DRAKE LIGHTING
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DOC-8614e
Rev. 1

OWNER'S MANUAL

for

LED-RED-Standard-G3

A type towers

Revision table

Revision	Date	Changes
1	October 3, 2019	Initial release

Safety Instructions

1. ⚠ All the safety and operating instructions should be read before the product is operated;
2. ⚠ The safety and operating instructions should be retained for future reference;
3. ⚠ Only qualified personnel should attempt maintenance or repair on this system;
4. ⚠ Use copper wire only for interconnections;

5. ⚠ High voltage (≈200V) is present in the controller when it is energized. When the system is energized, never attempt to touch any component in the controller, except push buttons;
6. ⚠ Shut off the associated circuit breaker before doing any service in the controller or the beacon;
7. ⚠ Line voltage (120V/240V) is present in the controller as long as the associated circuit breaker is on;
8. ⚠ Only use this controller with the Technostrobe red beacon supplied with it;
9. ⚠ Do not attempt to connect any incandescent beacon to this controller;
10. ⚠ Do not connect the supplied beacon directly to 120VAC or 240VAC circuit. It must be connected to the supplied controller;
11. ⚠ Do not look directly at the beacon when it is in operation. The flash head produce intense flash which can damage eye if sighted directly.

Contents

Technical assistance to our customers

Drake Lighting distributes Technostrobe's systems. Drake Lighting has highly-qualified service representatives and technicians available by phone and email 24/7 for technical support. Customer and technical services are available at our toll free number: (800) 732-9526 and email: info@drakelighting.com.

Limited product warranty

Technostrobe Inc. (hereinafter "Technostrobe") warrants the products sold by Drake Lighting to be free of manufacturing defects in design, material and workmanship at the time of shipment and for the limited period provided hereunder, when used in and under normal use conditions:

- LED Products and control mechanism are covered for a period ending five (5) years after the date of shipment of the product by Drake Lighting.
- Products sold but not manufactured by Technostrobe are covered by their original manufacturer's warranty, in accordance with their specific terms and conditions only.

The sole obligation of Technostrobe under this warranty is limited to the repair, replacement or reimbursement of the defective product determined to be inoperable due to manufacturing defect in design, material or workmanship, at Technostrobe's sole discretion. Technostrobe reserves the right to request return of the product for inspection prior to making any decision regarding a claim. No returned product will be accepted by Technostrobe without its prior authorization through an RMA number and customer must follow the warranty claim procedure indicated hereunder.

If Technostrobe elects to replace the defective product, Technostrobe reserves the right to replace it with another product of the same model or a model of at least comparable in quality and features. If Technostrobe rather elects to reimburse the consumer, it cannot exceed the amount received by Drake Lighting as payment for the original product purchase. If Technostrobe elects to repair the products, the warranty shall cover parts and workmanship completed at the Technostrobe facilities only. Repaired or replaced products will be shipped back at consumer's costs.

All replacements of defective products are warranted only for the remainder of the duration of the original warranty.

Warranty claim procedure

All warranty claims under this limited warranty must be made in writing by the customer to Drake Lighting, with the original proof of purchase, before Technostrobe's obligation to honor this limited warranty arises, and such written warranty claim is a condition precedent to the customer's right to relief under this limited warranty. In order for this warranty to be valid, the consumer must, at the time the product is returned, provide proof of purchase

Any warranty claim must be made in writing at **Drake Lighting** P.O. Box 508, Mayfield, KY 42066, by facsimile at 1 270-247-0909 or by email at info@drakelighting.com. A request for a Return Authorization Number (RMA) must be made the same way or by telephone at (800) 732-9526.

The Product must be carefully repacked, insured up to a minimum equal to the total price paid for said product and returned at customer's cost, at **Drake Lighting's** abovementioned address, freight costs prepaid. Any product sent without RMA or sent collect will be refused and returned to sender.

Limitations, exclusions and disclaimers

In addition to what is specifically mentioned hereinabove, this limited product warranty never covers any problems, damages or losses resulting from the installation of the product, which is the sole responsibility of the person or company that installed the products and in any given case, including negligence, Technostrobe will not be held responsible nor will have any liability, which is hereby disclaimed, in relation with the installer's own products or services.

THIS WARRANTY DOES NOT COVER AND THERE IS NO WARRANTY WHATSOEVER ON THE PRODUCT FOR CASES OTHER THAN A MANUFACTURING DEFECT IN DESIGN, WORKMANSHIP OR MATERIAL, AND THE WARRANTY IS THUS NULL AND VOID IN SUCH CASES, INCLUDING, WITHOUT LIMITATION, IN CASES OF PROBLEMS, DAMAGES OR LOSSES RESULTING FROM NEGLIGENCE, ABUSE, MISUSE, ACCIDENT, VOLONTARY DAMAGES, VADALISM, IMPROPER OR FAULTY USE OR INSTALLATION, UNAUTHORIZED, IMPROPER OR FAULTY REPAIR OR MODIFICATION TO THE PRODUCT, MODIFICATIONS OR REPAIRS PERFORMED BY ANY OTHER PERSON THAN A TECHNOSTROBE AUTHORIZED SERVICE TECHNICIAN OR EMPLOYEE DAMAGE OR BREAKAGE DUE TO OVER EXCESS OF PRESSURE, NORMAL WEAR AND TEAR, ACTS OF GOD SUCH AS LIGHTNING STRIKE, STORMS, HURRICANES, TORNADOES AND SIMILAR EVENTS,

TECHNOSTROBE SHALL NOT BE LIABLE NOR ASSUME ANY LIABILITY FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, NEITHER FOR ANY DAMAGES OR REMEDIES NOT SPECIFICALLY SET FORTH IN THIS WARRANTY, INCLUDING FOR LOSS OF ANITICIPATED PROFITS OR SALES. TECHNOSTROBE DOES NOT ASSUME ANY LIABILITY OF PURCHASER OR OTHERS FOR INJURY TO PERSONS OR PROPERTY. TECHNOSTROBE SHALL NOT BE LIABLE IN ANY EVENT, FOR ANY DAMAGES IN EXCESS OF THE PRICE PAID AND RECEIVED BY TECHNOSTROBE FOR THE PRODUCT. THIS LIMITED PRODUCT WARRANTY CONSITUTES THE SOLE WARRANTY MADE BY TECHNOSTROBE WITH REGARD TO ITS PRODUCTS AND, TO THE FULLEST EXTENT PERMITTED BY LAW, IS IN LIEU OF ALL OTHER WARRANTIES AND CONDITIONS OF ANY KIND WHATSOEVER, VERBAL, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE.

Introduction

Please take time to carefully read this instruction manual prior to installation or use of this LED beacon system. This manual provides information about the operation and installation of this beacon system.

System description

This product is a CL-864 LED based beacon system. It includes a beacon, its controller and a photocell. All 3 of these components are designed and manufactured by Technostrobe in Canada and are fully compliant to the applicable Transport Canada standard and FAA.

Specifications

	120Vac version	240Vac version	24Vdc version
Light output			
Horizontal coverage	360°		
Vertical beam	3°		
Flash effective intensity	2 000 Cd (± 25%)		
Flash color	Red		
Lamp type	LED		
Flash rate	20/30/40/60 flashes per minute (selectable)		
Flash duty cycle	16%/51%/66%/100% duty cycle (selectable)		
Transport Canada type	CL-864		
FAA Type	L-864		
Electrical			
Input voltage	120V (88V-132V) AC 47-63 Hz	240V (176V-264V) AC 47-63 Hz	24V (20V-32V) DC
Recommended circuit protection	2A to 15A	2A to 15A	6A min.
Power consumption (20 fpm,16.7% duty cycle)	10 Watts (1A rms max.)	10 Watts (0.5A rms max.)	10 Watts (2.5A rms max.)
Apparent Power	74VA	74VA	
Power factor	>0.9		
Alarm contacts	120-240VAC / 2A	24V / 2A maximum	
Mechanical			
Operating temperature	-40°F to 131°F (-40°C to 55°C)		
Controller dimensions	Painted Steel : 12,19" x 14" x 6.68" (310 mm x 356 mm x 170 mm)		
Controller weight	15 lbs (6,8 Kg)		
Beacon dimensions (dia. x height)	6.7" dia. x 5" (17 cm dia x 12,5 cm)		
Beacon weight	7 lbs (3.2 Kg)		

Controller

The controller is designed to power our LED based red beacon. It contains the beacon power supply, the photocell control and the beacon monitoring circuit. All power supply electronics are located in the controller which is usually installed at ground level or in the nacelle.

Controller components

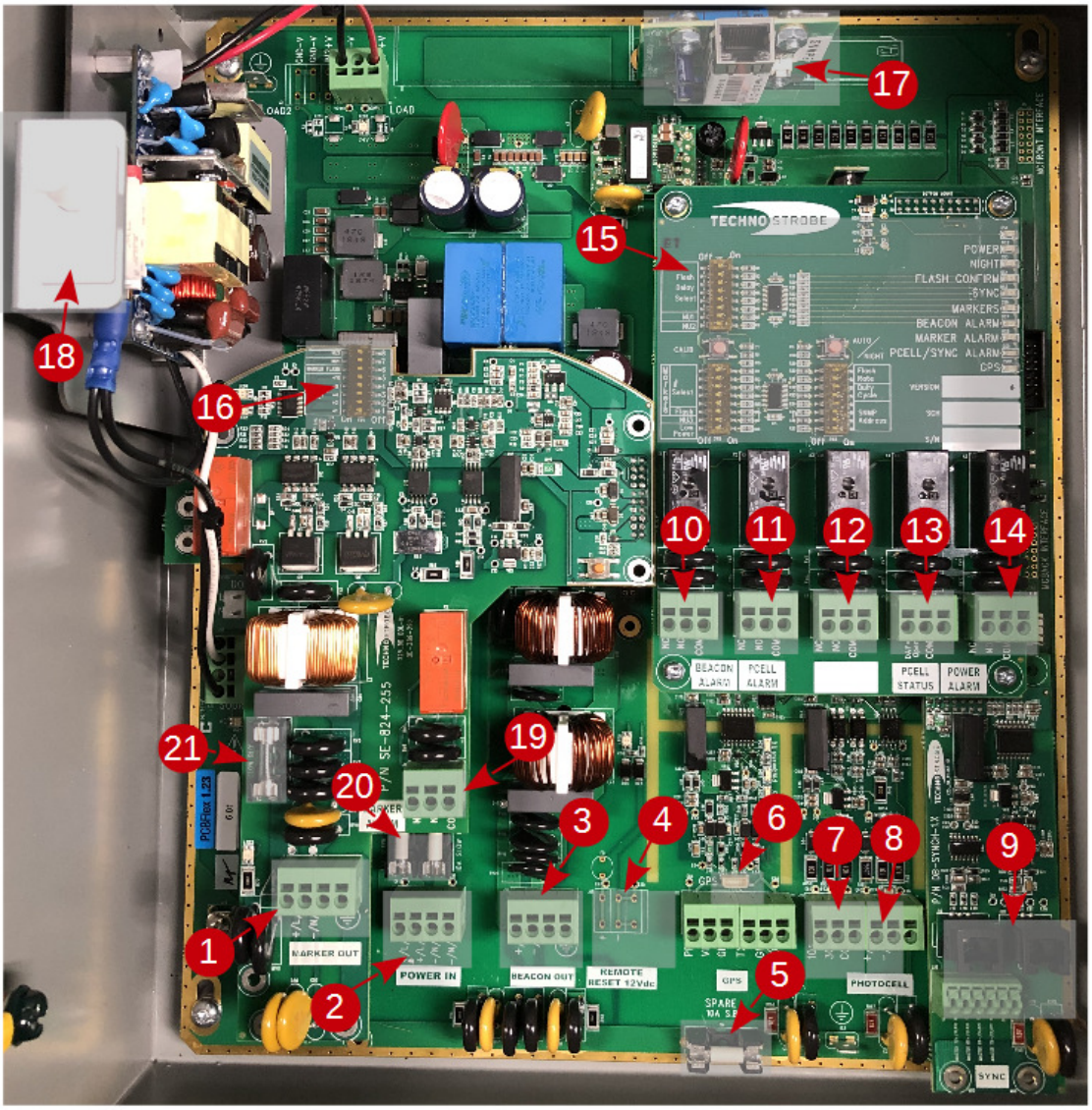

Figure 1 – Controller components

1	Marker output terminals*	12	Not used
2	Input power terminals	13	PEC Status (Day Open | Night Closed)
3	Beacon output terminals	14	Power alarm terminals (NC-NO-COM)
4	Remote reset input (12Vdc)	15	User interface and System configuration dip switches (SW1-SW2-SW3)
5	1 x spare fuses (2A slow blow)	16	Configuration dip switches for markers*
6	GPS connector	17	SNMP enabler module***
7	Digital input 1 and 2 terminals (10%, 30%)	18	On/OFF Interlock switch
8	Photocell input terminals	19	Marker alarm terminals (NC-NO-COM)*
9	Synchronization connector (IN/OUT) / Visibility sensor terminal**	20	Main power fuses (2 x 2A slow blow)
10	Beacon alarm terminals (NC-NO-COM)	21	Marker fuse (2A slow blow)*
11	Photocell alarm terminals (NC-NO-COM)		

Indicator Lights

The indicator lights provide a brief yet complete diagnostic of the current state of operation of the system. Please refer to the table below:

Indicator	State	Meaning
HEARTBEAT	ON Solid - Green	The PCU is not operating normally
	ON 1Hz - Green	The PCU is operating normally
POWER	OFF	The PCU is powered OFF
	ON Solid - Green	The PCU is powered ON
NIGHT	ON Solid - Green	Night mode auto
	ON 1Hz - Green	Night mode temporary
	ON 2Hz - Green	Night mode permanent
FLASH CONFIRM	1 Flash - Green	Confirms beacon flash
SYNC	ON Solid - Green	Synchronised
MARKERS	ON Solid - Green	Markers ON in steady burn mode
	FLASH - Green	Markers ON in flash mode
BEACON ALARM	ON Solid - Red	Alarm. Cannot flash beacon
	ON 1Hz - Red	Alarm. Beacon not connected
	ON 2Hz - Red	Alarm. Short circuit
MARKERS ALARM	ON Solid - Red	Alarm. Cannot power markers
	ON 1Hz - Red	Calibrating markers
PCELL/SYNC	ON Solid - Red	Alarm. Cannot find photocell or GPS or master PCU
GPS	ON Solid - Green	Synchronised
	ON 4Hz - Green	GPS + PPS present

Control Buttons

Two control buttons provide a means to control the operation mode of the system. Please refer to the table below:

Switches	Pressed	Behavior
CALIB	Momentarily	Initiates the calibration of the markers when the optional Marker Interface Card is present
AUTO/NIGHT	Momentarily	Switches operation mode sequentially: AUTO -> NIGHT TEMPORARY -> NIGHT PERMANENT -> AUTO

Option DIP Switches

The option DIP switches provide a mean to specify details on the operation mode of the system. Unless otherwise specified, the DIP switches must be operated only when the system in turned OFF. The table below provides a quick overview of the switches and a detailed description of each is provided in the following section.

SWITCH ONE	
DIP Switch	**Option**
1	Flash Delay Select
2	
3	
4	
5	
6	
7	Not Used 1
8	Not Used 2

SWITCH TWO	
DIP Switch	**Option**
1	Not Used
2	
3	
4	
5	
6	Not Used
7	Not used
8	Not Used

SWITCH THREE	
DIP Switch	**Option**
1	Flash per minute
2	
3	Duty cycle
4	
5	SNMP Address
6	
7	
8	

SWITCH ONE on Marker Interface card	
DIP Switch	**Option**
8	Not Used 2
7	Not Used 1
6	Marker Flash
5	Marker # Select
4	
3	
2	
1	

Flash Delay Select

In some cases, it may be required to delay the start of the flash by a specific time delay after a GPS synchronization pulse. The system can insert a delay of up to 1575 milliseconds in 25ms increments.

The delay is programmed using SW1-1 to SW1-6 dip switches. The delay is entered in binary. The following table shows the weight of each switch. Switches set to ON add up to set the desired delay.

SWITCH ONE	
Switch	**Weight**
SW1-1	25 ms
SW1-2	50 ms
SW1-3	100 ms
SW1-4	200 ms
SW1-5	400 ms
SW1-6	800 ms

For example if a 25 millisecond delay is required, switch SW2-2 is set to ON, other switches are set to OFF.

If a delay of 675 milliseconds is required, switches SW1-5, SW1-4, SW1-2 and SW1-1 are set to ON, other switches are set to OFF.

Flash rate

These DIP switches set the **red** beacon flash rate.

SWITCH THREE		
1	**2**	**Flash Rate**
Off	Off	20
On	Off	30 (Default)
Off	On	40
On	On	60

Flash duty cycle

These DIP switches set the **red** beacon flash duty cycle.

SWITCH THREE		
3	**4**	**Duty Cycle**
Off	Off	16.7%
On	Off	51% (default)
Off	On	66%
On	On	100% (steady burn)

SNMP address

These DIP switches set the SNMP address of the PCU. **In a single PCU system, the address must be set to '1'**. In a multiple PCU system, the master PCU must be at address '1' and the slaves must be set to an address between '2' and '15'.

The SNMP Address is binary coded.

SWITCH THREE				
8	**7**	**6**	**5**	**SNMP Address**
Off	Off	Off	Off	SNMP OFF
Off	Off	Off	On	1
Off	Off	On	Off	2
Off	Off	On	On	3
Off	On	Off	Off	4
.	.	.	.	.
On	On	On	On	15

Marker Flash

This switch permits to select marker flashing or not.

SWITCH ONE on Marker Interface card	
6	**Flash**
Off	ON solid
On	Flash

Marker Quantity

The following DIP switches permit to select the quantity of markers connected to the PCU. The quantity is entered in binary. The following table shows the weight of each switch. Switches set to ON add up to set the desired marker quantity.

SWITCH ONE on Marker Interface card	
Switch	**Weights**
1	1
2	2
3	4
4	8
5	16

For example if 2 markers are used, switch SW2-2 is set to ON, other switches are set to OFF.

If 10 markers are used, switches SW2-4 and SW2-2 are set to ON, other switches are set to OFF.

A maximum of 31 markers can be used with all switches set to ON.

NOTES:

1. When all switches are set to OFF, the marker output is disabled.
2. When only SW2-1 is set to ON, the marker output is enabled but there is no marker fault detection.
3. Double marker units are seen as two.

Beacon

The beacon contains a LED based light source that produces the red flashes. These LEDs are precisely placed in optical modules to produce a very sharp 3° beam of light. Great efforts have been put in the design of these modules to minimize ground scatter light to almost zero. For durability, LEDs are directly placed on an oversized aluminum heat sink which keeps them cool at all times.

When powering the beacon, the controller is continuously monitoring the beacon for any failure. Each correct red/IR flash is confirmed by the indicator light marked "FLASH CONFIRM".

In case the beacon fails to produce flashes as per specifications, the controller will trigger a beacon alarm. This alarm changes the state of the BEACON ALARM relay contact which can be used to interface with an external alarm monitoring system. These dry contacts are provided N.C. and N.O. Please note that when the controller is not powered, beacon alarm contacts will show an alarm. These contacts are rated 24V / 2 amperes maximum.

The AUTO/NIGHT button permits to switch the system's mode to AUTO -> NIGHT TEMPORARY -> NIGHT PERMANENT -> AUTO.

Markers

Using the optional Marker Interface Card this system can control and monitor up to 28 obstruction light bulbs (markers).

Obstruction lights are powered with the same voltage as the input power. The maximum load is 2A.

Alarm detection Precision

If you have 2 to 6 bulbs, the failure of 1 bulb will trigger an alarm. If you have 6 or more bulbs, the failure of 2 bulbs will trigger an alarm. It may take up to one hour to detect a bulb failure.

Calibration

Press the CALIB button and wait for the marker alarm LED to turn off.

A calibration must be performed only when all obstruction lights are known to be in good condition and every time a marker is replaced.

Photocell

The solid-state low voltage (5V) photocell continuously senses outdoor ambient light and switches system mode accordingly. The automatic photoelectric control is factory calibrated and does not require further adjustments.

The photocell is either located inside the beacon or is external to the beacon at the base of the tower.

When the photocell is located inside the beacon, 2 additional wires are provided in the cable and they must be connected in the controller on the terminal block marked PHOTOCELL.

When the photocell is supplied separately it must be installed facing north in the Northern Hemisphere. The photocell dimensions are supplied in appendix.

The system monitors the proper operation of the photocell as well. If the photocell reading does not change for more than 18 hours or is not connected, the system will switch to *night* mode until proper photocell operation is resumed.

This alarm changes the state of the PCELL ALARM relay contacts (NC-NO-COM), which can be used to interface with an external alarm monitoring system.

The AUTO/NIGHT button permits to switch the system's mode to AUTO -> NIGHT TEMPORARY -> NIGHT PERMANENT -> AUTO.

Photocell testing

It is possible to test the photocell by measuring its electrical resistance with an ohmmeter or a multimeter. Disconnect the photocell from the controller before testing. During day time, the photocell should have a resistance of less than 3 KOhm. During night time, it should read over 6 KOhm.

Features

SNMP Enabler

An optional SNMP interface provides the ability to control and monitor the controller from a remote location.

Synchronization

Multiple beacon controllers can be synchronized. A synchronization cable supplied by Technostrobe is connected between 2 controllers to enable synchronization. A third controller would be connected to the second controller and the same logic is used for more controllers.

The MASTER controller forces the flash sequence for the slave controllers.

The photocell should be connected to only one controller and this controller becomes the MASTER.

Safety interlock switch

The interlock switch is opened when the door of the controller enclosure is opened. This action switches the controller & beacon OFF. After 30 seconds, no voltage above 50 volts remains in the unit.

Remote Reset

It is possible to remotely cycle the controller power in order to perform a reset using one of the two methods below:

- Through SNMP or via the HTML interface.
- Through an external Remote Monitoring System (RMS) which provides a 12Vdc signal to energize a relay, marked REMOTE RESET 12Vdc, located on the power supply board (controller components – item 4).

LIDS™ (dimming)

The beacon is LIDS™ compatible. The light intensity can therefore be dimmed at 30% or as low as 10% when the controller is connected to a LIDS™ Central Processing Unit. The LIDS™ system measures the visibility and sends a command to the beacon controller to dim the light intensity according to the surrounding visibility. More information on LIDS™ is available on our web site at www.technostrobe.com.

When the beacon light intensity is dimmed at 30% or 10%, the beacon alarm is disabled. At the beginning of the night mode, the 100% mode is in effect for the first 30 minutes for safety purpose and to allow for beacon alarm detection.

Photocell status relay

A contact is provided to monitor the photocell status (Day/Night).

Open = Day mode
Closed = Night mode

Visibility Sensor

It is possible to connect a Biral SWS-X Visibility Sensor if the system is equipped with an optional power supply and an optional synchronization card. The system will come prewired for correct operation. A wiring diagram in the Appendix section illustrates how to interconnect with the visibility sensor.

GPS synchronization

An optional GPS receiver/antenna can be connected to the controller to synchronize multiple beacons that are too distant from each other to be connected with wires.

By default the controller flash sequence is free running. When a GPS signal is acquired, the time information is analyzed and the flash sequence is synchronized with the zero second of the minute.

The 'GPS' indicator flashes when the controller is waiting for the GPS signal and is lit solid when a GPS signal is acquired.

The GPS receiver should only be connected to the MASTER controller on each site.

The GPS receiver should be installed horizontally on a flat surface with the round face up. There should be no satellite signal obstructions between the GPS receiver and the open sky (no metallic material).

Installation

Controller mounting

Mount the controller where there is some clearance around the enclosure especially at the bottom where cables enter the control cabinet. Mount the controller in an upright position and preferably at eye level for easy access.

If the controller could be exposed to rain or snow, use watertight connections for each cable entering the enclosure.

Photocell mounting

Mount the photocell in a way to get an unobstructed view of the north sky. It must not receive direct sunlight or be exposed to any artificial lighting.

On wind turbine applications, the photocell is included in the flash head.

Beacon mounting

The beacon is provided with 2 mounting holes to fit installations with a 13¼" bolt circle. Below, a picture is detailing the layout of these holes. The beacon should be installed level to maintain light output specifications as required by applicable standard.

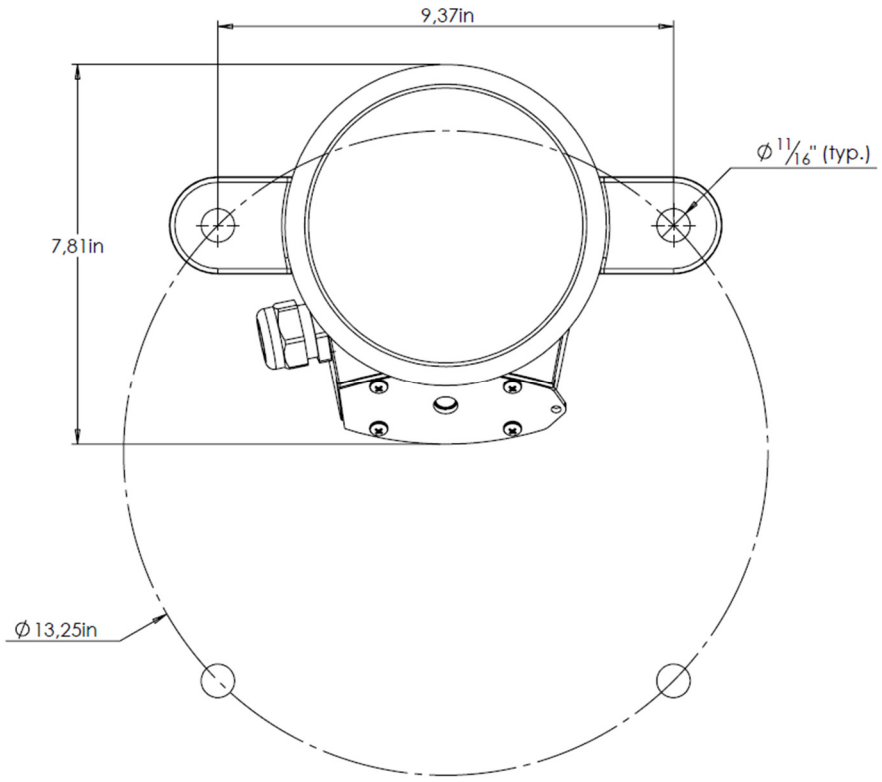

Figure 3 – Beacon mounting holes details (top view).

Wiring diagram

Interconnection diagrams are included in the appendix section.

Photocell Wiring

Connect the photocell to the controller according to the wiring diagram. Please note that the photocell has no polarity.

Do not connect any other photocell than the one supplied by Technostrobe. Connecting a 3-Wire 120Vac photocell would permanently damage the controller.

Beacon Wire Gauge

Total cable length from controller to beacon	Minimum wire gauge
0 meter to 177 meters (0 ft to 583 ft)	16 AWG
177 meters to 300 meters (583 ft to 984 ft)	14 AWG

Beacon Wiring

A cable with 2 conductors 16 AWG (min.) is required for the beacon connection. Connect one end of this cable to the beacon and the other end to the junction box or the beacon output position in the controller. Refer to the wiring diagram.

Do not connect 120VAC or 240VAC circuit directly to the beacon. That would permanently damage the beacon.

If armored cable (TECK) is used, you must make a loop with the cable before connecting it to the beacon or a junction box. It is also recommend to make a loop at each hoisting grip.

Power Wiring

Connect the power to the controller using 14 AWG conductors. Use a circuit with 2A to 15A current protection. Refer to the wiring diagram.

Start-up

1. Open the door of the control enclosure.
2. Turn on the associated circuit breaker.
3. Pull the interlock switch.
4. Press the push button marked "NIGHT MODE"
5. If possible, verify that the beacon is flashing with red flashes. **Please note that this beacon is producing almost zero ground scatter light, so it could appear not working during day testing. When the LED "flash confirm" is lit, you can be sure the beacon has flashed properly.**
6. Wait 1 minute and verify that the small indicator lights marked "RED BEACON ALARM" is not lit.
7. Press the push button marked "AUTO MODE".
8. Make sure the small indicator light marked "AUTO MODE" is lit solid (not blinking).
9. Put your hand or a black tape in front of the photocell to block all light entering the photocell.
10. Wait 20 sec. and verify that the small indicator light marked "NIGHT MODE" is lit solid.
11. Remove your hand or the black tape off the photocell and make sure there is some light directed at the photocell to simulate day time.
12. Wait 20 sec and verify that the small indicator light marked "DAY MODE" is lit solid.
13. Remove any artificial lighting you may have used in front of the photocell to simulate day time.
14. Make sure the small indicator light marked "AUTO MODE" is lit solid.
15. The system is now working correctly and can be left unattended.

Maintenance

The LED-RED-Standard-G3 is a maintenance free lighting system when installed per the instructions in the Installation section of this manual. As such, no maintenance or preventive maintenance is required.

User Serviceable Parts

The LED-RED-Standard-G3 is a 2-part system consisting of a Power Supply Unit (PSU) and a beacon. There are no user serviceable part inside the units. Should a malfunction require a repair, any or both of the units must be replaced, please contact customer and technical services to get help. Your exact unit model is identified on the front of the unit for a PSU, or under the unit if a beacon. A unit model must be replaced with the same unit model. For reference, the table below lists the existing models:

Type	Model	Description
Beacon	LFHMRO-G3	Standard red beacon
	LFHMRO-PEC-G3	Red beacon for wind turbine
	LFHMRIRO-G3	Red beacon with infrared light.
	LFHMRIRO-PEC-G3	Red beacon with infrared light for wind turbine.
Power supply Unit	LCMRO-G3	120Vac power supply unit
	LCMRO-G3-240V	240Vac power supply unit
	LCMRO-G3-24V	24Vdc power supply unit

Troubleshooting Chart

SYMPTOM	TROUBLESHOOTING
The POWER ALARM relay is tripped. The heartbeat LED indicator does not flash.	Is the system powered ON? Verify presence of mains on terminal block. Verify all fuses. If a replaced fuse blows immediately, or if fuses are OK and the POWER ALARM relay is still tripped, call Technostrobe's customer support for more guidance.
The BEACON alarm LED indicator is ON. The BEACON ALARM relay is tripped.	Is the beacon connected properly? If it is connected properly at the terminal block, this may indicate a beacon failure or a cabling fault. A resistance below 10 Ohms indicates a short wire, probably in a junction box. A resistance above 600KOhms indicates an open wire, probably in a junction box.

SYMPTOM	TROUBLESHOOTING
	If the resistance is acceptable, the system may indicate a problem with the beacon. Call Technostrobe's customer support for more guidance.
The MARKER alarm LED indicator is ON. The MARKER ALARM relay is tripped.	Is the marker circuit calibrated? Calibrate the circuit using instructions in the Calibration section of this manual. If the system cannot calibrate, set the "Markers # Select" DIP switches to 00001 and visually verify that all the markers are lit. System should be in FORCED NIGHT. If it is calibrated but showing the alarm when "Markers # Select" is set to the number of markers in the tower, this may indicates a marker failure or a cabling fault. Call Technostrobe's customer support for more guidance.
The PCELL/SYNC alarm LED indicator is ON. The PCELL ALARM relay is tripped.	If equipped with a photocell, is the photocell connected properly? Verify photocell connection at the terminal block. Disconnect photocell and verify that the photocell resistance is below 1 KOhms in a bright day. Verify that photocell is properly installed outside. This may happen because the photocell is constantly reporting DAY or NIGHT. Verify that the photocell has free access to daylight (paint, bird droppings) and free access to night light (new sentinel light in the area may be perceived as the sun) In a master/slave setup, the slave may not receive synchronisation information from the master. Is the master PSU ON? Are both systems connected with the SYNC cable? Master and slave must have a different SNMP address set on the DIP switches. Master is typically at 0000.

SYMPTOM	TROUBLESHOOTING
The beacon does not come and the system reports no error.	Is the photocell in NIGHT mode? Verify that photocell is properly installed. Try forcing the system in NIGHT using the NIGHT button. Try setting the DIP switches at their default position.
Markers do not come on and the system reports no error.	Are the DIP switches properly set? If the "Marker # Select" is set to 00000, the markers are switched OFF. Try setting the DIP switches at their default position and set "Marker # Select" to 1. (Irrespective of the number of markers on the tower), this turns ON the markers. Verify that the markers are lit. Unplug the markers from the MARKERS terminal block and plug them to the system mains supply. Respect the input voltage of the marker. Verify that the markers are lit.
System reports a GPS alarm. GPS fail to sync.	Is the GPS positioned properly and has an unobstructed view of the sky? Is the GPS connected properly? The GPS connector is delicate. Is there a bent pin? Was the GSP cable extended?

Appendix table

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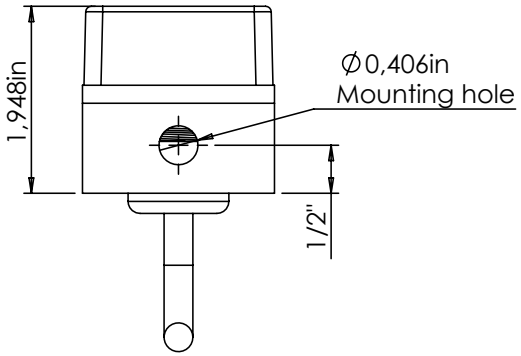
A2 Type tower – 2 levels - 3 beacons

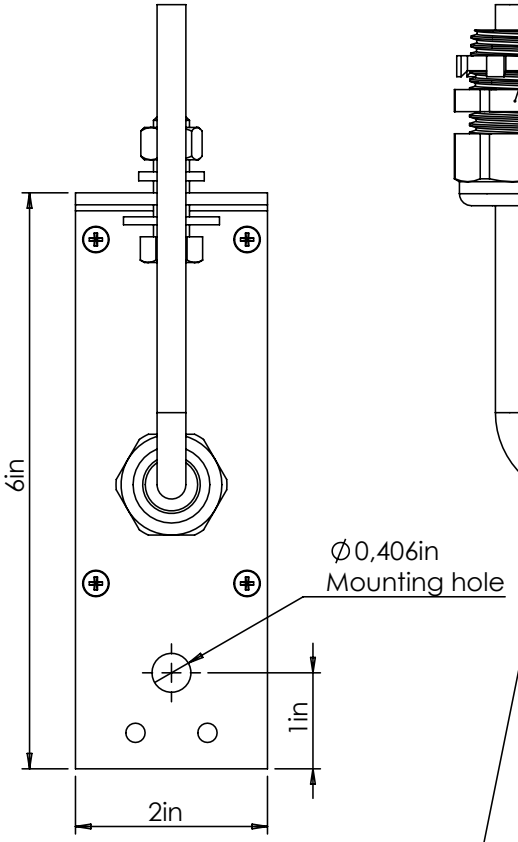
0-6596-11	Interconnection diagram	1

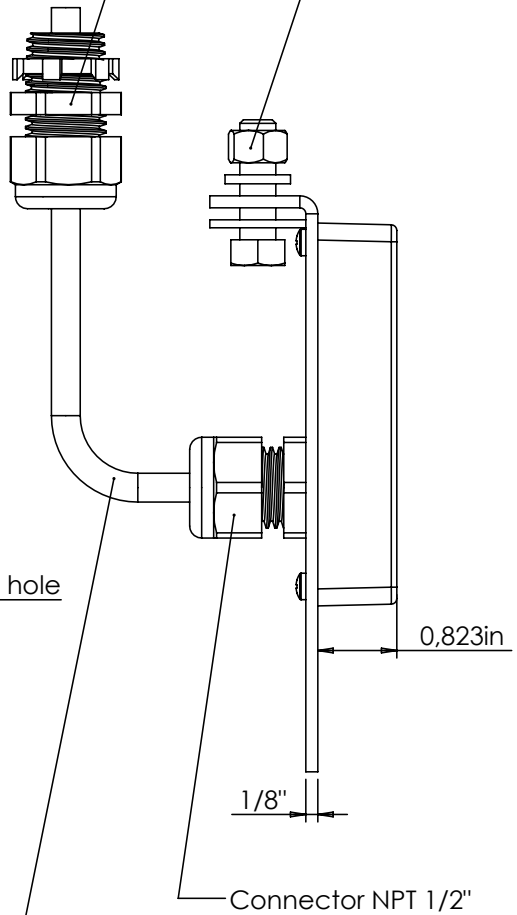
Wind

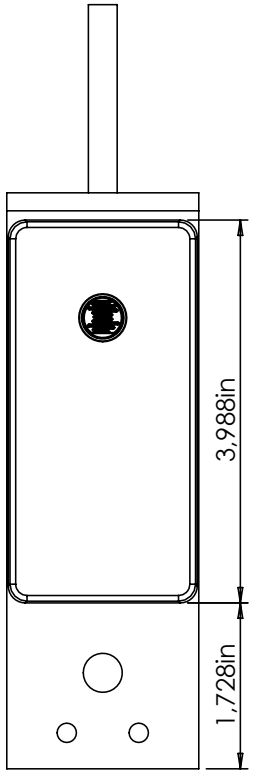
0-6594-2	Interconnection diagram	1

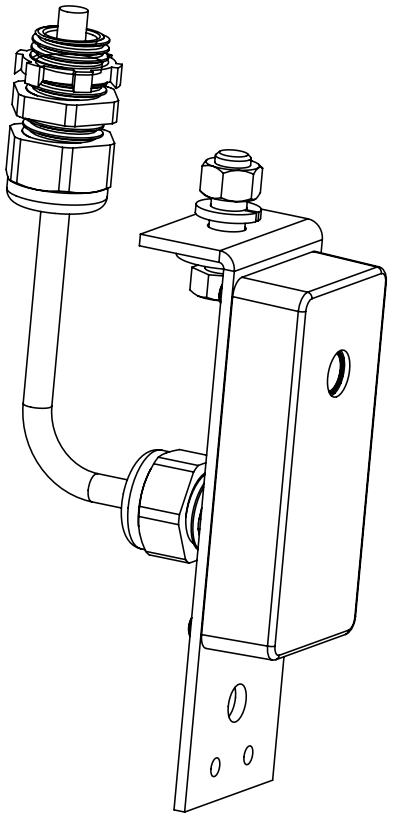
REVISIONS		
REV.	DESCRIPTION	DATE
0	INITIAL RELEASE	2015-05-11











PEC-03

DRAKE LIGHTING
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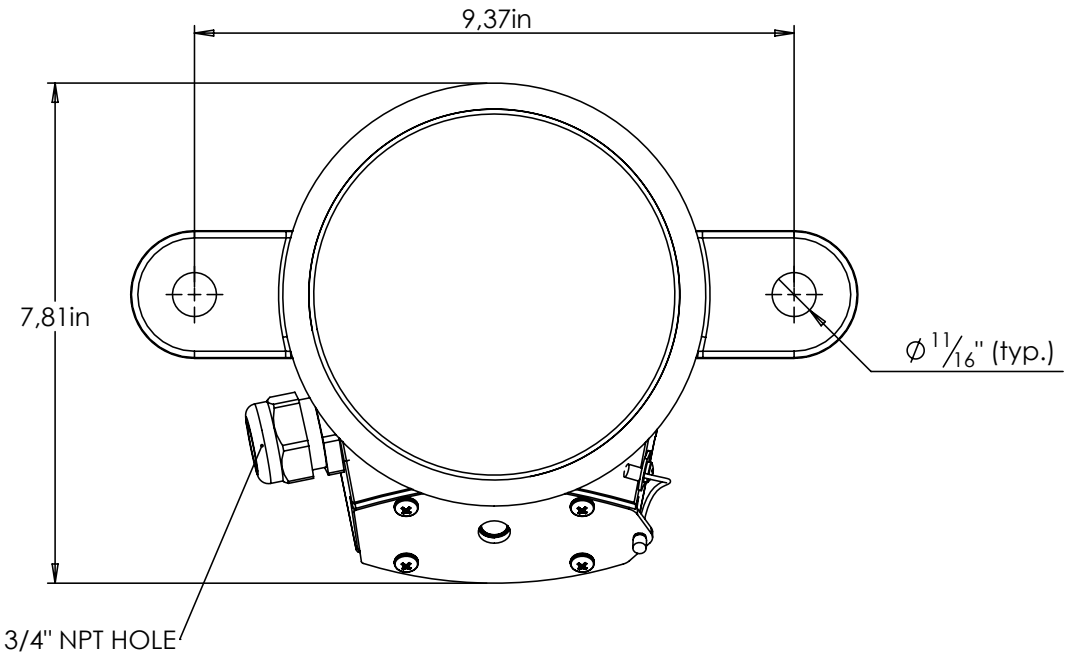
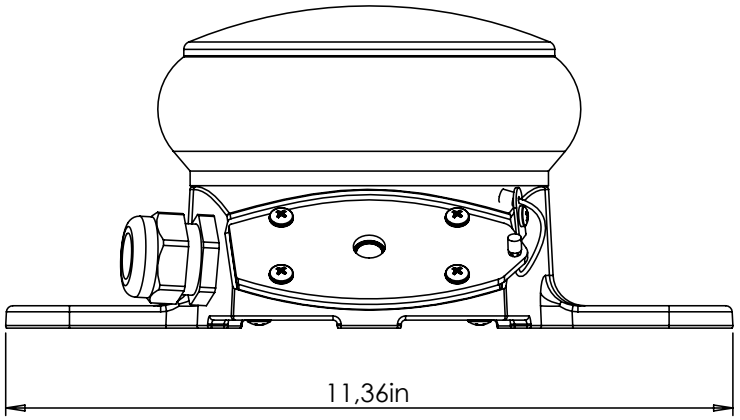
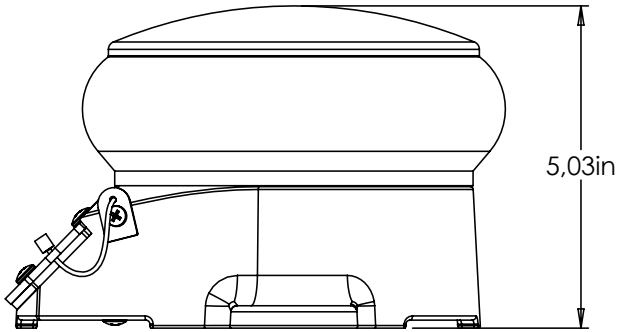
Title: PHOTOCELL DIMENSIONS (P/N: PEC-03)

Document # : DOC-8558e REV : 0

REVISIONS		
REV.	DESCRIPTION	DATE
0	Initial release	16-08-25







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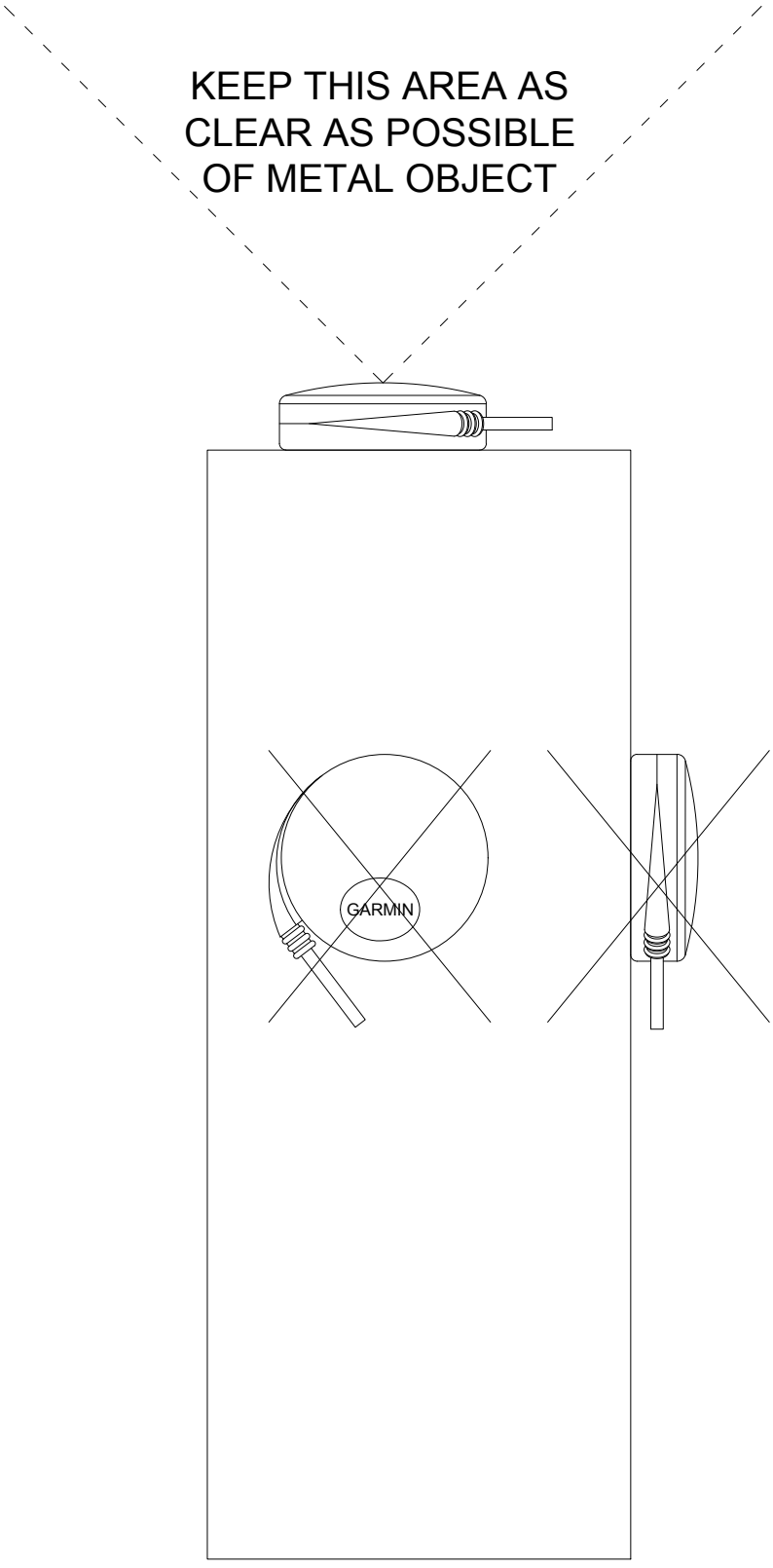
Title: LED BEACON DIMENSIONS (LED-RED-Standard-G3)

Document # : DOC-8586e REV : 0

GPS ANTENNA INSTALLATION



Revision #	Description	Date
0	INITIAL REVISION	August 24, 2016

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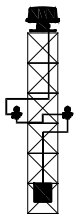
Drawn by : P.B.

Scale : N/A

Title : GPS ANTENNA INSTALLATION

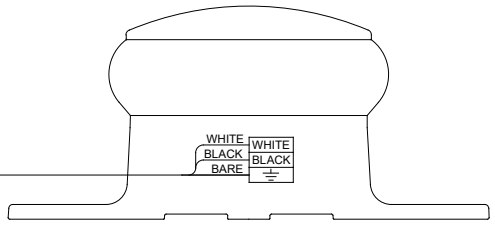
Format : N/A	Drawing # : DOC-8587e	Revision : 0	Sheet : 1/1

TOWER TYPE



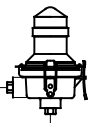
A1

RED LED BEACON
P/N: LFHMRO-G3 or LFHMRIRO-G3

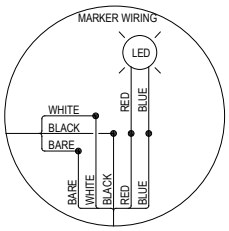


2C/16AWG*

MARKER

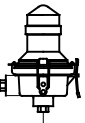


MARKER WIRING

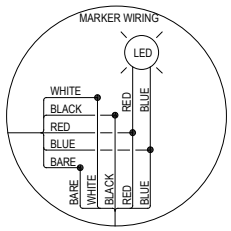


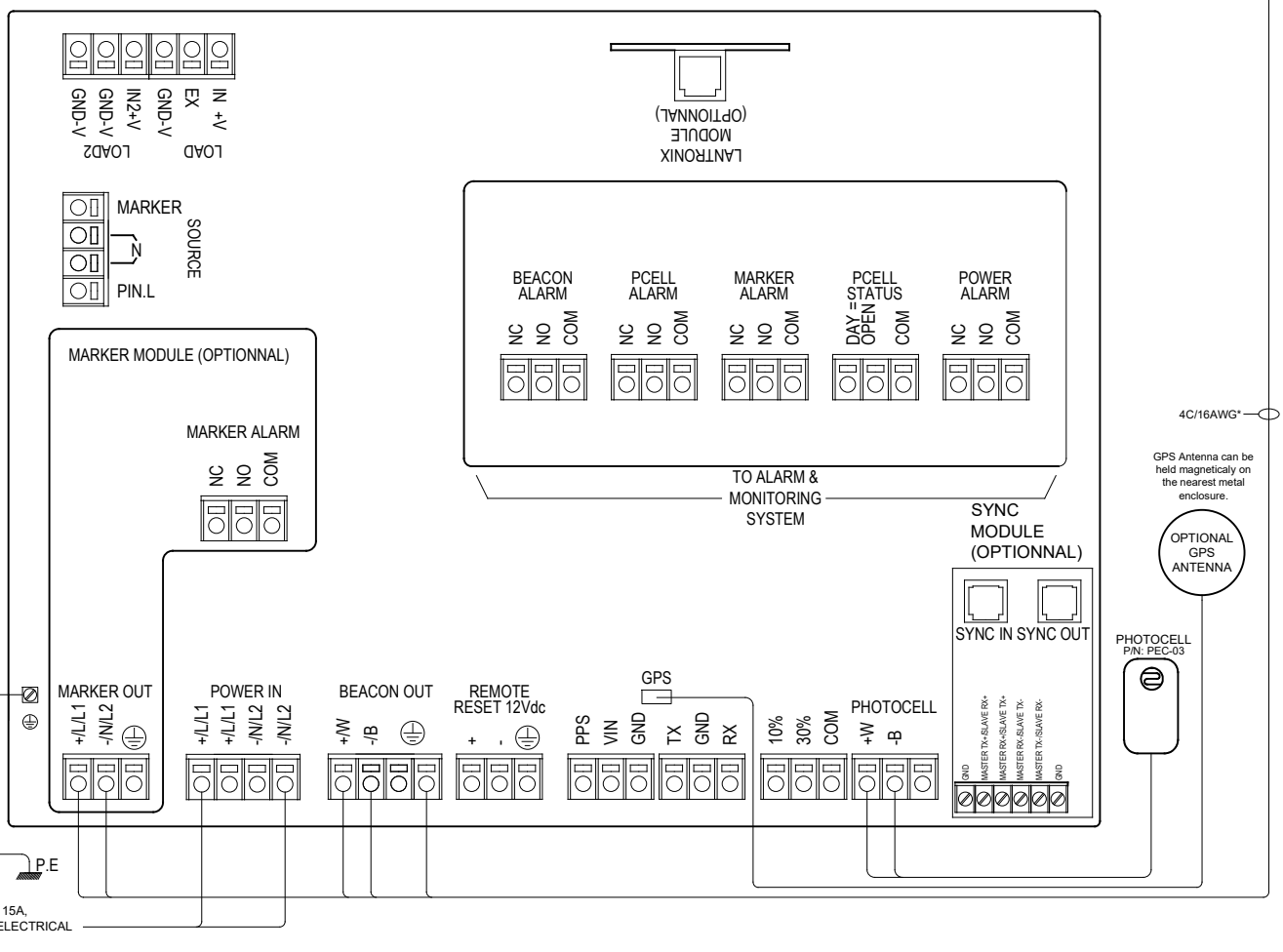
4C/16AWG*

MARKER



MARKER WIRING





Notes :
* Wire gauges indicated here are typical for most tower. See you manual for more details on wire gauge vs. cable lenght.
** Your system accept only one of the three available voltage. Check your system input voltage before connecting input power.

Revision #	Description	Date
0	INITIAL REVISION	August 24, 2016
1	CHANGED MARKER WIRES COLOR	Sept 29, 2017
2	UPDATED WITH NEW PCB MARKINGS ON POWER INPUT	Jan 24, 2018
3	UPDATED FOR PSU4	OCTOBER 3, 2019
4	ADDED GROUND LUG	OCTOBER 4, 2019

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Mayfield KY 42066

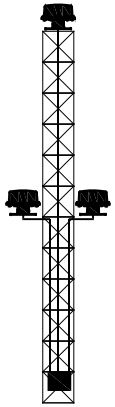
Drawn by : G.M.

Scale : N/A

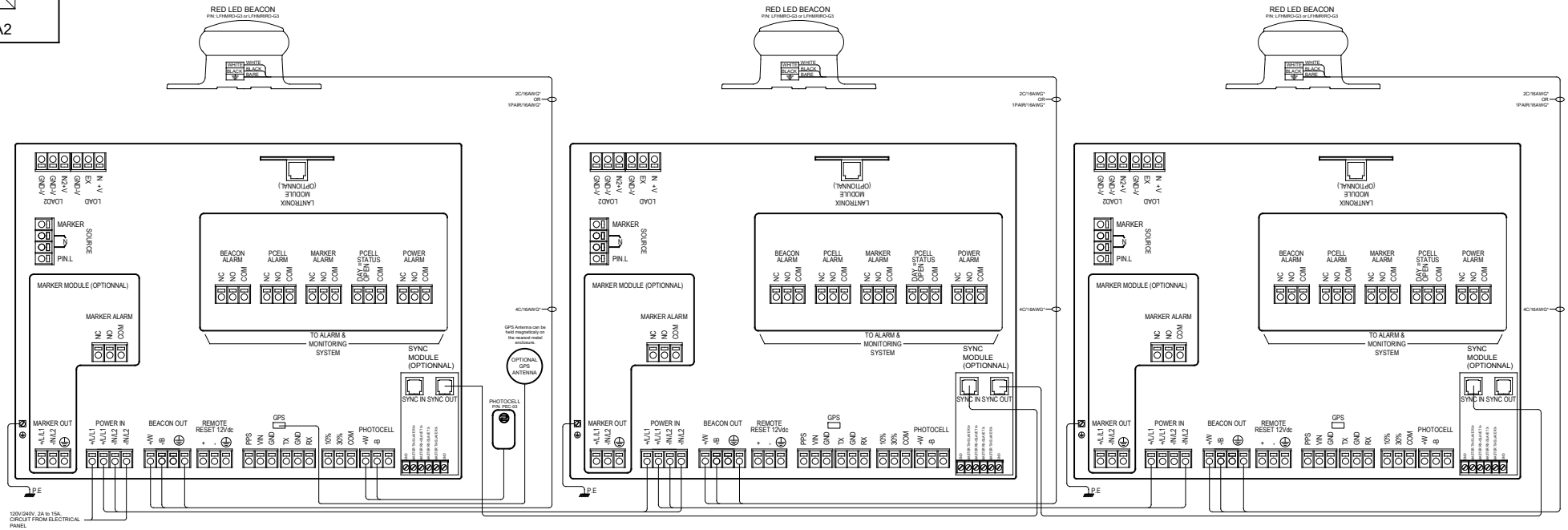
Title : INTERCONNECTIONS DIAGRAM FOR TYPE A1 TOWERS LED-RED-Standard-G3

Format : N/A | Drawing # : 0-6596-1 | Revision : 4 | Sheet : 1/1

TOWER TYPE



A2



Notes :
* Wire gauges indicated here are typical for most tower. See your manual for more details on wire gauge vs. cable lenght.
** Your system accept only one of the three available voltage. Check your system input voltage before connecting input power.
*** The master controller is the one with the photocell.

Revision #	Description	Date
0	INITIAL REVISION	August 26, 2016
1	UPDATED WITH NEW PCB MARKINGS ON POWER INPUT	Jan 24, 2018
2	UPDATED FOR PSU4	OCTOBER 3, 2019
3	ADDED GROUND LUG	OCTOBER 4, 2019

DRAKE LIGHTING
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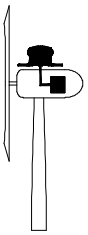
P.O. Box 508
1213 Compressor Drivce
Mayfield KY 42066

Drawn by: G.M.
Scale : N/A

Title : INTERCONNECTION DIAGRAM FOR A2 TYPE TOWERS

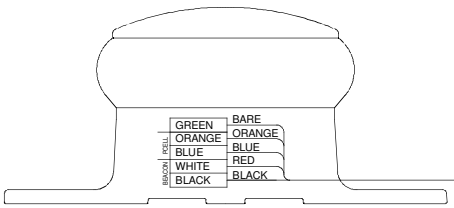
Format : N/A | Drawing # : 0-6596-11 | Revision : 3 | Sheet : 1/1

TOWER TYPE



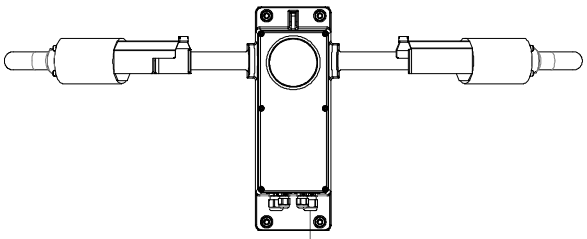
WIND TURBINE

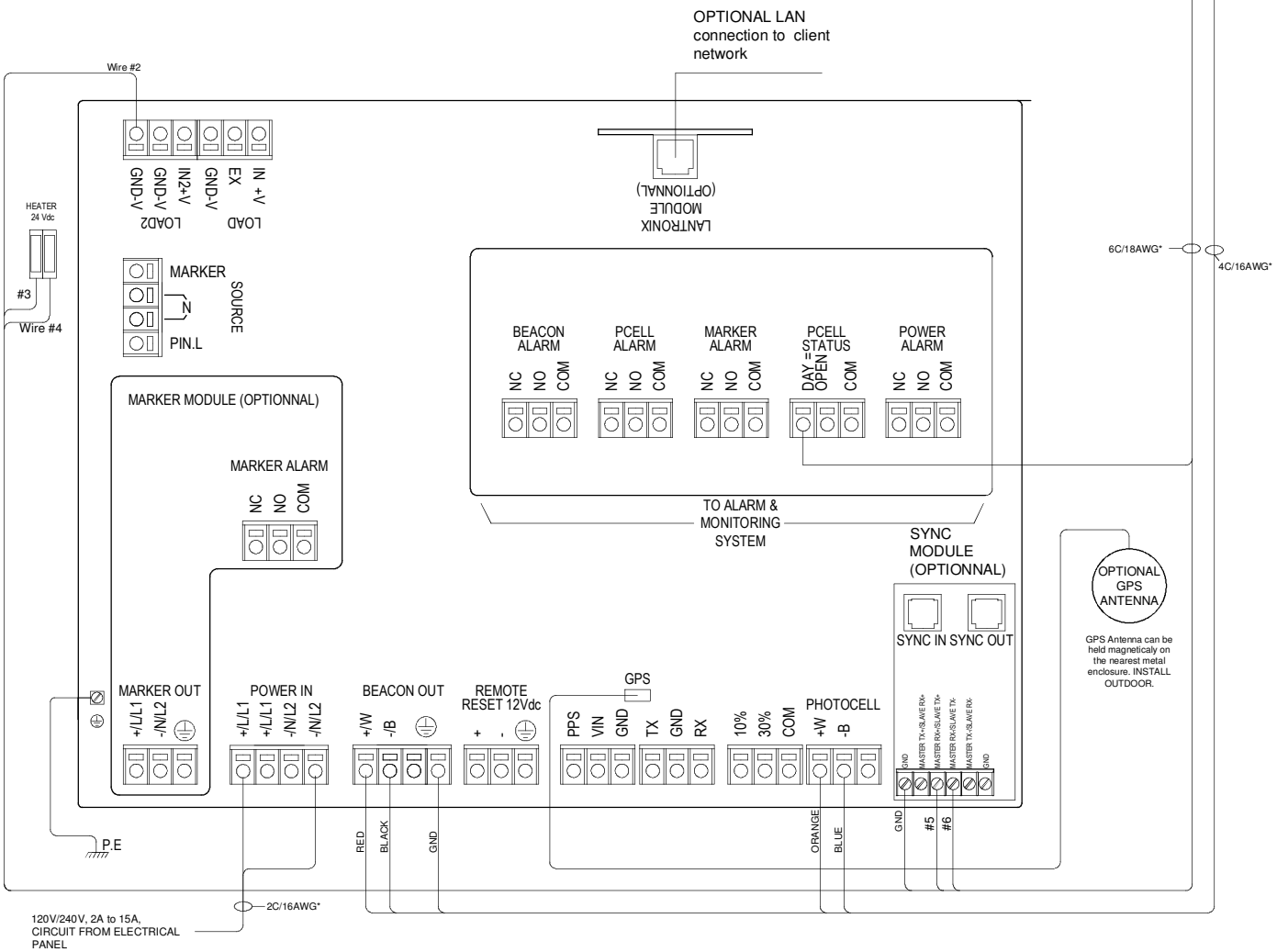
OPTIONAL RED LED BEACON
P/N: LFHMRO-PEC-G3 or LFHMRIRO-PEC-G3



1. Connect beacon if present
2. Connect visibility sensor if present
3. Connect LAN if present
4. Connect GPS if present
5. Connect power

OPTIONAL VISIBILITY SENSOR
P/N: BE-392-374





Revision #	Description	Date
0	INITIAL REVISION	JULY 20, 2016
1	CORRECTED NUMBER OF CONDUCTORS ON BEACON CABLE	August 12, 2016
2	UPDATED WITH NEW PCB MARKINGS ON POWER INPUT	Jan 24, 2018
3	ADDED OPTIONAL PERIPHERALS	Aug 30, 2019
4	UPDATED PCB LAYOUT AND DESCRIPTION	SEPT 27, 2019
5	UPDATED CONNECTORS	OCT 2, 2019
6	ADDED GROUND LUG	OCT 4, 2019

Notes :
* Wire gauges indicated here are typical for most tower. See you manual for more details on wire gauge vs. cable lenght. Terminal block accepts 24 to 12 AWG.
** Your system accept only one of the three available voltage. Check your system input voltage before connecting input power.

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Coteau-du-Lac Québec J0P 1B0
Canada

Drawn by : GM

Scale : N/A

Title : INTERCONNECTIONS DIAGRAM FOR WIND TURBINES LED-RED-Standard-G3

Format : N/A | Drawing # : 0-6594-2 | Revision : 5 | Sheet : 1/1

2000 McCracken Blvd.
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