

# Safety Signal™ Installation Guide

## Safety Signal™ Models SS0550 thru SS0554-02 Patent #6634139



*A Product of*



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## INTRODUCTION

This manual is used for multiple **Safety Signal™** models. The control board is programmed for each model's function. The description explains the differences between model types covered in this manual.

Model #	Part #	Description
550	SS0550	Standard Safety Signal™ <i>No options: No outlets or interlocks</i>
551	SS0551	Powers & controls one outlet for dock light <i>Dock light turns off when door is closed</i>
552	SS0552	Powers & controls two outlets <i>Dock light &amp; fan turn off when door is closed</i>
552-02	SS0552-02	No Inside Red & Green Light Powers & controls two outlets <i>Dock light &amp; fan turn off when door is closed</i>
553	SS0553	Powers & controls two outlets & interlocks Electric/Hydraulic leveler <i>Dock light and fan turn off when door is closed</i> <i>Leveler will not run when door is closed</i>
554	SS0554	Powers & controls two outlets & interlocks 120V Pneumatic leveler <i>Dock light and fan turn off when door is closed</i> <i>Leveler will not run when door is closed</i> <i>Fan turns off when leveler runs</i>
554-02	SS0554-02	No Inside Red & Green Light Powers & controls two outlets & interlocks 120V Pneumatic leveler <i>Dock light and fan turn off when door is closed</i> <i>Leveler will not run when door is closed</i> <i>Fan turns off when leveler runs</i>

### ELECTRICAL RATINGS:

INPUT VOLTAGE	120 VAC - 240VAC
INPUT FREQUENCY	60 HZ / 50HZ
MAXIMUM INPUT CURRENT	12 A
INPUT CURRENT WITH NO OUTLET(S) OR LEVELER LOAD	<.5 A (MODEL 550)
MAXIMUM OUTLET(S) CURRENT	12 A
MAXIMUM LEVELER LOAD CURRENT (J7 OR J8)	12 A
OUTSIDE LIGHT BOX VOLTAGE	12 VDC
MAXIMUM OUTSIDE LIGHT BOX LOAD CURRENT	1.25 A (12 V POWER SUPPLY CURRENT LIMIT)
SENSOR VOLTAGE (J2, J3 & J4)	12 VDC
MAXIMUM SENSOR CURRENT (J2, J3 & J4)	.2 A (J2, J3 & J4 PROTECTED BY PTC THERMISTOR)

## **Safety Signal™ ---Sequence of Operations--- Testing**

### Door Opens

Outside light turns red  
Inside light turns green  
Interlock items now function

- Dock light
- Fan
- Leveler & OPT 1 Contacts close

### Door Closes

Outside light turns green  
Inside light turns red  
Interlock items turn off

- Dock light
- Fan
- Leveler & OPT 1 Contacts open

Please Note: When dock door is closed, the light will switch to red inside and green outside after a delay of approximately 10 seconds.

**WARNING!!!!**

**Do not use in hazardous or corrosive environments!**

**REQUIRED TOOLS**

- Drill bits, masonry bit for tap-con / wood bits 3/16" for pilot hole in dock seal
- Tape measure
- Wire strippers
- Hammer
- Felt tip marker
- Hammer Drill
- Drill screw gun
- Precision flat blade screwdriver 1/8" wide
- Wire labels

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**YEARLY MAINTENANCE**

1. Inspect inside connections for any damage
2. Inspect mounting bolts for tightness
3. Clean unit with compressed air
4. Clean Photo Sensor Lenses

## Installer-supplied hardware & fasteners

Mounting Surface	Inside Light Box	Outside Light Box
Cement Block	(4) 1/4" x 1 1/4" Tapcon	(4) #10 x 1" Tapcon
Tip up concrete panel	(4) 1/4" x 1 1/4" Tapcon	(4) #10 x 1" Tapcon
Sheet Metal	Sheet metal walls are not thick enough to hold inside box	Sheet metal walls are not thick enough to hold outside box
Steel	(4) 1/4" x 3/4" self-drilling screws	(4) #10 x 1" Tapcon
Bollard	Use DL Manufacturing supplied fasteners	
Dock Seal		Use 1-1/4" x 1/4" lag screws to attach dock seal bracket to dock seal.

## Also needed:

Wiring the inside and outside box together	3 conductor 18 gauge wire	1/2" flexible conduit with connector for 7/8 knockout
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## Field Notes:

**FOR SERVICE ASSISTANCE CALL DL MANUFACTURING TOLL FREE 866-235-7468**

Safety Signal Model #:

Safety Signal Serial #:

(LOCATED LOWER PORTION OF CONTROL BOARD)

Door Location:

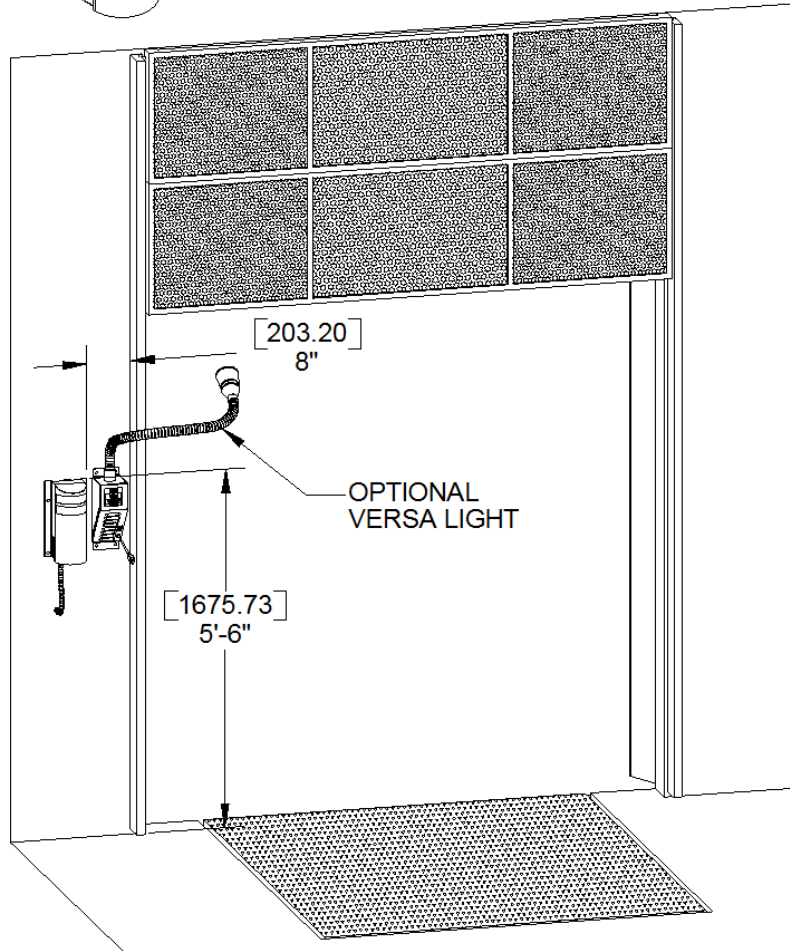
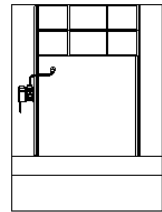
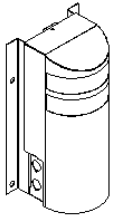
Customer:

# SAFETY SIGNAL™ INSTALLATION

## WALL MOUNTED STYLE

### INTERNAL

(YELLOW BOX)

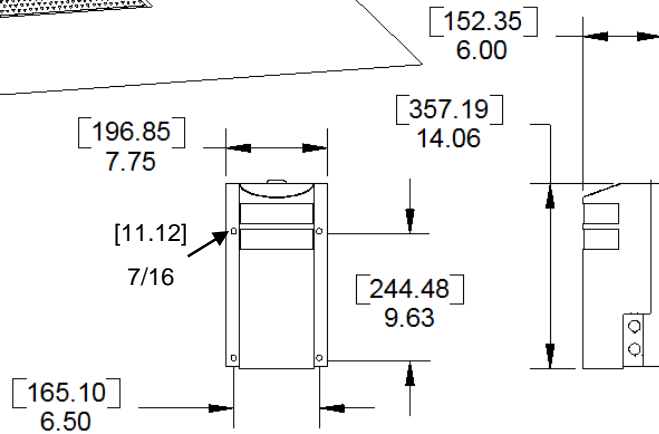


**NOTE:**

Install internal Safety Signal™ measuring 66" from the dock floor to the top of the yellow box.

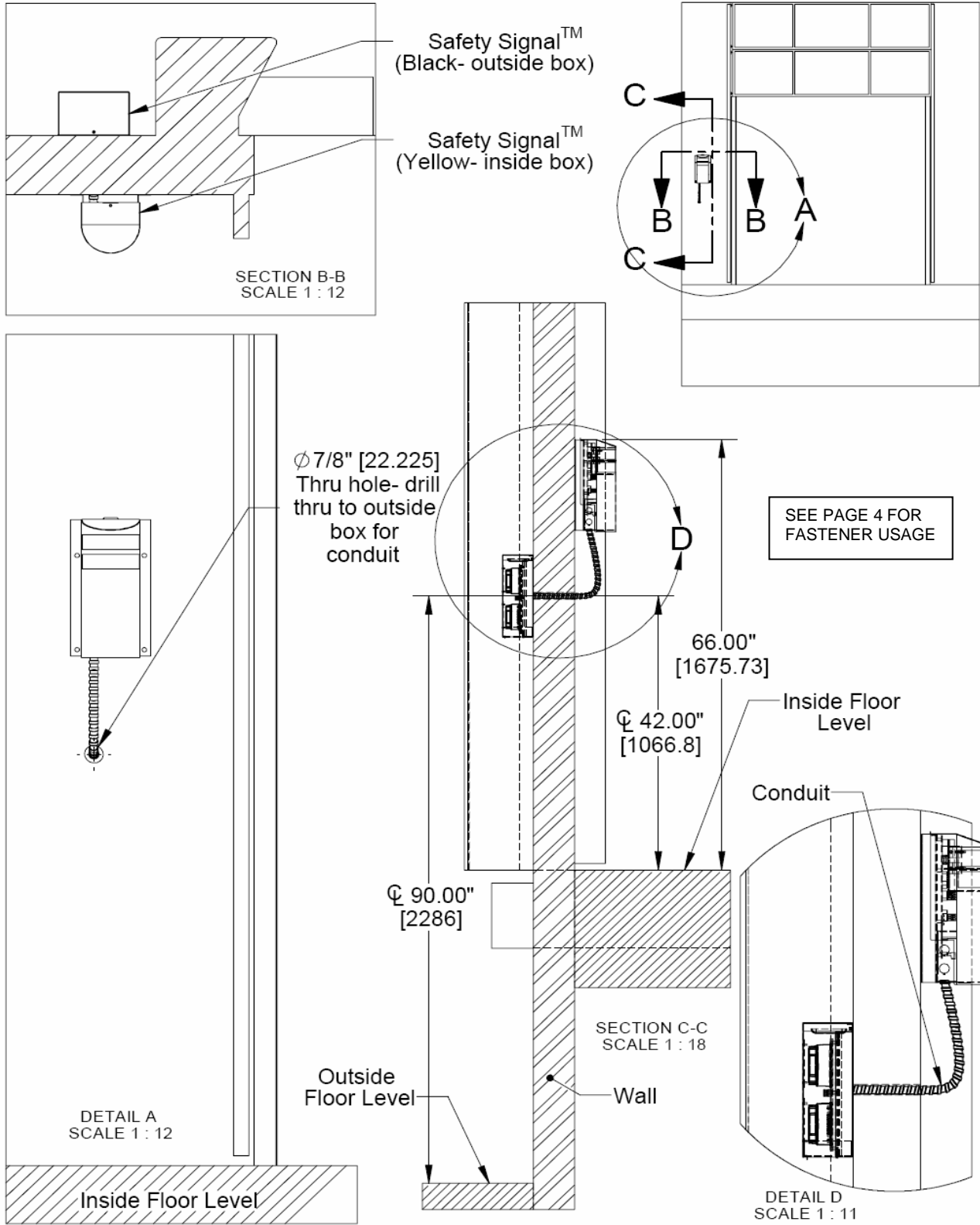
DETAIL A  
SCALE 1 : 28

DOCK FLOOR



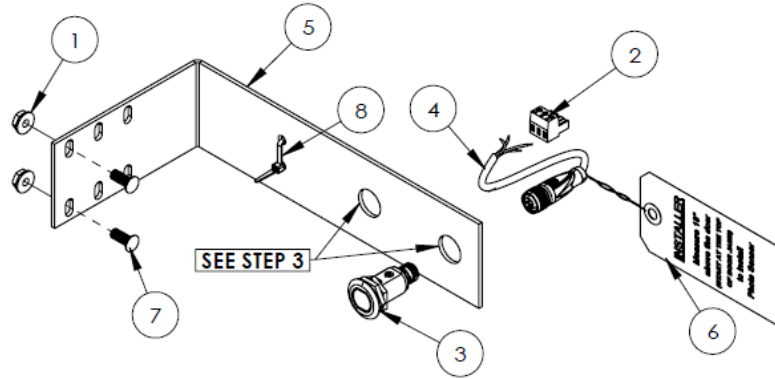
## INSIDE LIGHT BOX MOUNTING

# Safety Signal- Mounting (on concrete wall or block wall)



## INSIDE LIGHT BOX MOUNTING CON'T.

# PHOTOEYE INSTALLATION GUIDE



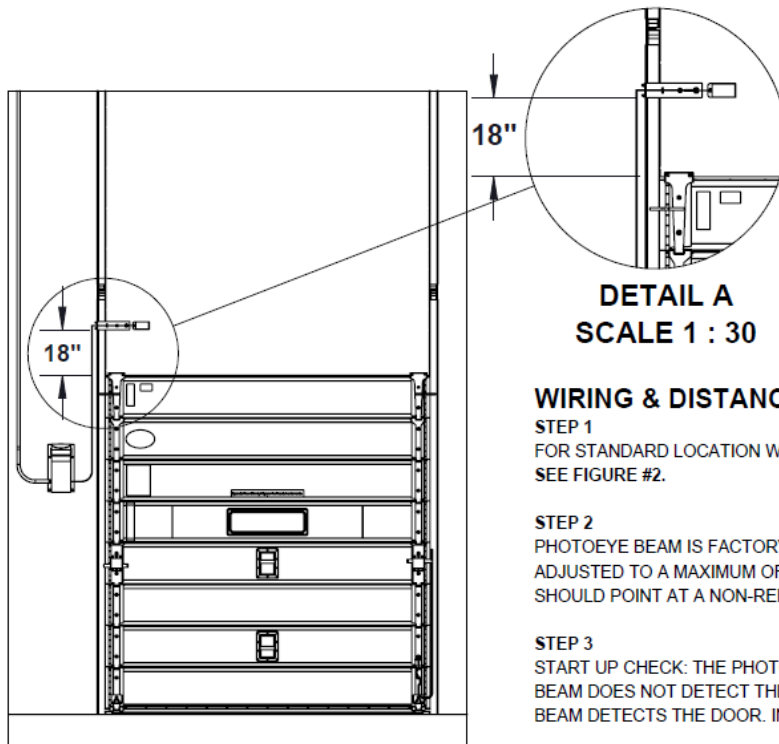
**STANDARD LOCATION  
(ABOVE DOOR JAMB)  
MOUNTING INSTRUCTIONS:**

**STEP 1**  
MEASURE 18" ABOVE THE DOOR.  
SEE DETAIL A

**STEP 2**  
DRILL TWO HOLES IN ROLLER TRACK (USE  
17/64" DRILL BIT).

**STEP 3**  
USE MOUNTING HOLE THAT BEST LOCATES  
PHOTOEYE TO DETECT THE DOOR AND NO  
OTHER OBSTACLES, SUCH AS LIFTING CABLE.

**STEP 4**  
ORIENT PHOTOEYE SO DISTANCE  
ADJUSTMENT SCREW IS FACING TOWARDS  
THE FLOOR.



**WIRING & DISTANCE ADJUSTMENTS:**

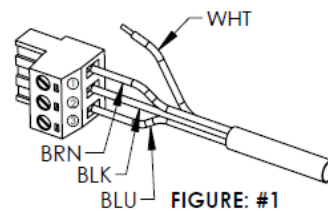
**STEP 1**  
FOR STANDARD LOCATION WIRING SEE FIGURE #1. FOR REVERSE LOCATION  
SEE FIGURE #2.

**STEP 2**  
PHOTOEYE BEAM IS FACTORY PRESET TO 4" DISTANCE. THIS DISTANCE CAN BE  
ADJUSTED TO A MAXIMUM OF 9". **IMPORTANT:** FOR BEST RESULTS, PHOTOEYE BEAM  
SHOULD POINT AT A NON-REFLECTIVE SURFACE.

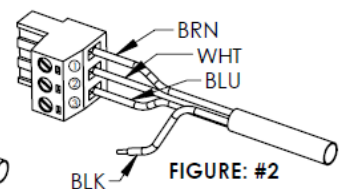
**STEP 3**  
START UP CHECK: THE PHOTOEYE INDICATOR LIGHT SHOULD BE SOLID GREEN WHEN  
BEAM DOES NOT DETECT THE DOOR. THE INDICATOR LIGHT SHOULD BE YELLOW WHEN  
BEAM DETECTS THE DOOR. INDICATOR LIGHT WILL BLINK IF AN ERROR OCCURS.

ITEM NO.	ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
CP5036	1	CP2046	1/4-20 FLANGE NUT	2
	2	CP3216	3 POLE TERMINAL BLOCK	1
	3	CP3397	P&F PHOTO SENSOR (GLV18-8-H-8083/73/120)	1
	4	CP3398	FEMALE CORD SET	1
	5	CP4052	P&F PHOTOEYE BRACKET	1
	6	CP9077	PHOTO EYE INSTALLATION MTG. INSTR. TAG	1
	7	DR2119	1/4"-20 X 5/8" SLOTTED TRACK BOLT	2
	8	VL2028	4" x 1/8" TIE WRAP	5

**REVERSE LOCATION  
(BELOW DOOR JAMB)**



**STANDARD LOCATION  
(ABOVE DOOR JAMB)**

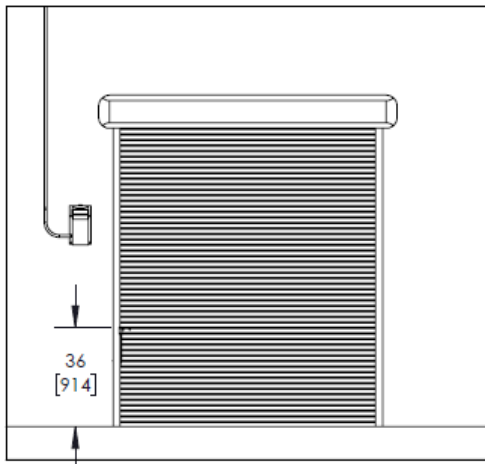


CP9078 - REV C

## PHOTO EYE INSTALL - TYPICAL & MxV DOORS



# MAGNETIC SENSOR INSTALLATION GUIDE



**DLM MODEL:CP5038**

**NOTE:**

SENSOR DOES NOT REQUIRE ANY POWER TO WORK. DO NOT RUN SENSOR WIRE IN SAME CONDUIT WITH 115 AND HIGHER VOLTAGE. TRANSIENTS CAN DAMAGE CONTROL BOARD.

**STANDARD LOCATION**

**MOUNTING INSTRUCTIONS:**

**STEP 1**

RECOMMENDED MOUNTING HEIGHT IS 36" (48" MAX.) FROM THE FLOOR. SENSOR CAN BE MOUNTED LEFT OR RIGHT SIDE OF DOOR.

**STEP 2**

MOUNT SENSOR AT DESIRED HEIGHT AND TIGHTEN TO DOOR CHANNEL WITH 1/4"-20 SET SCREWS.

**STEP 3**

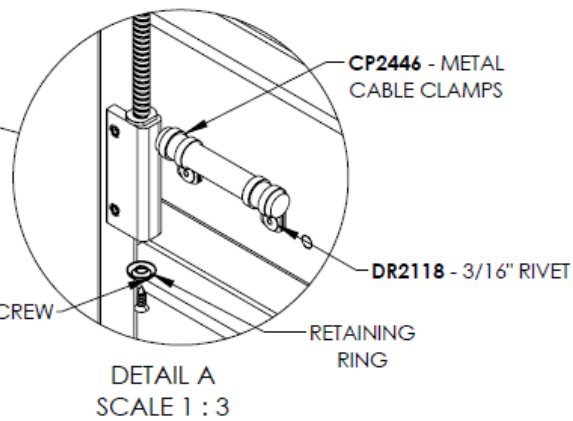
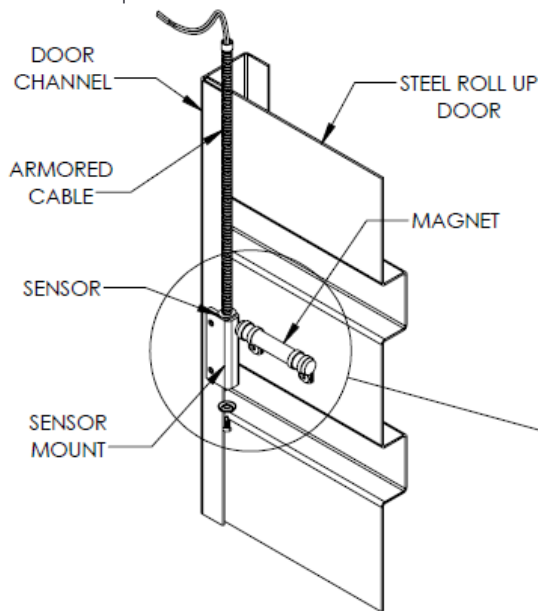
MOUNT FACE OF THE MAGNET WITHIN 1/4"-1/2" FROM THE EDGE OF THE SENSOR MOUNT. MARK AND PRE-DRILL TWO 3/16" HOLES FOR DR2446 -CABLE CLAMPS. ATTACH TO STEEL DOOR WITH TWO DR2118 - 3/16" BLIND RIVETS.

**NOTE:**

FOR BEST PERFORMANCE AND OPERATION, THE MAGNET MUST BE POSITIONED ONE END OR OTHER OF THE SENSOR MOUNT.

**STEP 4**

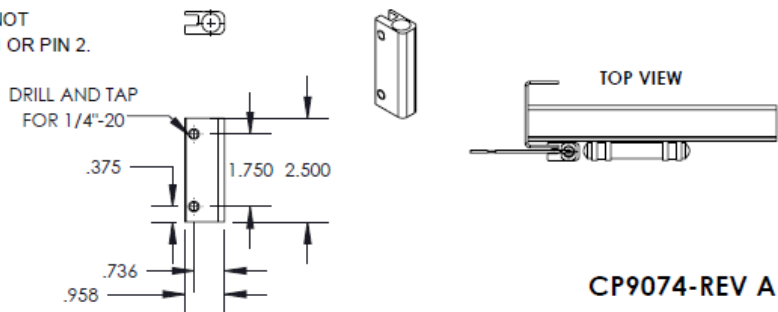
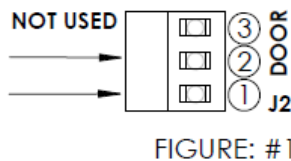
CONFIRM PROPER OPERATION BY MOVING DOOR UP AND DOWN. MAGNETIC CONTACT WILL CHANGE LIGHTS ON CONTROL BOARD ACCORDING TO THE "SEQUENCE OF OPERATION" IN THIS MANUAL.



**WIRING INSTRUCTIONS:**

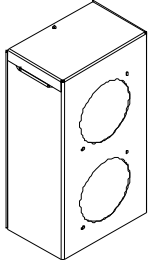
WIRE SENSOR TO CONNECTOR "J2" LABELED "DOOR" ON CONTROL BOARD. CONNECT THE RED AND BLACK WIRES TO PIN 1 AND TO PIN 2 (PIN 3 NOT USED).

THE SENSOR IS A PASSIVE SWITCH; IT DOES NOT MATTER WHICH WIRE IS CONNECTED TO PIN 1 OR PIN 2. SEE FIGURE #1

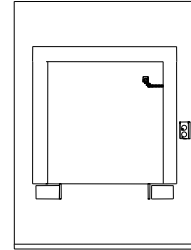


## MAGNETIC CONTACT INSTALL - ROLLING STEEL DOORS

# SAFETY SIGNAL™ INSTALLATION WALL MOUNTED STYLE



## EXTERIOR (BLACK BOX)

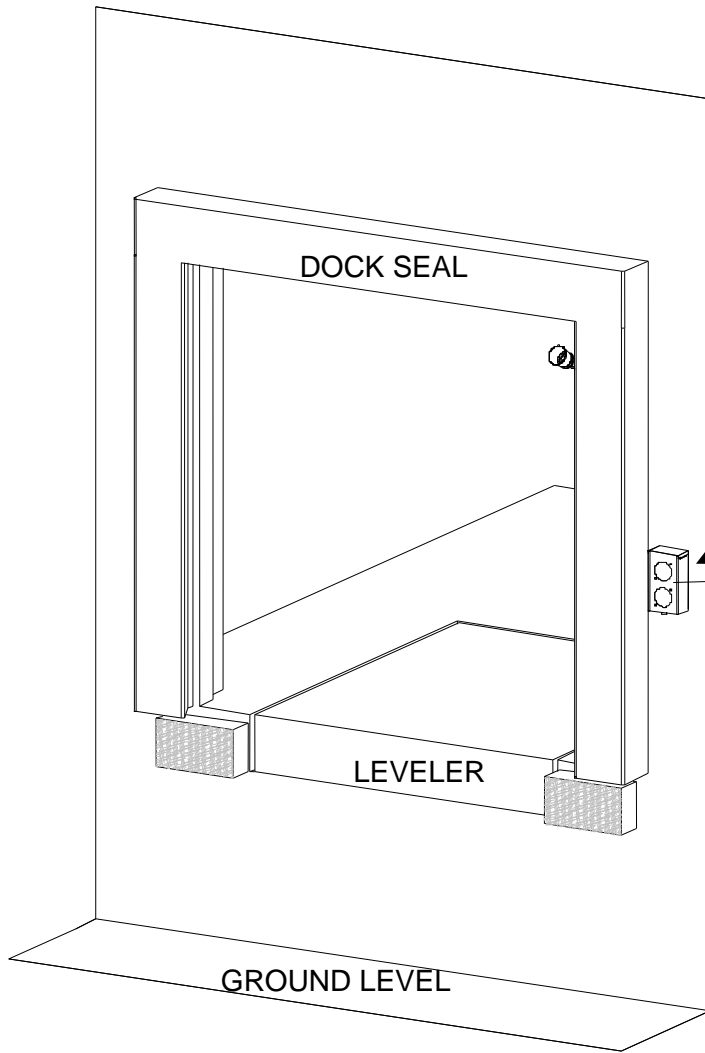


### STEP 1

INSTALL EXTERNAL SAFETY SIGNAL MEASURING 90" [2,286mm] FROM THE GROUND TO THE CENTER OF THE BLACK BOX AND 3" FROM THE DOCK SEAL OR SHELTER, OR 18" FROM INSIDE WALL EDGE. SEE PAGE 4 FOR MOUNTING HARDWARE. **SEE PAGE 14 WHEN USING DOCK SEAL BRACKET.**

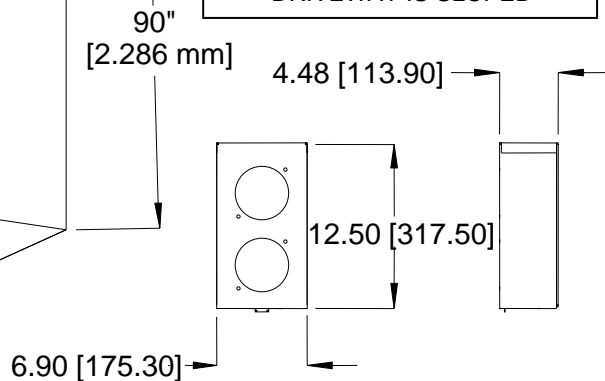
### STEP 2

REFER TO PAGE 13 FOR WIRING INSTRUCTIONS. USE KNOCKOUT LOCATED ON THE BACK OR BOTTOM.



#### NOTE:

1. RED LIGHT MUST BE ON TOP
2. SEE PAGE 14 FOR ALTERNATE MOUNTING WHEN BOX CAN'T BE MOUNTED TO WALL
3. MOUNT BOX PARALLEL TO WALL
4. CONSULT DL MANUFACTURING IF DRIVEWAY IS SLOPED



DETAIL A  
SCALE 1 : 32

## EXTERNAL BOX INSTALLATION

**⚡ REMOVE POWER BEFORE SERVICING. MUST BE INSTALLED BY QUALIFIED ELECTRICIAN ⚡**

**MODEL 554 LEVELER BUTTON**  
SEE PAGE 12 FOR CONNECTIONS

**DO NOT APPLY VOLTAGE TO J6 TERMINALS, FOR SWITCH ONLY**

J6-1, 8.2 VDC, 3 mA MAX

**OUTSIDE LIGHT BOX**  
SEE PAGE 13 FOR CONNECTIONS

J15-1, +12 VDC, 1.25 A MAX  
J15-2, RED LIGHT  
J15-3, NO CONNECTION

**1 AMP SLO-BLO 250V FUSE UNDER FUSE COVER**

**REPLACE WITH ONLY SAME TYPE AND RATING**


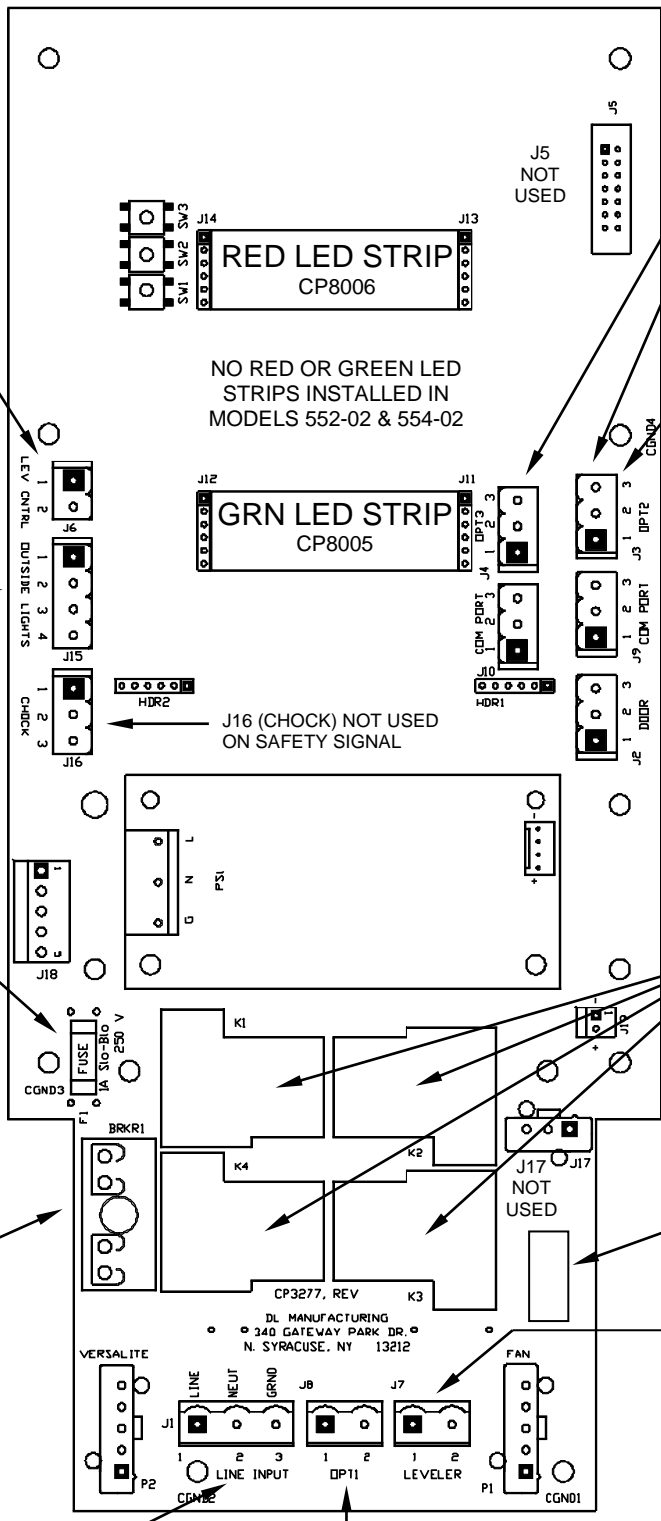
FOR BEST RESULTS WHEN REPLACING FUSE, PLACE FUSE IN COVER, THEN PLACE COVER OVER CLIPS AND THEN SNAP FUSE INTO CLIPS

**12 AMP BREAKER FOR SWITCHED VERSA LIGHT AND FAN OUTLETS ONLY**

**120 VAC INPUT**  
120 VAC, 12 A MAX  
60 HZ  
SEE PAGE 12 FOR CONNECTIONS

J1-1, 120 VAC LINE  
J1-2, NEUTRAL  
J1-3, GROUND

**MODEL 553 & 554 GRND**

**OPTIONAL TERMINAL BLOCK JUMPERS FOR OPT2 & OPT 3**  
SEE PAGE 16 FOR JUMPER SETTINGS

J3-3 OR J4-3, COMMON GND  
J3-2 OR J4-2, INPUT SIGNAL  
J3-1 OR J4-1, +12 VDC, .2A MAX

**OPTIONAL SENSOR**  
SEE INSTRUCTIONS THAT OPTIONAL SENSOR COMES WITH

J3-3, COMMON GND  
J3-2, SENSOR SIGNAL  
J3-1, +12 VDC, .2A MAX

**PHOTO SENSOR**  
SEE PAGE 12 FOR CONNECTIONS

J2-3, COMMON GND  
J2-2, SENSOR SIGNAL  
J2-1, +12 VDC, .2A MAX

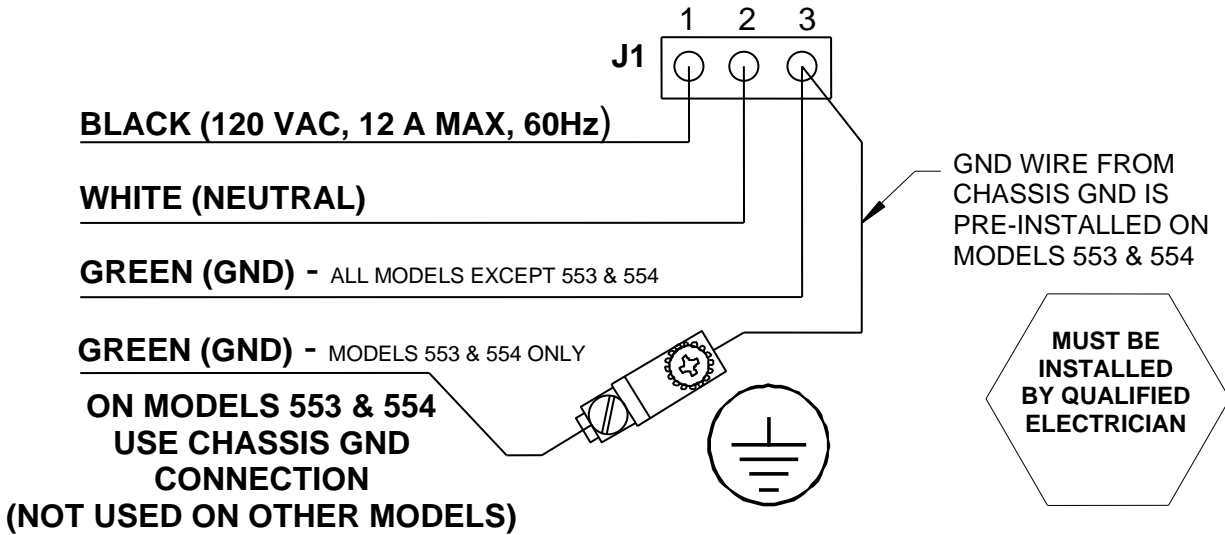
**Switching Relays for J7, J8, Versa Light Outlet and Fan Outlet are Rated 277 VAC**

**ASSEMBLY NUMBER & REV.**

**MODEL 553 & 554 LEVELER INTERLOCK**

**MODEL 553 & 554 OPTIONAL ALTERNATE CONTACTS**

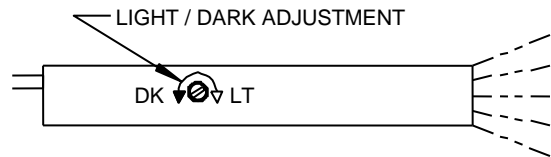
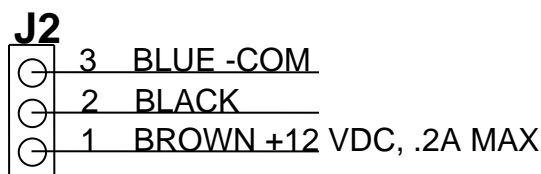
## SAFETY SIGNAL™ FIELD WIRING DIAGRAM INCOMING POWER INTERNAL (YELLOW BOX)



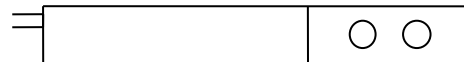
*FOR INTERNAL (YELLOW) BOX INSTALLATION INSTRUCTIONS REFER TO PAGES 5 & 6*

## DOOR PHOTO SENSOR

PHOTO SENSOR IS 12 VDC. DO NOT RUN IN SAME CONDUIT WITH 120 AND HIGHER VOLTAGE. TRANSIENTS CAN DAMAGE CONTROL BOARD



ROTATE SCREW 3/4 TURN TO CHANGE OPERATION FROM (N/O TO N/C OR N/C TO N/O) NORMALLY SET FOR DARK OPERATE OR N/C WHEN LOCATED ABOVE DOOR OPENING

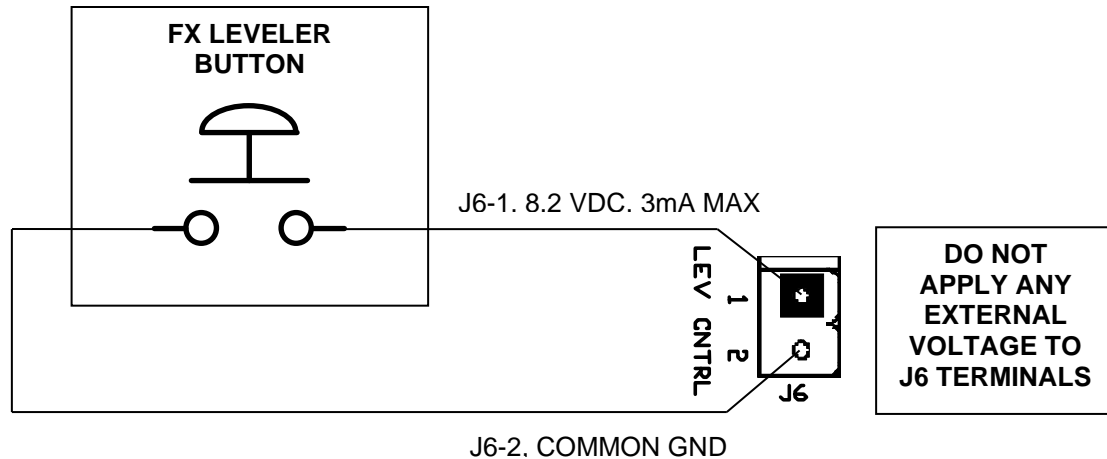


**RIGHT ANGLE PHOTO-EYE, USED ON ROLLING STEEL DOORS. NORMALLY SET FOR LIGHT OPERATE OR N/O.**

*FOR PHOTO SENSOR/MOUNTING KIT INSTALLATION INSTRUCTIONS; REFER TO PAGES 7 & 8*

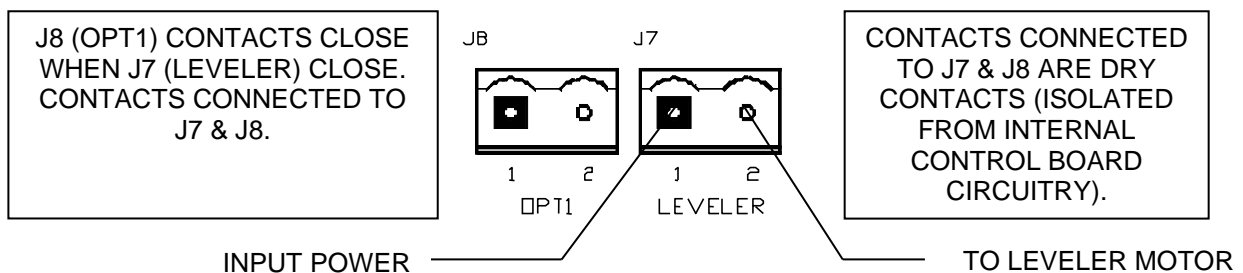
## WIRING DIAGRAM J1 & J2

## SAFETY SIGNAL™ FIELD WIRING DIAGRAM MODEL 554 LEVELER CONTROL SIGNAL



**NOTE:**  
WHEN LEVELER SWITCH IS ACTIVATED, THE CONTROL SIGNAL WILL LET THE MICRO PROCESSOR KNOW TO SHUT THE FAN OFF. IT WILL THEN TURN ON THE LEVELER (J7) AND OPT1 (J8) AFTER A 2 SECOND DELAY. FAN WILL TURN ON WHEN LEVELER STOPS.

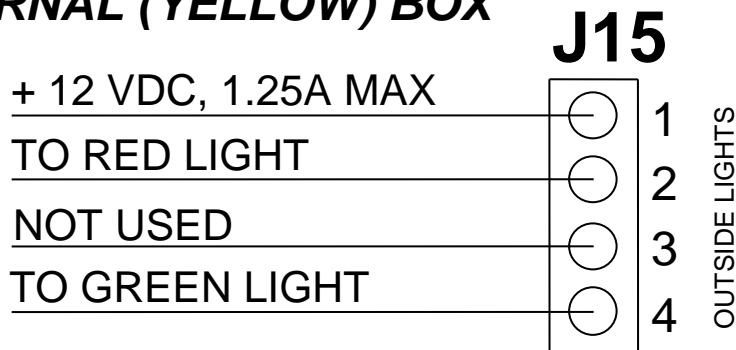
## MODEL 553 & 554 LEVELER INTERLOCK / OPT1



## WIRING DIAGRAM J6, J7 & J8

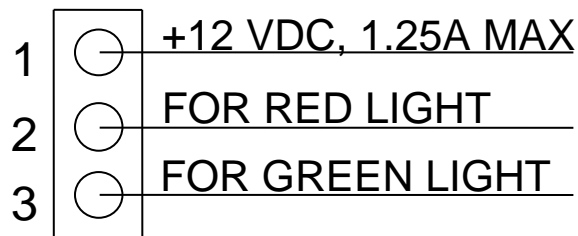
# SAFETY SIGNAL™ FIELD WIRING DIAGRAM OUTSIDE LIGHTS EXTERNAL (BLACK) BOX

**FROM CONTROL BOARD  
INTERNAL (YELLOW) BOX**



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**TO OUTSIDE R&G LED EXTERNAL (BLACK) BOX**

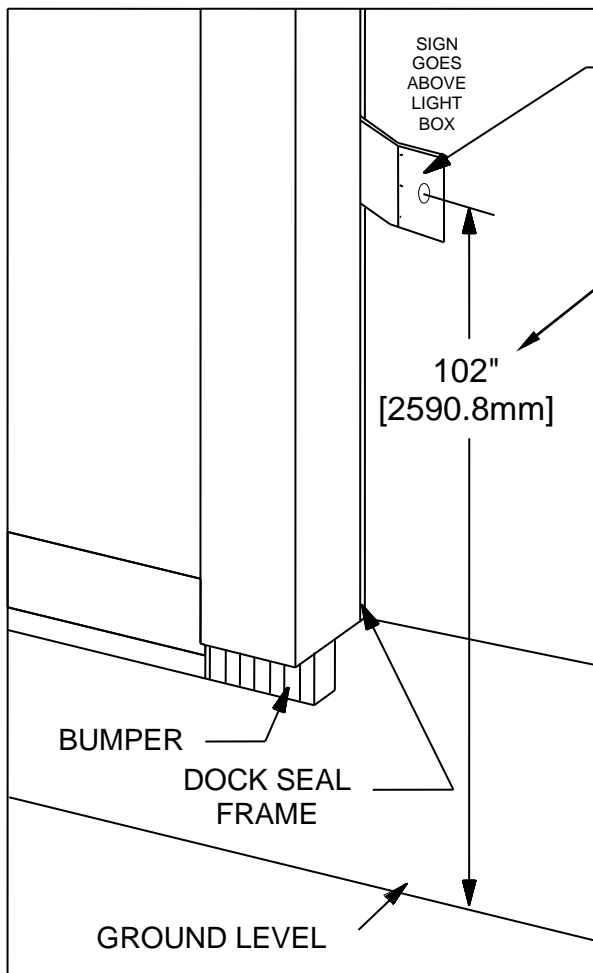


**J1**

**FOR INSTALLATION OF EXTERNAL (BLACK) BOX REFER TO PAGE 9**

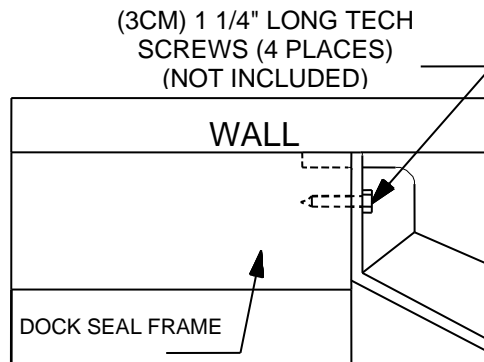
## WIRING DIAGRAM – INSIDE TO OUTSIDE BOX

OPTIONAL DOCK SEAL BRACKET



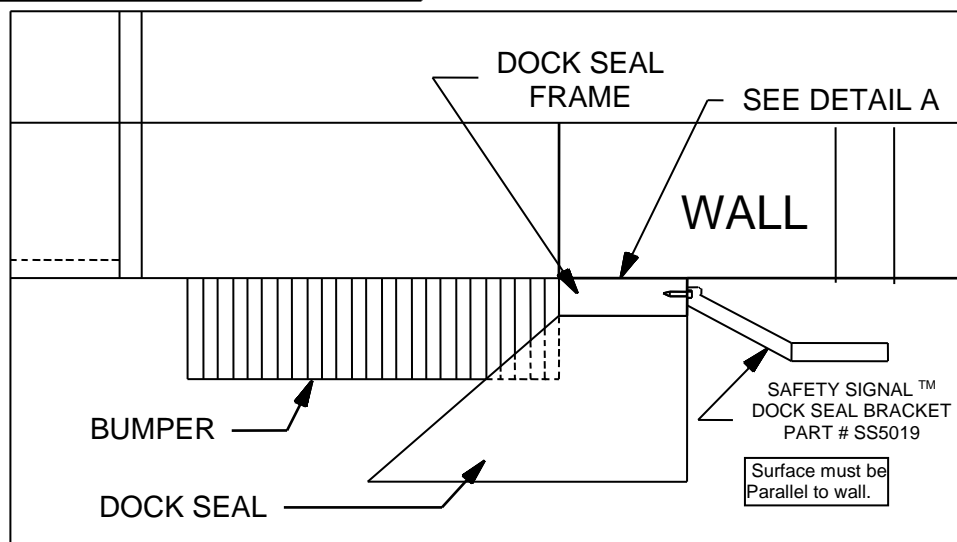
SIGN & LIGHT BOX MOUNT ON BRACKET (SS5019). (6) #10 SELF TAPPING SCREWS (INCLUDED)

**INSTALL DOCK SEAL BRACKET AT MOUNTING HEIGHT OF 102". IF BRACKET IS NOT USED, REFER TO PAGE 9 FOR CORRECT MOUNTING HEIGHT**



DETAIL A

**ALTERNATE OUTSIDE LIGHT BOX MOUNTING**

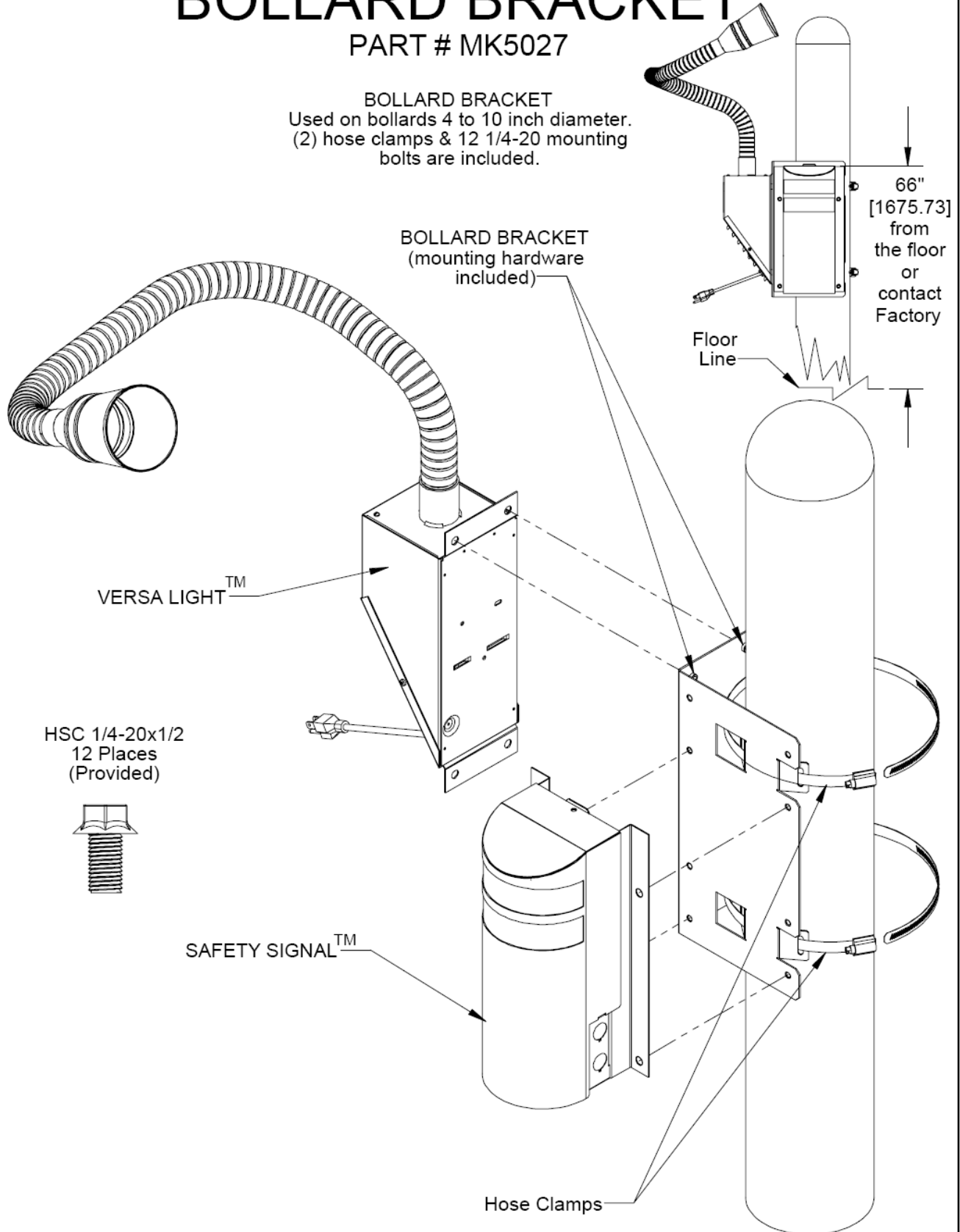


OPTIONAL DOCK SEAL BRACKET

# BOLLARD BRACKET

PART # MK5027

BOLLARD BRACKET  
Used on bollards 4 to 10 inch diameter.  
(2) hose clamps & 12 1/4-20 mounting  
bolts are included.



## OPTIONAL BOLLARD BRACKET



## REPLACEMENT BOARD INFORMATION

The SS8553C, SS8554C, SC8653 and the SC8654 have been upgraded and are made with a CP8007 REV. D control board

In most cases the factory jumper settings for the Photo-eye will be correct and you should not see any differences from your older boards (CP8003 or CP8007 REV. A-C).

### ***Jumper Settings of OPT2 (J3) & OPT3 (J4) on CP8007 Rev D Replacement Control Board***

The CP8007 Rev D Replacement Control Board has been configured so it will work with a Photo Sensor set for either <sup>(1)</sup> Light Operate or <sup>(2)</sup> Dark Operate without having to physically change the Sensor's setting. Jumpers are provided at the Control Board Headers OPT2 (J3) & OPT3 (J4) to compensate for the Sensor's setting.

- ***Replacement Board jumper settings for use with a Door Photo Sensor (No additional Sensor connected to PC Board Header at OPT2).***

The CP8007 Rev D Replacement Control Board is shipped configured for use with a Door Photo Sensor mounted above the Door Opening and set for Light Operate. When replacing the Board simply reconnect the Sensor to the DOOR (J2) Header. If the lights are working opposite Red inside when the door is open the Photo Sensor is set for Dark Operate, move the jumpers in Terminal Blocks OPT2 (J3) & OPT3 (J4) from positions 1 to 2 to positions 2 to 3.

- ***Replacement Board jumper settings for use with a Door Photo Sensor and a Sensor connected to OPT2 (as when an additional Sensor is used to sense a Screened Door or a Recoil Strap).***

If the Door Photo Sensor is set for Light Operate simply reconnect the Sensor to the DOOR (J2) Header. To reconnect the second Sensor, remove the Terminal Block in Header OPT2 (J3) and plug in Sensor.

If the Door Photo Sensor is set for Dark Operate simply reconnect the Sensor to the DOOR (J2) Header. To reconnect the second Sensor, remove the Terminal Block in Header OPT2 (J3) and plug in Sensor. Move the jumper in Terminal Block OPT3 (J4) from positions 1 to 2 to positions 2 to 3.

- ***Replacement Board jumper settings for use with a Door Photo Sensor physically connected in series with a second Sensor (as when an additional Sensor is used to sense a Screened Door or a Recoil Strap).***

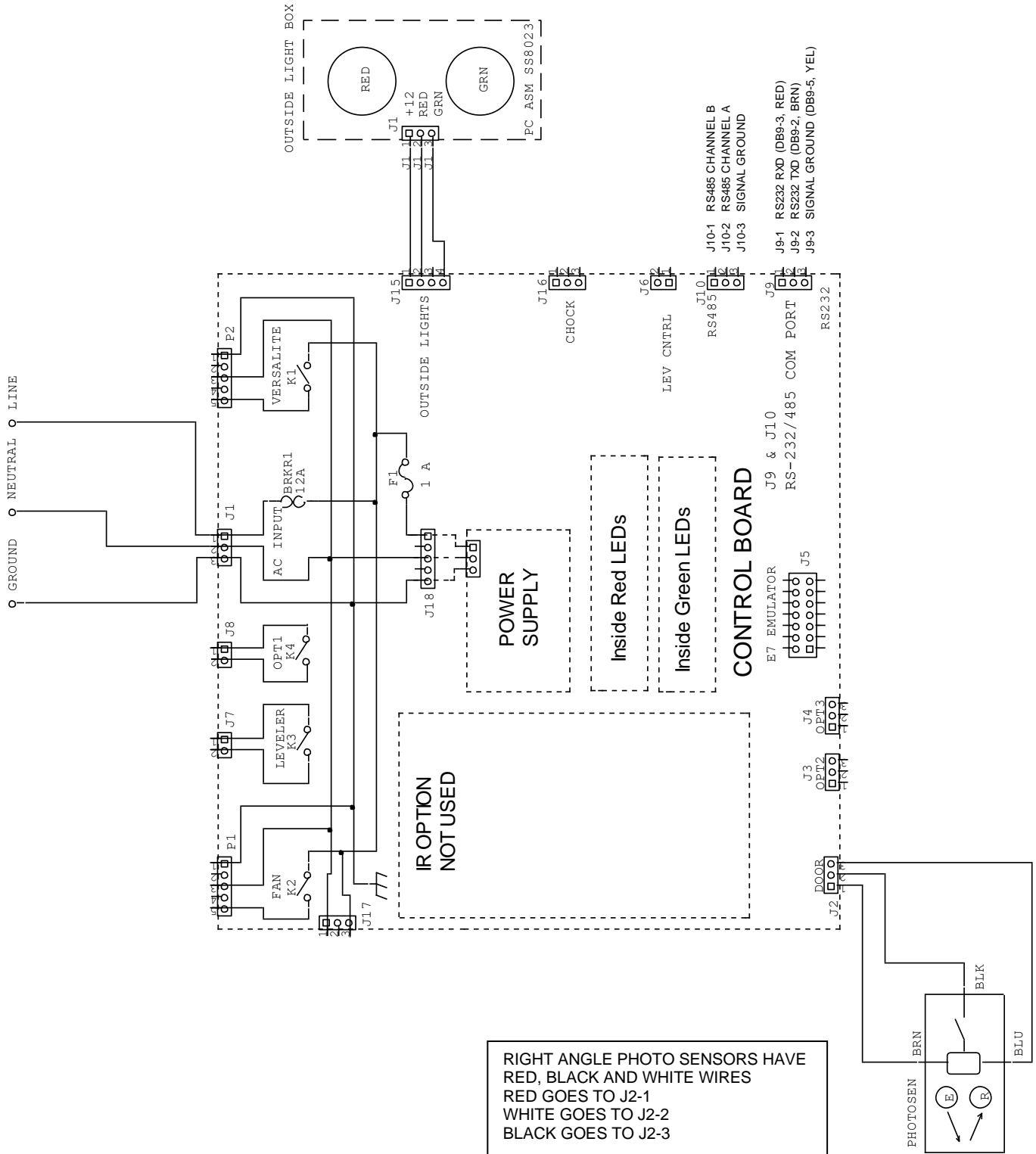
When replacing the Board simply reconnect the series Sensors to the DOOR (J2) Header. No jumper alterations are necessary.

#### NOTES:

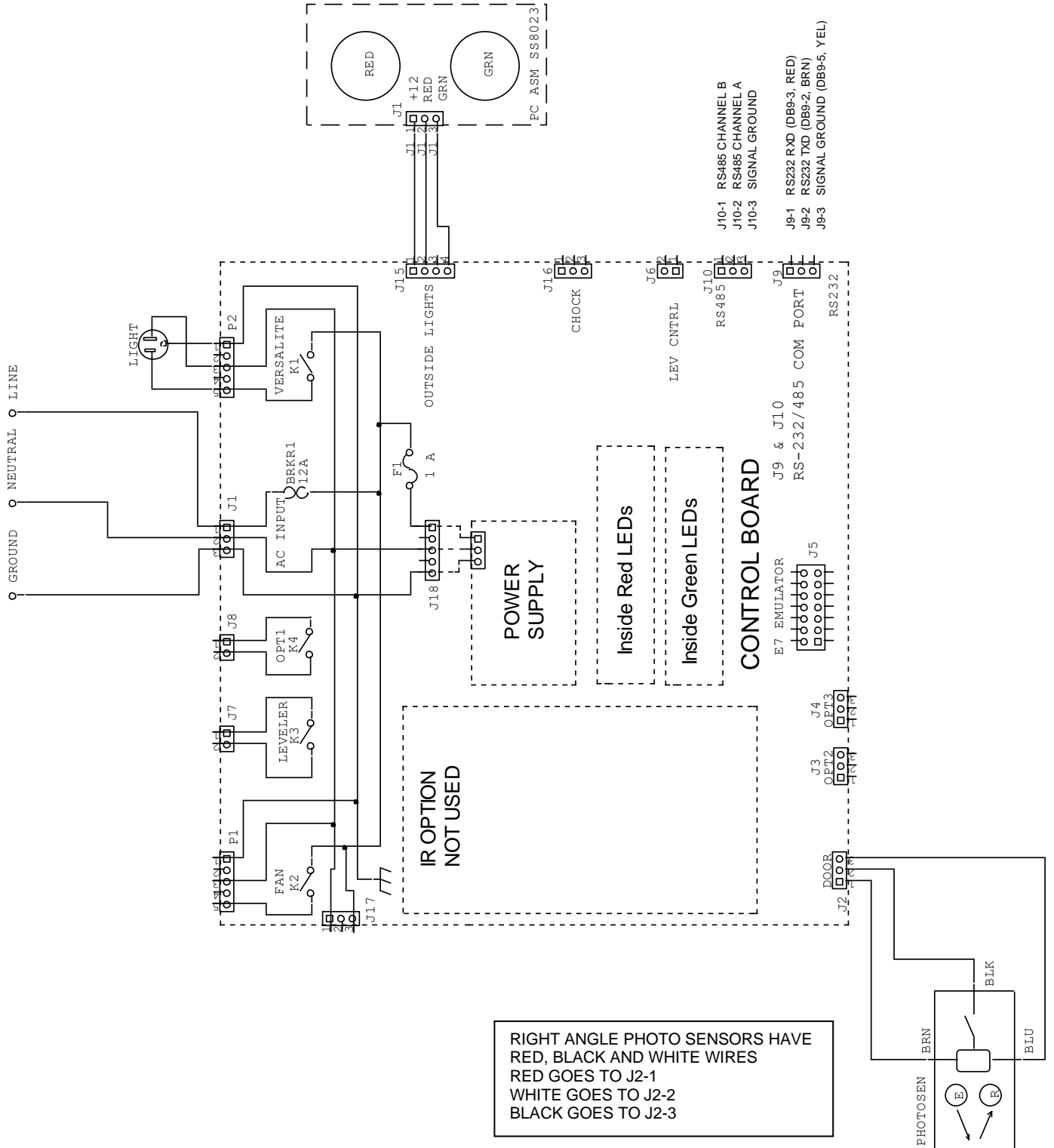
<sup>(1)</sup> Light Operate - The Sensor will send out a signal on its Black wire when it sees an object. An indicator on the back of Sensor will also illuminate when it sees this object.

<sup>(2)</sup> Dark Operate - The Sensor will send out a signal on its black wire when it **does not** see an object. An indicator on the back of the Tubular type Sensors will illuminate when it **does not** see an object and go out when it does. The indicator on the Rectangular type Sensors will always illuminate when an object is within its range regardless of whether it is set for Light or Dark Operate.

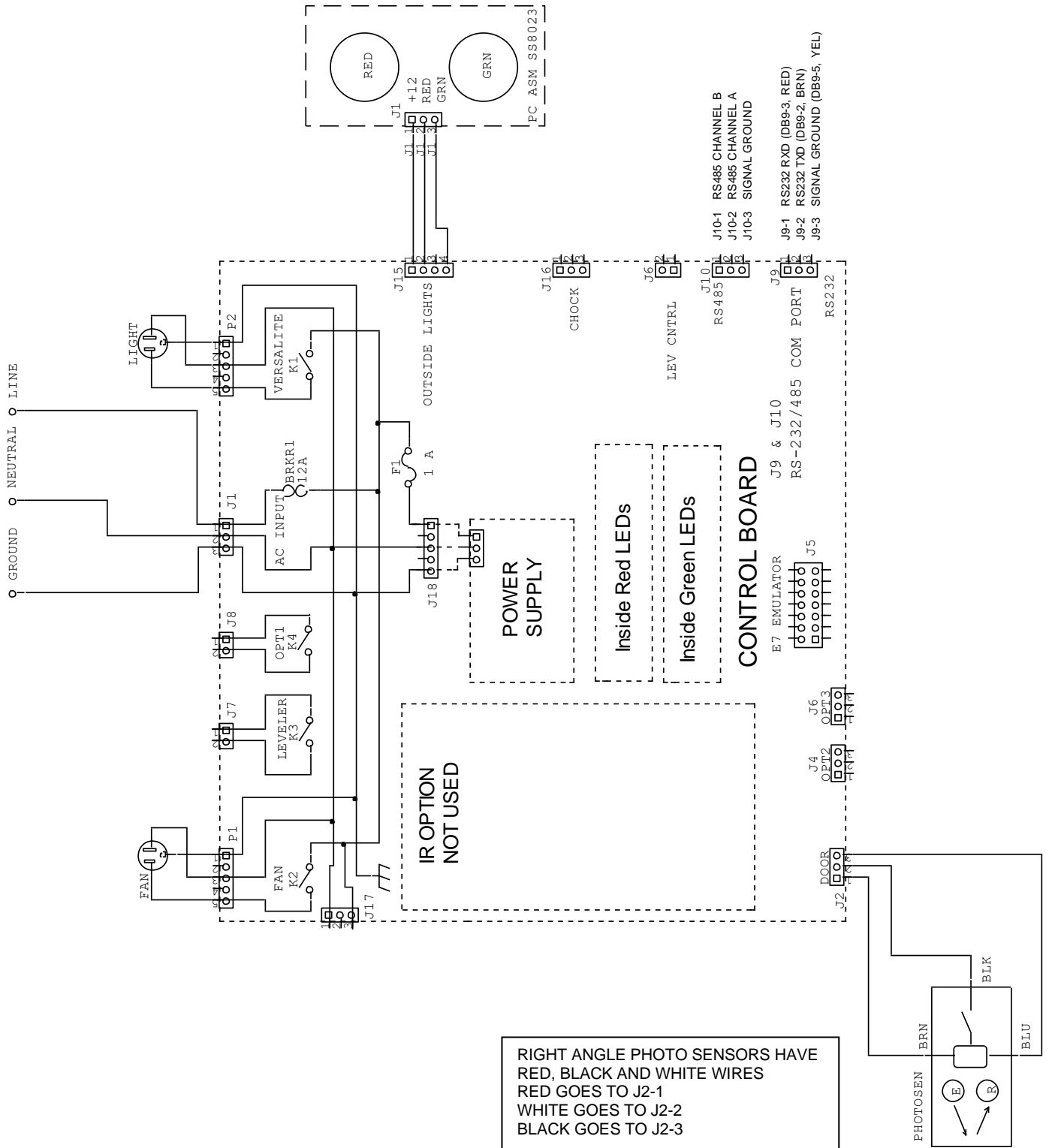
## OPTIONAL TERMINAL BLOCK JUMPERS FOR OPT2 & OPT 3



## MODEL 550 WIRING DIAGRAM



## MODEL 551 WIRING DIAGRAM



RIGHT ANGLE PHOTO SENSORS HAVE RED, BLACK AND WHITE WIRES  
 RED GOES TO J2-1  
 WHITE GOES TO J2-2  
 BLACK GOES TO J2-3

## MODEL 552 WIRING DIAGRAM





DL Manufacturing

Terms / Conditions/ Warranty

Shipping Times

~ Orders for stock items received by 3:00pm EST will be processed for shipment the next day. Orders requesting 2<sup>nd</sup> Day Air or Overnight Air received by 1:00pm will be processed for same day shipment.

Shipments / Freight

~ All DL Manufacturing orders will ship directly from our facility in North Syracuse, NY.

~ All parts will be shipped via UPS Ground unless you authorize a different service. UPS shipments are prepaid and the charges are added to your invoices.

~ For orders shipping by common carrier, the freight will be FOB, North Syracuse, NY. When "best way" is the preferred shipping method on your order, DL Manufacturing will choose the carrier, unless otherwise stated, for the orders shipping from this facility. No adjustments will be made after the order has shipped.

Returns

~ DL Manufacturing will issue a Returned Material Authorization (RMA) number for any product, parts and accessories. Products should not be returned without an RMA number.

~ Replacement parts will be invoiced at the time of shipping. Invoices will be credited upon receipt and inspection of Returned Material Authorization (RMA).

~ Freight for returns is paid for by the shipper unless otherwise specified by DL Manufacturing.

~ A restocking fee of 35% of net price

~ All replacement parts are warranted for a period of 90 days from shipment.

Cancellation Fees

~ Cancellation charges may be incurred on orders cancelled with DL Manufacturing. Please contact DL Manufacturing to discuss each situation.

Warranty Policy

~ All Products (excluding bulbs) manufactured by DL Manufacturing are warranted to be free from defects for a period of 12 months from the date of shipment, excluding doors, which have a warranty period of 12 months from date of installation or 18 months from shipment, whenever occurs first.

This warranty does not cover unreasonable/improper use or use beyond rated conditions, improper storage, negligence or accident; damage because of incorporated use of equipment with Goods, after Customer has or reasonably should have, knowledge of any defect; or improperly installed by any other Person that is unauthorized by DL Manufacturing.

This warranty is subject to customer covenants to inform all subsequent buyers of the Goods of the limitation on and exclusive of warranties provided for herein. Customer hereby indemnifies and agrees to hold DL Manufacturing harmless from and against all losses, costs and expenses, including reasonable attorney's fees incurred by DL Manufacturing as a result of any third-party claim relating to the purchase, sale or use of, or otherwise relating to, the Goods covered by this Agreement.

In no event, shall DL Manufacturing be required to repair, replace or reimburse Customer for more than the part or material that is found to be defective and DL Manufacturing's liability shall in such event be no greater than the invoiced price of the item and shall not include labor, shipping or other costs incurred in connection with the reshipment of defective Goods to DL Manufacturing or the reinstallation of such Goods after any repair or replacement. The remedy set forth in this paragraph is expressly agreed to be the sole and exclusive remedy for any breach of warranty. This warranty is exclusive and in lieu of all other warranties expressed or implied, including but not limited to any warranty of merchantability or of fitness for a particular purpose.

Limitation of Liability - In no event as a result of breach of contract, warranty or negligence shall DL Manufacturing be liable for special, or consequential damages including but not limited to loss of profits or revenues, loss of any equipment, cost of capital, cost of substitute equipment, facilities or services, downtime costs or claims of purchasers of the Customer for such damages. Additionally, DL Manufacturing will not be liable for any delay in the performance of contracts and orders, or in the shipment and delivery of goods, or for any damage suffered by the Customer by reason of delay, when such delay is, directly or indirectly, caused by force majeure, including war, Government interference, strikes, embargoes, shortage of labor, fuel, fires, floods, or any other cause or cause whether or not similar in nature to any of those herein before specified beyond DL Manufacturing's control.