TWR Lighting® Inc. HARK®
Enlightened Technology®

4300 WINDFERN RD SUITE 100 - HOUSTON TX 77041-8943
VOICE (713) 973-6905 - FAX (713) 973-9352
web: 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 # AA4MLED – 230V

SERIAL # _____

PURCHASE DATE _____

PURCHASED FROM _____

TWR Lighting® Inc. HARK

Enlightened Technology®

AA4MLED-230V CONTROLLER

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TWR Lighting®, Inc. HARK®

Enlightened Technology®

AA4MLED-230V CONTROLLER

1.0 GENERAL INFORMATION

The TWR Lighting®, Inc. (TWR®) AA4MLED-230V Controller is for A4 lighting of towers 1,050' to 1,400' AGL in accordance with the FAA Advisory Circular 70/7460-1K. The LED beacons should be placed at the top, ¾, ½, and ¼ intervals with respect to overall tower height. LED obstruction lights should be placed at 7/8, 5/8, 3/8, and 1/8 intervals.

The flash rate of the LED beacons is 30 per minute. The LED sidelights burn steady.

A by-pass switch (SW1) allows the controller to be turned on during daylight hours without covering the photocell. This is particularly helpful since the controller can be mounted indoors while the photocell is outdoors. SW1 can be operated by turning the switch up to the "On" position.

The photocell is the three (3) blade, twist to lock, type.

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

The controller housing is rated at NEMA 4X. It is suitable for indoor or outdoor mounting.

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.
LED BEACON	Will give an alarm in the event the LED beacon fails, along with visual indicator for that circuit.
FLASHER FAILURE	Will give an alarm in the event of failure of flasher.
OBSTRUCTION LIGHTS	Will give an alarm when one (1) of three (3) LED sidelights fails.

2.0 INSTALLATION INSTRUCTIONS

2.1 MOUNTING THE CONTROL CABINET

(Refer to Drawing 1293-R)

The power supply control cabinet can be located at the base of the structure or in an equipment building. Mounting footprints are shown on drawing 1293-R. Power wiring to the control cabinet should be in accordance with local methods and National Electrical Codes (NEC).

2.1.1 If the control cabinet is mounted inside an equipment building, the photocell should be mounted vertically on ½" conduit 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 "W," the black wire is connected to the socket terminal marked "B," and the red wire is connected to the socket terminal marked "R." Care must be taken to assure that the photocell does not "see" any ambient light that would prevent it from switching into the nightmode.

2.1.2 If the control cabinet is mounted outside an equipment building, the photocell should be mounted vertically on ½" conduit so the photocell is above the control cabinet. As above, the photocell should be positioned so that it does not "see" ambient light, which would prevent it from switching to the nightmode. The photocell wiring is the same as in 2.1.1.

2.1.3 The wiring from the photocell, the service breaker, the LED beacons, and the LED sidelights should enter the control cabinet through the watertight connectors in the bottom of the cabinet. Inside the cabinet, the connections will be made on the terminal strips and circuit breakers located at the bottom of the chassis. These connections are made as follows:

2.2 EXTERNAL PHOTOCELL WIRING

(Refer to Drawing 1293-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 1293-R)

2.3.1 Power wiring to the control cabinet should be in accordance with local methods and National Electrical Codes.

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 the neutral wire(s) to one (1) of the terminal blocks on TB1 marked “N.”

2.3.5 Connect the AC ground to the grounding lug on the aluminum mounting plate.

2.4 LED BEACONS AND LED SIDELIGHTS ALARM WIRING

(Refer to Drawings 1293-R and 1293-S)

2.4.1 Alarm relays K1-K3, and alarm Modules M2 through M9, are provided for independent contact closures for: Power Failure, Lights “On,” Flasher Failure, LED Beacons #1, #2, #3, and #4 Burnout, and LED Sidelights #1, #2, #3, and #4 Burnout.

2.4.2 Alarm Wiring: To utilize all of the red light alarms, the customer will need eleven (11) pairs of wires to interface with his alarm device. One (1) wire from each of the eleven (11) pairs will terminate at the points marking common (C). The remaining wire from each pair will terminate as follows:

Power Failure Alarm: Connect to relay K1, terminal #3, for normally open, (OR) terminal #6, for normally closed monitoring.

Lights “On” Alarm: Connect to relay K2, terminal #3, for normally open, (OR) terminal #6, for normally closed monitoring.

Flasher Failure:	Connect to relay K3, terminal #6, for normally open, (OR) terminal #3, for normally closed monitoring.
“B1” Burnout:	Connect to Module M6, terminal #18, for normally open, (OR) terminal #16, for normally closed monitoring.
“B2” Burnout:	Connect to Module M7, terminal #18, for normally open, (OR) terminal #16, or #26, for normally closed monitoring.
“B3” Burnout:	Connect to Module M8, terminal #18, or #28, for normally open, (OR) terminal #16, for normally closed monitoring.
“B4” Burnout:	Connect to Module M9, terminal #18, for normally open, (OR) terminal #16, for normally closed monitoring.
“S1” Lamp Burnout:	Connect to Module M2, terminal #18, for normally open, (OR) terminal #16, for normally closed monitoring.
“S2” Lamp Burnout:	Connect to Module M3, terminal #18, or #28, for normally open, (OR) terminal #16, or #26, for normally closed monitoring.
“S3” Lamp Burnout:	Connect to Module M4, terminal #18, for normally open, (OR) terminal #16, for normally closed monitoring.
“S4” Lamp Burnout:	Connect to Module M5, terminal #18, for normally open, (OR) terminal #16, for normally closed monitoring.

2.4.3 Alarm Testing: To test alarms, follow the procedures using an "ohm" meter between alarm common and alarm points.

Power Failure: Pull circuit breaker at electrical panel.

Lights "On": Operate photocell by-pass switch SW1 or cover the photocell.

LED Beacons and LED Sidelights:
Trip breakers on the controller panel.

3.0 THEORY OF OPERATION

3.1 POWER SUPPLY

230V AC enters the controller from the circuit breaker panel. Line “L” sits at the PRD, waiting to be switched, and also keeps the power failure relay K1 energized. When the 6390-FAA photocell is activated, line “SSR” energizes the coil of the PRD and K2 “Lights On” relay. This also can be accomplished by using the photocell by-pass switch (SW1).

3.2 LED SIDELIGHTS

Line LDS is sent to Modules M2 through M5, which are current sensing modules for LED sidelights. Each RM4JA31MW monitors one (1) level of LED sidelights, and will provide a contact closure along a visual indication if one (1) or more lamps fail.

3.3 LED BEACONS

Line LDB is sent to Module M1, and Modules M6 through M9. M1 is the primary flasher for all LED beacons. It is then sent to the current sensing Modules M6 through M9, then to the circuit breaker outputs marked “B1 – B4.” If Modules M6 through M9 detect a LED beacon burnout, then that module would provide a contact closure along with a visual indication for that circuit.

Module M10 is a 10 second time delay module for flasher failure of the LEDBEACONS. If Module M10 detects a flasher failure, it would then send voltage (230V AC) to relay K3, which then will provide a contact closure for the flasher circuit.

4.0 MAINTENANCE

4.1 RED OBSTRUCTION LIGHTING

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

TOOLS REQUIRED: NONE

4.2 L-864 LED BEACON REPLACEMENT

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

4.3 L-864 CONTROLLER

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

4.4 PHOTOCELL

The photocell is a sealed unit. No maintenance is needed or required other than replacement as necessary.

5.0 MAJOR COMPONENTS PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	6390-FAA	120V – 240V Photocell
1	PF-250	120V – 240V Solid State Flasher (M1)
1	STA08015	35K ohm 20 watt Resistor (R1)
1	PRD7AGO-240V	Mechanical Load Contactor (PRD)
3	PB27E122	Octal Sockets
3	9KE-240V	SPDT Relay (K1 - K3)
1	STJ01002	Switch (SW1)
1	VJ1816HWPL2	Enclosure
9	8WA1204	Terminal Block (TB1 & TB2)
5	8WA1802	Rail Link
2	8WA1808	Terminal Block End Stop
8	S261D1	1 amp Circuit Breakers (B1 – B4) (S1 – S4)
8	RM4JA31MW	LED sidelights and LED beacons Current sensors (M2 – M9)
1	TS16110	10 second timer, 230V

6.0 SUGGESTED SPARE PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	6390-FAA	120V – 240V Photocell
1	PF-250	120V – 240V Solid State Flasher (M1)
1	9KE-240V	SPDT Relay (K1 – K3)
1	RM4JA31MW	LED sidelights and LED beacons Current sensors (M2 – M9)

TWR Lighting®, Inc. HARK

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AA4MLED-230V CONTROLLER

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.

TWR Lighting® Inc. HARK

Enlightened Technology®

AA4MLED-230V CONTROLLER

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:

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

TWR Lighting® Inc. HARK

Enlightened Technology®

AA4MLED-230V 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**.**

- Product(s) that is deemed defective and/or unrepairable and covered under warranty - a credit will be issued to the customer's account.
- 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.
- 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.

AA4MLED-230V 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.

TWR Lighting® Inc. HARK

Enlightened Technology®

AA4MLED-230V 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®

AA4MLED-230V 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**_____

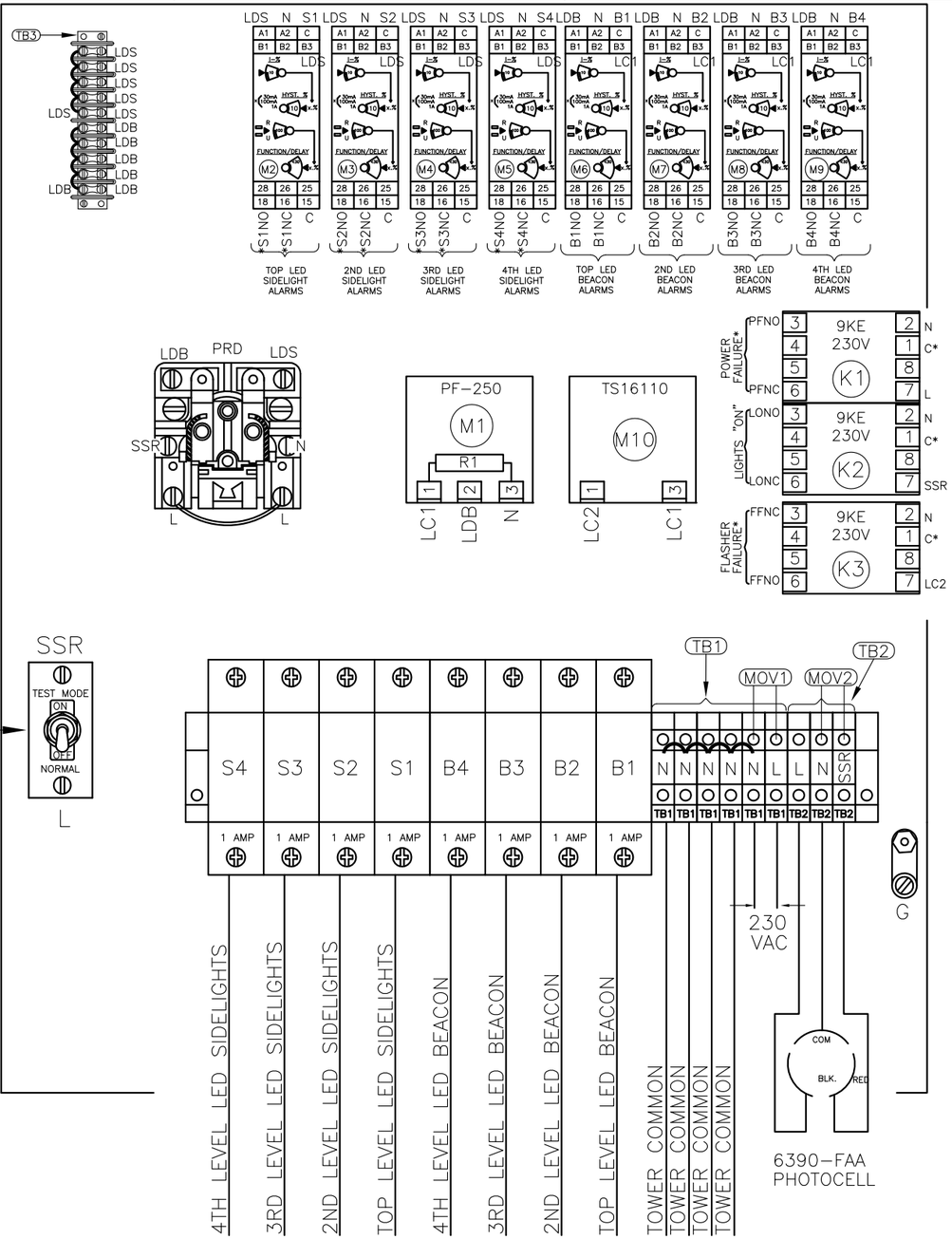
RETURN ADDRESS:_____

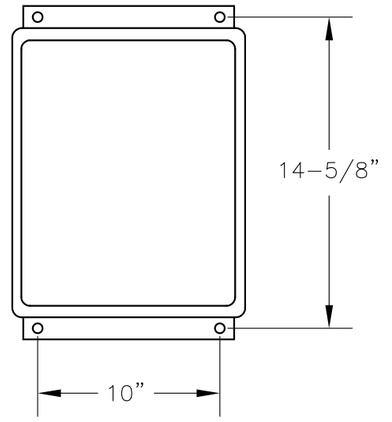
_____

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

*CUSTOMER ALARM POINTS

C = ALARM COMMON
PFNO/PFNC = POWER FAILURE
LONO/LONC = LIGHTS "ON"
FFNO/FFNC = FLASHER FAILURE
S1NO/S1NC = TOP LEVEL LED SIDELIGHT BURNOUT
S2NO/S2NC = 2ND LEVEL LED SIDELIGHT BURNOUT
S3NO/S3NC = 3RD LEVEL LED SIDELIGHT BURNOUT
S4NO/S4NC = 4TH LEVEL LED SIDELIGHT BURNOUT
B1NO/B1NC = TOP LEVEL LED BEACON BURNOUT
B2NO/B2NC = 2ND LEVEL LED BEACON BURNOUT
B3NO/B3NC = 3RD LEVEL LED BEACON BURNOUT
B4NO/B4NC = 4TH LEVEL LED BEACON BURNOUT
* ALARM OUTPUTS ARE FORM C.





MOUNTING DIMENSIONS

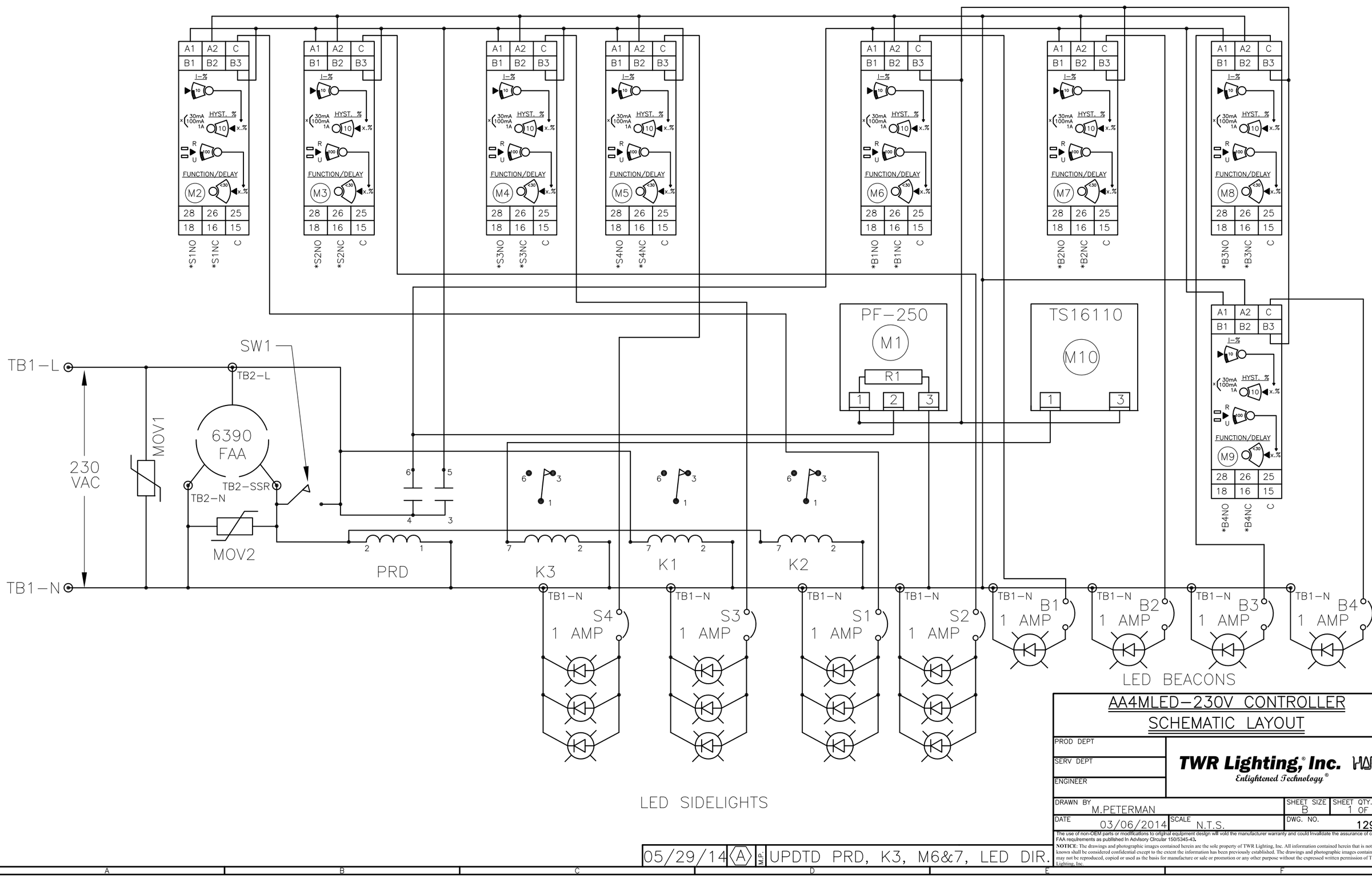
(FOR CABINET)

NOTES:
1. WHEN REPLACING METAL BASE MODULES USE HEAT SINK COMPOUND BETWEEN MODULE AND ALUMINUM PLATE.
2. PLUG 6390-FAA PHOTOCELL INTO 43109 TWIST LOCK RECEPTACLE AND TWIST TO LOCK.
3. WIRES ARE CONNECTED LETTER TO LETTER. (EXAMPLE) LDB TO LDB TO LDB.
4. *ALL ALARM POINTS SHOWN IN NORMAL OPERATION.

05/29/14 (A) M.P. UPDTD TB1&2/ADDED JMPR TB3

AA4MLED 230V CONTROLLER CHASSIS LAYOUT

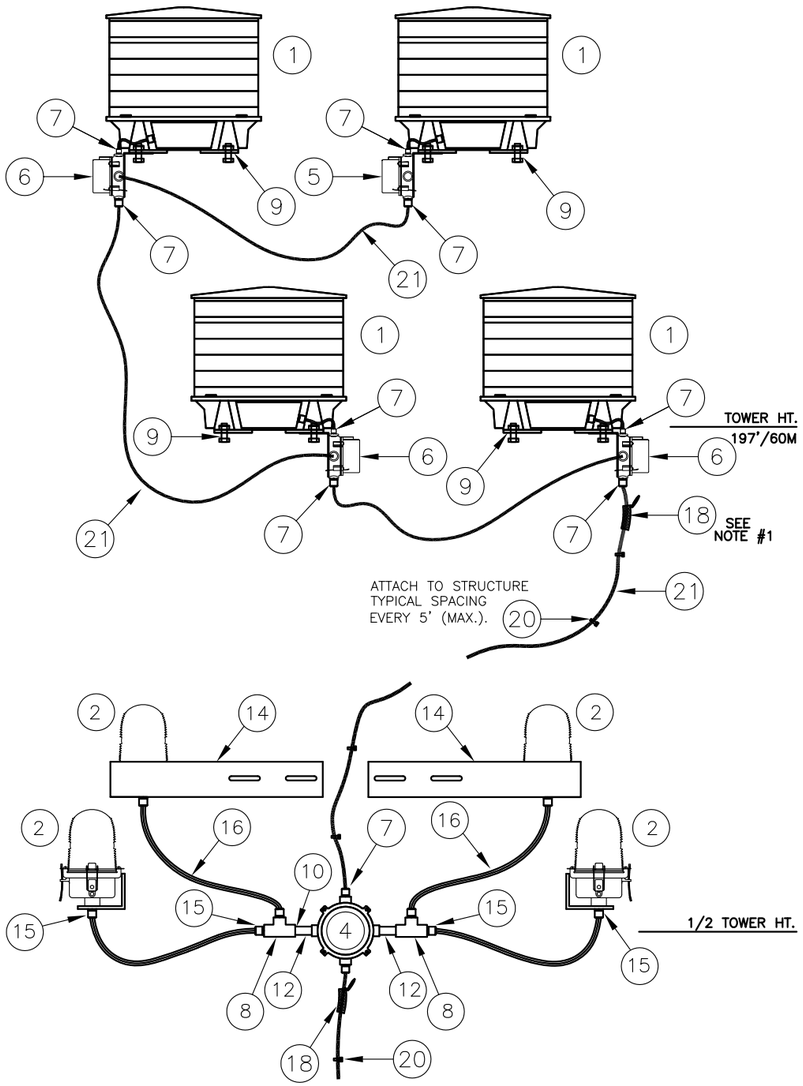
PROD DEPT	TWR Lighting, Inc. HARK Enlightened Technology®
SERV DEPT	
ENGINEER	
DRAWN BY M.PETERMAN	SHEET SIZE B / SHEET QTY. 1 OF 1
DATE 03/05/2014 / SCALE N.T.S.	DWG. NO. 1293-R

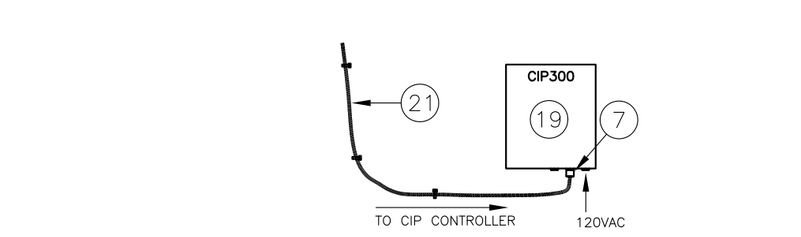


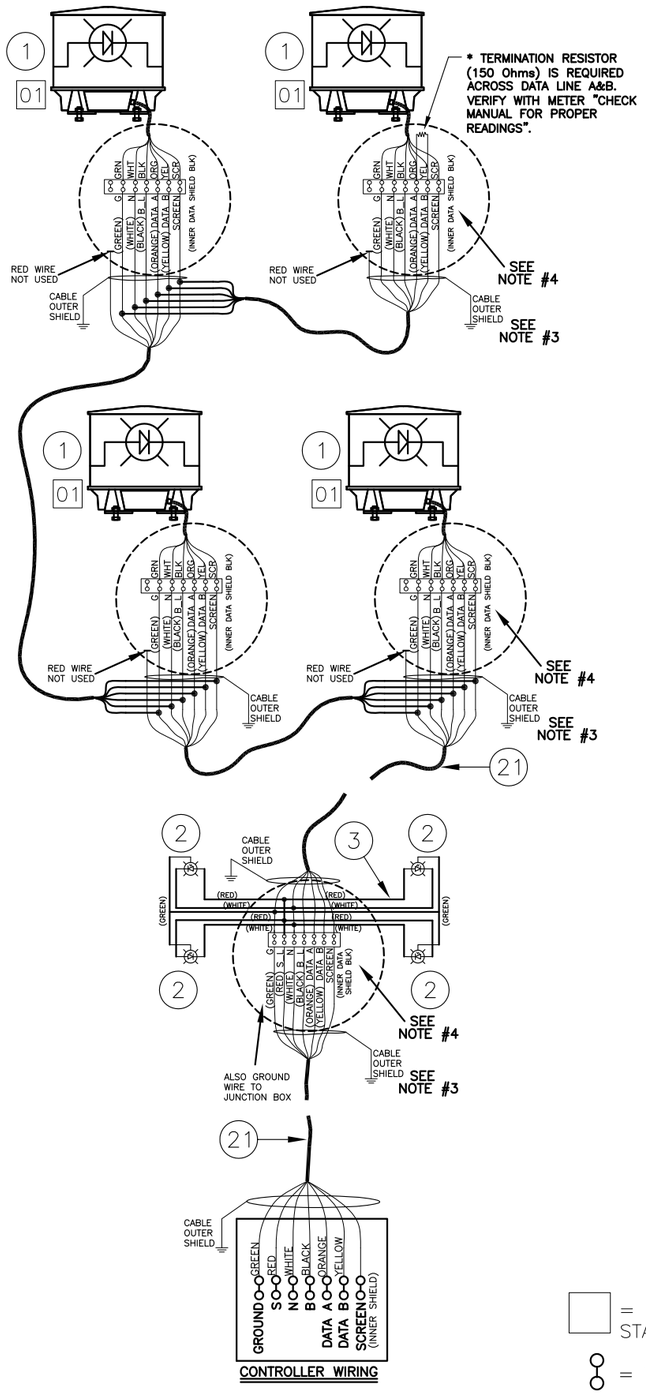
05/29/14	A	M.P.	UPDTD PRD, K3, M6&7, LED DIR.

AA4MLED–230V CONTROLLER SCHEMATIC LAYOUT

PROD DEPT	**TWR Lighting,® Inc.** HARK *Enlightened Technology®*
SERV DEPT	
ENGINEER	
DRAWN BY M.PETERMAN	SHEET SIZE B / SHEET QTY. 1 OF 1
DATE 03/06/2014	SCALE N.T.S. / DWG. NO. 1293–S







= CONTROLLER STATION NUMBER

= TERMINAL

PRELIMINARY

BILL OF MATERIALS

	ITEM NO.	QTY.	TWR PART NO.	DESCRIPTION
	1	4	200005	L450-864/865 - LED BEACON 5M PIGTAIL
	2	4	OL1CBH34LED2	LED SIDELIGHT
	3	4	SLPIGTAIL50G	50' SIDELIGHT PIGTAIL WITH GROUND
	4	1	JB5/7	3/4" CAST JUNCTION BOX
	5	1	JB5/7MKRES	3/4" JUNCTION BOX WITH ANGLE MOUNT
	6	3	JB5/7MK	3/4" JUNCTION BOX WITH ANGLE MOUNT
	7	13	CD21NA-BE	3/4" CORD CONNECTOR 0.51 - 0.17
	8	2	T27CG	3/4" CONDULET W/COVER AND GASKET
	9	16	58X112	5/8 X 1-1/2 W/ANCO L/NUT GALV
	10	2	A314	3/4" CONDUIT LOCKNUTS
*	11	1	PIPDOP	4 oz. PIPE DOPE
	12	2	N34T12	3/4" x 12" NIPPLE
*	13	4	BMSIDE-1	UNIVERSAL BEACON MOUNT
	14	4	100455M-0	SIDELIGHT MOUNT
	15	8	CPCFST03	3/4" SEALTITE CONNECTOR
	16	440'	COF03	3/4" SEALTITE CONDUIT
	17	1	SS5012	50' STEEL WRAPLOCK
	18	2	CABLEGRIP3	SINGLE EYE LACE MESH 0.63 - 0.74
	19	1	CIP300TWR	CIP300 CONTROLLER

ITEM NUMBERS #20-#21 ARE NOT INCLUDED IN THE KIT BUT ARE AVAILABLE UPON REQUEST, AND REQUIRED FOR INSTALLATION.

~	20	-	STCABLTIE	STROBE CABLE TIES (TWR. HEIGHT ÷ 5)
~	21	-	STROBCABLE-9	STROBE CABLE (TWR HT. + 50')

* = ITEMS NOT SHOWN

~ = ITEMS QUANTITY CALCULATED ACCORDING TO STRUCTURE HEIGHT.

NOTES:

1) CABLEGRIP3 IS USED TO SUPPORT CABLE BEFORE CORD CONNECTOR AND SINGLE EYE LOOP SHOULD BE ATTACHED TO STRUCTURE SECURELY.

2) THIS DRAWING IS PROVIDED AS A GENERAL REFERENCE. TWR LIGHTING, INC. DOCUMENTATION SUPERSEDES THIS DRAWING & SHOULD BE REVIEWED PRIOR TO INSTALLATION OF THIS SYSTEM.

3) OUTER SHIELD/SCREEN (MESH WIRE COVERING ALL WIRES) IS TO BE TERMINATED TO EARTH GROUND THROUGH PROPER INSTALLATION IN CD21NA-BE CORD CONNECTOR. REFER TO MANUAL!

4) IT IS EXTREMELY IMPORTANT TO ISOLATE AND CONNECT ALL DATA SHIELD/SCREEN WIRES (MESH WIRE COVERING ONLY THE ORANGE AND YELLOW DATA WIRES) IN JUNCTION BOX TERMINAL BLOCK. RE-USE DATA WIRES CABLE COVERING, ELECTRICAL TAPE OR HEAT SHRINK TO COVER MESH WIRE AND ISOLATE.

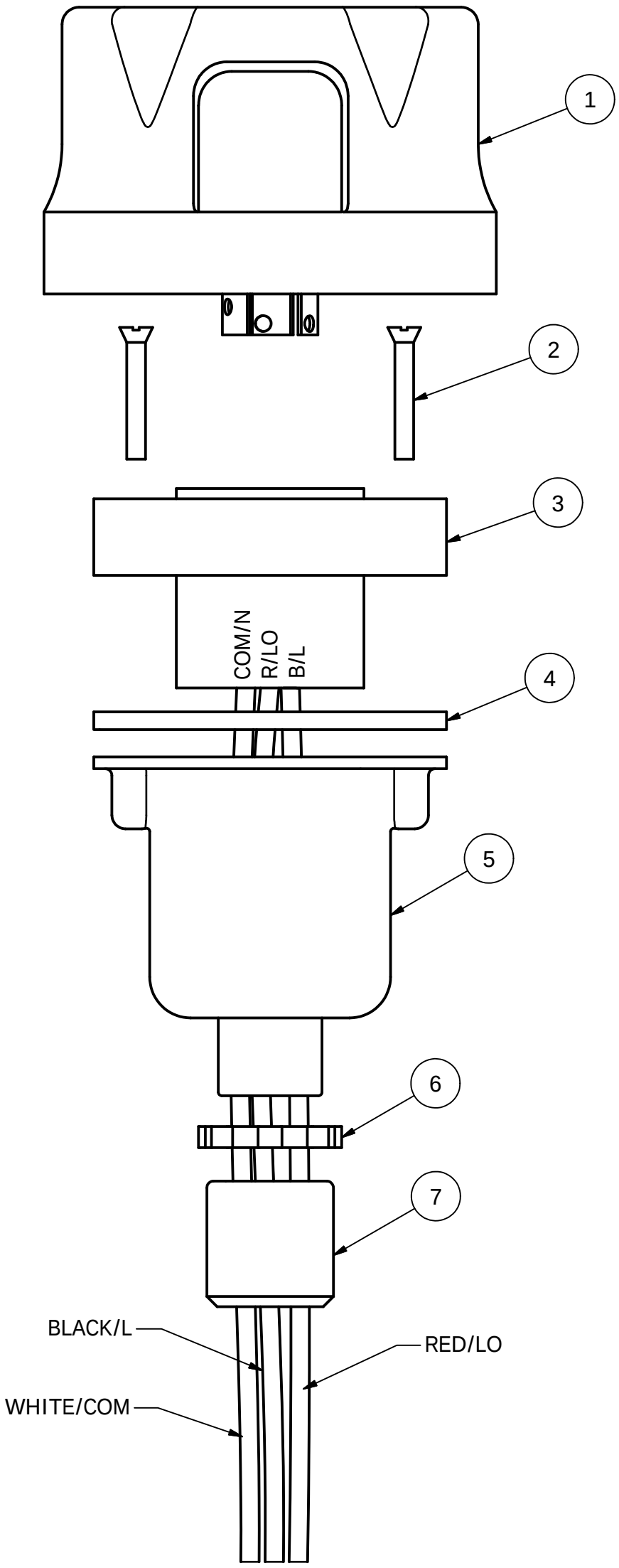
INPUT 120VAC 50/60Hz

- ✓ 12hrs day - 10.0/0.0/560.0 - for CIP300/L810/L864/865 (570x12=6.840KWh)
- ✓ 12hrs night - 10.0/32.0/60.0 - for CIP300/L810/L864/865 (102.0x12=1.224KWh)
- ✓ "24hrs = **8.064KWh"**

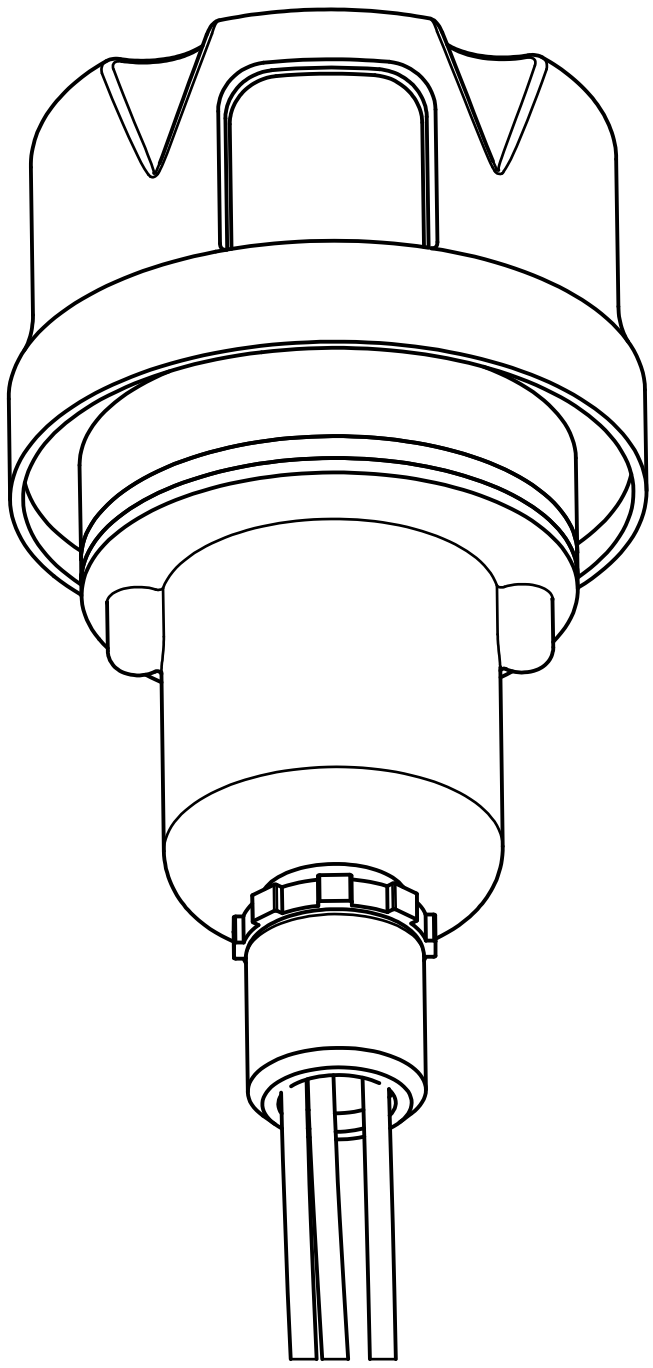
E1/4L450 DUAL LED LIGHTING KIT

PROD DEPT	**TWR Lighting, Inc.** *Enlightened Technology*		
SERV DEPT			
ENGINEER			
DRAWN BY M.PETERMAN	SHEET SIZE B	SHEET QTY. 1 OF 1	The new standard in obstruction lights.
DATE 02/04/2014	SCALE N.T.S.		DWG. NO. T1577

PARTS LIST		
ITEM	QTY	PART NUMBER
1	1	PHOTOCELL
2	2	6-32 x 1/2" SCREW
3	1	RECEPTACLE SOCKET
4	1	RECEPTACLE GASKET
5	1	RECEPTACLE HOUSING
6	1	1/2" CONDUIT LOCKNUT
7	1	3/4" TO 1/2" REDUCER



EXPLODED VIEW

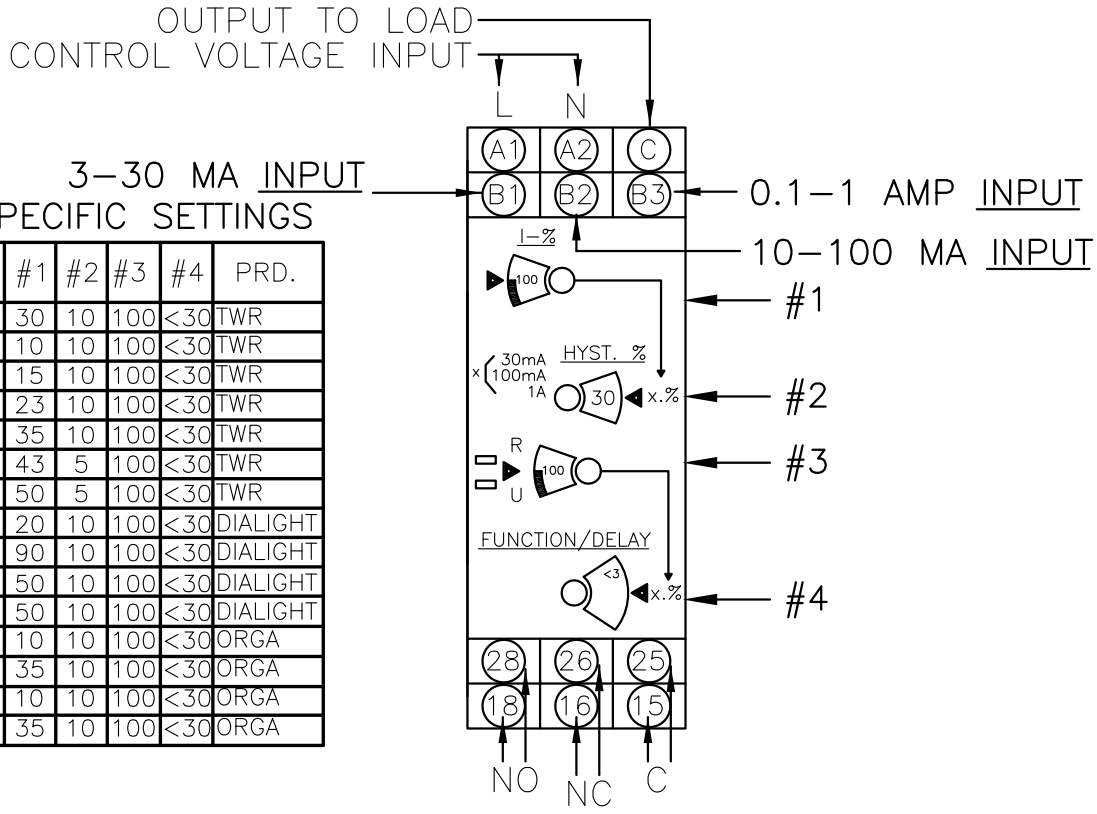


ASSEMBLY

NOTES:
1. ITEM #7 CAN BE USED TO REDUCE 3/4" CONDUIT TO 1/2" CONDUIT AT THE HOUSING OR AT THE CONTROLLER ITSELF.
2. IF ADDITIONAL WIRE IS REQUIRED OVER THE FACTORY 20', USE THE FOLLOWING CHART.
   21' TO 300'- 16 AWG TFFN
   301' TO 500' - 14 AWG TFFN
3. WIRE CONNECTIONS ARE TO BE TINNED AT ITEM 3.

DRAWN vhernandez	10/18/1995	TWR Lighting,® Inc. Enlightened Technology®
CHECKED		TITLE: PHOTOCELL HOUSING DETAIL
QA		
MFG		
APPROVED		
		SIZE B / DWG NO 100239 / REV E
		SCALE 1/1 / SHEET 1 OF 1

AC UNITS CURRENT MEASUREMENT–RM4JA31M



120VAC PRODUCT SPECIFIC SETTINGS

QTY.	PART NO.	INPUT	#1	#2	#3	#4	PRD.
1	OL1_LED2	B2	30	10	100	<30	TWR
2	OL1_LED2	B3	10	10	100	<30	TWR
3	OL1_LED2	B3	15	10	100	<30	TWR
4	OL1_LED2	B3	23	10	100	<30	TWR
6	OL1_LED2	B3	35	10	100	<30	TWR
8	OL1_LED2	B3	43	5	100	<30	TWR
10	OL1_LED2	B3	50	5	100	<30	TWR
1	860–1R01–001	B2	20	10	100	<30	DIALIGHT
3	860–1R01–001	B3	90	10	100	<30	DIALIGHT
1	LEDBEACON	B3	50	10	100	<30	DIALIGHT
1	STLDBEACON	B3	50	10	100	<30	DIALIGHT
1	LEDBEACON2	B3	10	10	100	<30	ORGA
2	LEDBEACON2	B3	35	10	100	<30	ORGA
1	STLDBEACON2	B3	10	10	100	<30	ORGA
2	STLDBEACON2	B3	35	10	100	<30	ORGA

FUNCTIONS

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	**Overcurrentor Undercurrent Control ■**	**Measuring Range**
Yes	Yes	3 MA - 1,000 MA

Detailed Positions for Switch 4

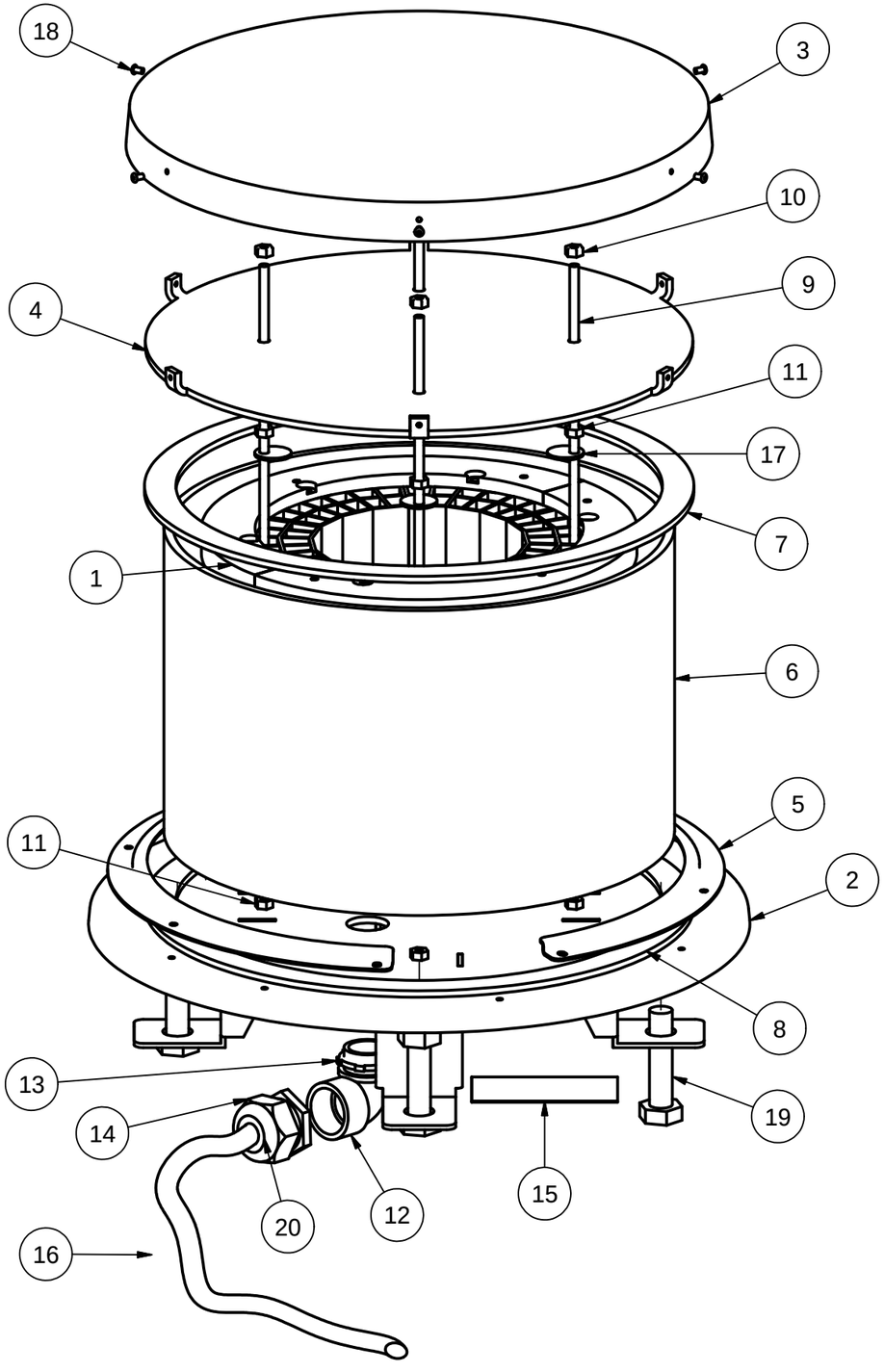
Switch Position	**Function**	**Time Delay (t)**
< 0	Undercurrent detection	No time delay
< 1	Undercurrent detection	0.05 to 1 s
< 3	Undercurrent detection	0.15 to 3 s
< 10	Undercurrent detection	0.5 to 10 s
< 30	Undercurrent detection	1.5 to 30 s
> 0	Overcurrent detection	No time delay
> 1	Overcurrent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

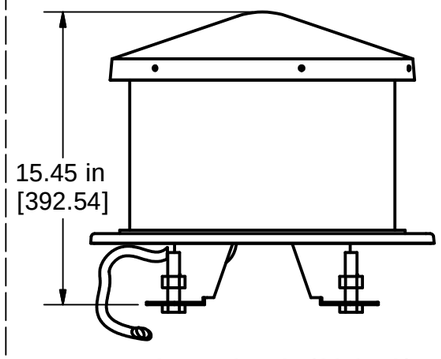
■ = Selection by switch on front face
▲ = Value of current between energization and de-energization of the output relay (% of the current threshold to be measured).

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

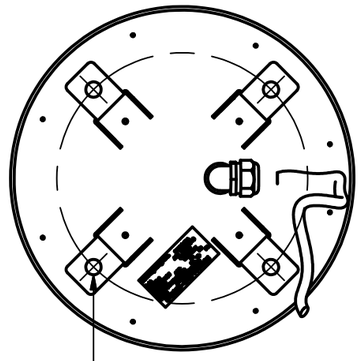
Sign:_____

TWR Lighting, Inc. DWG#100694_RG





WEIGHT: 46 LBS. (20.9 KG)



.812" HOLES SPACED
90˚ ON 13.25" BOLT CIRCLE

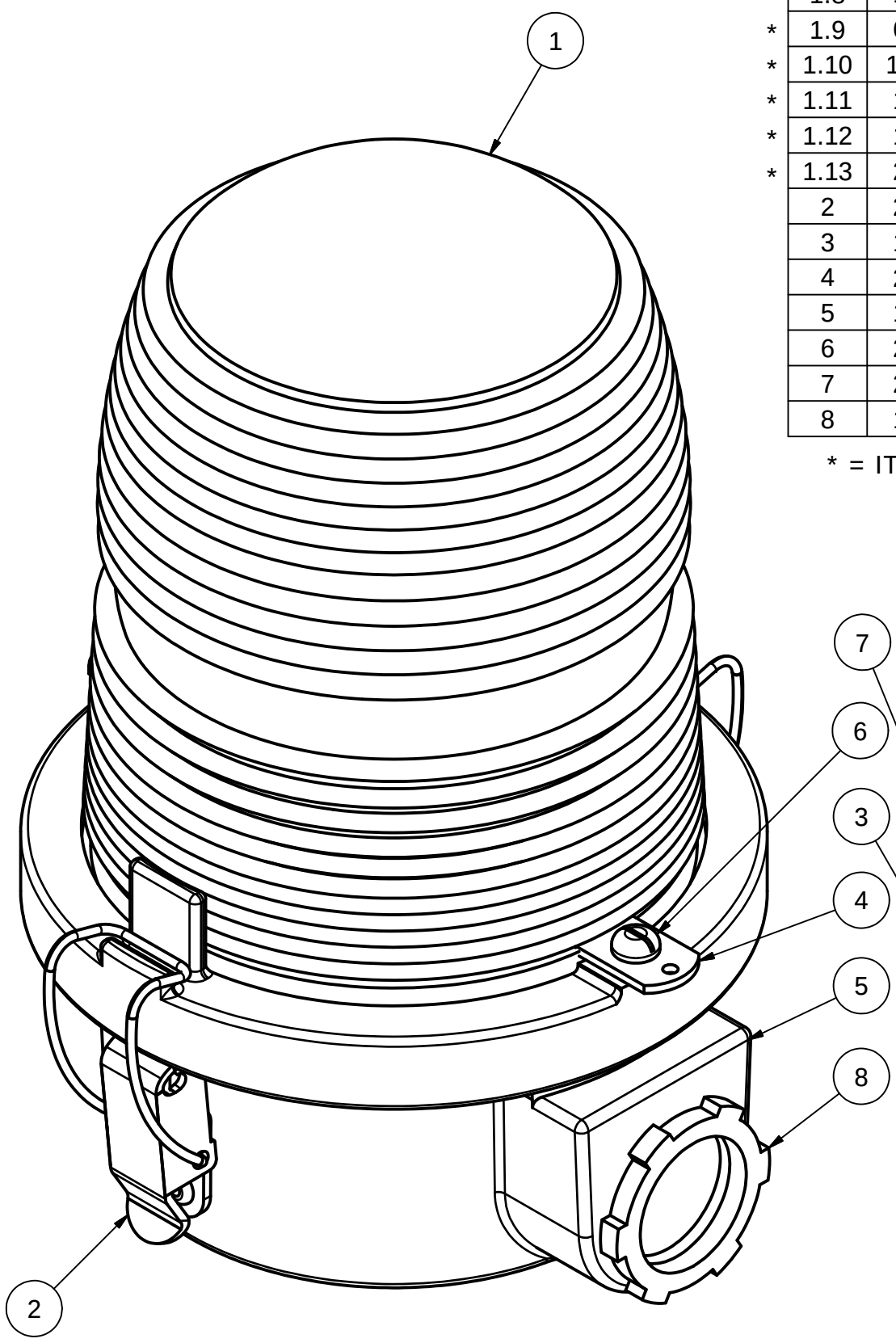
Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	LEDLITEENG2	ORGA L-864 LED LIGHT ENGINE 120/240VAC
2	1	100672	LEDBEACON BASE PLATE
3	1	100344	CAP DUAL BEACON
4	1	100673	LEDBEACON LID PLATE
5	2	100337	LENS RETAINER RING
6	1	STLDBCTUBE2	CLEAR ACRYLIC TUBE
7	1	STBEAGSK4	GASKET NEOPRENE 13 1/8 X 15 OD X
8	1	STBEAGSKT	GASKET NEOPRENE 13 1/4 x 15
9	4	100727	14-20 X 9.875" DE 304 S.S. ORG
10	4	1420SSNUTN	1/4-20 NUT W/NYLON INSERT 304
11	4	1420NUT	1/4-20 NUT 304 S/S
12	1	EL190S	1" 90 DEGREE SHORT ELBOW GALV.
13	1	A315	1" CONDUIT LOCKNUT GALV.
14	1	CC-NPT34-G	3/4" NPT CORD CONNECTOR .500"
15	1	STCONLAB2	100223 PRODUCT LABEL
16	21'	CSO14-3	S.O. CORD 14AWG/3 CONDUCTOR
17	2	100606M	LED LIGHT ENGINE TIE DOWN WASH
18	6	18PRSS-2	1/8 X .400 SS POP RIVET #44
19	4	58X112	5/8 X 2-3/4 HEX BOLT
20	1	RE32	1" TO 3/4" REDUCER, GALV.
* 21	8	1032X38PHW	10-32X3/8 PHILLS HD CAPTIVE SCREW

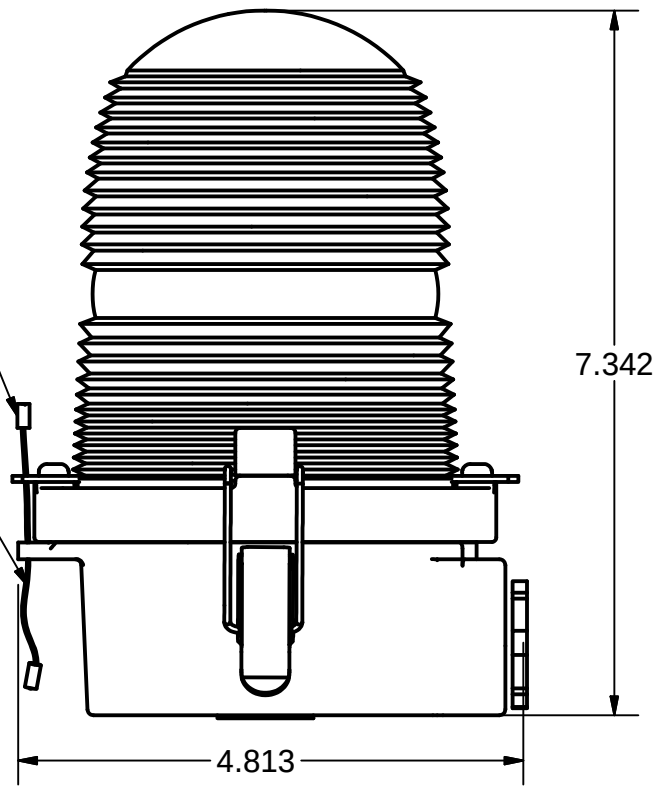
* = ITEMS NOT SHOWN

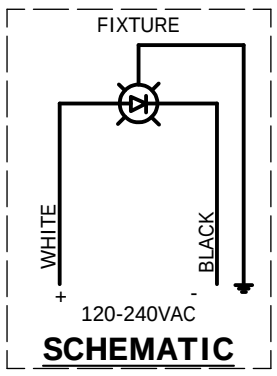
DRAWN VHernandez	9/4/2007	TWR Lighting® Inc. Enlightened Technology®
CHECKED		
QA		TITLE: LEDBEACON2 ASSEMBLY
MFG		
APPROVED		SIZE B | DWG NO 100761_RA | REV A
		SCALE 1/4 | SHEET 1 OF 1

Parts List				
	ITEM	QTY	PART NUMBER	DESCRIPTION
	1	1	OL1VLED2	L810 OBSTRUCTION LIGHT
*	1.1	1	100588_RE	OL 6LED BASE PLATE
*	1.2	1	100591	OL 6LED STAR DISK
*	1.3	1	100680	OL1/2 SERIAL # LABEL
*	1.4	1	A10290	5/32" ID RUBBER GROMMET
*	1.5	6	STD05008	LED LAMP
*	1.6	1	OLG	OL GASKET
*	1.7	1	AP100846	SIDELIGHT LENS CLEAR ACYRLIC
*	1.8	1	106V	LENS HOLDER RING
*	1.9	6	STE01-047	LED VERTICAL PCB
*	1.10	16	18PRSS	1/8 X .45 SS POP RIVET
*	1.11	1	PS90-260/24	POWER SUPPLY
*	1.12	1	20RED	#20AWG RED BELDON WIRE
*	1.13	2	WIRENUTBLU	BLUE WIRE NUT
	2	2	HC255SS	SIDELIGHT LATCH
	3	1	7X7SS	1/16 HOL 7X7 S.S. WIRE
	4	2	12V245	OL LENS CLIP
	5	1	105V	SINGLE SIDELIGHT BODY
	6	2	832X14PH	8-32 X 1/4 PH SS SLOT SCREW
	7	2	A1A	STAKON CRIMP
	8	1	A314	3/4" CONDUIT LOCKNUT GALV.

* = ITEMS NOT SHOWN







* GROUND WIRE MUST BE CONNECTED TO PROPERLY PROTECT POWER SUPPLY. FAILURE TO GROUND WILL VOID ALL WARRANTIES.

DRAWN gsebek	8/18/2004	TWR Lighting,® Inc. Enlightened Technology®
CHECKED		TITLE: OL1VLED2 120-240VAC FAA-OL16LED (L810 OBSTRUCTION LIGHT)
QA		
MFG		
APPROVED		
SIZE B	DWG NO 100656i_RC	REV C
SCALE		SHEET 1 OF 1