

# **TWR Lighting, Inc.** **MARK**<sup>®</sup>

*Enlightened Technology*<sup>®</sup>

10810 W. LITTLE YORK RD. #130 - HOUSTON, TX 77041-4051  
VOICE (713) 973-6905 FAX (713) 973-9352  
web: [www.twrlighting.com](http://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 # AA0MTSS120/24

SERIAL # \_\_\_\_\_

PURCHASE DATE \_\_\_\_\_

PURCHASED FROM \_\_\_\_\_

# **TWR Lighting, Inc.** **MARK**

*Enlightened Technology®*

## **AA0MTSS120/24 CONTROLLER**

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### TABLE OF CONTENTS

|            |  |          |
|------------|--|----------|
| <b>1.0</b> | <b>GENERAL INFORMATION .....</b>             | <b>1</b> |
| <b>2.0</b> | <b>INSTALLATION.....</b>                     | <b>2</b> |
| <b>2.1</b> | <b>MOUNTING THE CONTROL CABINET .....</b>    | <b>2</b> |
| <b>2.2</b> | <b>EXTERNAL PHOTCELL WIRING.....</b>         | <b>2</b> |
| <b>2.3</b> | <b>POWER WIRING.....</b>                     | <b>3</b> |
| <b>2.4</b> | <b>OBSTRUCTION FIXTURE WIRING.....</b>       | <b>3</b> |
| <b>2.5</b> | <b>OBSTRUCTION FIXTURE ALARM WIRING.....</b> | <b>3</b> |
| <b>3.0</b> | <b>THEORY OF OPERATION.....</b>              | <b>5</b> |
| <b>3.1</b> | <b>POWER SUPPLY.....</b>                     | <b>5</b> |
| <b>3.2</b> | <b>OBSTRUCTION FIXTURE.....</b>              | <b>5</b> |
| <b>4.0</b> | <b>MAINTENANCE GUIDE .....</b>               | <b>6</b> |
| <b>4.1</b> | <b>RED OBSTRUCTION FIXTURE .....</b>         | <b>6</b> |
| <b>4.2</b> | <b>CONTROLLER.....</b>                       | <b>6</b> |
| <b>4.3</b> | <b>PHOTOCCELL .....</b>                      | <b>6</b> |
| <b>5.0</b> | <b>MAJOR COMPONENTS PARTS LIST.....</b>      | <b>7</b> |
| <b>6.0</b> | <b>SUGGESTED SPARE PARTS LIST .....</b>      | <b>8</b> |

**WARRANTY & RETURN POLICY**

**RETURN MERCHANDISE AUTHORIZATION (RMA) FORM**

# **TWR Lighting, Inc.** **HARK**<sup>®</sup>

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## **AA0MTSS120/24 CONTROLLER**

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### APPENDIX

|   |                 |
|---|-----------------|
| CHASSIS COMPONENT LAYOUT .....                      | 1272-R (REV A)  |
| SCHEMATIC LAYOUT .....                              | 1272-S          |
| CURRENT MEASUREMENT RELAY .....                     | 100664 (REV F)  |
| L864 LED 24V DC BEACON.....                         | 100854i (REV C) |
| L810 LED 24VDC OBSTRUCTION LIGHTS.....              | 100895 (REV A)  |
| TOWER LIGHTING KIT 201' TO 350' .....               | T1467 (REV I)   |
| PHOTOCELL MOUNT KIT (OPTIONAL) .....                | 100885          |
| 10 x 8 ENCLOSURE POLE MOUNTING KIT (OPTIONAL).....  | 100886 (REV B)  |
| 12 x 10 ENCLOSURE POLE MOUNTING KIT (OPTIONAL)..... | 100888 (REV A)  |
| WRAPLOCK FASTENING DETAIL .....                     | 100984          |

# **TWR Lighting, Inc.** **MARK**

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## **AA0MTSS120/24 CONTROLLER**

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### **1.0 GENERAL INFORMATION**

The TWR Lighting®, Inc. Model AA0MTSS120/24 Controller is for the application of one (1) LEDBEACON3, and two (2) LED Sidelights.

One (1) LEDBEACON3 should be placed at the top, and two (2) LED Sidelights should be placed at mid-level, with respect to overall tower height.

The flash rate of the LEDBEACON3 is 20 - 22 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 toggle switch to the “on” position.

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

Power supplied to the controller shall be 120V AC.

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:

|   |  |
|---|--|
| <b>POWER FAILURE</b>                              | Monitors 24V DC to the controller. Alarms in the event of power failure.                         |
| <b>LIGHTS “ON”</b>                                | Gives an indication whenever the controller is activated.  |
| <b>LEDBEACON3/<br/>LED OBSTRUCTION<br/>LIGHTS</b> | Will give an alarm when the LEDBEACON3 fails, or if one (1) of the two (2) LED Sidelights fails. |

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## **AA0MTSS120/24 CONTROLLER**

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### **2.0 INSTALLATION**

#### **2.1 MOUNTING THE CONTROL CABINET**

(Refer to Drawing 1272-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 1272-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 blue wires. The black wire is connected to the socket terminal marked “N,” the red wire is connected to the socket terminal marked “Lo,” and the blue wire is connected to the socket terminal marked “Li.” The photocell should be positioned so that it does not “see” ambient light, which will prevent it from switching to 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. 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 2.1.1.

The wiring from the photocell, input voltage, LEDBEACON3 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 located at the bottom of the chassis. These connections are made as follows:

#### **2.2 EXTERNAL PHOTOCELL WIRING**

(Refer to Drawing 1272-R)

**2.2.1** Connect the **BLACK** wire from the photocell to terminal block TB2 marked “-.”

## **AA0MTSS120/24 CONTROLLER**

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2.2.2 Connect the **RED** wire from the photocell to terminal block TB2 marked "SSR."

2.2.3 Connect the **BLUE** wire from the photocell to terminal block TB2 marked "+."

### **2.3 POWER WIRING**

(Refer to Drawing 1272-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 10 amps.

2.3.3 Connect the 120V AC line to terminal block TB1 marked "L."

2.3.4 Connect the neutral wire(s) to the terminal block on TB1 marked "N."

2.3.5 Connect the "earth" ground wire to the ground lug located to the left of TB2.

### **2.4 LEDBEACON3 AND LED SIDELIGHT WIRING**

(Refer to Drawings 1272-R and T1467)

2.4.1 Connect both **BLACK** wires from the LEDBEACON3 and LED Sidelights to terminal block TB3 marked "-."

2.4.2 Connect both **WHITE** wires to the fuse holder marked "B."

2.4.3 Connect the ground wire to the ground lug located to the left of TB2.

### **2.5 OBSTRUCTION FIXTURE ALARM WIRING**

(Refer to Drawings 1272-R and 1272-S)

2.5.1 Alarm relays K1, K2, and Module M1 are provided for independent contact closures for: Power Failure, Lights "ON," and LEDBEACON3 / LED Sidelight Burnout.

## **AA0MTSS120/24 CONTROLLER**

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**2.5.2** Alarm wiring: To utilize all of the red light alarms, the customer will need three (3) pairs of wires to interface with the alarm device. One (1) wire from each of the three (3) pairs will terminate at the points marking common (C). The remaining wire from each pair will terminate as follows:

**LEDBEACON3/  
LED Sidelight Burnout:** Connect to Module M1, terminal #18, for normally open, (or) terminal #16, for normally closed monitoring.

**Power Failure Alarm:** Connect to relay K1, terminal #3, for normally closed, (or) terminal #4, for normally open monitoring.

**Lights "ON" Alarm:** Connect to relay K2, terminal #3, for normally closed, (or) terminal #4, for normally open monitoring.

**2.5.3** 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.

**LEDBEACON3, and  
LED Sidelights** Break the circuit on the fuse holder marked "B."

## **AA0MTSS120/24 CONTROLLER**

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### **3.0 THEORY OF OPERATION**

#### **3.1 POWER SUPPLY**

120V AC enters the controller from the main power source and gets converted to 24 V DC via M2 power supply. Line sits at the 6589C-FAA photocell waiting to be switched and also keeps the power failure relay K1 energized. When the 6589C-FAA photocell is activated, line SSR energizes K2 “Lights On” relay. This can also be accomplished by using the photocell by-pass switch (SW1).

#### **3.2 LEDBEACON3 and LED SIDELIGHTS**

SSR is being sent to Module M1, and then to the fuse holder “B.” Module M1 is the current sensor for all the LED fixtures. If either the LEDBEACON3, or one (1) of the LED Sidelights burns out, then Module M1 will send a contact closure, along with a visual indication.

## **WARNING**

**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.**

## **AA0MTSS120/24 CONTROLLER**

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### **4.0 MAINTENANCE GUIDE**

#### **4.1 RED OBSTRUCTION FIXTURE**

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

#### **4.2 CONTROLLER**

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

#### **4.3 PHOTOCELL**

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

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## **AA0MTSS120/24 CONTROLLER**

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### **5.0 MAJOR COMPONENTS PARTS LIST**

| QTY | PART NUMBER   | DESCRIPTION                                     |
|-----|---------------|---|
| 1   | 6589C-FAA     | Photocell 12 – 48 V DC                          |
| 1   | RJ1008HPL     | Enclosure                                       |
| 2   | PB27E122      | Octal Sockets (K1 & K2)                         |
| 6   | 8WA1204       | Terminal Blocks (TB1, TB2, & TB3)               |
| 2   | 8WA1808       | End Stop  |
| 2   | KRPA11DG24VDC | DPDT Relay (K1 & K2)                            |
| 1   | SSPIGTAIL DC  | 20' Photocell Pigtail DC                        |
| 1   | STJ01002      | 15 amp SPDT Switch (SW1)                        |
| 1   | RM4JA32MW     | LED BEACON3 / LED Sidelight Current Sensor (M1) |
| 1   | USM-1         | Fuse holder                                     |
| 2   | KTK-3         | 3 amp Fuse                                      |
| 1   | MDR-60-24     | 120V AC to 24V DC power supply (M2)             |

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## **AA0MTSS120/24 CONTROLLER**

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### **6.0 SUGGESTED SPARE PARTS LIST**

| <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>                             |
|------------|--------------------|--|
| 1          | 6589C-FAA          | Photocell 12 – 48 V DC                         |
| 1          | KRPA11DG24VDC      | 24V DC DPDT Relay                              |
| 1          | KTK-3              | 3 amp Fuse                                     |
| 1          | RM4JA32MW          | LEDBEACON3 / LED Sidelight Current Sensor (M1) |
| 1          | MDR-60-24          | 120V AC to 24V DC power supply (M2)            |

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## **AA0MTSS120/24 CONTROLLER**

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### **Warranty & Return Policy**

**TWR Lighting<sup>®</sup>, Inc. (“TWR<sup>®</sup>”)** 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<sup>®</sup>, Inc. (“TWR<sup>®</sup>”)** warrants its “LED Product” against defects in design, material and workmanship for a period of five (5) years from the date of shipment. TWR<sup>®</sup>, at its sole option, will, itself, or through others, repair, replace or refund the purchase price paid for “LED Product” that TWR<sup>®</sup> 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<sup>®</sup>, Inc. (“TWR<sup>®</sup>”)** warrants its “LED Product” against light degradation for a period of five (5) years from the date of installation. TWR<sup>®</sup>, at its sole option, will, itself, or through others, repair, replace, or refund the purchase price paid for “LED Product” that TWR<sup>®</sup> verifies as failing to meet 75% 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<sup>®</sup>

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## **AA0MTSS120/24 CONTROLLER**

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### **Warranty & Return Policy** (continued)

**Field Service** – Labor, Travel, and Tower Climb are not covered under warranty. Customer shall be obligated to pay for all incurred charges. An extensive network of certified and insured Service Representatives is available if requested.

**Repair, Replacement or Product Return RMA 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 or
- 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<sup>®</sup>, INC., 10810 W. LITTLE YORK RD. #130, HOUSTON, TX 77041-4051, within 30 days of issuance.**

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

# **TWR Lighting, Inc.** **HARK**

*Enlightened Technology®*

## **AA0MTSS120/24 CONTROLLER**

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### **Warranty & Return Policy** (continued)

**RMA 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 **\$75.00 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.

**RMA 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 **\$75.00 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.

**RMA Return to Stock** – Any product order that is returned to TWR® for part(s) ordered incorrectly or found to be unneeded upon receipt by the customer, the customer may be required to pay a minimum **20% restocking fee.** Product returned for credit must be returned within 60-days of original purchase, be in new and resalable condition, and in original packaging. Once the product is received by TWR it's condition will be evaluated and a credit will be issued only once it is determined that the RMA Return Terms have been 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.

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## **AA0MTSS120/24 CONTROLLER**

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### **Warranty & Return Policy** (continued)

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

REMEDIES UNDER THIS WARRANTY ARE LIMITED TO PROVISIONS OF REPLACEMENT PARTS AND REPAIRS AS SPECIFICALLY PROVIDED. IN NO EVENT SHALL TWR<sup>®</sup> 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<sup>®</sup> EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED. WITHOUT LIMITING THE GENERALITY OF THE FORGOING, TWR<sup>®</sup> MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS OF THE PRODUCT(S) FOR ANY PARTICULAR PURPOSE. TWR<sup>®</sup> EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES.

# **TWR Lighting, Inc.** **HARK**<sup>®</sup>

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## **AA0MTSS120/24 CONTROLLER**

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### **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: 10810 W. LITTLE YORK RD., #130 HOUSTON TX 77041-4051

# **TWR Lighting, Inc.** HARK<sup>®</sup>

*Enlightened Technology<sup>®</sup>*

## **AA0MTSS120/24 CONTROLLER**

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### **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:** \_\_\_\_\_

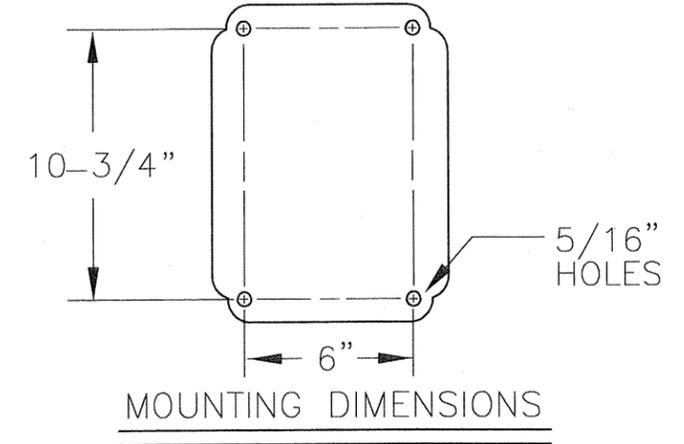
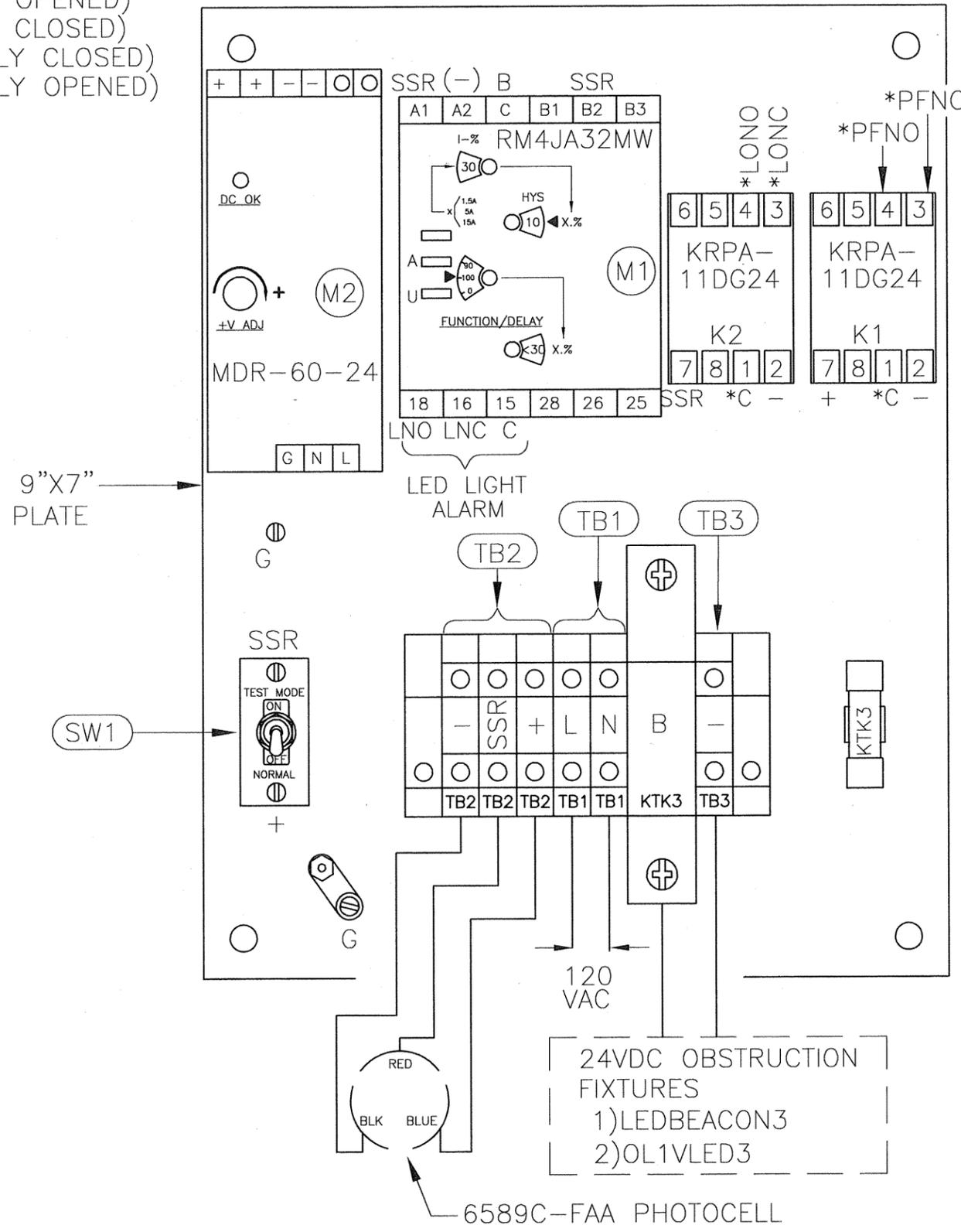
**RETURN ADDRESS:** \_\_\_\_\_

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PLEASE RETURN PRODUCT TO: 10810 W. LITTLE YORK RD., #130 HOUSTON TX 77041-4051

**\*CUSTOMER ALARM POINTS**

- LNC = GROUP MONITORING ALARM (NORMALLY CLOSED)
- LNO = GROUP MONITORING ALARM (NORMALLY OPEN)
- C = ALARM COMMON
- LONO = LIGHTS "ON" (NORMALLY OPENED)
- LONC = LIGHTS "ON" (NORMALLY CLOSED)
- PFNC = POWERFAILURE (NORMALLY CLOSED)
- PFNO = POWERFAILURE (NORMALLY OPENED)



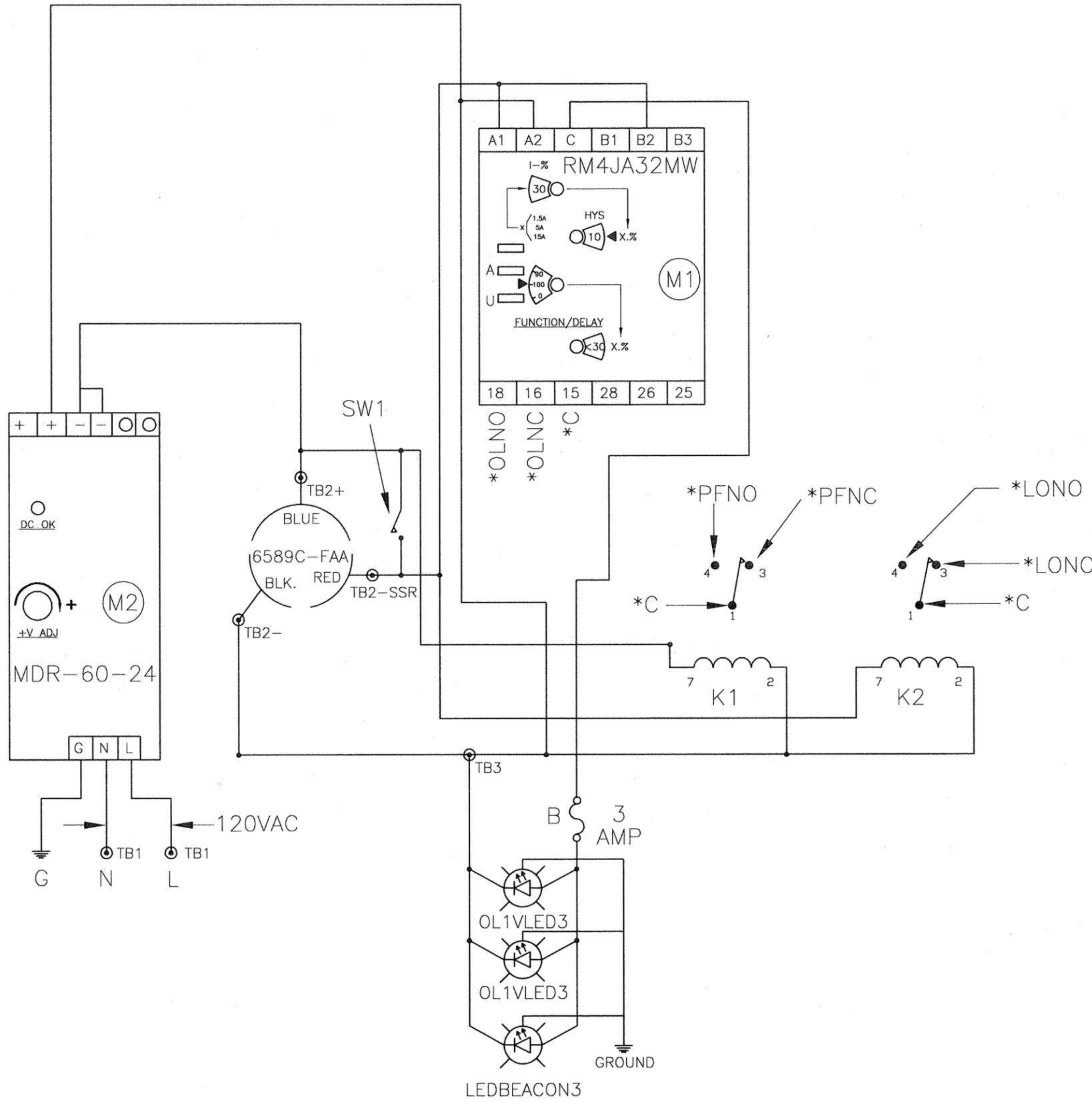
**NOTES:**

1. PLUG 6589C-FAA PHOTOCCELL INTO 43109 TWIST LOCK RECEPTACLE AND TWIST TO LOCK.
2. WIRES ARE CONNECTED LETTER TO LETTER. (EXAMPLE) SSR TO SSR...

**!!WARNING!!**  
**VERIFY POLARITY CONNECTIONS ON THE INPUT AND OUTPUT.**  
**NEGLIGENCE WILL RESULT IN FAILURE OF THE PHOTOCCELL AND/OR LED SIDELIGHT. THIS WILL VOID YOUR WARRANTY.**

|  |  |                      |  |
|--|--|----------------------|--|
| <b>AAOMTSS120/24</b>   |  |                      |  |
| <b>CHASSIS LAYOUT</b>  |  |                      |  |
| APP'D<br><i>[Signature]</i>  | <b>TWR Lighting, Inc.</b><br><i>Enlightened Technology</i> <b>WARK</b> |                      |  |
| CHK'D BY   |  |                      |  |
| ENGINEER   |  |                      |  |
| DRAWN BY<br>E.A.SALAZAR  | SHEET SIZE<br>B  | SHEET QTY.<br>1 OF 1 |  |
| DATE<br>07/26/2011   | SCALE<br>N.T.S.  | DWG. NO.<br>1272-R   |  |
| <small>The use of non TWR parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance of compliance with FAA requirements as published in Advisory Circular 150/5345-43.<br/>                 NOTICE: The drawings and photographic images contained herein are the sole property of TWR Lighting, Inc. All information contained herein that is not generally known shall be considered confidential except to the extent the information has been previously established. The drawings and photographic images contained herein may not be reproduced, copied or used as the basis for manufacture or sale or promotion or any other purpose without the expressed written permission of TWR Lighting, Inc.</small> |  |                      |  |

05/25/16 (A) UPDATED KTK3



**AAOMTSS120/24**  
**SCHEMATIC LAYOUT**

|                             |  |                      |  |
|-----------------------------|--|----------------------|--|
| APP'D<br><i>[Signature]</i> | <b>TWR Lighting, Inc.</b><br><i>Enlightened Technology</i> <b>WARK</b> |                      |  |
| CHK'D BY                    |  |                      |  |
| ENGINEER                    |  |                      |  |
| DRAWN BY<br>J. ZAMORANO     | SHEET SIZE<br>B  | SHEET QTY.<br>1 OF 1 |  |
| DATE<br>05/26/20016         | SCALE<br>N.T.S.  | DWG. NO.<br>1272-S   |  |

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# CURRENT MEASUREMENT RELAY

OUTPUT TO LOAD  
CONTROL VOLTAGE INPUT

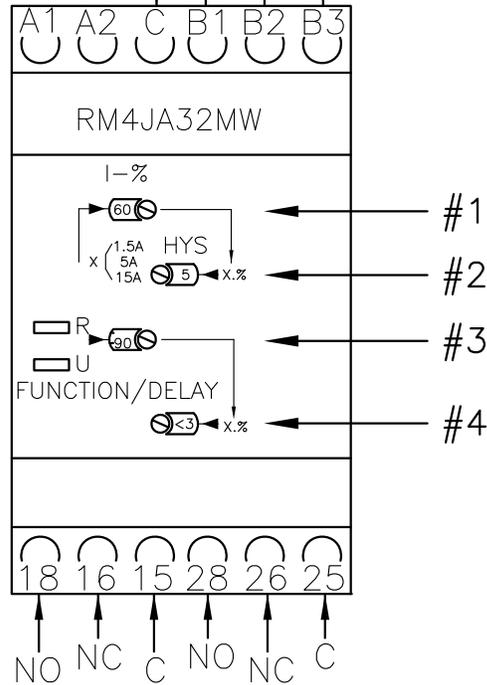
.3-1.5 AMP INPUT  
1-5 AMP INPUT  
3-15 AMP INPUT

## 120VAC PRODUCT SPECIFIC SETTINGS

| QTY. | PART NO.     | INPUT | #1 | #2 | #3  | #4  | PRD.     |
|------|--------------|-------|----|----|-----|-----|----------|
| 6    | 860-1R01-001 | B2    | 40 | 5  | 100 | <30 | DIALIGHT |
| 1    | LEDBEACON    | B1    | 33 | 15 | 100 | <30 | DIALIGHT |
| 2    | LEDBEACON    | B2    | 30 | 5  | 100 | <30 | DIALIGHT |
| 2    | STLDBEACON   | B2    | 30 | 5  | 100 | <30 | DIALIGHT |
| 2    | STLDBEACON2  | B1    | 30 | 15 | 100 | <30 | ORGA     |
| 2    | LEDBEACON2   | B1    | 30 | 15 | 100 | <30 | ORGA     |
| 3    | LEDBEACON2   | B1    | 55 | 15 | 100 | <30 | ORGA     |
| 1    | 116A21TS     | B1    | 50 | 15 | 100 | <30 | TWR      |
| 2    | 116A21TS     | B2    | 35 | 5  | 100 | <30 | TWR      |
| 3    | 116A21TS     | B2    | 50 | 5  | 100 | <30 | TWR      |
| 4    | 116A21TS     | B3    | 70 | 5  | 100 | <30 | TWR      |
| 6    | 116A21TS     | B3    | 36 | 15 | 100 | <30 | TWR      |

## 24VDC PRODUCT SPECIFIC SETTINGS

| QTY. | PART NO.   | INPUT | #1 | #2 | #3  | #4  | PRD. |
|------|------------|-------|----|----|-----|-----|------|
| 1    | LEDBEACON3 | B2    | 30 | 10 | 100 | <30 | TWR  |
| 2    | OL1VLED3   |       |    |    |     |     |      |



## FUNCTIONS

- Adjustment of current threshold as % of setting range max.  $\pm 5\%$
  - Hysteresis adjustment from 5 to 30 %  $\blacktriangle$ .
  - Fine adjustment of time delay as % of setting range max. value.
  - 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**  
Yes

**Overcurrentor Undercurrent Control** ■  
Yes

**Measuring Range**  
0.3 A-15 A

## 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).

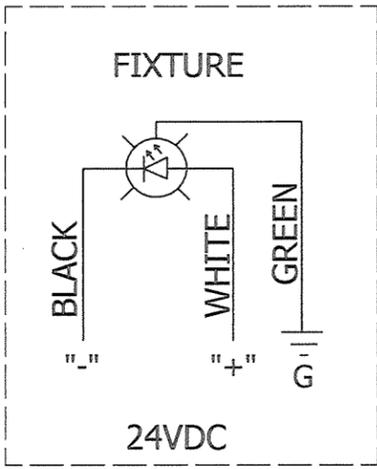
\*Due to current draw tolerances slight adjustments to setting #1 may be needed for proper alarming. Sign: \_\_\_\_\_

4

3

2

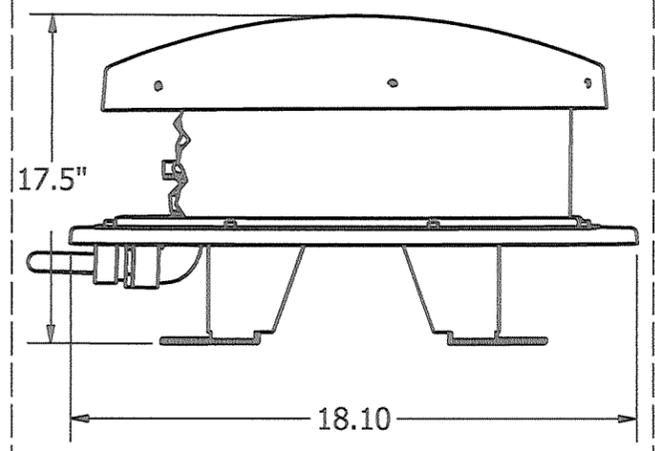
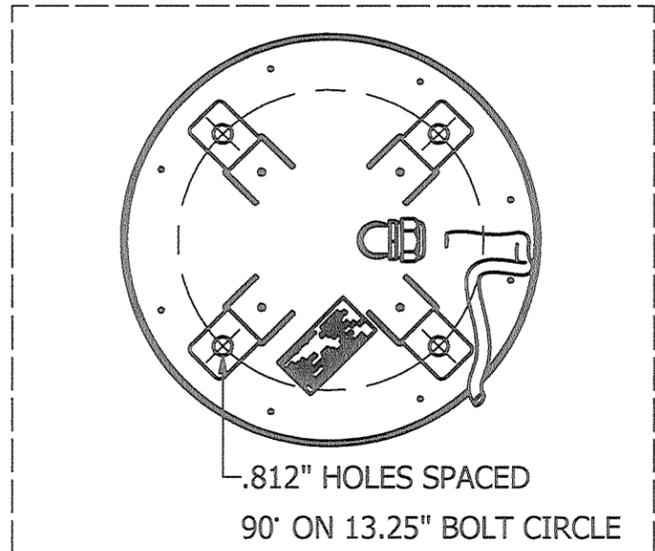
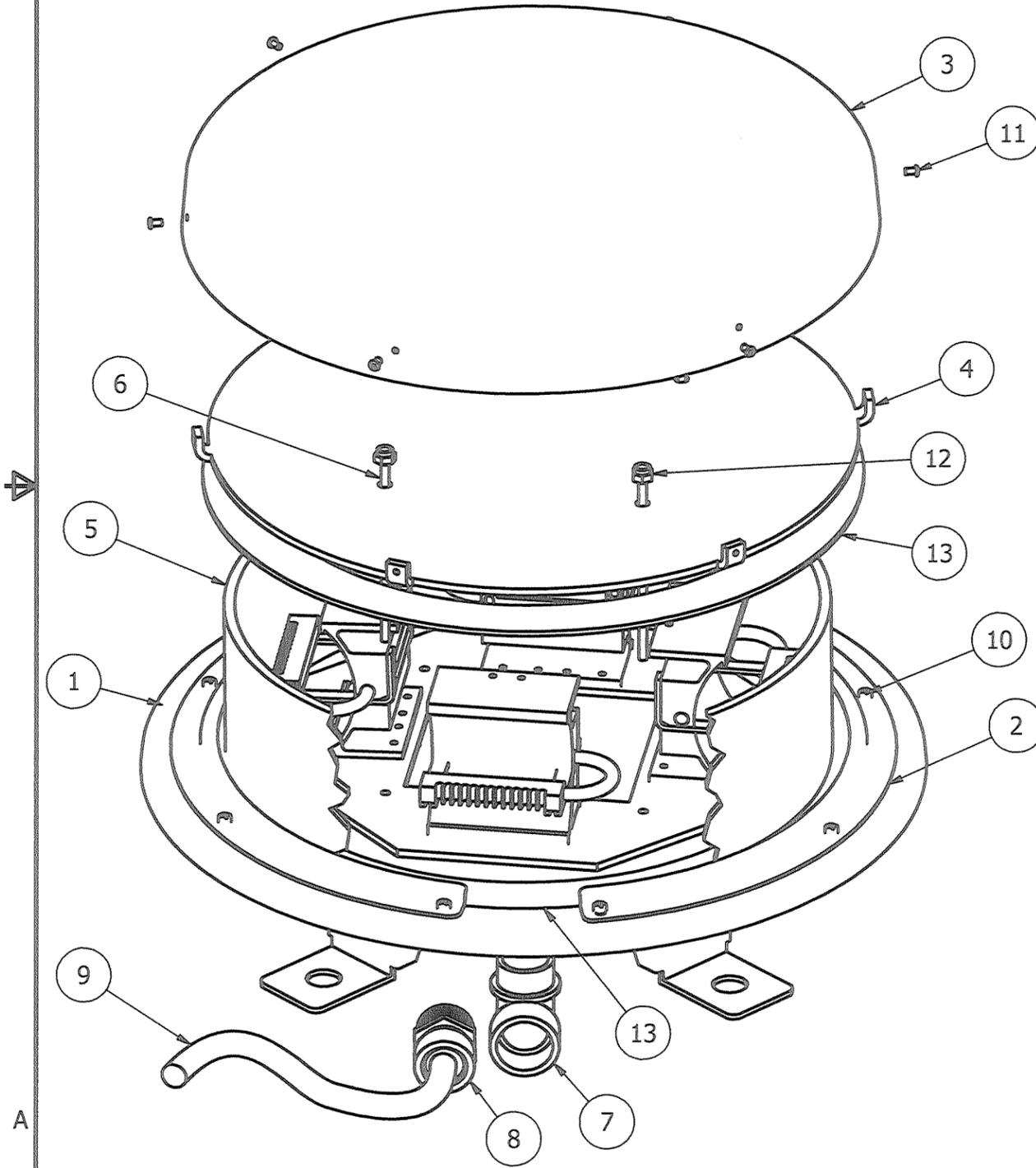
1



| PARTS LIST |     |             |  |
|------------|-----|-------------|--|
| ITEM       | QTY | PART NUMBER | DESCRIPTION                            |
| 1          | 1   | 100360      | LED BEACON BASE                        |
| 2          | 2   | 100337      | LENS RETAINER RING                     |
| 3          | 1   | 100344      | LED BEACON CAP                         |
| 4          | 1   | 100673      | LED BEACON PLATE                       |
| 5          | 1   | 100775      | CLEAR ACRYLIC TUBE 14"                 |
| 6          | 4   | 1420x5AT    | 1/4-20X5" ROD                          |
| 7          | 1   | EL190S      | 1" 90 DEGREE SHORT ELBOW GALV          |
| 8          | 1   | CC-MPT-1-G  | 1" CORD CONNECTOR .700 TO .984         |
| 9          | 1   | CSO16/3     | S.O. CORD 16AWG/3 CONDUCTOR            |
| 10         | 8   | 1032X38PHW  | 10-32 X 3/8 SS PHILIP HD CAPTIVE SCREW |
| 11         | 6   | 18PRSS      | 1/8 X .45 SS POP RIVET                 |
| 12         | 4   | 1420SSNUTN  | 1/4-20 NUT W/NYLON INSERT              |
| 13         | 2   | 100807i     | GASKET NEOPRENE 3/16 X 15 1/4          |

B

B



A

A

**LED BEACON3 & LED BEACON3SB  
ASSEMBLY DETAIL 24VDC**

PROD DEPT \_\_\_\_\_  
SERV DEPT \_\_\_\_\_  
ENGINEER \_\_\_\_\_

**TWR Lighting, Inc.**  
*Enlightened Technology®* **HARK**

|          |            |            |   |            |        |
|----------|------------|------------|---|------------|--------|
| DRAWN BY | vhernandez | SHEET SIZE | B | SHEET QTY. | 1 OF 1 |
| DATE     | 11/30/2011 | SCALE      |   | DWG. NO.   | 100854 |

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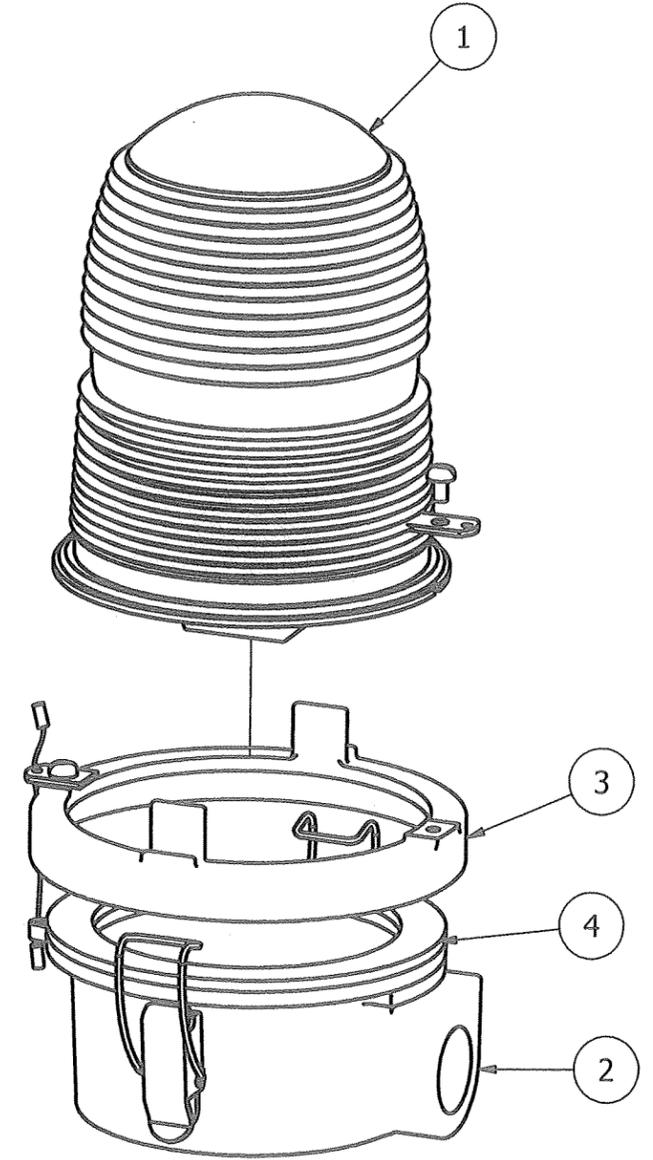
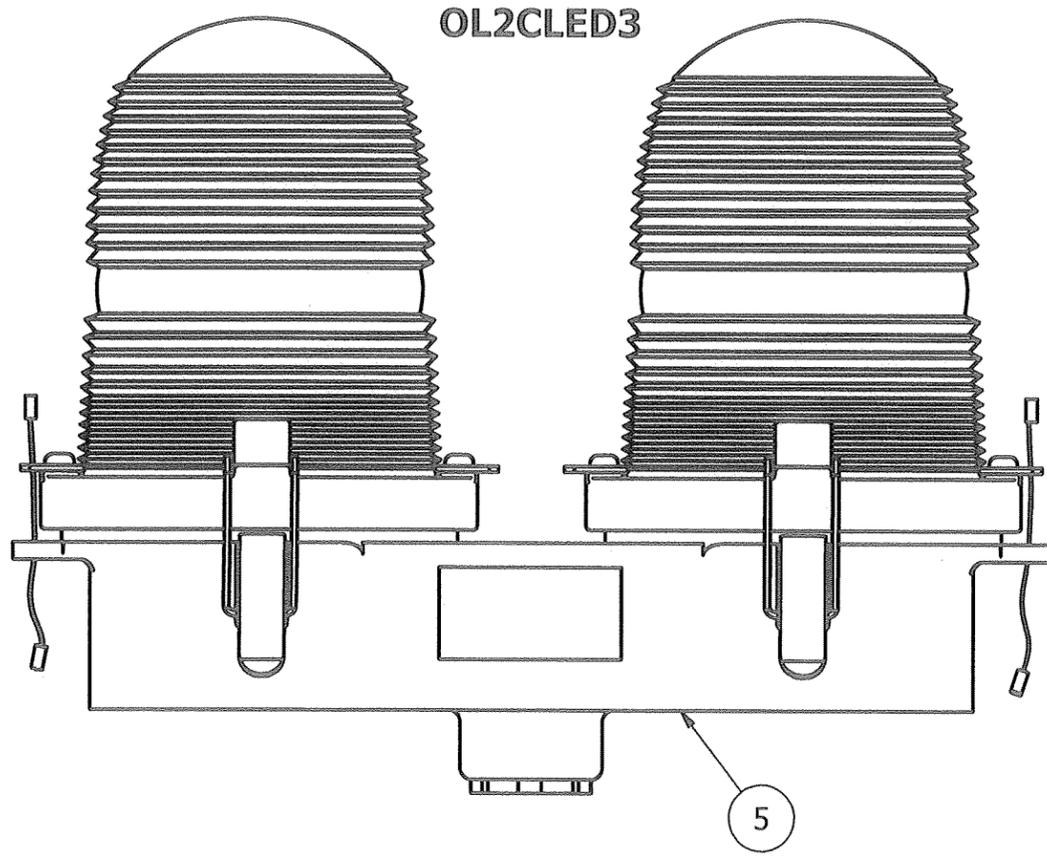
| AUTHOR    | REV | DATE       | DESCRIPTION     |
|-----------|-----|------------|-----------------|
| JZAMORANO | C   | 11/17/2014 | UPDATED DRAWING |

4

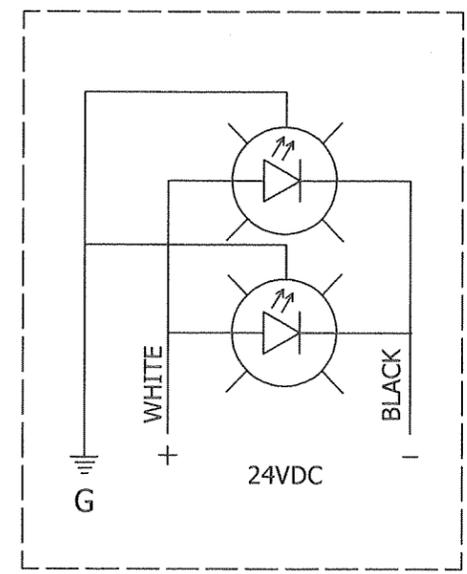
3

2

1



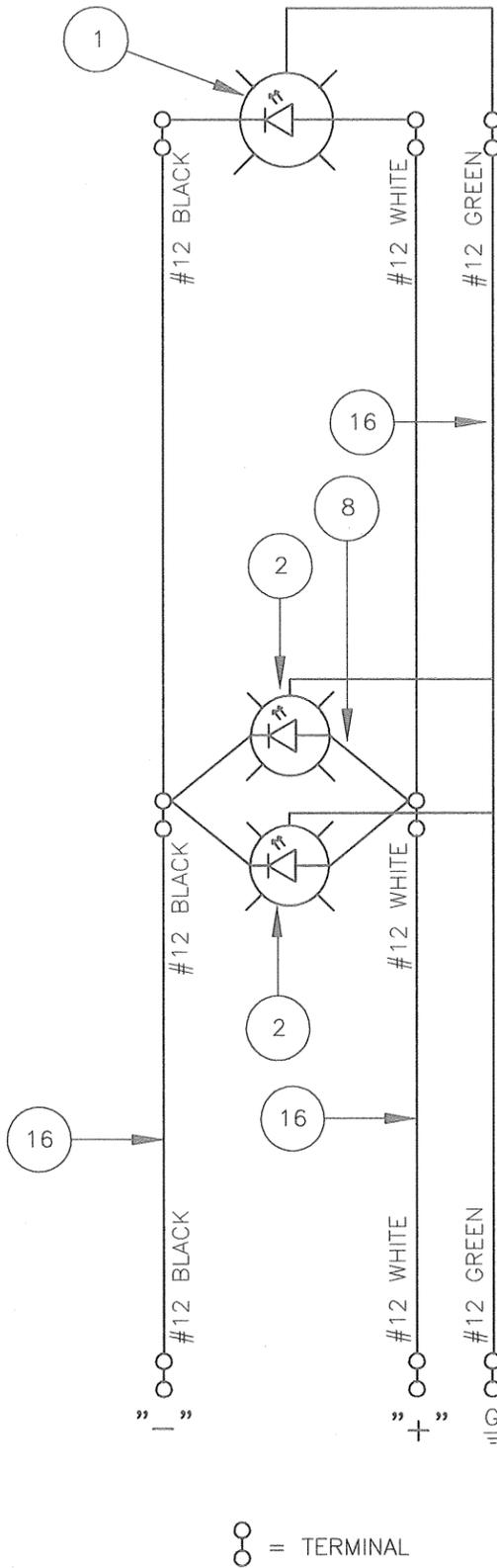
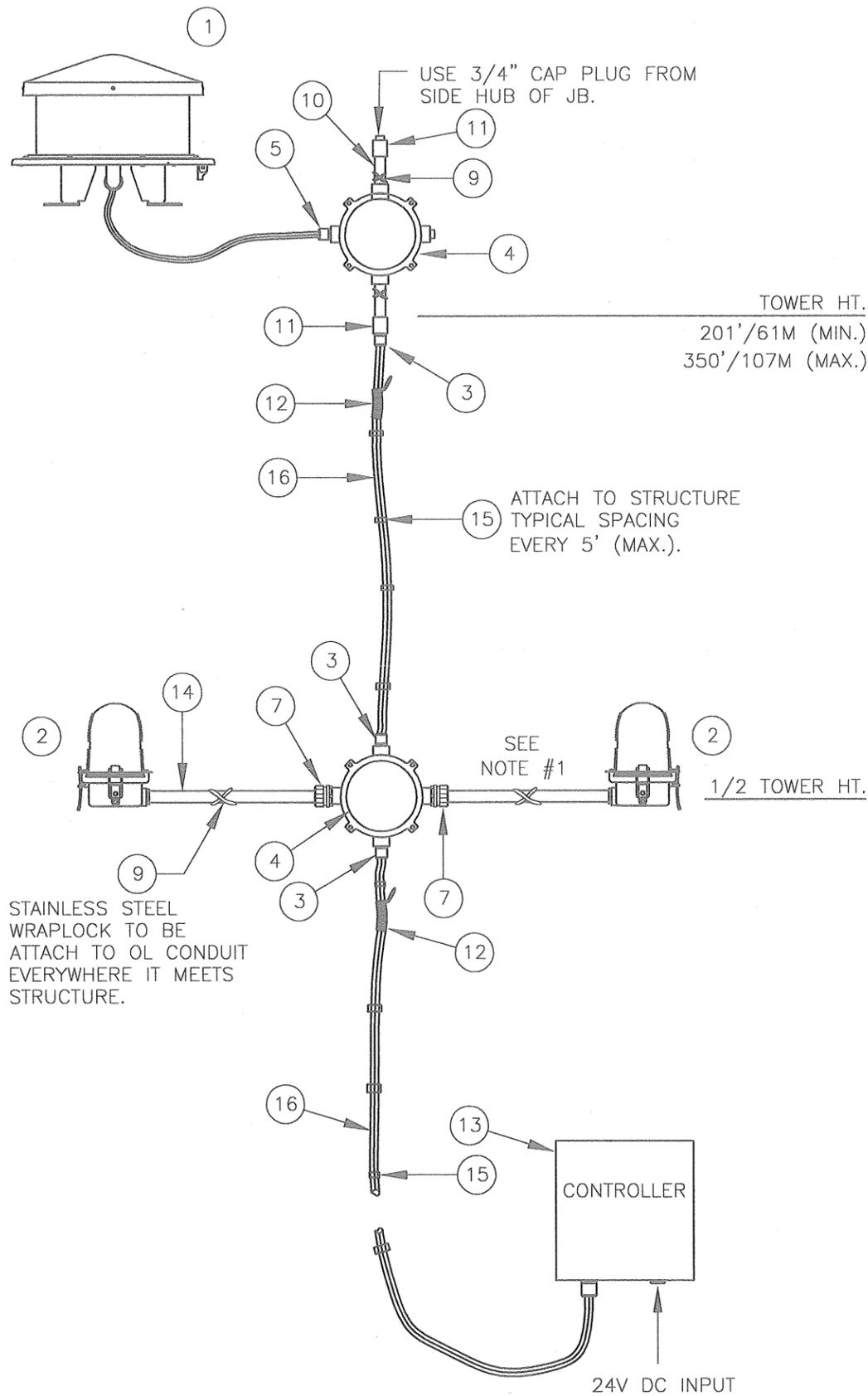
| PARTS LIST |     |             |                                     |  |
|------------|-----|-------------|-------------------------------------|--|
| ITEM       | QTY | PART NUMBER | DESCRIPTION                         |  |
| 1          | 1   | LED120-3RK  | FAA OL16LED 24VDC LAMP FOR OL1VLED3 |  |
| 2          | 1   | 105V(C)     | VALOX OR CAST SINGLE SIDE HUB BODY  |  |
| 3          | 1   | 106V(C)     | VALOX OR CAST LENS HOLDER RING      |  |
| 4          | 1   | OLG         | OL GASKET                           |  |
| 5          | 1   | OL2CP       | OL2 CAST BODY PAINTED               |  |



**NOTES:**  
 1. ITEM LED120-3RK CAN ONLY BE ORDERED AS A KIT.  
 2. ITEM'S 105 & 106 CAN BE ORDERED FOR VALOX OR CAST. WHEN ORDERING PLEASE SPECIFY.  
 3. ITEM #2 CAN ALSO BE ORDERED AS A 3/4" BOTTOM HUB.  
 4. ITEM OL2CP USED IN OL2CLED3 FIXTURE.

| AUTHOR     | REV | DATE      | DESCRIPTION  |
|------------|-----|-----------|--------------|
| J.ZAMORANO | A   | 12/2/2014 | UPDATED LEDS |

|  |                                      |   |  |
|--|--------------------------------------|---|--|
| DRAWN<br>E.A.SALAZAR<br>CHECKED<br><i>[Signature]</i><br>QA<br>MFG<br>APPROVED<br><i>[Signature]</i> | 10/21/2011<br>12/2/2014<br>12/2/2014 | <b>TWR Lighting, Inc.</b> <i>Enlightened Technology</i> <b>MARK</b> |  |
| TITLE  |                                      | OL1VLED3 (VALOX), OL1CLED3 (CAST) & OL2CLED3 (CAST)<br>PARTS ORDER  |  |
| SIZE<br><b>B</b>   | DWG NO<br><b>100895</b>              | REV<br><b>A</b>   |  |
| SCALE  | SHEET 1 OF 1                         |   |  |



**BILL OF MATERIALS**

| ITEM NO. | QTY. | TWR PART NO.    | DESCRIPTION                         |
|----------|------|-----------------|-------------------------------------|
| 1        | 1    | LEDBEAON3       | RED LED BEACON                      |
| 2        | 2    | OL1VLED3        | LED SIDELIGHT                       |
| 3        | 3    | CGB295SA        | 3/4" CORD CONNECTOR 0.50 - 0.62     |
| 4        | 2    | JB5             | 3/4" JUNCTION BOX                   |
| 5        | 1    | CC-NPT34-G      | 3/4" BLACK CORD CONNECT (0.35-0.70) |
| * 6      | 1    | PIPDOP          | 4 oz. PIPE DOPE                     |
| 7        | 2    | HC402           | 3/4" NO THREAD CONNECTOR            |
| 8        | 2    | SLPIGTAIL25G    | 25' SIDELIGHT PIGTAIL WITH GROUND   |
| 9        | 1    | SS5012          | STAINLESS STEEL WRAPLOCK 50'        |
| 10       | 2    | N34T6           | 3/4" x 6" NIPPLE (FOR JB MOUNTING)  |
| 11       | 2    | CPLG34          | 3/4" CONDUIT COUPLING               |
| 12       | 2    | CABLEGRIP1      | SINGLE EYE LACE MESH                |
| 13       | 1    | AA0MTSS24VDC32M | AAO 24V DC LED CONTROLLER           |
| 14       | 20'  | CONDUIT34       | 3/4" CONDUIT                        |

ITEM NUMBERS #15-#16 ARE NOT INCLUDED IN THE KIT BUT ARE AVAILABLE UPON REQUEST, AND REQUIRED FOR INSTALLATION.

|   |    |   |          |                                       |
|---|----|---|----------|---------------------------------------|
| ~ | 15 | - | STCABLTI | STROBE CABLE TIES (TWR. HEIGHT +5)    |
| ~ | 16 | - | CSO12/3  | 3-#12 AWG STROBE CABLE (TWR. HT.+50') |

\* = ITEMS NOT SHOWN  
 ~ = ITEMS QUANTITY CALCULATED ACCORDING TO STRUCTURE HEIGHT.

**NOTES:**

- 1) STAINLESS STEEL WRAPLOCK TO BE ATTACH TO OL CONDUIT EVERYWHERE IT MEETS STRUCTURE.
- 2) CONDUIT34 TO BE CUT TO LENGTH FOR PROPER EXTENSION OF OL1 (6"-12") FROM STRUCTURE. ATTACH HC402 TO UNTHREADED CONDUIT TO COMPLETE ASSEMBLY.
- 3) CABLEGRIP1 IS USED TO SUPPORT CABLE BEFORE CORD CONNECTOR AND SINGLE EYE LOOP SHOULD BE ATTACHED TO STRUCTURE SECURELY.
- 4) THIS DRAWING IS PROVIDED AS A GENERAL REFERENCE. TWR LIGHTING, INC. DOCUMENTATION SUPERSEDES THIS DRAWING & SHOULD BE REVIEWED PRIOR TO INSTALLATION OF THIS SYSTEM.
- 5) IF MOUNT IS NEEDED FOR LEDBEAON3 USE PART #BMSIDE-1.

**POWER CONSUMPTION**

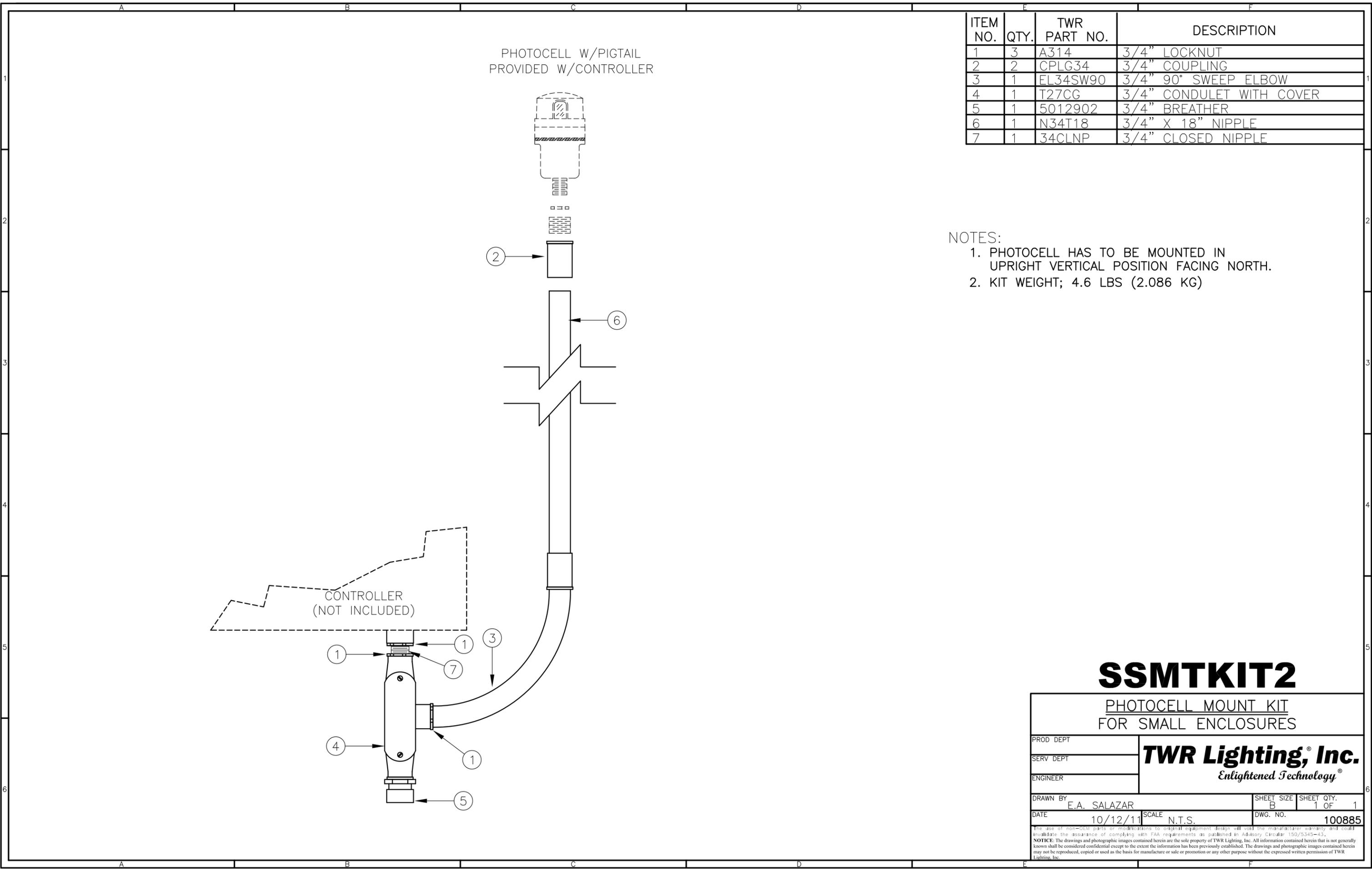
- ✓ 12hrs day - 1.75/0.0/0.0 - for AA0MTSS24DC32M/OL1VLED3/LEDBEAON3 (1.75x12=0.021KWh)
- ✓ 12hrs night - 3.06/16.0/14.43 - for AA0MTSS24DC32M/OL1VLED3/LEDBEAON3 (33.5x12=0.402KWh)
- ✓ "24hrs = **0.423 KWh**"

**LK1A1MET24VDC TOWER LIGHTING KIT  
 (TOWERS 201'/61M TO 350'/107M)**

|           |  |            |            |
|-----------|--|------------|------------|
| PROD DEPT | <br><b>TWR Lighting, Inc.</b><br><i>Enlightened Technology</i> | SHEET SIZE | SHEET QTY. |
| SERV DEPT |  | B          | 1 OF 1     |
| ENGINEER  |  |            |            |
| DRAWN BY  | E.A. SALAZAR   | DWG. NO.   | T1467      |
| DATE      | 02/21/2011   | SCALE      | N.T.S.     |

|            |      |                   |
|------------|------|-------------------|
| 01/08/2016 | (1)  | POWER CONSUMPTION |
| DATE:      | LTR. | REVISION          |

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| ITEM NO. | QTY. | TWR PART NO. | DESCRIPTION              |
|----------|------|--------------|--------------------------|
| 1        | 3    | A314         | 3/4" LOCKNUT             |
| 2        | 2    | CPLG34       | 3/4" COUPLING            |
| 3        | 1    | EL34SW90     | 3/4" 90° SWEEP ELBOW     |
| 4        | 1    | T27CG        | 3/4" CONDULET WITH COVER |
| 5        | 1    | 5012902      | 3/4" BREATHER            |
| 6        | 1    | N34T18       | 3/4" X 18" NIPPLE        |
| 7        | 1    | 34CLNP       | 3/4" CLOSED NIPPLE       |

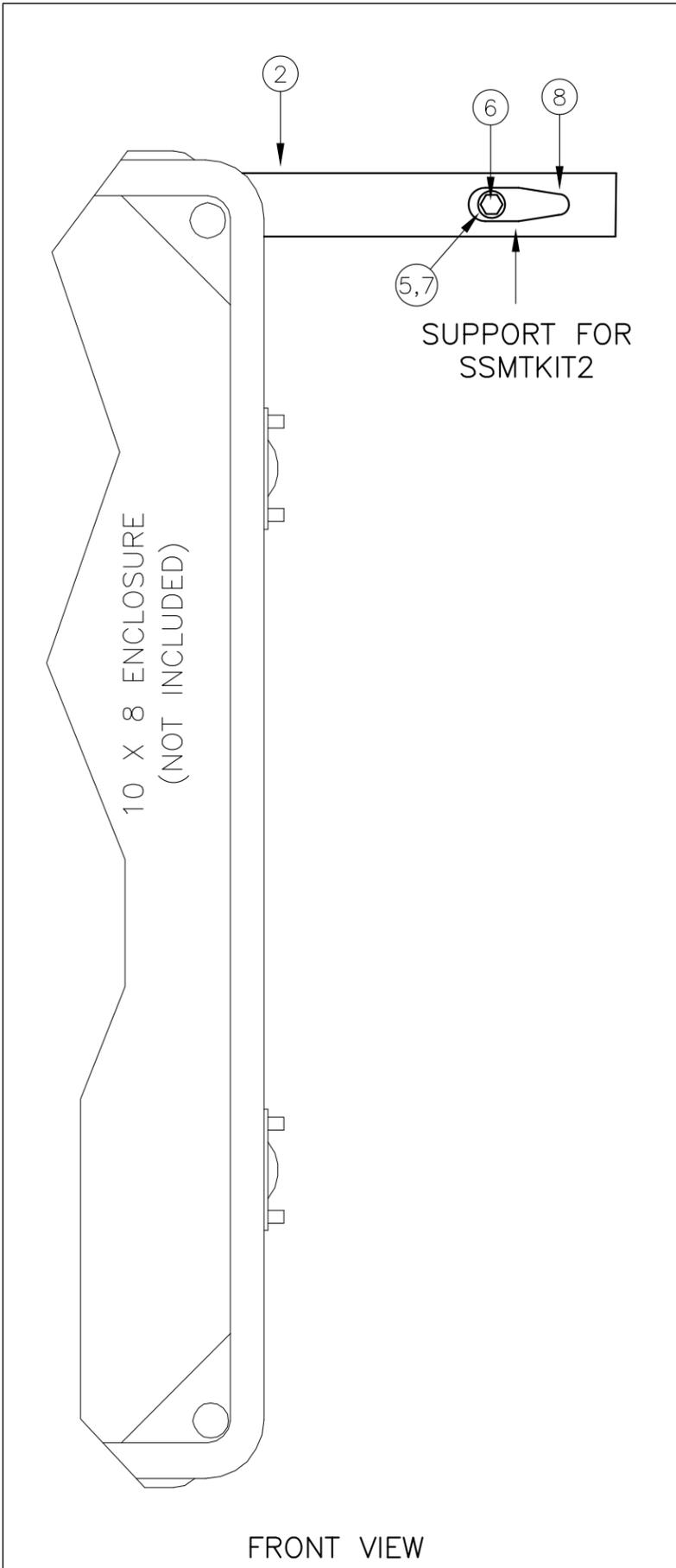
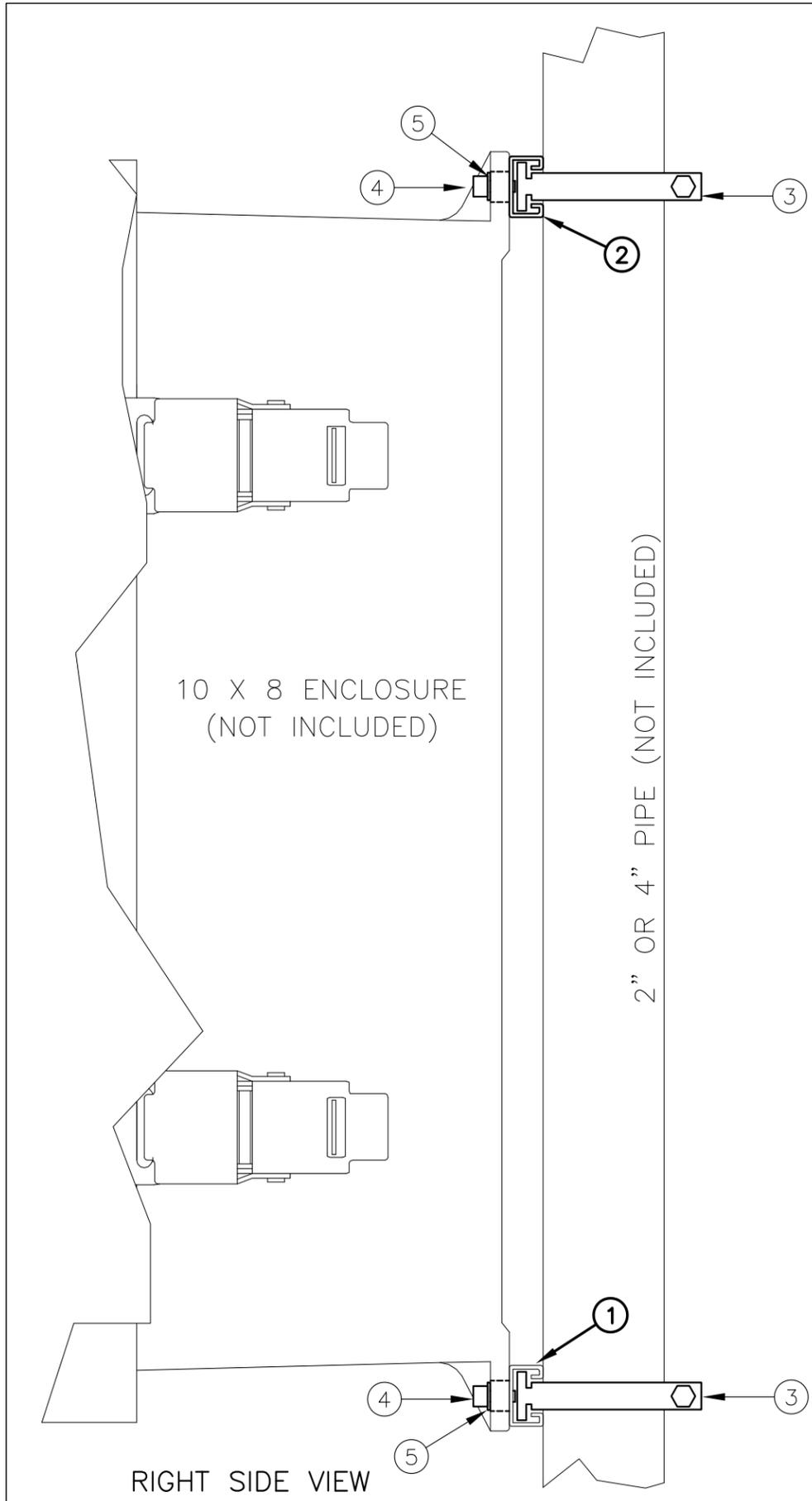
- NOTES:
- PHOTOCELL HAS TO BE MOUNTED IN UPRIGHT VERTICAL POSITION FACING NORTH.
  - KIT WEIGHT; 4.6 LBS (2.086 KG)

## SSMTKIT2

PHOTOCELL MOUNT KIT  
FOR SMALL ENCLOSURES

|                          |   |                      |        |
|--------------------------|---|----------------------|--------|
| PROD DEPT                | <b>TWR Lighting, Inc.</b><br><i>Enlightened Technology®</i> |                      |        |
| SERV DEPT                |   |                      |        |
| ENGINEER                 |   |                      |        |
| DRAWN BY<br>E.A. SALAZAR | SHEET SIZE<br>B   | SHEET QTY.<br>1 OF 1 | 1      |
| DATE<br>10/12/11         | SCALE<br>N.T.S.   | DWG. NO.             | 100885 |

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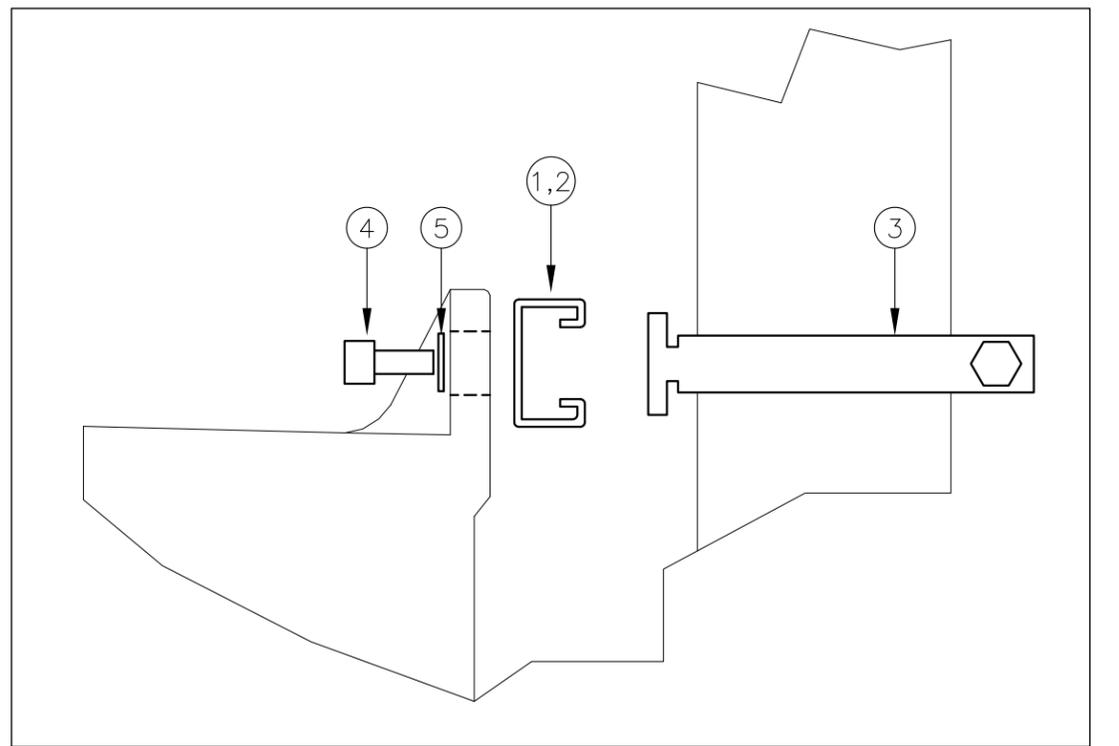


| ITEM NO. | QTY. | TWR PART NO. | DESCRIPTION                     |
|----------|------|--------------|---------------------------------|
| 1        | 1    | 100887       | 8" B1400 UNISTRUT (BOTT. PIECE) |
| 2        | 1    | 100892       | 15" B1400 UNISTRUT (TOP PIECE)  |
| * 3      | 2    | RIGD200EG    | 2" UNISTRUT PIPE CLAMP & BOLT   |
| 4        | 4    | 1420X12      | 1/4-20 HEX HEAD                 |
| 5        | 5    | 14FW         | 1/4 FLAT WASHER                 |
| 6        | 1    | 1420X1       | 1/1-20 HEX HEAD                 |
| 7        | 1    | 14LW         | 1/4 LOCK WASHER                 |
| 8        | 1    | 902          | 3/4" ONE HOLE STRAP             |

\* = ITEM RIGD200EG CLAMP TO BE USED TO MOUNT ITEM 100887 & 100892(UNITSTRUT) TO 2" PIPE.

\*\*FOR A 4" PIPE USE PART RIDG400EG

ASSEMBLY DETAIL FOR BACK OF ENCLOSURE

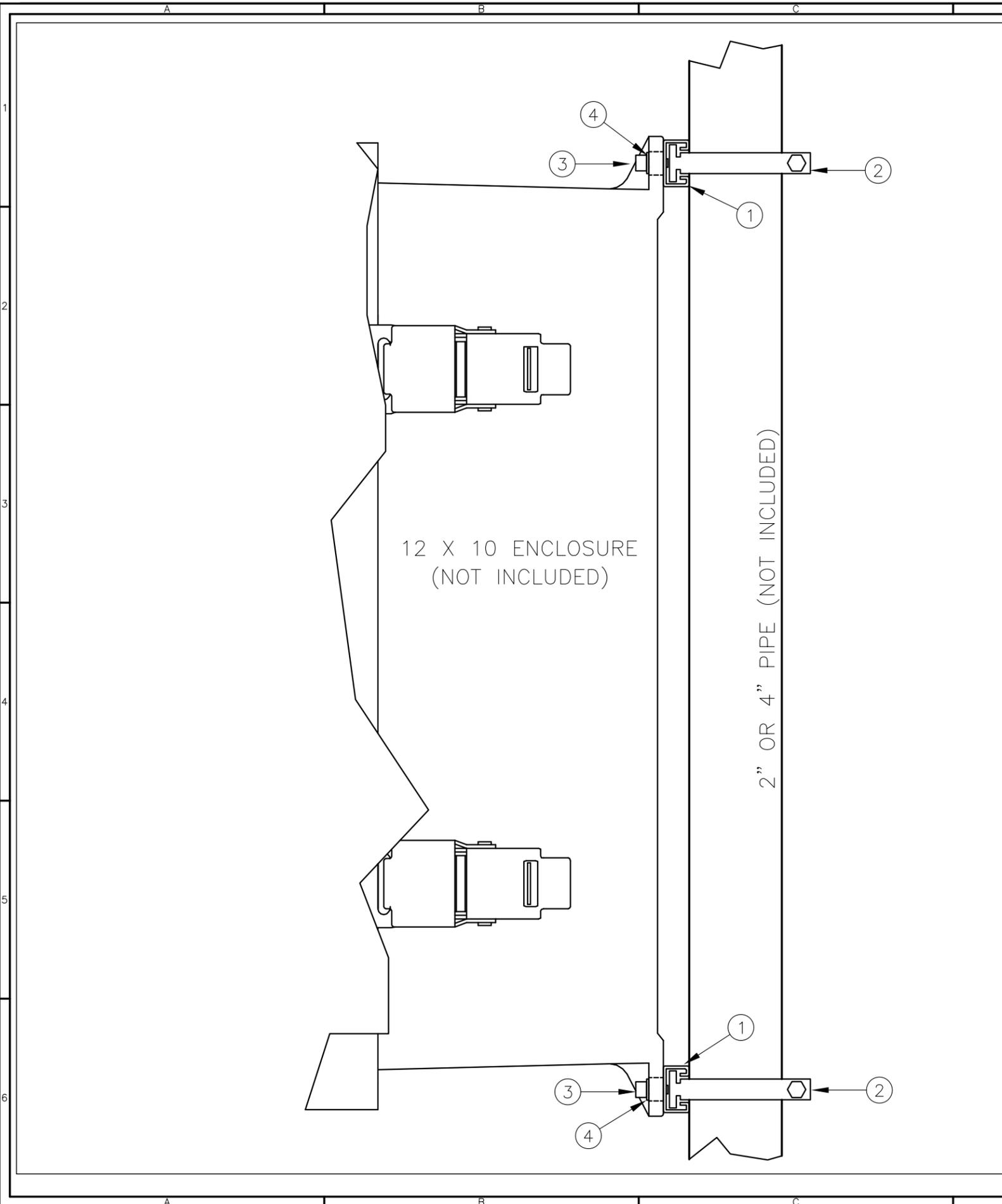


# 10X8MTKIT

|                                    |  |            |        |
|------------------------------------|--|------------|--------|
| 10 X 8 ENCLOSURE PIPE MOUNTING KIT |  |            |        |
| PROD DEPT                          | <b>TWR Lighting, Inc.</b><br><i>Enlightened Technology</i> <b>WORK</b> |            |        |
| SERV DEPT                          |  |            |        |
| ENGINEER                           |  |            |        |
| DRAWN BY                           | E.A.SALAZAR  | SHEET SIZE | B      |
| DATE                               | 10/06/2011   | SCALE      | N.T.S. |
|                                    |  | SHEET QTY. | 1 OF 1 |
|                                    |  | DWG. NO.   | 100886 |

08/14/2013 (B) UPDATED DRAWING  
DATE: LTR. REVISION

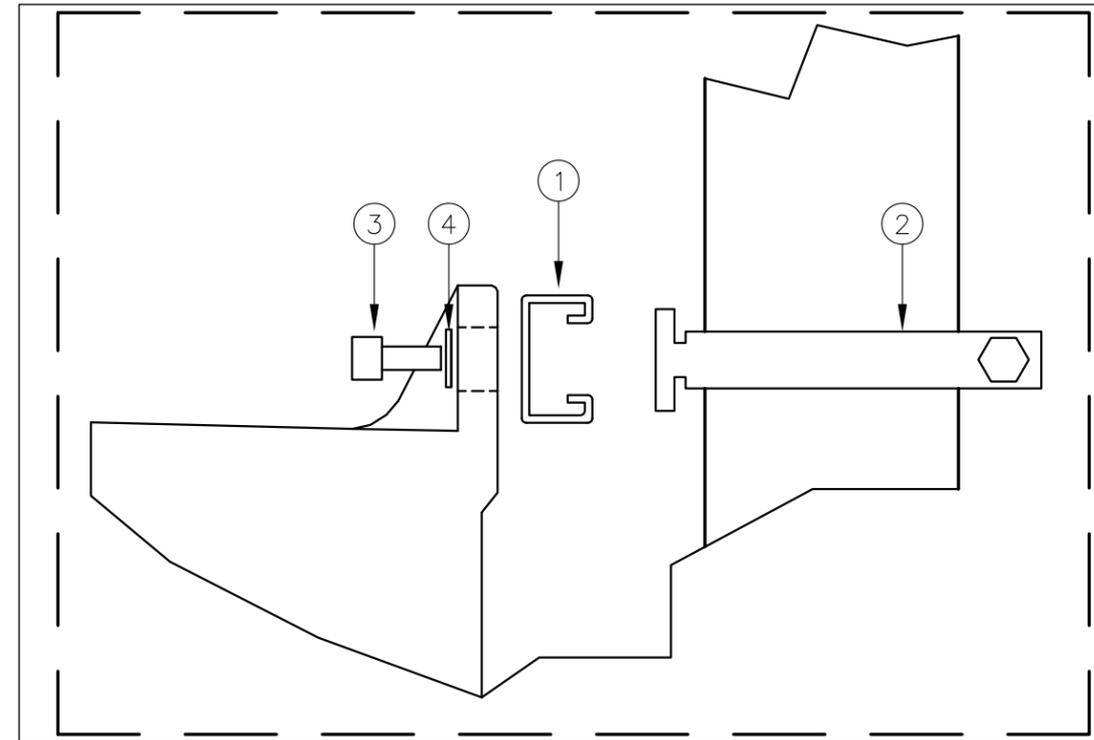
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| ITEM NO. | QTY. | TWR PART NO. | DESCRIPTION                   |
|----------|------|--------------|-------------------------------|
| 1        | 2    | 100889       | 12X10 B1400 UNISTRUT          |
| 2        | 2    | RIGD200EG    | 2" UNISTRUT PIPE CLAMP & BOLT |
| 3        | 4    | 1420X12      | 1/4-20 HEX HEAD               |
| 4        | 4    | 14FW         | 1/4 FLAT WASHER               |

\* = ITEM RIGD200EG CLAMP TO BE USED TO MOUNT ITEM 100889(UNITSTRUT) TO 2" PIPE.  
 \*\*FOR A 4" PIPE USE PART RIDG400EG

ASSEMBLY DETAIL



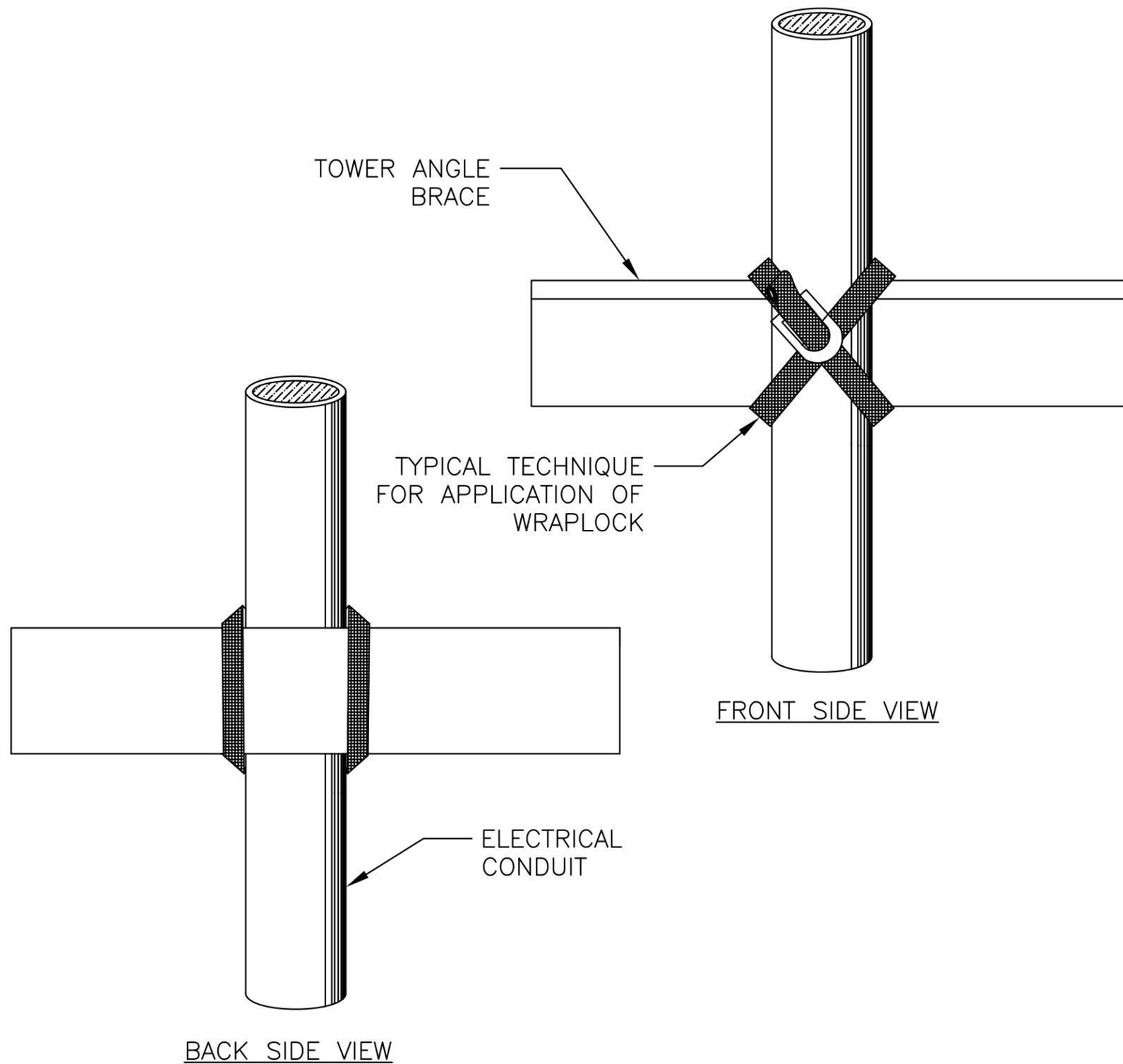
# 12X10MTKIT

12X10 ENCLOSURE PIPE MOUNTING KIT

|           |  |            |            |
|-----------|--|------------|------------|
| PROD DEPT | <b>TWR Lighting, Inc.</b><br><i>Enlightened Technology</i> | SHEET SIZE | SHEET QTY. |
| SERV DEPT |  | B          | 1 OF 1     |
| ENGINEER  |  |            |            |
| DRAWN BY  | E.A.SALAZAR  | SCALE      | N.T.S.     |
| DATE      | 10/06/2011   | DWG. NO.   | 100888     |

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08/14/13 (A) M.P. UPDATED DRAWING



## DIRECTIONS FOR USING WrapLock

CUT OFF BAND TO PROPER LENGTH.  
(SEE TABLE ON COVER OF BOX)

1.— PASS ONE END THROUGH YOKE AND BEND BACK ABOUT 1 1/2" AND FLATTEN DOWN.



2.— PASS BAND AROUND WORK AND THROUGH YOKE.



3.— REPEAT AND PASS END THROUGH A SECOND TIME, DRAW UP FREE END SNUGLY WITH PLIERS.



4.—



INSERT FREE END IN SLOT OF RATCHET.

5.—



TURN DOWN UNTIL CLAMP IS TIGHT.

6.— BACK OFF SLIGHTLY TO REMOVE RATCHET. CLAMP IS NOW SECURELY LOCKED.

### TO REMOVE WrapLock

UNCOIL END WITH RATCHET. PRESS DOWN AT POINT WHERE BAND METAL HAS BEEN FORCED THROUGH CURVED PART OF YOKE.

### WRAPLOCK FASTENING DETAIL

|          |  |                 |                      |
|----------|--|-----------------|----------------------|
| ENGINEER | <b>TWR Lighting, Inc.</b> <i>Enlightened Technology®</i> |                 |                      |
| APPROVED |  |                 |                      |
| APPROVED |  |                 |                      |
| APPROVED | DRAWN BY<br>M. PETERMAN                                  | SHEET SIZE<br>B | SHEET QTY.<br>1 OF 1 |
| APPROVED | DATE<br>05/01/2014                                       | SCALE<br>N.T.S. | DWG. NO.<br>100984   |

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