

TWR Lighting, Inc. HARK

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 THE FORM COMPLETELY. FILE IN A SAFE PLACE. IN THE EVENT YOU EXPERIENCE PROBLEMS WITH OR HAVE QUESTIONS CONCERNING YOUR UNIT, THE FOLLOWING INFORMATION IS NECESSARY TO OBTAIN PROPER SERVICE AND PARTS.

MODEL #	<u>DMCIP-12VDC UNIT</u>
SERIAL #	<u>_____</u>
PURCHASE DATE	<u>_____</u>
PURCHASED FROM	<u>_____</u>

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TABLE OF CONTENTS

WARRANTY & RETURN POLICY	6
<i>RMA-FORM</i>	10
1 INTRODUCTION	11
1.1 User Interface functions.....	13
2 SAFETY PRECAUTIONS	14
3 UNPACKING	15
3.1 RECEIVING THE EQUIPMENT	15
3.2 HANDLING.....	15
4 PRE INSTALLATION TEST	15
4.1 Materials (not provided)	15
4.2 Test Equipment	16
5 INSTALLATION	16
5.1 MECHANICAL INSTALLATION.....	16
5.2 ELECTRICAL INSTALLATION	17
6 DRAWINGS	18

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DMCIP12VDC

NOTICE

This instruction manual provides information about installation of the TWR Lighting, Inc. /Hark DMCIP Monitoring Unit and its variations.

The manual has been written for installation, user and first line maintenance personnel.

For information about required adjustments or repair not instructed in this manual, please contact TWR Lighting, Inc. /Hark.

TWR Lighting Inc.

c/o TWR Lighting, Inc.
10810 W. LITTLE YORK RD. #130
Houston, Texas
77041-4051 USA

Telephone: 713 973-6905
Fax: 713 973-9352
Toll Free: 800 661-8606

E-mail: techsupport@twrlighting.com

The use of Non-original manufacturer parts which are not approved by TWR Lighting, Inc./Hark and may invalidate the warranty as well as compliance with requirements as published in the ICAO Annex 14 Volume 1 standards, FAA Advisory Circulars AC70/7460-1K, AC150/5345-43G and AC150/5345-1.

DISCLAIMER

While every effort has been made to provide a complete, up-to-date, accurate manual, no liability claims for damages resulting from any errors or omissions in this manual will be accepted by TWR Lighting, Inc. /Hark

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TWR Lighting, Inc. & Hark[®] are registered trademark names. TWR Lighting, Inc. & Hark logos are all trademarks and property of TWR Lighting, Inc. and are recognized and acknowledged as such by TWR Lighting, Inc.

THE SUPPLIER

This equipment has been manufactured and sold to you by TWR Lighting, Inc. /Hark.

WARNING!

The **WARNING!** sign denotes a hazard. It calls attention to a procedure or practices which if not correctly performed or adhered to could result in injury or loss of life. Do not proceed beyond a **WARNING!** sign until the indicated conditions are fully understood.

CAUTION!

A **CAUTION!** sign denotes a hazard. It calls attention to a procedure or practices, which if not correctly performed or adhered to, could result in damage or destruction of part or of all the equipment. Do not proceed beyond a **CAUTION!** sign until the indicated conditions are fully understood and met.

NOTE!

A **NOTE!** sign denotes an important piece of information to keep in mind.

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:

- Improper Installation or Operation
- Misuse
- Abuse
- Unauthorized or Improper Repair or Alteration
- Accident or Negligence in Use, Storage, Transportation, or Handling
- Any Acts of God or Nature
- **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 150-5345-43H.

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., 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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DMCIP12VDC

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 **\$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.
- 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 **\$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.

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

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

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

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DMCIP12VDC

Warranty & Return Policy (continued)


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

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DMCIP12VDC

RMA-FORM

		<p>RETURN MATERIAL AUTHORIZATION FORM</p>
<p>Please send this form together with the defect product to TWR Lighting, Inc.</p>		
TWR Lighting, Inc. reference RMA #	:	
Date (mm-dd-yyyy)	:	
Number of pages	:	1 of
Customer name	:	
Contact person	:	
Delivery address	:	10810 W. LITTLE YORK RD. #130 HOUSTON, TX 77041-4051
Department	:	Service
Telephone	:	(713) 973-6905
Fax	:	(713) 973-9352
Dear customer,		
<p>Please fill in this form completely and return it to the above mentioned fax number without indicating a RMA number. The RMA number will be immediately generated by us. Please complete the following questions. Use one sheet for each item that is returned.</p>		
Customer reference RMA nr.	:	
Site location	:	
Product type	:	
Serial number	:	
Reason for return delivery	:	
Initial TWR Lighting, Inc. PO (order) number	:	
Warranty claimed	:	Yes / No
Replacement product needed in advance?	:	Yes / No
<p>Inspection costs in the amount of \$75.00 will be charged for each product. When a replacement product is ordered, the inspection cost will be calculated in the price.</p>		

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DMCIP12VDC

1 INTRODUCTION

The DMCIP Alarm Monitor is a highly sophisticated standalone product that delivers quality monitoring at a reasonable price. Using TCP/IP, Verizon wireless modem or AT&T wireless modem to deliver alarms using *Simple Network Management Protocol (SNMP)*, the Internet-standard protocol for managing devices on IP networks. Refer to DMCIP-SNMP monitoring manual for more details.

The Hark DMCIP contains 10 digital inputs for monitoring a variety of alarm conditions. The inputs are completely configurable (Normally Open or Normally Closed). There is a separate qualify time for detecting the Active/Alarm and Inactive/Restore conditions. Once qualified, both conditions can be programmed to trigger an Restore, Event, or an Alarm. Each input is configured with a 25-character text name for identification along with a label for each state of Active or Inactive. The DMCIP can also monitor an 110VAC or 5-24VDC Photocell via P3 on DMCIP as described in detail in the following pages and drawings of this manual.

The DMCIP is designed to send SNMP Traps to an existing NMS management system or can be monitored by TWR Lighting, Inc. A DMCIP SNMP Configuration Utility is supplied to allow easy configuration and interrogated through the on-board Ethernet or modem wireless interface. With this interface the alarm conditions you set can be viewed at any time. Other alarms generated are AC Power Failure, Cabinet Door, Battery Low / Charging and High / Low Temperature alarms.

DMCIP Function Description	Contacts	Connector number	Pinout
SNMP Interface for programming and alarm transmission			
LED indications for alarm input state			
Ethernet connectivity with optional cellular backhaul		M1	
Internal RTC for time stamping events			
DC Power input to the DMCIP module	4	P5	1 = 0V 2 = 12V 3 = B- 4 = B+
Analog ADC 0-30VDC monitoring inputs	4	P6	1 = C 2 = A2 3 = C 4 = A1
Auxiliary Power to modem (12VDC)	2	P7	1 = 0V 2 = 12V

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DMCIP12VDC

DMCIP Function Description			
Cabinet Switch input	2	P8	1 = C 2 = CAB
DMCIP to CIP400 communications - for TWR Lighting, Inc. use only	3	P9	1 = S 2 = B 3 = A
Isolated inputs (1-5) to accommodate customer alarm points [see note 1]	6	P1	1 = INP1 2 = INP2 3 = INP3 4 = INP4 5 = INP5 6 = C
Isolated inputs (6-10) to accommodate customer alarm points [see note 1]	6	P2	1 = INP6 2 = INP7 3 = INP8 4 = INP9 5 = INP10 6 = C
External Photocell monitoring inputs. Supports 0-30VDC (solar and resistive photocell connections) and 120VAC photocells. [see note 2]	4	P3	1 = C 2 = PR 3 = PN 4 = PL
Form-C output relays. Isolated normally open and normally closed contacts.	6	P4	1 = NC1 2 = C1 3 = NO1 4 = NC2 5 = C2 6 = NO2

Note 1 : Customer alarm inputs (P1 / P2)

Opto-isolated dry contact alarm inputs. Each input has an LED above the terminal that will indicate if the input is currently in the closed (lit) or open state. This can be used to help see the state of the input during troubleshooting.

Each group of inputs (5 per terminal block) shares a common (C) or ground connection.

Note 2 : External Photocell monitoring (P3)

The DMCIP can be configured to monitor an external photocell. If the photocell is a low voltage or DC powered photocell, connect it to P3 pins 1 (common) and 2 (photocell output 0-30VDC). A 120VAC photocell would connect to P3 pins 3 (photocell neutral) and 4 (switched photocell line / hot / SSR).

1.1 User Interface functions

- 10 Inputs for external alarm monitoring
- AC power monitoring
- Cabinet temperature
- Cabinet Door Switch
- Controls the day, twilight or night light intensity mode setting and the color of the lights in the system according to the ambient light conditions.
- Real time clock.
- Customer alarm inputs.
- Smart 4 hour battery backup and charger with low voltage disconnect protection.
- Battery Voltage LOW/OK
- Two analog inputs for monitoring 0-30VDC connections.
- Two Form-C relay outputs 120/240VAC 2amps max.
- Optional external photocell monitoring.
- Ability to remotely test stations for failure alarm verification.
- Optional PC based NOC software

CAUTION!

It is assumed that the incoming power supply is suitably protected at the site distribution board.

2 SAFETY PRECAUTIONS

Although TWR Lighting[®], Inc. (TWR[®]) has incorporated practical safety precautions, always exercise extreme caution when dealing with electrical equipment. The following general safety precautions must be observed during all phases of operation service and repair of this equipment.

Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture and intended use of this equipment. TWR[®] assumes no liability for the customers' failure to comply with these requirements.

- Do not touch the components of the electrical circuit while the system is in operation. Never adjust or change the settings while the system is "on".
- Do not replace components with the power connected.
- Always wait for at least 2 minutes after disconnecting the power source before opening or working on any part of the system, because dangerous voltages can be stored, even if the power is switched off. Observe the flashing power indication LED in the light.
- To prevent fire or shock hazard, do not expose the device to rain or moisture while opened.
- Should any solid objects or liquid fall into the device while opened, disconnect the system immediately and have it checked by qualified personnel before any further use.
- Do not service or maintain the system when distracted or short of sleep.
- Maintenance and repair of the opened device under voltage should be avoided if at all possible and when required, should be carried out only by a skilled person who is aware of the hazards involved.
- Do not install substitute parts or perform any unauthorized modification to the equipment.

WARNING: HIGH VOLTAGE!

The device operates at voltage levels that constitute a personnel safety hazard. Personnel must observe safety regulations at all times.

3 UNPACKING

3.1 RECEIVING THE EQUIPMENT

Before unpacking, check if the packing shows any signs of damage.

After opening, check the contents against the delivery slip. All items should be inspected separately for visible damage. Report any damage or loss claims immediately to the freight handler and take any necessary steps to protect your rights.

3.2 HANDLING

- The device must always be handled with care.
- Labels on the outside of the package show the top and bottom.
- Do not change or remove any labels from the equipment.

4 PRE INSTALLATION TEST

If possible, it is recommended that the device is tested before it is installed on the site to confirm the correct operation.

Before starting installation inspect the unit. Open the unit and remove packing materials. Ensure components have not been dislodged or damaged in shipping. If damage has occurred, call TWR Lighting, Inc. immediately.

The device should only be tested under safe and dry conditions.

The device can be tested by simply connecting a 12VDC power supply to the connection terminals inside the device. The device should start to operate as soon as the power is supplied.

4.1 Materials (not provided)

- Black stranded wire (AC Hot)(consult your local wiring codes for proper wire size)
- White stranded wire (AC Neutral)(consult your local wiring codes for proper wire size)
- Conduit (steel galvanized)
- Conduit hardware (hangers and connectors)
- Cabinet mounting hardware
- #6 Ground wire (green insulated)
- Grounding hardware (for connecting ground wire to earth ground system)
- Telephone wire
- 20 to 26 gauge shielded stranded wire (for alarm inputs and outputs)

DMCIP12VDC

- 3/32 flat head screwdriver

4.2 Test Equipment

- Volt/Ohm meter

CAUTION!

It is assumed that the incoming power supply is suitably protected at the site distribution board.

5 INSTALLATION

- Read this manual in full before starting.
- Check if all connections are tight.
- Clean equipment externally and internally if necessary.
- Start with the mechanical installation of the devices that are appropriate for your system. Detailed information concerning the mechanical installation of a certain piece of equipment is given in the sub-chapter "Mechanical installation" of that particular piece of equipment.

NOTE!

This warranty is to be declared null and void if TWR Lighting's inspection indicates that items have not been installed according the instructions and diagrams in this manual.

When deciding on the mounting location take care to ensure sufficient space for the cable entries and to allow the hinged front cover to be opened.

5.1 MECHANICAL INSTALLATION

- Monitoring unit can be mounted inside or outside (shaded from direct sunlight) on a suitable secure vertical surface. Consideration must be given to accessibility regarding the door opening requirements.
- Cabinet/enclosure mounting dimensions are 8"-W x 12.875"-H (Holes .375") refer to DMCIP chassis drawing toward back of manual.
- Check after the mechanical installation that all bolts and nuts are fixed tight.
- Once the mechanical installation has been completed, the external cabling to the device(s) can be made.
- Make sure that the enclosure is correctly earth grounded.

5.2 ELECTRICAL INSTALLATION

The TWR® DMCIP unit requires a supply voltage use of 12VDC with a single cable run or conduit and wires.

In the next step, it is recommended that all equipment to be worked on be de-energized (turned off)

Run conduit or cable from the DMCIP to the following:

1. AC Breaker box (if not DC powered)
2. Earth ground system
3. If you are using TCP/IP connect RJ45 cable from RJ45 on DMCIP pcb to your Ethernet port.
4. All units to be monitored or controlled

Pull and connect the following wires:

AC Operation: AC Wires – consult local wiring codes for proper hook-up and wire size. Do not hook-up wires to circuit breaker until installation is complete. In the DMCIP cabinet, connect the wires to the fused and screw terminal block on the right side of the DMCIP panel.

Ground wire #6 insulated green wire – ensure the breaker box is connected to the earth ground system. Connect the #6 ground wire to the cabinet ground lug on the lower right side panel. Ensure that the lug is tightened down securely. Connect the other end to the earth ground system with mechanical connectors or cad welder connectors per NEC250-113.

DC Operation: DC Wires – In the DMCIP cabinet connect the DC Solar power wires to the terminal connector on the top left side of the pcb board E01-062 as labelled. Remove wires from power supply to E01-062 P1 terminal 5 & 6 and Connect +DC to P1 Terminal 6 / BATT+ and connect DC- (GND) to the P1 Terminal 5 / BATT – terminal.

120AC Photocell Monitoring – *Check the Drawings in section 6 to see if the light controller model being monitored has a wiring diagram to connect to the DMCIP.* Use the connection information in the drawing to help with the connection of the photocell wiring. If the DMCIP will be monitoring a 120VAC photocell install a jumper on E01-061 at the bottom of the DMCIP board P3/pin 4(PL) to P4/pin 5(C2). This jumper will allow remote night mode control. This jumper does not have to be installed if the remote night override function is not required. Connect the switched Line / Hot wire (usually red) from the photocell to SSR on Terminal (labeled SSR). The SSR terminal should read ~110VAC in reference to Neutral when the photocell is covered.

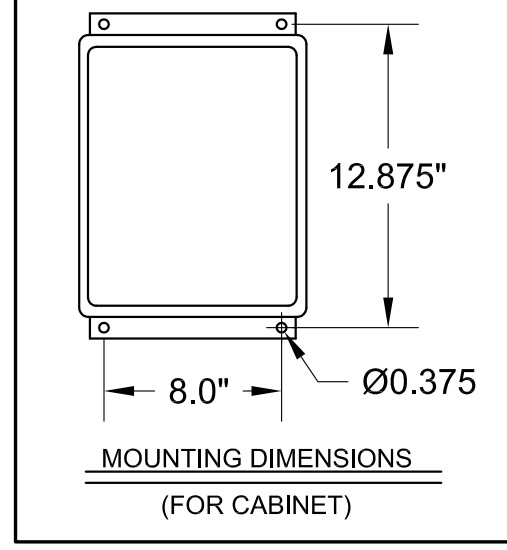
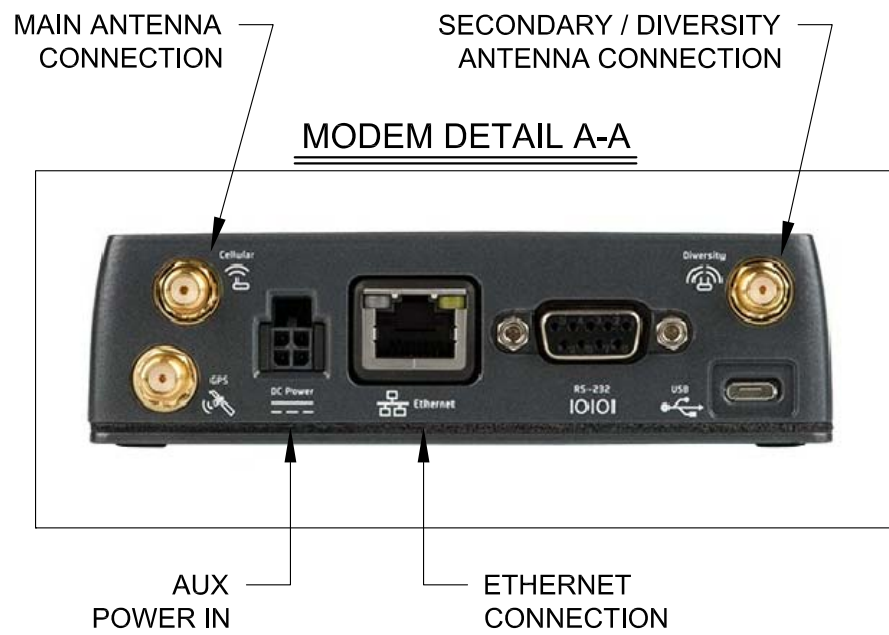
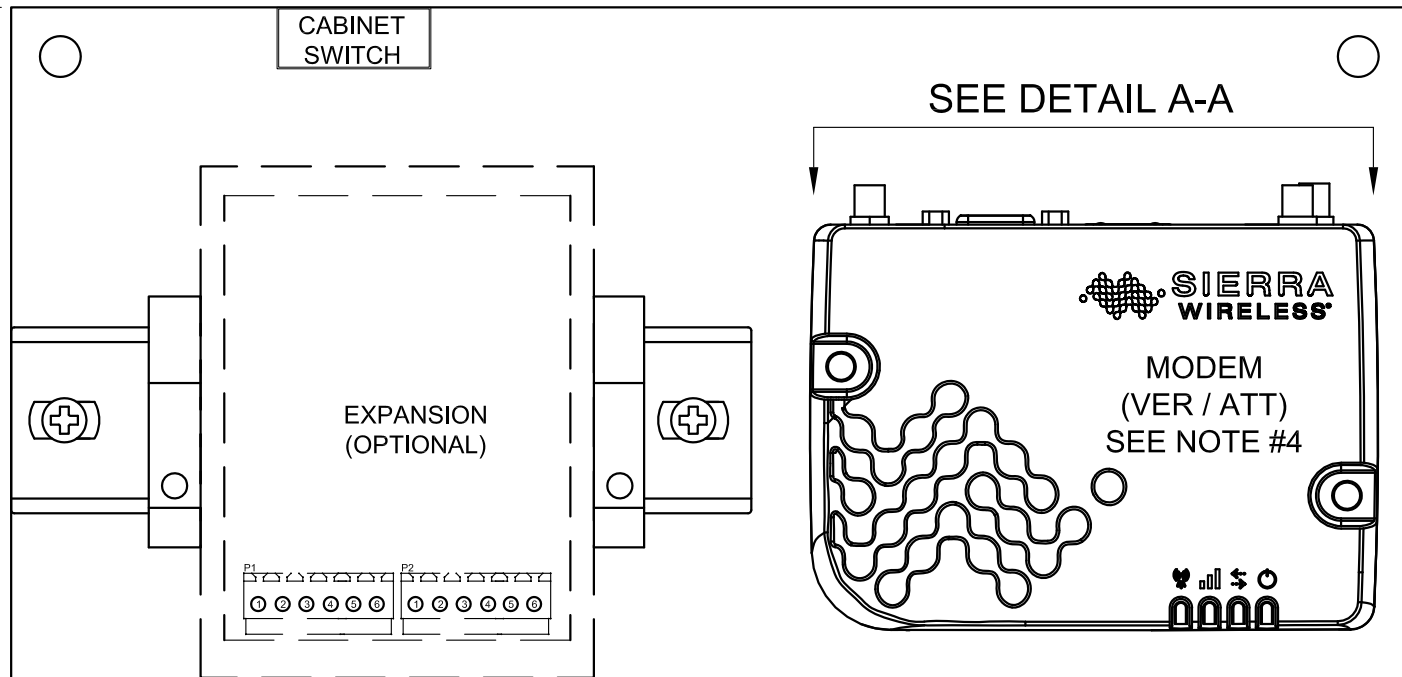
DMCIP12VDC

DC Photocell Monitoring – *Check the Drawings in section 6 to see if the light controller model being monitored has a wiring diagram to connect to the DMCIP.* Use the connection information in the drawing to help with the connection of the photocell wiring. Connect the photocell GND / DC- to the DMCIP P3/pin 1 (C). Connect the switched +DC wire (usually red) from the photocell to the DMCIP P3/pin 2 (PR). The P3/pin 2 (PR) terminal should read +12/24VDC (depending on the system) in reference to P3/pin 1 (C) when the photocell is covered.

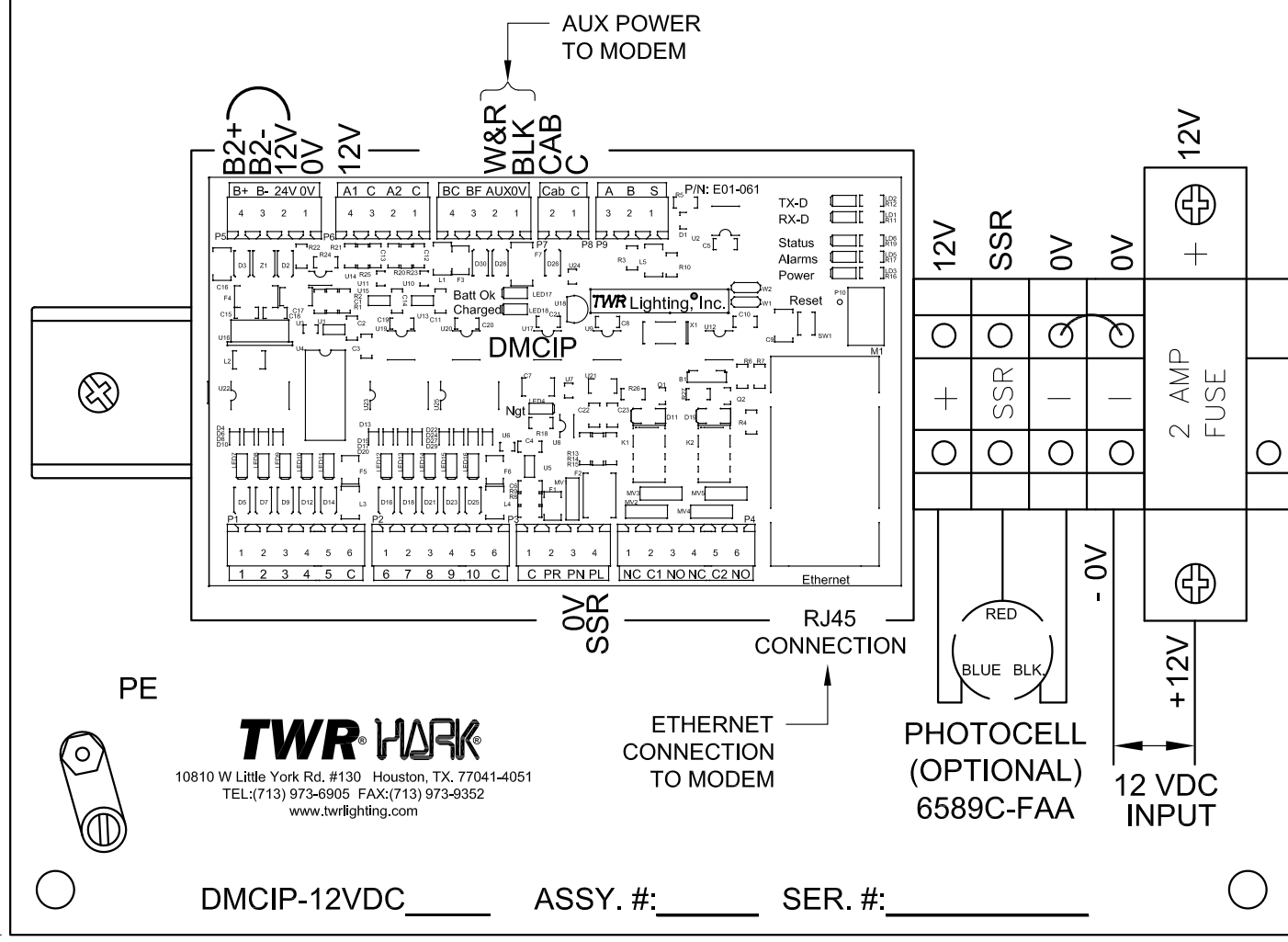
Alarm (Digital) Inputs – #20 to #26 gauge shielded stranded wire is recommended. All shields must be grounded at one end only and may not be used as a signal connection. *Check the Drawings in section 6 to see if the light controller model being monitored has a wiring diagram to connect to the DMCIP.* Use the connection information in the drawing to help with the connection of the alarm wiring. At each alarm to be monitored, connect a wire to the relay contact. An open collector transistor may also be used (the alarm wire should connect to the collector). Connect each of the alarm wires to one of the available alarm inputs (1-10) on the DMCIP P1 & P2 terminals.

Inside the device or light controller being monitored, jumper the alarm contacts common (or emitters if using open collector) together. The commons should be jumped together in groups depending on which connector they are wired to on the DMCIP. All alarms wired to P1 should have their commons wired together then have one common wire connected into P1/pin 6 (C). All alarms wired to P2 should have their commons wired together then have one common wire connected to P2/pin 6 (C).

6 DRAWINGS



10.8750



- NOTES:
- 1) WIRES ARE CONNECTED LETTER TO LETTER. (EXAMPLE) 12V TO 12V TO 12V.
 - 2) MONITORING UNIT CABINET IS DESIGNED FOR STANDARD WALL MOUNT.
 - 3) THIS DRAWING IS PROVIDED AS A GENERAL REFERENCE. TWR LIGHTING, INC. DOCUMENTATION SUPERSEDES THIS DRAWING AND SHOULD BE REVIEWED PRIOR TO INSTALLATION OF THIS SYSTEM.
 - 4) THIS MODEM CAN BE PROGRAMMED TO WORK ON EITHER AT&T OR VERIZON NETWORKS.

TWR MARK
 10810 W Little York Rd. #130 Houston, TX. 77041-4051
 TEL:(713) 973-6905 FAX:(713) 973-9352
 www.twrlighting.com

DMCIP-12VDC ASSY. #: SER. #:

8.8750

DMCIP-12VDC-ATT4G/VER4G MONITORING UNIT			
PROD DEPT	TWR Lighting, Inc. MARK <i>Enlightened Technology</i>		
SERV DEPT			
ENGINEER			
DRAWN BY J. ZAMORANO	SHEET SIZE B	SHEET QTY. 1 OF 1	
DATE 10/01/2018	SCALE N.T.S.	DWG. NO. H40-402	
<small>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. 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>			