

TWR Lighting, Inc. **MARK**

Enlightened Technology

4300 WINDFERN RD SUITE 100 - HOUSTON TX 77041-8943
VOICE (713) 973-6905 - FAX (713) 973-9352
web: www.twrlighting.com

IMPORTANT!!!

PLEASE TAKE THE TIME TO FILL OUT THIS FORM COMPLETELY. FILE IT IN A SAFE PLACE. IN THE EVENT YOU EXPERIENCE PROBLEMS WITH OR HAVE QUESTIONS CONCERNING YOUR CONTROLLER, THE FOLLOWING INFORMATION IS NECESSARY TO OBTAIN PROPER SERVICE AND PARTS.

MODEL # AA0XFRMLED2OL2

SERIAL # _____

PURCHASE DATE _____

PURCHASED FROM _____

TWR Lighting, Inc. **HARK**[®]

Enlightened Technology[®]

AA0XFRMLED2OL2 CONTROLLER

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WARRANTY & RETURN POLICY

RETURN MERCHANDISE AUTHORIZATION (RMA) FORMS

TWR Lighting, Inc. HARK[®]

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AA0XFRMLED2OL2 CONTROLLER

APPENDIX

CHASSIS LAYOUT.....	1295-R
CHASSIS SCHEMATIC	1295-S
OL2CLED2	100786 (REV B)
LED SIDELIGHT CURRENT SENSORS	100694 (REV G)
AA0 TOWER LIGHTING KIT	T1613
JUNCTION BOX	100089 (REV A)
WARRANTY & RETURN POLICY	
RETURN MERCHANDISE AUTHORIZATION (RMA) FORMS	

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AA0XFRMLED2OL2 CONTROLLER

1.0 GENERAL INFORMATION

The TWR Lighting[®], Inc. Model AA0XFRMLED2OL2 Controller is for applications of two (2) L-810 LED double obstruction light fixtures with transfer between the primary to secondary lamps.

The obstruction lights burn steady.

A by-pass switch (SW1) allows the controller to be turned on during daylight hours without covering the photocell.

The photocell is a 3 blade, twist to lock type.

Power supplied to the controller shall be 230V AC single phase.

Controller functions that are monitored by remote alarms in the form of dry contact closures (Form C) are as follows:

- | | |
|---------------------------|---|
| POWER FAILURE | Monitors 230V AC to the controller. Alarms in the event of power failure, or tripped circuit breaker. |
| LIGHTS "ON" | Gives an indication whenever the controller is activated. |
| OBSTRUCTION LIGHTS | Will give an alarm when the primary lamp within any of the LED OL2 fixtures fails. |

AA0XFRMLED2OL2 CONTROLLER

2.0 INSTALLATION INSTRUCTIONS

2.1 MOUNTING THE CONTROLLER CABINET

(Refer to drawing 1295-R)

- 2.1.1 The power supply control cabinet can be located at the base of the structure, or in an equipment building. Mounting footprints are showing on drawing 1295-R. Power wiring to the control cabinet should be in accordance with local methods and National Electrical Codes (NEC).
- 2.1.2 If the control cabinet is mounted inside an equipment building, the photocell should be mounted vertically outside the building above the eaves facing north. Wiring from the photocell socket to the control cabinet should consist of one (1) each; red, black, and white wires. The white wire is connected to the socket terminal marked "COM," the black wire is connected to the socket terminal marked "B," and the red wire is connected to the socket terminal marked "R." As above, the photocell should be positioned so that it does not "see" ambient light, which would prevent it from switching to the nightmode.
- 2.1.3 If the control cabinet is mounted outside an equipment building, the photocell should be mounted vertically so the photocell is above the control cabinet. Care must be taken to assure that the photocell does not "see" any ambient light that would prevent it from switching into the nightmode. The photocell wiring is the same as in 2.1.2.
- 2.1.4 The wiring from the photocell, the service breaker, and the LED sidelights should enter the control cabinet through the water-tight connectors in the bottom of the cabinet. Inside the cabinet, the connections will be made on the terminal strip and circuit breakers located at the bottom of the chassis. These connections are made as follows:

AA0XFRMLED2OL2 CONTROLLER

2.2 EXTERNAL PHOTOCCELL WIRING

(Refer to drawing 1295-R)

- 2.2.1 Connect the BLACK wire from the photocell to terminal block (TB2) marked "L."
- 2.2.2 Connect the RED wire from the photocell to terminal block (TB2) marked "SSR."
- 2.2.3 Connect the WHITE wire from the photocell to terminal block (TB2) marked "N."

2.3 POWER WIRING

(Refer to drawing 1295-R)

- 2.3.1 Power wiring to the control cabinet should be in accordance with local methods and National Electrical Codes (NEC).
- 2.3.2 Circuit breaker needs to be rated at 5 amps.
- 2.3.3 Connect incoming 230V AC "HOT" to terminal block (TB1) marked "L."
- 2.3.4 Connect neutral to one (1) of the terminal blocks (TB1) marked "N."
- 2.3.5 Connect the AC ground to the ground lug located to the left of TB2.

2.4 LED SIDELIGHT WIRING

(Refer to drawings 1295-R and T1613)

- 2.4.1 Connect the black wire from the primary lamp of the first OL2 LED fixture to the circuit breaker marked "S1P."
- 2.4.2 Connect the black wire from the secondary lamp of the first OL2 LED fixture to the circuit breaker marked "S1S."
- 2.4.3 Connect the red wire from the primary lamp of the second OL2 LED fixture to the circuit breaker marked "S2P."

AA0XFRMLED2OL2 CONTROLLER

- 2.4.4 Connect the red wire from the secondary lamp of the second OL2 LED fixture to the circuit breaker marked "S2S."
- 2.4.5 Connect the neutral wire(s) to the terminal block (TB1) marked "N."
- 2.4.6 Connect the ground wires to the ground lug located to the right of the circuit breakers.

2.5 LED SIDELIGHT ALARM WIRING

(Refer to drawings 1295-R and 1295-S)

- 2.5.1 Independent contact closures are provided for: Power Failure, Lights "ON", and OL2 LED Fixture Main Lamp Burnouts.
- 2.5.2 Alarm wiring. To utilize the dry contacts, the customer will need four (4) pairs of wires to interface with the alarm device. Connect customer alarm common (C) to terminal block TB3, terminals # 9 and 10. The remaining wires from each pair will terminate as follows:
 - 2.5.2.1 **POWER FAILURE** Connect alarm wire to terminal block TB3, terminal # 5, for normally open, or terminal # 6, for normally closed monitoring.
 - 2.5.2.2 **Lights "ON"** Connect alarm wire to terminal block TB3, terminal # 7 , for normally open, or terminal # 8 , for normally closed monitoring.
 - 2.5.2.3 **S1P ALARM** Connect alarm wire to terminal block TB3, terminal # 1, for normally open, or terminal # 2, for normally closed monitoring.
 - 2.5.2.4 **S2P ALARM** Connect alarm wire to terminal block TB3, terminal # 3, for normally open, or terminal # 4, for normally closed monitoring.

AA0XFRMLED2OL2 CONTROLLER

3.0 THEORY OF OPERATION

3.1 POWER SUPPLY

230V AC enters the controller from the circuit breaker panel and sits at the PRD waiting to be energized, and also keeps the power failure relay K1 energized. When the 6390-FAA photocell is activated, line energizes the coil of the PRD. This can also be accomplished by using the photocell bypass switch (SW1).

3.2 LED SIDELIGHTS

Line (LDS) is sent to modules M1 and M2, which are the current sensing modules for all of the primary lamps. If the primary lamp within an OL2 LED fixture burns out, then that particular module will send 230V to the secondary lamp.

*** Once the cause of the failure has been corrected, the unit will need to be reset by shutting off the service breaker to the unit.**

AA0XFRMLED2OL2 CONTROLLER

4.0 MAINTAINANCE GUIDE

4.1 LED RED OBSTRUCTION LIGHTING

No scheduled maintenance is required. Perform on an “as needed” basis only.

TOOLS REQUIRED: NONE

4.2 CONTROLLER

No scheduled maintenance is required. Perform on an as needed basis only.

4.3 PHOTOCELL

The photocell is a sealed unit. No maintenance is needed nor required, other than replacement as necessary.

AA0XFRMLED2OL2 CONTROLLER

5.0 MAJOR COMPONENTS PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	6390-FAA	120 – 240V AC PHOTOCELL
1	VJ1412HWPL2	ENCLOSURE
7	8WA1204	TERMINAL BLOCK (TB1 & TB2)
4	S261-D1	1 amp CIRCUIT BREAKER (S1P – S2S)
2	8WA1808	END STOP
1	STJ01002	PHOTOCELL BYPASS SWITCH (SW1)
1	V275LA20A	METAL OXIDE VARISTOR (MOV 1)
2	9KE-240V	SPDT 240V AC RELAY (K1)
2	RM4JA31MW	LED SIDELIGHT ALARM MODULES (M1 and M2)
1	PRD7AYO-240V	POWER RELAY 240V (PRD)
1	TERMBLK141-10	10 PART TERMINAL BLOCK (TB3)
2	PB27E122	OCTAL RELAY SOCKETS
1	SSPIGTAIL	SUN SWITCH PIGTAIL
2	S261D20	20 amp BREAKERS (AT CUSTOMER'S REQUESTS)

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6.0 SUGGESTED SPARE PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	6390-FAA	120 – 240V AC PHOTOCELL
1	RM4JA31MW	SIDELIGHT ALARM MODULES (M1 and M2)
1	9KE-240V	SPDT 240V AC RELAY (K1 and K2)

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Warranty & Return Policy

TWR Lighting®, Inc. (“TWR®”) warrants its products (other than “LED Product”) against defects in design, material (excluding incandescent bulbs) and workmanship for a period ending on the earlier of two (2) years from the date of shipment or one (1) year from the date of installation.

TWR Lighting®, Inc. (“TWR®”) warrants its “LED Product” against defects in design, material and workmanship for a period of five (5) years from the date of shipment. TWR®, at its sole option, will, itself, or through others, repair, replace or refund the purchase price paid for “LED Product” that TWR® verifies as being inoperable due to original design, material, or workmanship. All warranty replacement “LED Product” is warranted only for the remainder of the original warranty of the “LED Product” replaced. Replacement “LED Product” will be equivalent in function, but not necessarily identical, to the replaced “LED Product.”

TWR Lighting®, Inc. (“TWR®”) warrants its “LED Product” against light degradation for a period of five (5) years from the date of installation. TWR®, at its sole option, will, itself, or through others, repair, replace, or refund the purchase price paid for “LED Product” that TWR® verifies as failing to meet 70% of the minimum intensity requirements as defined in the FAA Advisory Circular 150/5345-43G dated 09/26/12. All warranty replacement “LED Product” is warranted only for the remainder of the original warranty of the “LED Product” replaced. Replacement “LED Product” will be equivalent in function, but not necessarily identical, to the replaced “LED Product.”

Replacement parts (other than “LED Product”) are warranted for 90 days from the date of shipment.

Conditions not covered by this Warranty, or which might void this Warranty are as follows:

- x Improper Installation or Operation
- x Misuse
- x Abuse
- x Unauthorized or Improper Repair or Alteration
- x Accident or Negligence in Use, Storage, Transportation, or Handling
- x Any Acts of God or Nature
- x **Non-OEM Parts**

The use of Non-OEM parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance of complying with FAA requirements as published in Advisory Circular 150/5345-43.

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Warranty & Return Policy (continued)

Field Service – Repairs are warranted for 90 days from the date of service, except where TWR[®] has made recommendations that were not adhered to that may cause premature failure on previous repairs. Labor, Travel, and Tower Climb are not covered under warranty. Customer shall be obligated to pay for all incurred charges not related to warranty. All warranty repairs are performed by trained TWR[®] personnel, or dispatched through an extensive network of certified and insured Service Representatives.

Return Terms – You must first contact our Customer Service Department at **713-973-6905** to acquire a Return Merchandise Authorization (RMA) number in order to return the product(s). Please have the following information available when requesting an RMA number:

- x The contact name and phone number of the tower owner
- x The contact name and phone number of the contractor
- x The site name and number
- x The part number(s)
- x The serial number(s) (if any)
- x A description of the problem
- x The billing information
- x The Ship To address

This RMA number must be clearly visible on the outside of the box. If the RMA number is not clearly labeled on the outside of the box, your shipment will be refused. Please ensure the material you are returning is packaged carefully. **The warranty is null and void if the product(s) are damaged in the return shipment.**

All RMAs must be received by TWR LIGHTING[®], INC., 4300 WINDFERN RD #100, HOUSTON TX 77041-8943, within 30 days of issuance.

Upon full compliance with the Return Terms, TWR[®] will replace, repair and return, or credit product(s) returned by the customer. It is TWR[®]'s sole discretion to determine the disposition of the returned item(s).

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AA0XFRMLED2OL2 CONTROLLER

Warranty & Return Policy (continued)

Replacements – Replacement part(s) will be shipped and billed to the customer for product(s) considered as Warranty, pending return of defective product(s). When available, a certified reconditioned part is shipped as warranty replacement with a Return Merchandise Authorization (RMA) number attached. Upon receipt of returned product(s), inspection, testing, and evaluation will be performed to determine the cause of defect. The customer is then notified of the determination of the testing.

- x Product(s) that is deemed defective and/or unrepairable and covered under warranty - a credit will be issued to the customer's account.
- x Product(s) found to have no defect will be subject to a **\$60.00 per hour testing charge (1 hour minimum), which will be invoiced to the customer.** At this time the customer may decide to have the tested part(s) returned and is responsible for the return charges.
- x Product(s) under warranty, which the customer does not wish returned, the customer will be issued a credit against the replacement invoice.

Repair & Return – A Return Merchandise Authorization (RMA) will be issued for all part(s) returned to TWR[®] for repair. Upon receipt of returned product(s), inspection, testing, and evaluation will be performed to determine the cause of defect. The customer is then notified of the determination of the testing. If the returned part(s) is deemed unrepairable, or the returned part(s) is found to have no defect, the customer will be subject to a **\$60.00 per hour testing charge (1 hour minimum), which will be invoiced to the customer.** Should the returned parts be determined to be repairable, a written estimated cost of repair will be sent to the customer for their written approval prior to any work being performed. In order to have the tested part(s) repaired and/or returned, the customer must issue a purchase order and is responsible for the return shipping charges.

Return to Stock – Any order that is returned to TWR[®] for part(s) ordered incorrectly by the customer, or unneeded upon receipt, the customer is required to pay a **20% restocking fee.** A credit will be issued once it is determined that the Return Terms are met.

Credits – Credits are issued once it is determined that all of the Warranty and Return Terms are met. All credits are processed on Fridays. In the event a Friday falls on a Holiday, the credit will be issued on the following Friday.

Freight – All warranty replacement part(s) will be shipped via ground delivery and paid for by TWR[®]. Delivery other than ground is the responsibility of the customer.

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AA0XFRMLED2OL2 CONTROLLER

Warranty & Return Policy (continued)

REMEDIES UNDER THIS WARRANTY ARE LIMITED TO PROVISIONS OF REPLACEMENT PARTS AND REPAIRS AS SPECIFICALLY PROVIDED. IN NO EVENT SHALL TWR[®] BE LIABLE FOR ANY OTHER LOSSES, DAMAGES, COSTS, OR EXPENSES INCURRED BY THE CUSTOMER, INCLUDING, BUT NOT LIMITED TO, LOSS FROM FAILURE OF THE PRODUCT(S) TO OPERATE FOR ANY TIME, AND ALL OTHER DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING ALL PERSONAL INJURY OR PROPERTY DAMAGE DUE TO ALLEGED NEGLIGENCE, OR ANY OTHER LEGAL THEORY WHATSOEVER. THIS WARRANTY IS MADE BY TWR[®] EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED. WITHOUT LIMITING THE GENERALITY OF THE FORGOING, TWR[®] MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS OF THE PRODUCT(S) FOR ANY PARTICULAR PURPOSE. TWR[®] EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES.

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Enlightened Technology[®]

AA0XFRMLED2OL2 CONTROLLER

RETURN MERCHANDISE AUTHORIZATION (RMA) FORM

RMA#: _____ DATE: _____

CUSTOMER: _____

CONTACT: _____ PHONE NO.: _____

ITEM DESCRIPTION (PART NO.): _____

MODEL NO.: _____ SERIAL NO.: _____

ORIGINAL TWR INVOICE NO.: _____ DATED: _____

DESCRIPTION OF PROBLEM: _____

SIGNED _____ DATE NEEDED _____

RETURN ADDRESS: _____

PLEASE RETURN PRODUCT TO: 4300 WINDFERN RD #100 HOUSTON TX 77041-8943

TWR Lighting, Inc. HARK[®]

Enlightened Technology[®]

AA0XFRMLED2OL2 CONTROLLER

RETURN MERCHANDISE AUTHORIZATION (RMA) FORM

RMA#: _____ DATE: _____

CUSTOMER: _____

CONTACT: _____ PHONE NO.: _____

ITEM DESCRIPTION (PART NO.): _____

MODEL NO.: _____ SERIAL NO.: _____

ORIGINAL TWR INVOICE NO.: _____ DATED: _____

DESCRIPTION OF PROBLEM: _____

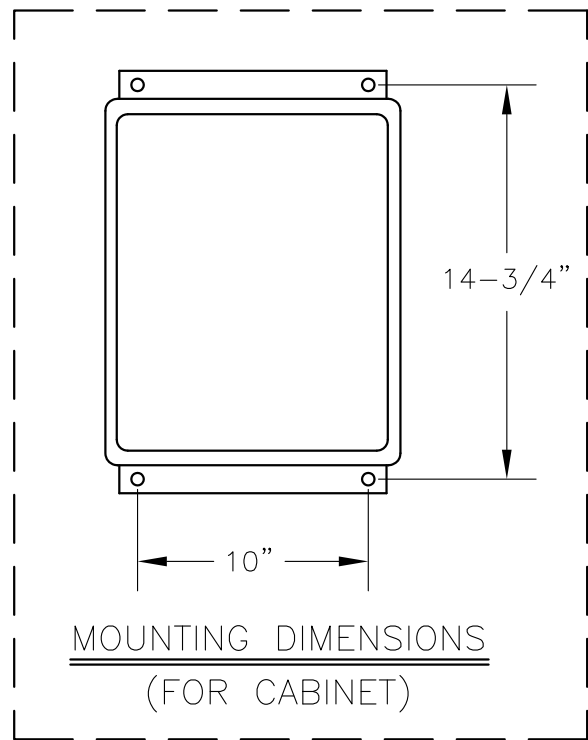
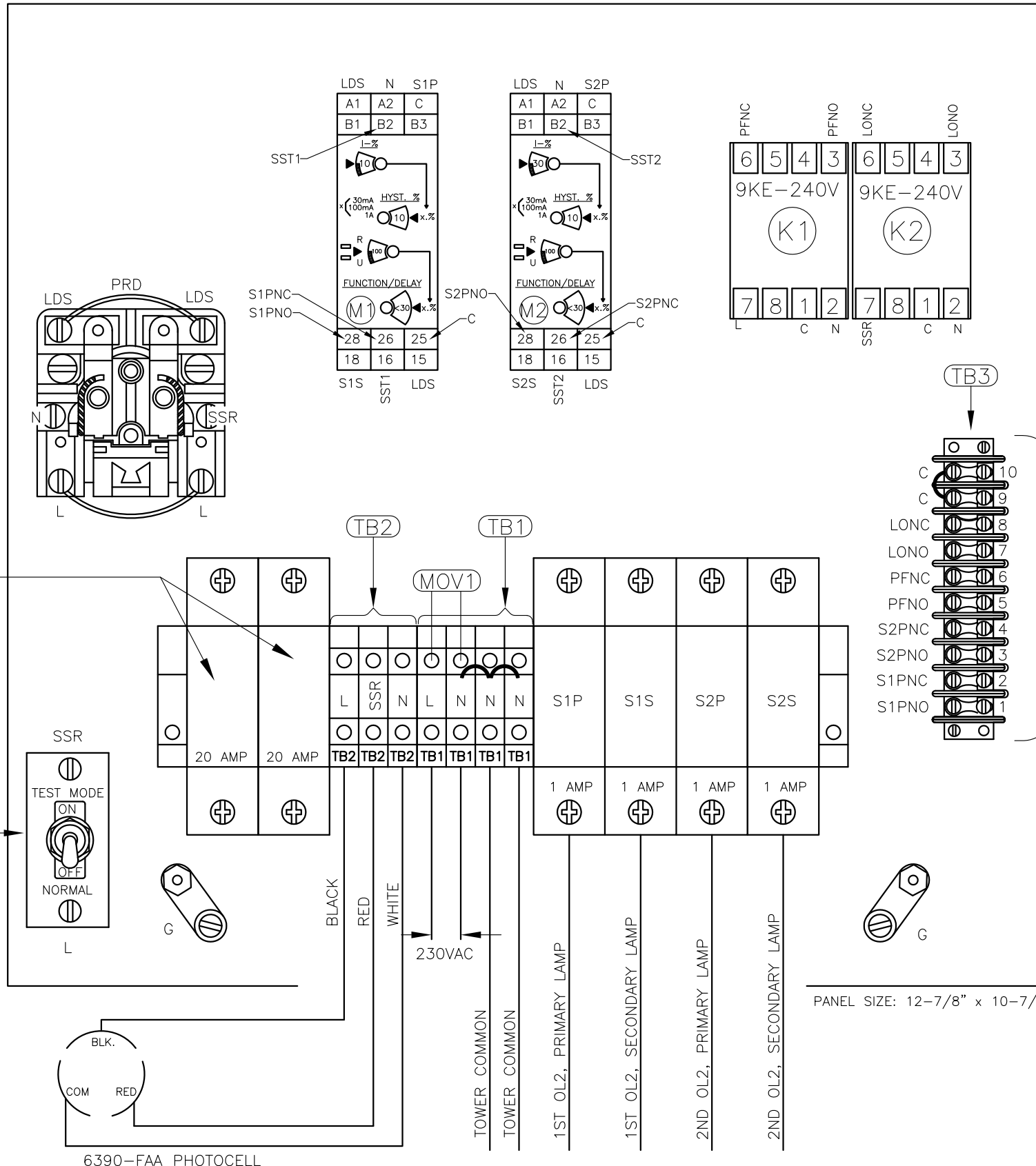
SIGNED _____ DATE NEEDED _____

RETURN ADDRESS: _____

PLEASE RETURN PRODUCT TO: 4300 WINDFERN RD #100 HOUSTON TX 77041-8943

***CUSTOMER ALARM POINTS**

- C = ALARM COMMON
- S1PNO = 1ST OL2, PRIMARY FAILURE NORMALLY OPEN
- S1PNC = 1ST OL2, PRIMARY FAILURE NORMALLY CLOSED
- S2PNO = 2ND OL2, PRIMARY FAILURE NORMALLY OPEN
- S2PNC = 2ND OL2, PRIMARY FAILURE NORMALLY CLOSED
- PFNO = POWER FAILURE NORMALLY OPEN
- PFNC = POWER FAILURE NORMALLY CLOSED
- LONO = LIGHTS "ON" NORMALLY OPEN
- LONC = LIGHTS "ON" NORMALLY CLOSED
- * ALARM OUTPUTS ARE FORM C.



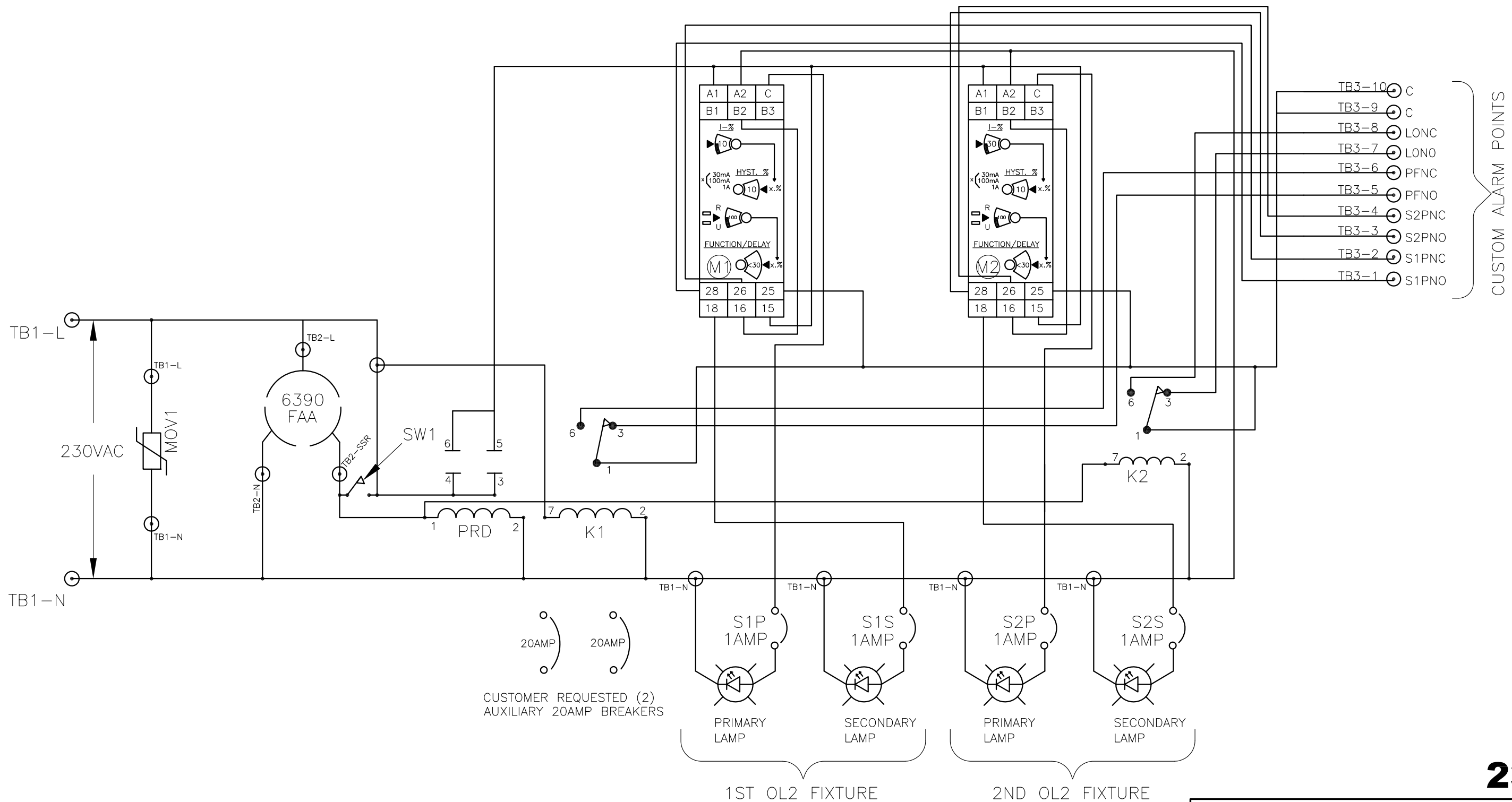
CUSTOM ALARM POINTS

- NOTES:**
1. PLUG 6390-FAA PHOTOCELL INTO 43109 TWIST LOCK RECEPTACLE AND TWIST TO LOCK.
 2. WIRES ARE CONNECTED LETTER TO LETTER. (EXAMPLE) LDS TO LDS TO LDS.

230V

<u>AA0XFRMLD20L2 CHASSIS LAYOUT</u>			
PROD DEPT	TWR Lighting, Inc. <i>Enlightened Technology</i> WORK		
SERV DEPT			
ENGINEER			
DRAWN BY J.ZAMORANO	SHEET SIZE B	SHEET QTY. 1 OF 1	DATE 10/10/2014
DATE 10/10/2014	SCALE N.T.S.	DWG. NO. 1295-R	

The use of non-OEM parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance of complying with FAA requirements as published in Advisory Circular 150/5345-43.
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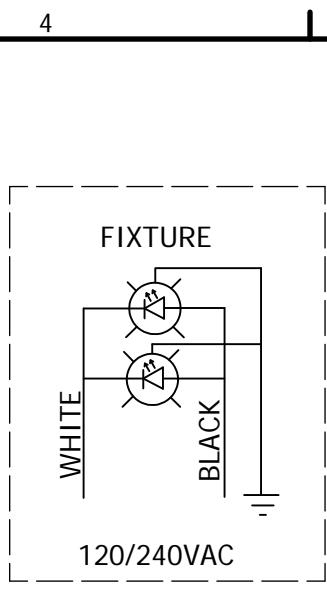


230V

AAOXFRMLED2OL2 SCHEMATIC LAYOUT

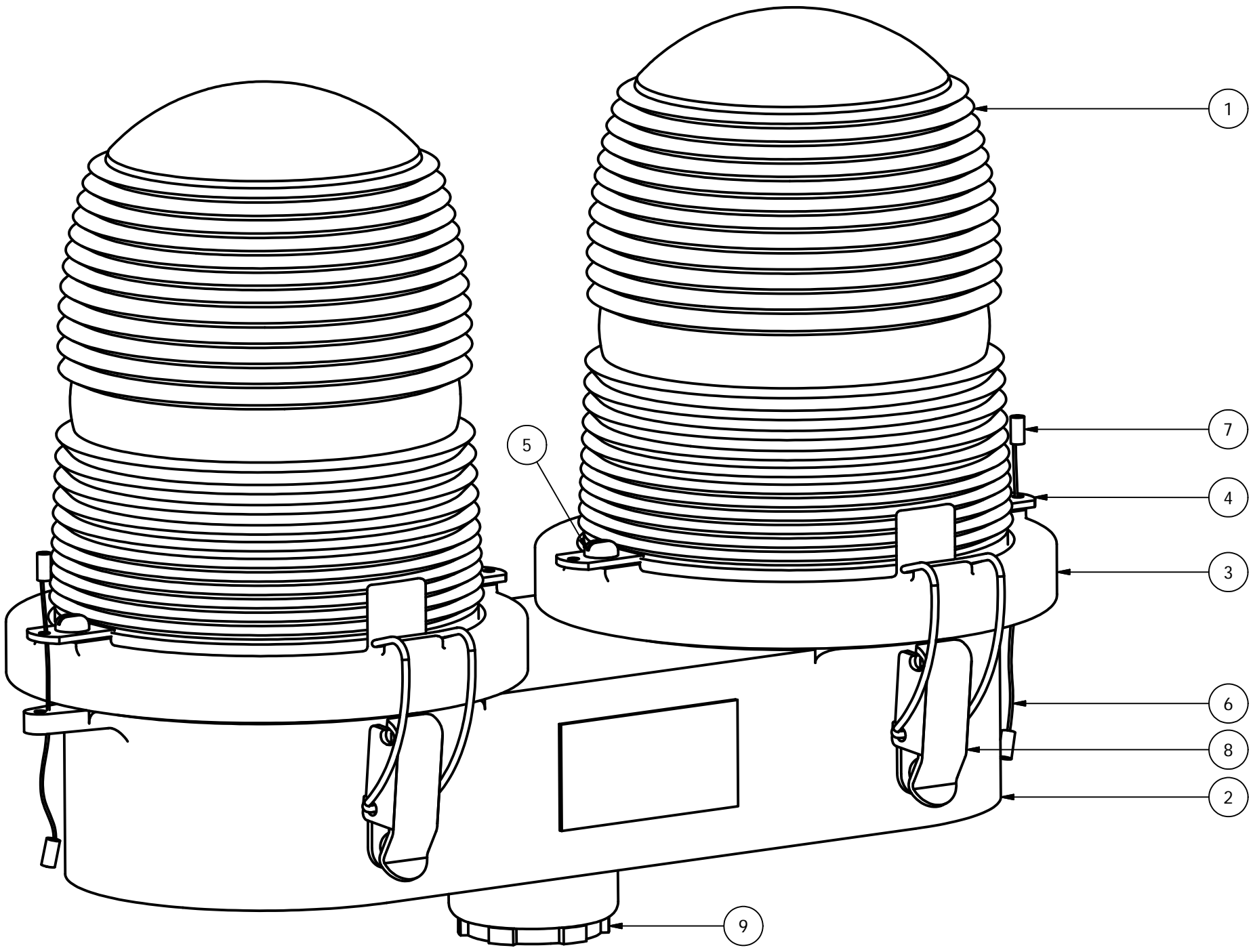
PROD DEPT	TWR Lighting, Inc. Enlightened Technology®				
SERV DEPT					
ENGINEER					
DRAWN BY	J.ZAMORANO	SHEET SIZE	B	SHEET QTY.	1 OF 1
DATE	10/16/2014	SCALE	N.T.S.	DWG. NO.	1295-S

The use of non-OEM parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance of complying with FAA requirements as published in Advisory Circular 150-5345-43.
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* GROUND WIRE MUST BE CONNECTED TO PROPERLY PROTECT POWER SUPPLY. FAILURE TO GROUND WILL VOID ALL WARRANTIES.

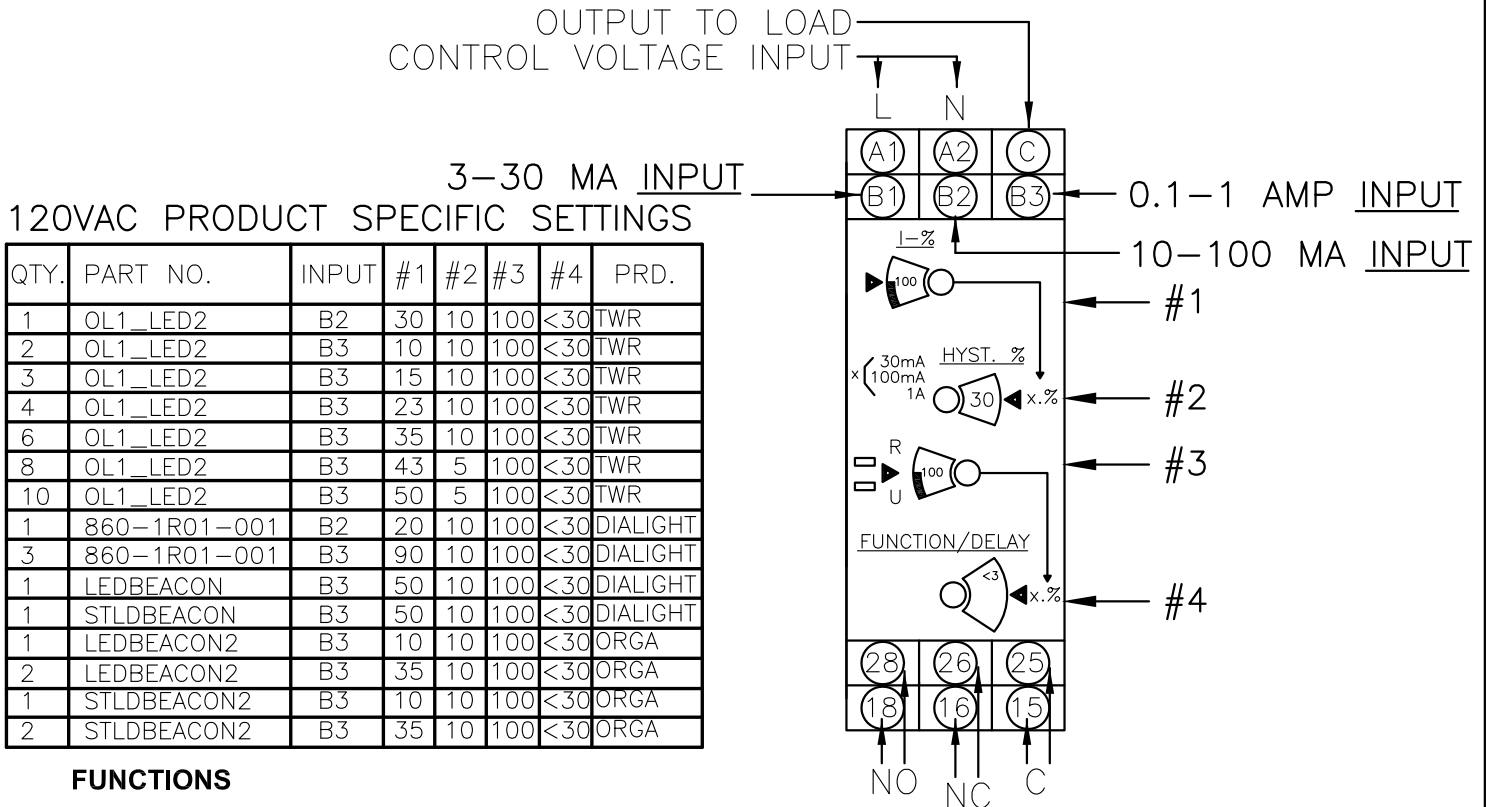
Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	AP100846	SIDELIGHT LENS CLEAR ACYRLIC
2	1	OL2CP	OL-2 CASTING BODY PAINT
3	2	106CP	PAINTED LENS HOLDER RING
4	4	12V245	OL LENS CLIP
5	4	832X14PH	8-32 X 1/4 PH SS SLOT SCREW
6	1	7X7SS	1/16 HOL 7X7 S.S. WIRE
7	4	A1A	STAKON
8	4	HC255SS	SIDELIGHT LATCH
9	1	A314	3/4" CONDUIT LOCKNUT



DRAWN	E.A.SALAZAR	7/5/2007
CHECKED		
QA		
MFG		
APPROVED		
REVISED	J.ZAMORANO	10/22/2014

TWR Lighting, Inc. WARK <i>Enlightened Technology®</i>			
TITLE			
OL2CLED2			
SIZE	B	DWG NO	100786i
SCALE			REV B
SHEET 1 OF 1			

AC UNITS CURRENT MEASUREMENT—RM4JA31M



- 1 Adjustment of current threshold as % of setting range. ±5%
- 2 Hysteresis adjustment from 5 to 30 % ▲.
- 3 Fine adjustment of time delay as % of setting range max. value.
- 4 10-position switch combining
 - selection of the timing range: 1 s, 3 s, 10 s, 30 s, no time delay.
 - selection of overcurrent (>) or undercurrent (<) detection. See table below.
- R Yellow LED: indicates relay state (Off for de-energized relay, On for energized).
- U Green LED: indicates that supply to the RM4 is present.

Overcurrent Control	Overcurrent or Undercurrent Control ■	Measuring Range
Yes	Yes	3 MA - 1,000 MA

Detailed Positions for Switch 4

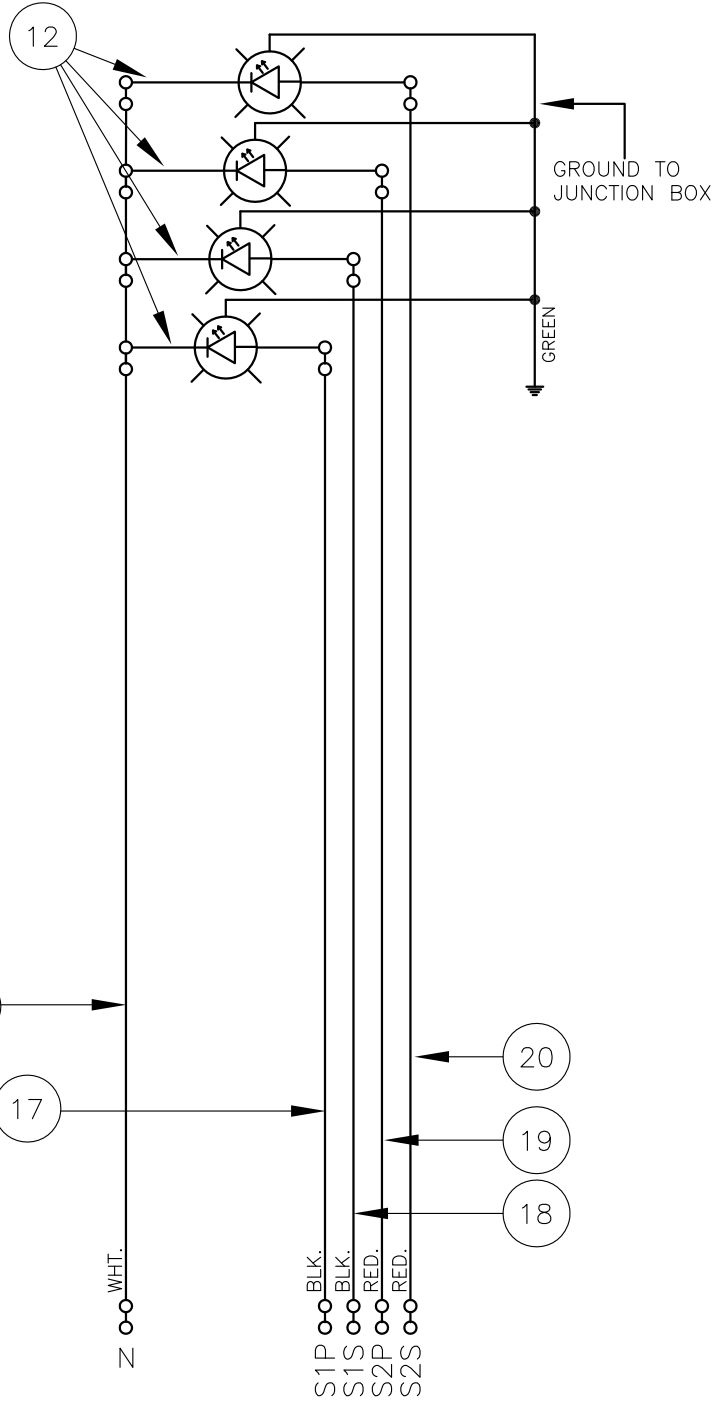
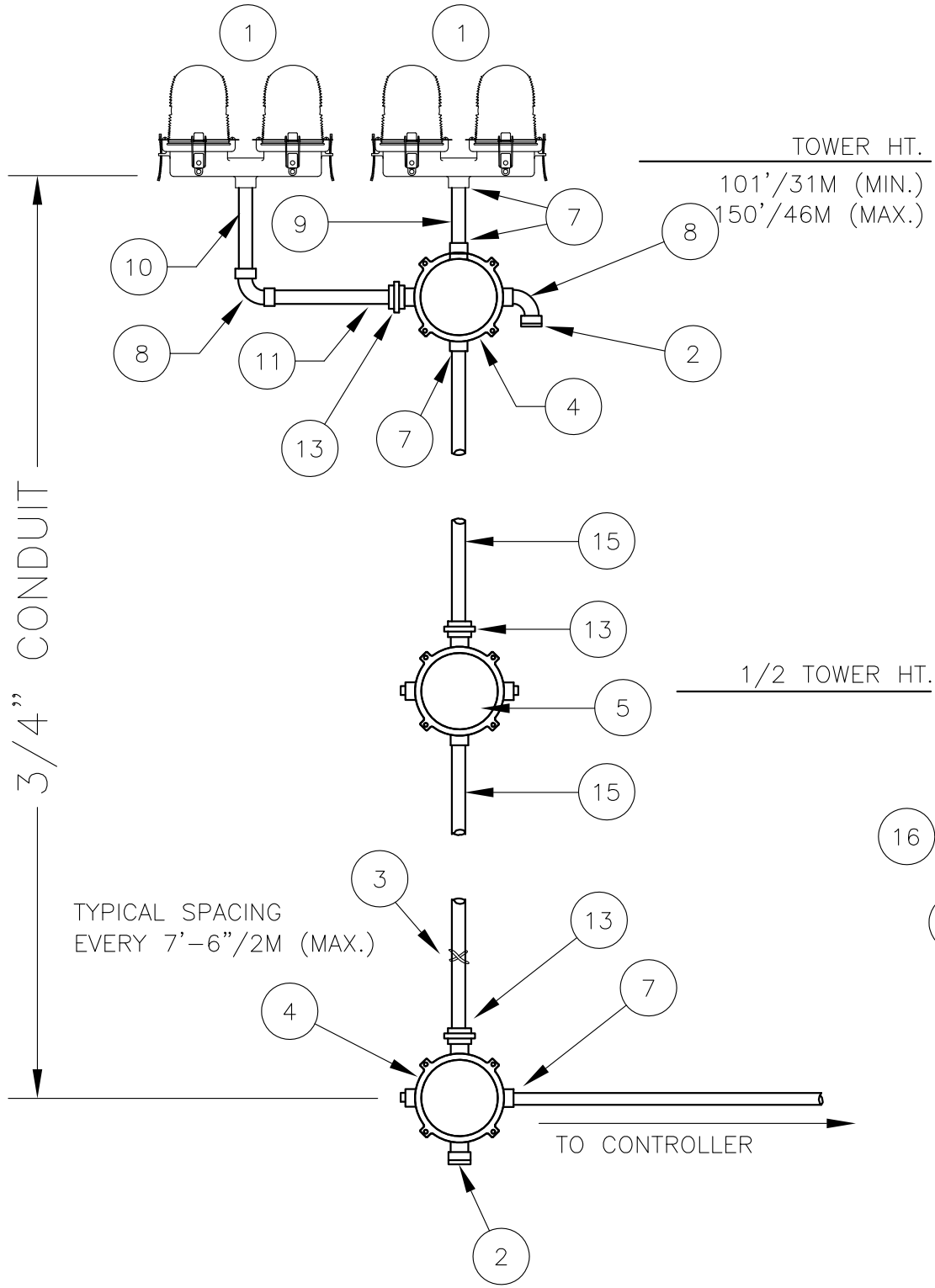
Switch Position	Function	Time Delay (t)
< 0	Undercurrent detection	No time delay
< 1	Undercurrent detection	0.05 to 1 s
< 3	Undercurrent detection	0.15 to 3 s
< 10	Undercurrent detection	0.5 to 10 s
< 30	Undercurrent detection	1.5 to 30 s
> 0	Overcurrent detection	No time delay
> 1	Overcurrent detection	0.05 to 1 s
> 3	Overcurrent detection	0.15 to 3 s
> 10	Overcurrent detection	0.5 to 10 s
> 30	Overcurrent detection	1.5 to 30 s

■ = Selection by switch on front face

▲ = Value of current between energization and de-energization of the output relay (% of the current threshold to be measured).

*Due to current draw tolerances slight adjustments to setting #1 may be needed for proper alarming.

Sign: _____



BILL OF MATERIALS

ITEM NO.	QTY.	TWR PART NO.	DESCRIPTION
1	2	OL2CLED	OL2 CASTING LED SIDELIGHT 3/4"
2	2	5012902	BREATHER
3	1	SS10012	WRAPLOCK 100'
4	2	JB5	3/4" JUNCTION BOX
5	1	JBO	3/4" STRAIN RELIEF BOX
6	1	PIPDOP	4 oz. PIPE DOPE
7	7	A314	3/4" CONDUIT LOCKNUTS
8	3	EL3490	3/4" 90° SHORT ELBOW
9	1	N34T4	3/4" x 4" CONDUIT NIPPLE
10	1	N34T6	3/4" x 6" CONDUIT NIPPLE
11	1	N34T12	3/4" x 12" CONDUIT NIPPLE
12	2	OL2PIGTAIL25G	OL2 PIGTAIL GROUND
13	4	UNY205	3/4" UNION
14	1	AAOXFRMLED2OL2	AAOXFER-CUSTOM 230V ALARMED CONTROLLER
ITEM NUMBERS #15-#20 ARE NOT INCLUDED IN THE KIT BUT ARE REQUIRED FOR INSTALLATION.			
15	-	CONDUIT34	3/4" CONDUIT (TWR HT. + 30'/9M)
16	-	14THHNWHT	#14 THHN WHT. WIRE (TWR HT.+40'/12M)
17	-	14THHNBLK	#14 THHN BLK. WIRE (TWR HT.+40'/12M)
18	-	14THHNBLK	#14 THHN BLK. WIRE (TWR HT.+40'/12M)
19	-	14THHNRED	#14 THHN RED WIRE (TWR HT.+40'/12M)
20	-	14THHNRED	#14 THHN RED WIRE (TWR HT.+40'/12M)

* = ITEMS NOT SHOWN

NOTES:

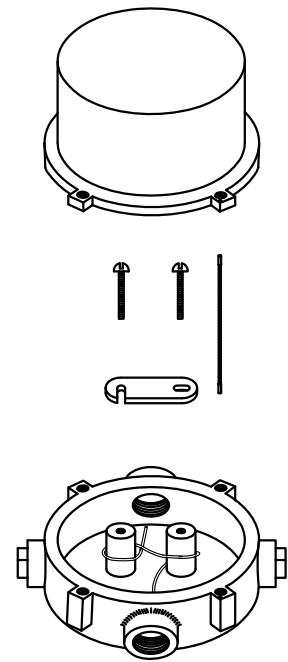
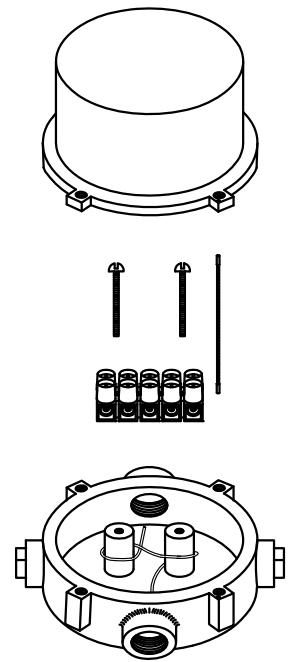
- 1) CONDUIT SIZE BASED ON USING TYPE THHN WIRE.
- 2) PHOTOCELL AND PIGTAIL PROVIDED WITH CONTROLLER. PHOTOCELL IS TO BE MOUNTED OUTDOORS.
- 3) BREATHERS ALLOW FOR CIRCULATION OF AIR TO PREVENT CONDENSATION.
- 4) STAINLESS STEEL WRAPLOCK TO BE ATTACHED TO OL CONDUIT EVERYWHERE IT MEETS STRUCTURE.
- 5) USE RIGID GALVANIZED STEEL CONDUIT.
- 6) ALL SIDELIGHTS MUST BE GROUNDED.

TOWER WIRING AND ASSEMBLY

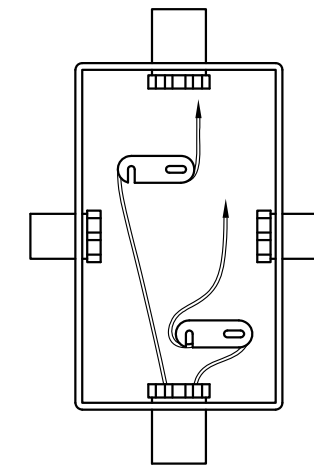
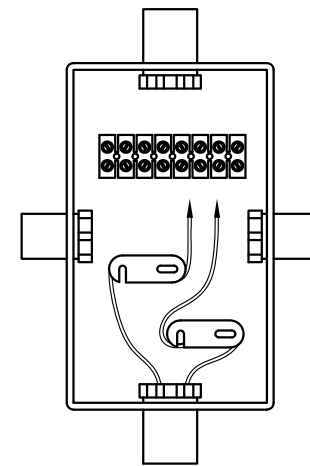
AAO TOWER LIGHTING KIT 1 LEVEL OF OL2CLED SIDELIGHTS			
PROD DEPT	TWR Lighting, Inc. <i>Enlightened Technology</i> WORK		
SERV DEPT			
ENGINEER			
DRAWN BY	J.ZAMORANO	SHEET SIZE	B
DATE	9/22/14	SCALE	N.T.S.
		SHEET QTY.	1 OF 1
		DWG. NO.	T1613

10/09/14 (A) CHG. CONTROLLER

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JB-5 AND JB-0
3/4" JUNCTION BOX



JB-8 AND JB-8SR
1" JUNCTION BOX

NOTES:

- 1) DRAWING ILLUSTRATES METHOD OF STRAIN RELIEVING WIRE. USE THIS METHOD ON ALL JUNCTION BOXES.
- 2) THE NATIONAL ELECTRICAL CODE-ARTICLE 300-19-B3 REQUIRES CONDUCTORS IN A VERTICAL CONDUIT BE SUPPORTED TO RELIEVE STRAIN ON TERMINAL BLOCK CONNECTIONS.
- 3) SKETCH ILLUSTRATES METHOD OF STRAIN RELIEVING A SINGLE CONDUCTOR. SEVERAL CONDUCTORS MAY BE GROUPED TOGETHER.
- 4) CONDUCTORS MAY BE MIXED BUT SHOULD NOT TAKE UP MORE THAN 40% OF CONDUIT'S INSIDE AREA.

USING THIS JUNCTION BOX METHOD SPACING IS 100 FEET MAXIMUM.

AWG WIRE SIZE	MAX. NUMBER WIRES IN 3/4" CONDUIT	MAX. NUMBER WIRES IN 1" CONDUIT	WIRE AREA SQ. INCHES	WEIGHT PER 100 FEET
12 THHN	16	26	0.0117	2.50
10 THHN	10	17	0.0184	4.10
8 THHN	6	9	0.0373	6.70
6 THHN	4	7	0.0519	10.30
4 THHN	2	4	0.0845	16.20

<u>JUNCTION AND STRAIN RELIEF BOXES</u>			
PROD DEPT	TWR Lighting, Inc. <i>Enlightened Technology</i> WORK		
SERV DEPT			
ENGINEER			
DRAWN BY G.D. SEBEK	SHEET SIZE B	SHEET QTY. 1 OF 1	
DATE 07/26/93	SCALE N.T.S.	DWG. NO. 100089	

9/29/00	(A)	UPDATED NOTES
DATE:	LTR.	REVISION

The use of non-OEM parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance of complying with FAA requirements as published in Advisory Circular 150/5345-43.
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