

TWR Lighting, Inc. **MARK**[®]

Enlightened Technology[®]

10810 W. LITTLE YORK RD., #130 HOUSTON, TX 77041-4051
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 # AA0XFERMLED

SERIAL # _____

PURCHASE DATE _____

PURCHASED FROM _____

TWR Lighting, Inc. **MARK**

Enlightened Technology

AA0XFERMLED CONTROLLER

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WARRANTY & RETURN POLICY

RETURN MATERIAL AUTHORIZATION (RMA) FORMS

TWR Lighting, Inc. **MARK**

Enlightened Technology

AA0XFERMLED CONTROLLER

APPENDIX

| | |
|--|-----------------|
| CHASSIS/SCHEMATIC LAYOUT | 1209-R (REV E) |
| TROUBLESHOOTING FLOW CHART | 1209-F (REV A) |
| LED CURRENT SENSOR RELAY | 101088 (REV B)) |
| OL2VLED2 (L810 DOUBLE OBSTRUCTION LIGHT) | 100658 (REV F) |

TWR Lighting[®], Inc. **MARK[®]**

Enlightened Technology[®]

AA0XFERMLED CONTROLLER

1.0 GENERAL INFORMATION

The TWR Lighting[®], Inc. (TWR[®]) model AA0XFERMLED is for structures up to 150' above ground level (AGL). An OL-2 fixture should be placed at the top of the obstruction.

One (1) LED bulb within the OL-2 LED fixture will burn steady. When the main lamp extinguishes, the secondary lamp will light.

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

Power supplies to controller shall be 120 – 240V AC 50 / 60Hz.

AA0XFERMLED CONTROLLER

2.0 INSTALLATION INSTRUCTIONS

2.1 MOUNTING THE CONTROLLER CABINET

(Refer to Drawing 1209-R)

2.1.1 The power supply control cabinet can be located at the base of the structure or on an equipment building. Power wiring to the control cabinet should be in accordance with local methods and National Electrical Codes (NEC).

2.1.2. 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 The wiring from the service breaker and the OL-2 LED fixture should enter the control housing through the $\frac{3}{4}$ “entrances.” Inside the housing, the connections will be made on the terminal strip. These connections are made as follows:

2.2 POWER WIRING

(Refer to Drawing 1209-R)

2.2.1 Power wiring to the control cabinet should be in accordance with local methods and electrical codes.

2.2.2 Circuit breaker needs to be rated at 5 amps.

2.2.3 Connect 120 - 240V AC “HOT” to terminal block marked “L.”

2.2.4 Connect neutral to one (1) of the terminals marked “N.”

2.3 LED SIDELIGHT WIRING

(Refer to Drawing 1209-R)

2.3.1. Connect the wire from the main bulb to the terminal block marked “ML.”

2.3.2 Connect the wire from the secondary lamp to the terminal block marked “SL.”

AA0XFERMLED CONTROLLER

2.4 LED OBSTRUCTION LIGHTS ALARM WIRING

(Refer to Drawing 1209-R)

2.4.1 Connect to Module M1, terminal #12, for normally closed (or) terminal #14, for normally open monitoring.

2.4.2 Connect Common (C) to terminal #11.

2.4.3 Alarm will occur, only when the main sidelight burns out.

AA0XFERMLED CONTROLLER

3.0 THEORY OF OPERATION

120 - 240V AC enters the controller from the circuit breaker panel. Line sits at the 6390-FAA photocell waiting to be switched on. When the 6390-FAA photocell is activated, line (SSR) is energized. This can also be accomplished by covering the photocell.

Line (SSR) is then sent to module M1. M1 is the current sensor for the main LED lamp. If the main LED lamp burns out, the module M1 will transfer to the secondary LED lamp.

LED RED OBSTRUCTION LIGHTING

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

SPECIAL TOOLS REQUIRED: NONE

L-810 LED sidelight REPLACEMENT

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

CONTROLLER

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

PHOTOCELL

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

AA0XFERMLED CONTROLLER

4.0 MAJOR COMPONENTS PARTS LIST

| QTY | PART NUMBER | DESCRIPTION |
|------------|---|--------------------------|
| 1 | 6390-FAA (This replaces the 102FAA Photocell) | 120 – 240V AC PHOTOCCELL |
| .5 | TERMBLK10 | TERMINAL BLOCK |
| 1 | RM22JA31MRSP01 | LED CURRENT SENSOR (M1) |

AA0XFERMLED CONTROLLER

5.0 SUGGESTED SPARE PARTS LIST

| QTY | PART NUMBER | DESCRIPTION |
|------------|---|-------------------------|
| 1 | 6390-FAA (This replaces the 102FAA Photocell) | 120 – 240V AC PHOTOCELL |
| 1 | RM22JA31MRSP01 | LED CURRENT SENSOR (M1) |

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AA0XFERMLED 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 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.

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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[®], INC., 10810 W. LITTLE YORK RD., #130, HOUSTON, TX 77041-4051, 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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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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Warranty & Return Policy (continued)

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.

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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AA0XFERMLED 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: 10810 W. LITTLE YORK RD., #130 HOUSTON, TX 77041-4051

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RETURN MERCHANDISE AUTHORIZATION (RMA) FORM

RMA#: _____ **DATE:** _____

CUSTOMER: _____

CONTACT: _____ **PHONE NO.:** _____

ITEM DESCRIPTION (PART NO.): _____

MODEL NO.: _____ **SERIAL NO.:** _____

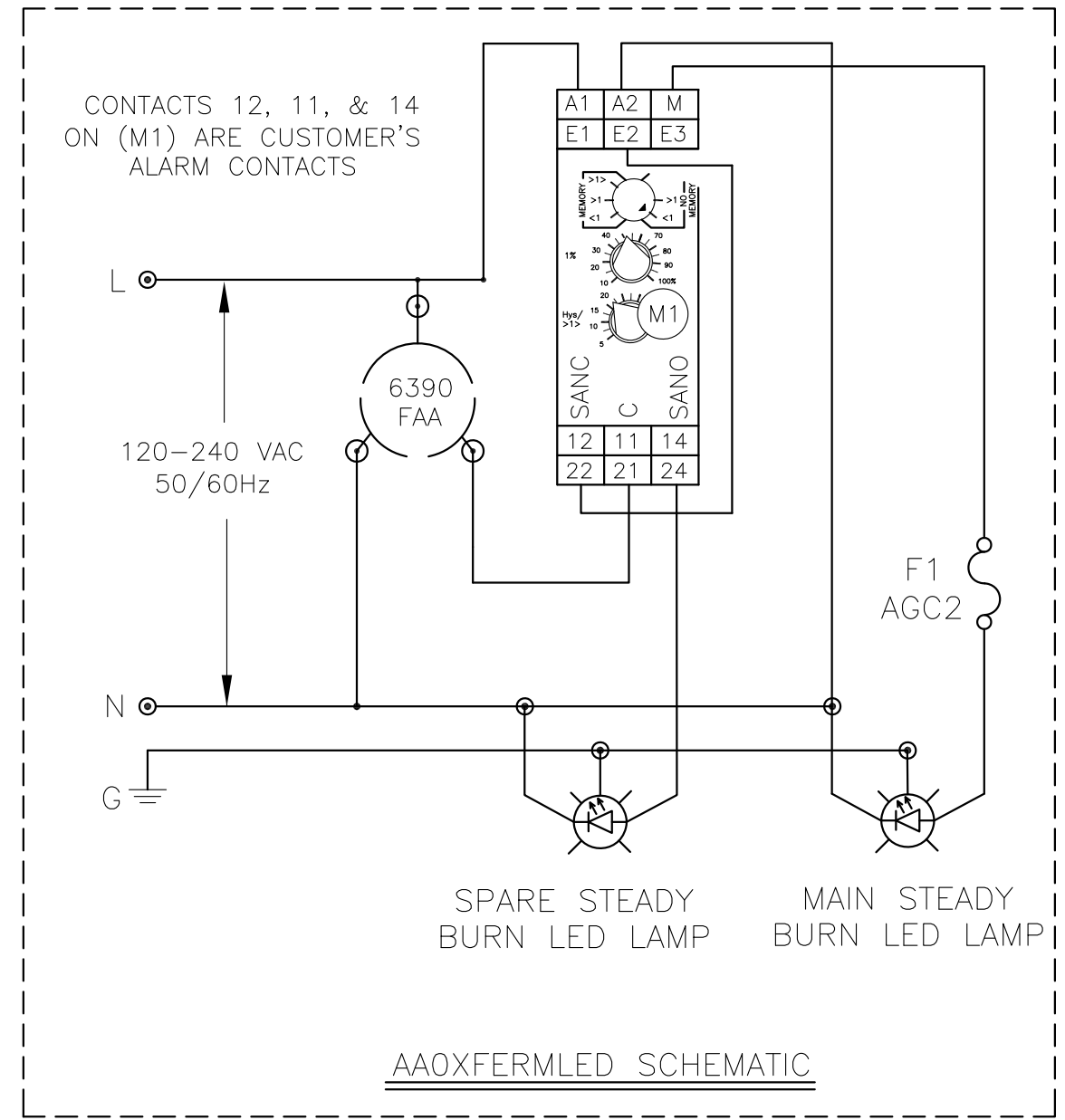
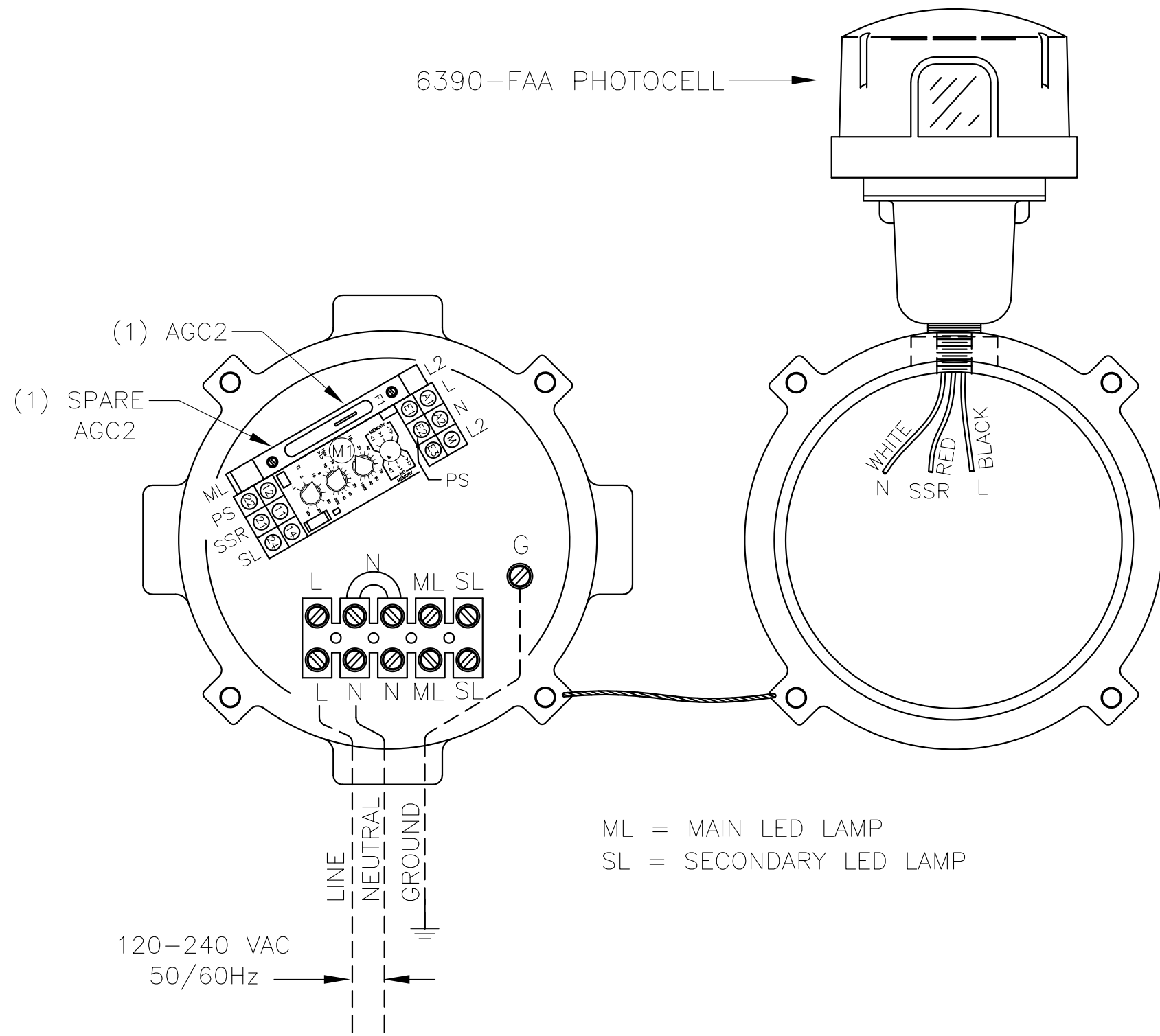
ORIGINAL TWR INVOICE NO.: _____ **DATED:** _____

DESCRIPTION OF PROBLEM: _____

SIGNED: _____ **DATE NEEDED:** _____

RETURN ADDRESS: _____

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

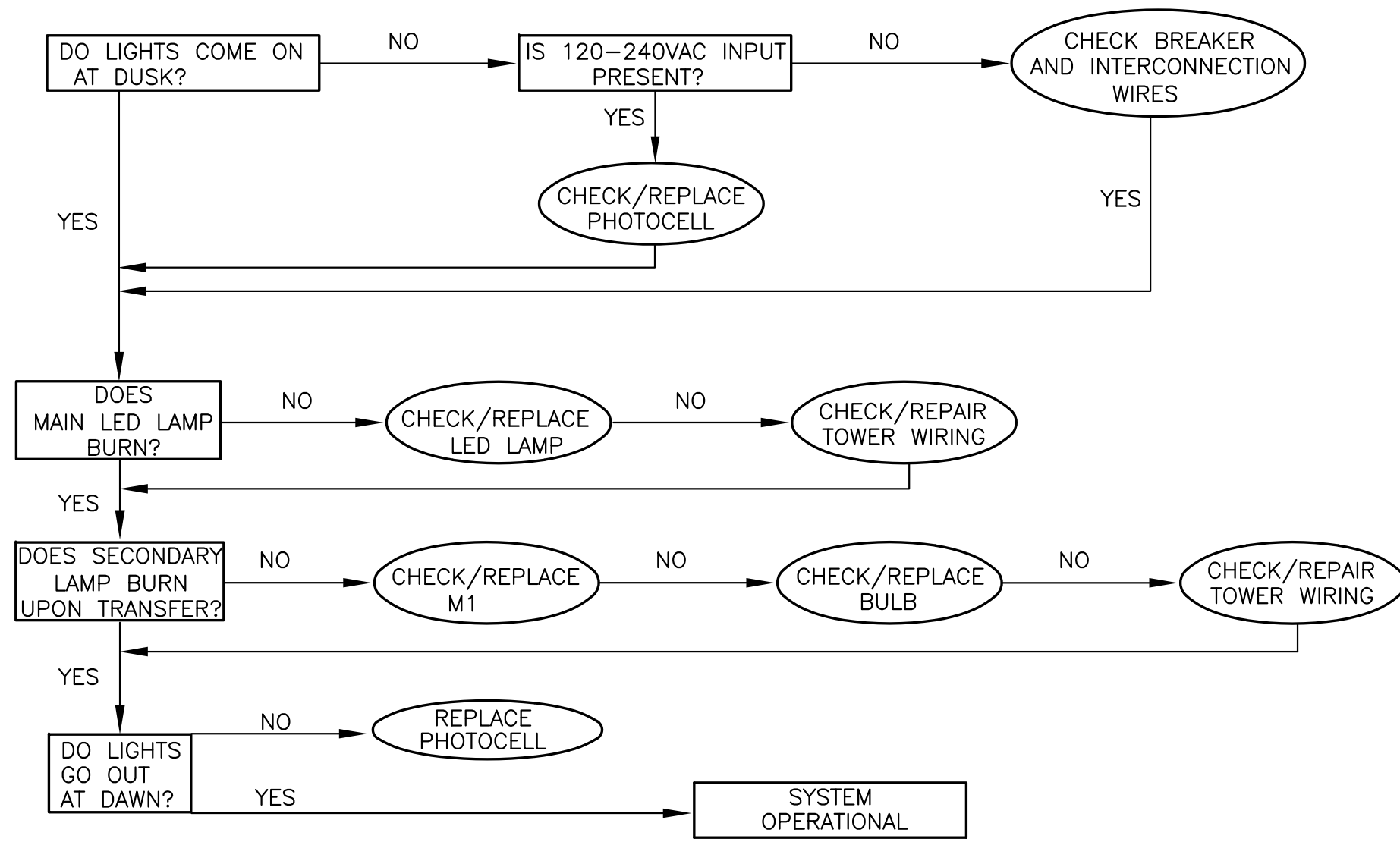


- NOTES:
- 1) WIRES ARE CONNECTED LETTER TO LETTER. FOR EXAMPLE L TO L.
 - 2) XFER USED FOR LAMPS DRAWING BETWEEN 3MA AND 1AMP. TYPICAL USED FOR LED LIGHT FIXTURES.
 - 3) WHEN MAIN LAMP FAILS, M1 NEEDS TO BE RESET AFTER RELAMP.

| AOXFERMLED CONTROLLER | | | |
|-----------------------|--|------------|------------|
| PROD DEPT | TWR Lighting, Inc. Enlightened Technology® WORK | | |
| SERV DEPT | | | |
| ENGINEER | | | |
| DRAWN BY | E.A.SALAZAR | SHEET SIZE | SHEET QTY. |
| DATE | 11/19/04 | SCALE | N.T.S. |
| | | DWG. NO. | 1209-R |

| | | |
|------------|------|-------------------|
| 02/09/2022 | (F) | M1 SSR CORRECTION |
| 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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TROUBLESHOOTING FLOW CHART
AAOXFERMLED CONTROLLER

| | | | |
|-----------|--|------------|------------|
| PROD DEPT | TWR Lighting, Inc. <i>Enlightened Technology</i> | | |
| SERV DEPT | | | |
| ENGINEER | | | |
| DRAWN BY | E.A.SALAZAR | SHEET SIZE | SHEET QTY. |
| DATE | 11/19/2004 | SCALE | N.T.S. |
| | | DWG. NO. | 1209-F |

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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| | | | |
|----------|------|--------|-----------------|
| 07/24/08 | A | L.A.S. | UPDATED VOLTAGE |
| DATE: | LTR. | | REVISION |

AC UNITS CURRENT MEASUREMENT RM22JA31MRSP01

120VAC PRODUCT SPECIFIC SETTINGS

| QTY. | PART NO. | INPUT | #1 | #2 | #3 | #4 | #5 |
|------|--------------|-------|-----|-----------|----|----|-----|
| 1 | OL1_LED2 | E2 | *<1 | 30 | 20 | 30 | OFF |
| 2 | OL1_LED2 | E2 | *<1 | 50 | 20 | 30 | OFF |
| 3 | OL1_LED2 | E3 | *<1 | 15 | 20 | 30 | OFF |
| 4 | OL1_LED2 | E3 | *<1 | 25 | 20 | 30 | OFF |
| 6 | OL1_LED2 | E3 | *<1 | 35 | 20 | 30 | OFF |
| 8 | OL1_LED2 | E3 | *<1 | 45 | 15 | 30 | OFF |
| 10 | OL1_LED2 | E3 | *<1 | 60 | 10 | 30 | OFF |
| 1 | LEDBEAON2 | E3 | *<1 | 20 | 20 | 30 | OFF |
| 1 | LEDBEAON2A | E3 | *<1 | 15 | 20 | 30 | OFF |
| 1 | LEDBEAON2(T) | E3 | *<1 | 25 | 20 | 30 | OFF |
| 1 | STLDBEAON2 | E3 | *<1 | 20 | 20 | 30 | OFF |
| 1 | STLDBEAON2A | E3 | *<1 | 15 | 20 | 30 | OFF |
| 2 | STLDBEAON2A | E3 | *<1 | 25 | 20 | 30 | OFF |
| 2 | STLDBEAON2A | E3 | *<1 | 25 | 20 | 30 | OFF |

*NO MEMORY

FUNCTIONS

- 1) Configuration: Selection of operation mode (<1 / >1 / >1<) with or without memory.
- 2) Adjustment of current threshold as % of setting range.
- 3) Hysteresis adjustment from 5% to 50%.
- 4) Time Delay adjustment from 0.1 to 30sec.
- 5) Diagnostic button.
- 6) Yellow indicator light (**See conditions below**)
- 7) Dial Pointer (Green) LED
 - Steady green LED indicates that supply to the RM22 is present
 - Flashing green LED indicates a setting has been changed that requires a power cycle.

YELLOW LED CONDITIONS

NOTE: () ASTERISK INDICATES LED CONDITIONS OPERATE OPPOSITE FROM RM22JA31MR MODULE

*

- ➔ Steady Burn Fixtures
 - Yellow light *off : Normal condition (no alarm)
 - Yellow light flashing : Undercurrent condition detected and time delay initiated
 - Yellow light *on : Alarm condition
- ➔ Flashing Fixtures
 - Yellow light flashing inconsistent : Normal condition (no alarm)
 - Yellow light flashing consistent : Under current condition detected and time delay initiated

NOTE : To help troubleshoot or to set the sense current, turn the time delay to 0sec. Adjusting the current setting should only be done if it is known that all the lights are functioning. For Steady Burn adjust the current until the yellow LED comes *off, and the relay is not dropping in and out. For Flashing Fixtures adjust the current setting until the yellow light starts to flash. This is the normal condition setting. Return the time delay back to 30sec.

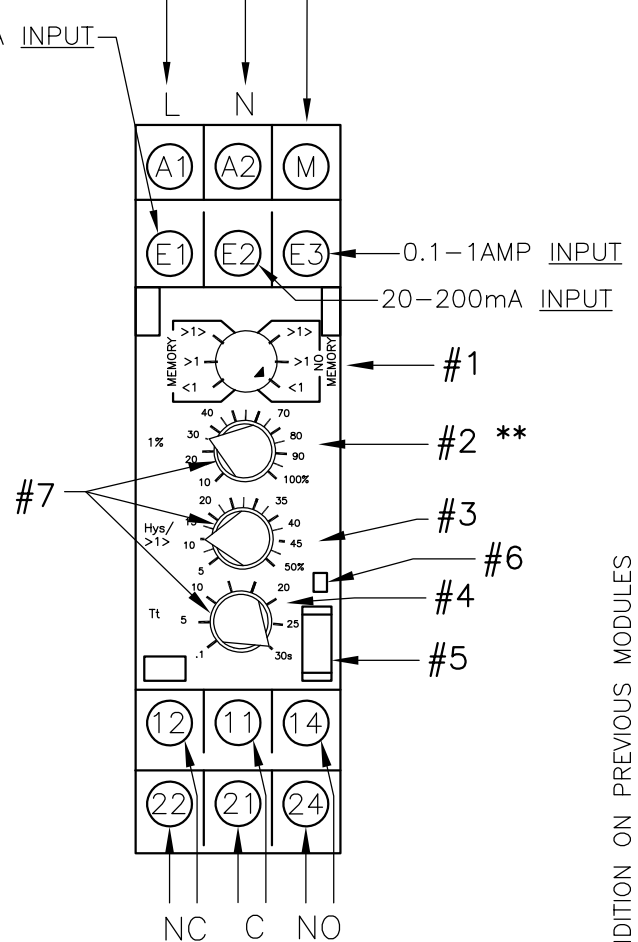
- Yellow light *on : Alarm condition

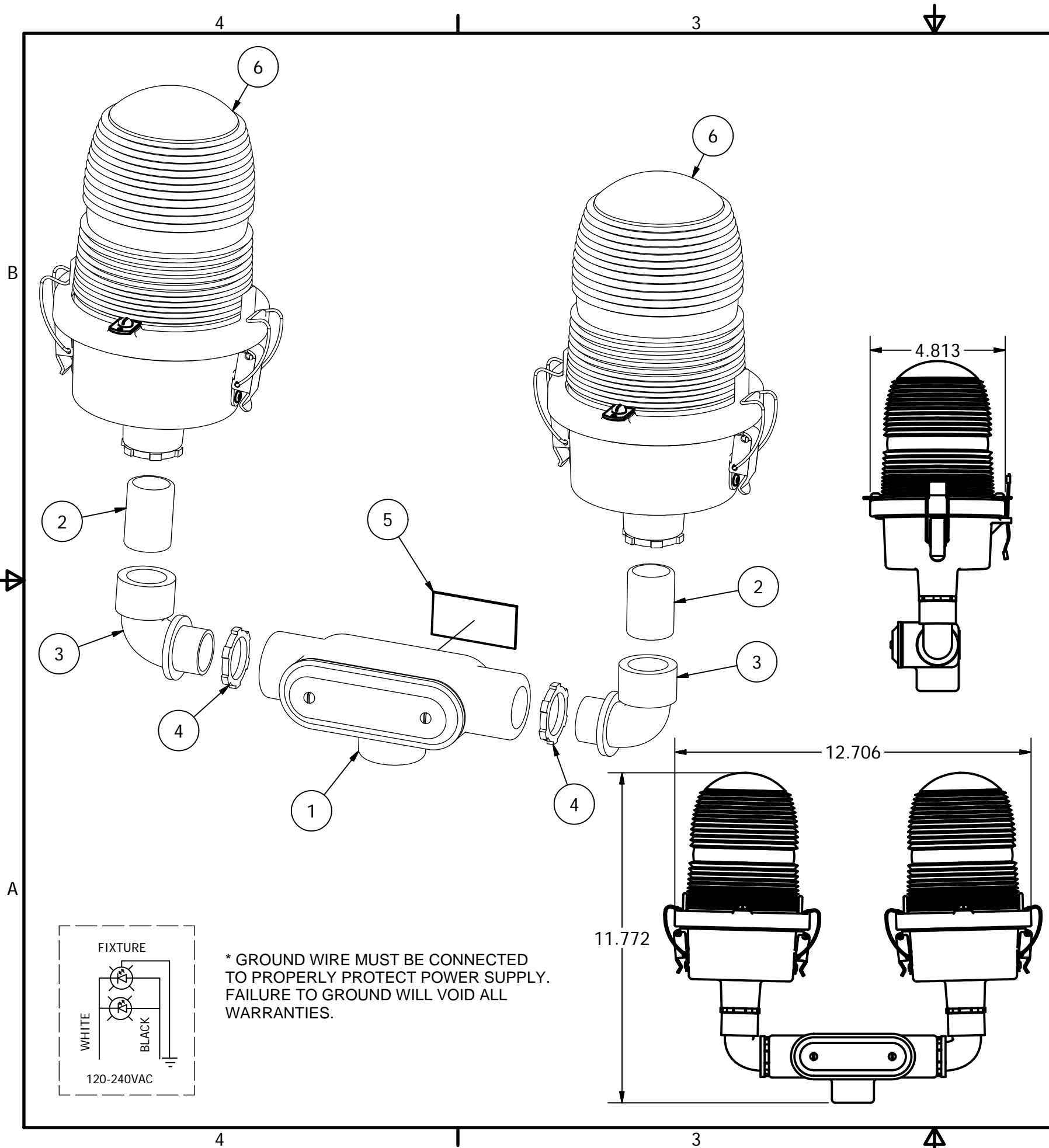
** Due to current draw tolerances slight adjustments to setting #2 may be needed for proper alarming.

CONTROL VOLTAGE INPUT

4-40mA INPUT

OUTPUT TO LOAD





| Parts List | | | |
|------------|-----|--------------|--|
| ITEM | QTY | STOCK NUMBER | DESCRIPTION |
| 1 | 1 | T27CG | T27 CONDULET W/COVER & GSKT |
| 2 | 2 | 34CLNP | 3/4" GALV CLOSE NIPPLE |
| 3 | 2 | EL3490 | 3/4" 90 DEGREE SHORT ELBOW GALV |
| 4 | 5 | A314 | 3/4" CONDUIT LOCKNUT GALV. |
| 5 | 1 | 100680 | OL1/2 LED SERIAL # LABEL |
| 6 | 2 | OL1VBH34LED2 | FAA OL16LED 120/240VAC VALOX LED BH SL 3/4 |
| * 6.1 | 1 | 105RV | VALOX SINGLE SIDELIGHT BODY |
| * 6.2 | 1 | 106V | VALOX LENS HOLDER RING |
| * 6.3 | 2 | HC255SS | SIDELIGHT LATCH |
| * 6.4 | 1 | OLG2 | OL1 6 LED GASKET |
| * 6.5 | 16 | 18PRSS | 1/8 X .45 SS POP RIVET |
| * 6.6 | .5 | 7X7SS | 1/16 HOL 7X7 S.S. WIRE |
| * 6.7 | 2 | A1A | STAKON CRIMP |
| * 6.8 | 1 | A314 | 3/4" CONDUIT LOCKNUT GALV. |
| * 6.9 | 3 | 12V245 | OL LENS CLIP |
| * 6.10 | 3 | 832X14PH | 8-32 X 1/4" PH SS SLOT SCREW |
| * 6.11 | 1 | AP100846 | SIDELIGHT LENS CLEAR ACYRLIC |
| * 6.12 | 1 | PS90-260/24 | POWER SUPPLY |
| * 6.13 | 6 | STE01-047 | LED VERTICAL PCB |
| * 6.14 | 1 | 100588 | OL 6LED BASE PLATE |
| * 6.15 | 1 | 100591 | OL 6LED STAR DISK |
| * 6.16 | 6 | STD05008 | LED EMITTER |
| * 6.17 | 1 | A10290 | 5/32" X 11/32" RUBBER GROMMET |
| * 6.18 | 3 | 632X14PHH | 6-32 X 1/4" PH PH SCREW |
| * 6.19 | .3 | 20RED | #20AWG RED BELDON WIRE |
| * 6.20 | 1 | 14GREEN | #14AWG GREEN BELDON WIRE |
| * 6.21 | 1 | 14RB6R | RING TERMINAL (GROUND WIRE) |
| * 6.22 | 3 | WIRENUTRED | RED WIRE NUT FOR #8 TO #12 WIRE |

* = ITEMS NOT SHOWN

| | | | |
|-----------------------|----------|---|----------|
| DRAWN gsebek | 6/9/2005 | TWR Lighting, Inc. WARK <i>Enlightened Technology®</i> | |
| CHECKED | | | |
| QA | | TITLE | |
| MFG | | OL2VLED2 FAA-OL16LED 120-240VAC DOUBLE VALOX LED SL (L810 LED DOUBLE OBSTRUCTION LIGHT) | |
| APPROVED | | SIZE B | REV F |
| REVISION JZAMORANO | 11/07/14 | DWG NO 100658 | SCALE |
| | | SHEET 1 OF 1 | |