, a standard light switch is no longer required, and any existing switches should be disconnected.

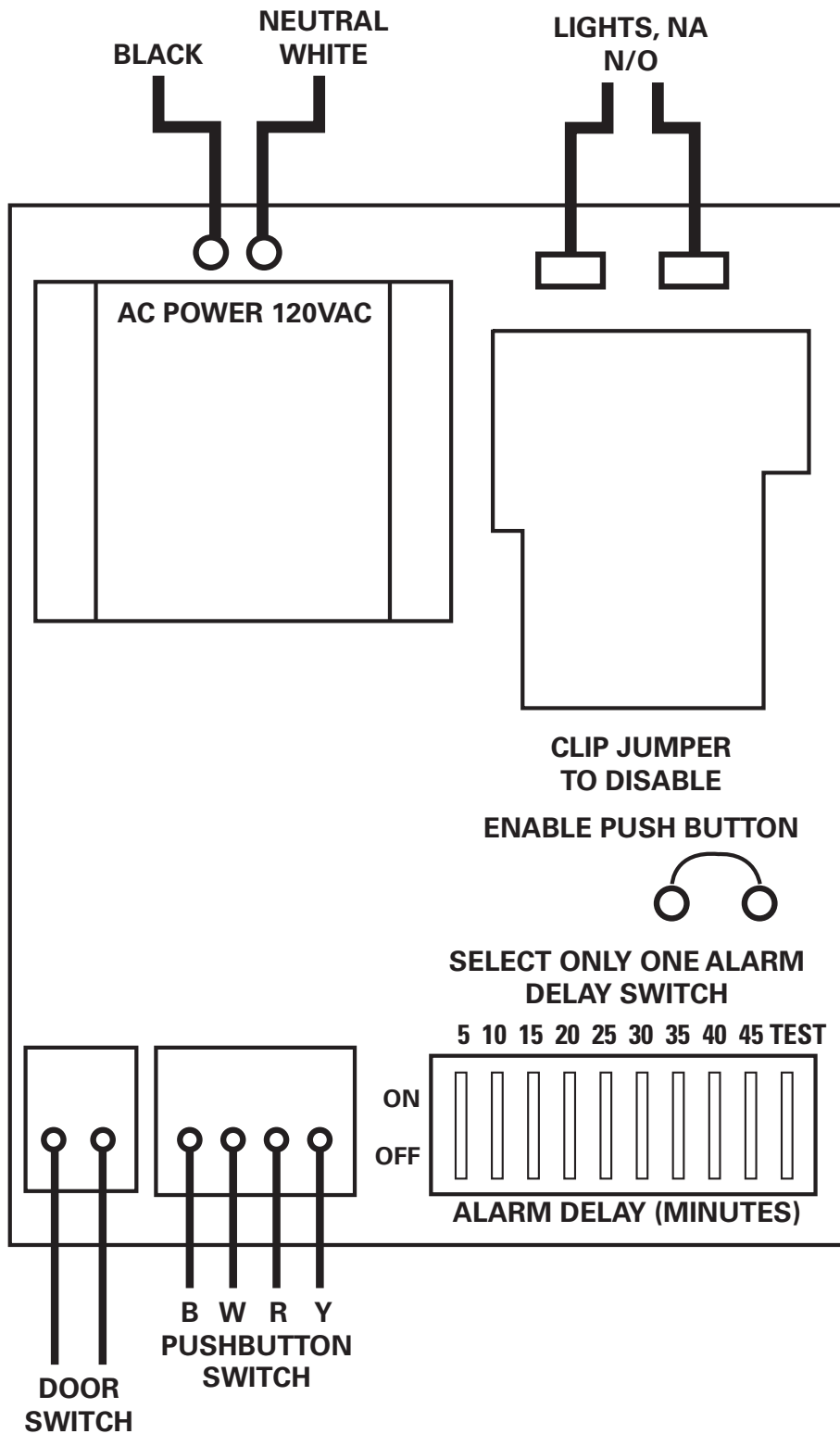
## SETUP & TEST

1. Apply power to the DL-35.

**NOTE:** If door is closed when powered up, interior lights will turn on for 10 minutes and then shut off. This is a safety feature to insure that lights will turn back on if a momentary power failure, such as from a thunderstorm, occurs while there are personnel in the compartment.

2. A 10 position **Alarm Delay Adjust** dip switch is provided for selecting the door ajar alarm delay and for testing. (Range: 5 minutes to 45 minutes in 5 minute increments, selectable on switches 1 through 9. **Switch 10 is a test switch, and when selected will cause the DL-35 to announce a door ajar condition in 5 seconds.** The Test Switch is provided as a means of quickly verifying device operation. If a 5 second time delay is desired for normal usage, the Test Switch may also be used as an operating mode.
3. Select the Test Switch and simulate various modes of operation to verify that the DL-35 functions as intended in accordance with selected settings. Once testing is completed and operation is verified, de-select the Test Switch (unless you are using it for desired operation) and select the desired door ajar alarm delay using **ONLY ONE** of switches 1 through 9. **Select only one switch or erroneous times will result. A switch must be selected for proper operation.** Selection or changing of a switch or clipping the **PB Enable** jumper may be done with power on or off. Power outages will not affect user settings. Changes made in user settings with the door opened will store in program memory when the door is closed and will affect operation when the door is next opened.
4. After adjusting and testing, mount the faceplate onto the enclosure using the provided screws. Installation is now complete.

### DL-35™ DOOR MONITOR WIRING & SETUP DIAGRAM



## GENERAL SAFETY MEASURES & PRODUCT LIMITATIONS - INSTALLATION

- This product ("Product") must be installed by a licensed electrician experienced in working in the types of environments for which this Product is intended to be utilized; specifically, commercial walk-in coolers and freezers ("Equipment").
- Personnel installing the Product must carefully and completely read the Operating and Installation Instructions ("Instructions"), and instructions and specifications of the Equipment manufacturers, before attempting to operate and install the Product. Failure to comply with the Instructions, and the Instructions and specifications of the Equipment manufacturers, may result in personal injury and/or property damage and may void the warranty of the Product. Retain the Instructions for future reference.
- The Product shall only be used for the purposes described in the Instructions.
- During Installation of the Product, all applicable laws, regulations and industry rules, including local electrical and safety codes, the National Electric Code (NEC) and the Occupational Safety and Health Act (OSHA), must be strictly followed. Consistent therewith, follow applicable electrical codes regarding running of low voltage wiring and high voltage wiring in separate conduits and use appropriately rated wire (insulation type, voltage rating and wire gauge) for all connections. Supply connection wiring must be rated at least 90°C. Use copper conductors only.
- The enclosure used for mounting the Product must be properly grounded according to electrical code.
- Confirm that the power source conforms to the requirements of the Product before connecting.
- Do not exceed the rated limits of the Product. Refer to the Product specifications for suitability of the Product to the application.
- The Product is not suitable for use in wet locations. Do not expose the Product to water, moisture or condensation. In no event should the Product be exposed to environments where sudden temperature changes with high humidity may result in the formation of condensation.
- **Any openings in the walls, ceiling or floor of the Equipment for wiring or other reason must be sealed (made airtight and watertight) with appropriate materials (e.g., silicone, caulk or foam), both on the outside and inside of the Equipment, to prevent moisture or condensation from entering the compartment of the Equipment and forming and accumulating on the interior walls of the compartment and the contents of the compartment, including the Product. Failure to properly seal such openings may (i) result in damage to the Equipment and contents of the compartment (ii) pose a safety hazard and (iii) void the warranty of the Product.**
- **To prevent moisture or condensation from entering or forming in the enclosure used for the Product, any openings in this enclosure (for wiring access or other purpose) must be appropriately sealed with materials such as silicone, caulk or foam.**
- Installation of the Product should be inspected and the Product tested by qualified personnel to ensure the Product performs safely and in accordance with the Product specifications. Periodic testing of the Product should be performed on an ongoing basis (at least quarterly) to ensure the Product continues to perform properly.
- All personnel operating, maintaining, repairing or interfacing with the Product must be instructed in the use of the Product and provided with the Instructions. The Instructions must be kept in an accessible location for easy reference.
- **WARNING:** Hazard of electric shock! Power sources must be turned off or otherwise disconnected prior to installation or servicing of the Product. Lock and tag power disconnects to prevent an unexpected application of power.

## NOTES

**SPECIFICATIONS**

**DIMENSIONS**

- 4.5" L x 4.5" W x 2.3"D

**POWER**

- 120VAC @ 80mA Max, 20mA quiescent
- Surge Protected

**LIGHT CONTACTS**

- N/O, 30A @ 120VAC or 240VAC

**FUSE**

- Automatic resettable
- Non-replaceable



ETL LISTED  
**CONFORMS TO**  
**UL STD 464**  
**CERTIFIED TO**  
**CAN/CSA STD C22.2 NO.205**



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**WARRANTY**

Kitchen Brains warrants that its products shall not fail to function in accordance with their specifications because of defects in material or workmanship, for the following warranty periods:

- i. New Products: New Products consisting of microprocessor based controllers, timers, data-loggers or remote monitoring devices for 1 year from date of purchase.
- ii. Sensors and Accessories: Sensors and accessories (consisting of probes, wireless sensors, hoses, relays, switches, mounting hardware or accessories) for 90 days from date of purchase.

For complete details consult [www.kitchenbrains.com/warranty](http://www.kitchenbrains.com/warranty)

**PATENTS**

The products manufactured by Kitchen Brains are protected under one or more of the following U.S. Patents:

5,331,575	5,539,671	5,711,606	5,723,846
5,726,424	5,875,430	6,142,666	6,339,930
6,401,466	6,401,467	6,581,391	7,015,433
7,145,463	7,650,833	7,877,291	8,060,408

Plus foreign patents and patents pending. Plus licensed patent 5,973,297