

GPS LightLock

Astronomical Timers

US Patent 8,816,842

Zero Programming Zero Maintenance

15 Year Warranty

2017 Product Catalog

GPS LightLock is a self-programming, plug & play astronomical timer with onboard GPS. It's very simple. It just makes sure your lights are off when the sun is over the horizon.

It never needs programming, maintenance or human intervention of any kind. It self recovers from power outages, it's immune to time zones & time changes and it doesn't even need batteries.

Imagine no more service trips for lighting control maintenance for the next 15 years.

All your lights will switch at virtually the same time regardless of how many circuits or services you have. No more complaints about erratic switching and energy waste.

Maximize the service life of your bulbs, ballasts & fixtures with GPS LightLock.

GPS LightLock works with all outdoor lighting applications and all outdoor lighting technologies.



GPS LightLock

Astronomical Timers

Coming in 2017

480 Volt versions
Custom programming availability

Specifications

- Rated 120-277VAC, 50-60Hz, **1800VA (15 A @ 120V)**
- 10,000 amp surge protection included
- 382 Joules MOV Lightning Arrestor standard on all models
- -40 to + 176F Operating Environment (-40 to + 80C)
- Enclosure Rating: NEMA 3R for indoor/outdoor installation (see cut sheet for indoor install)
- Listed UL916, ANSI C136.10, FCC Part 15 (USA)
- Listed CSA C22.2 No. 205, (Canada)
- CE, RoHS Compliant (European Union)
- Complies with all energy codes. Manufacturer's energy code compliance declarations:
 - GPS LightLock is an astronomical time switch designated for dusk-to-dawn operation.
 - GPS LightLock is a time switch capable of retaining programming and the time setting during loss of power forever because it requires no programming or batteries.
 - For step dimming or local time control, if desired, connect GPS LightLock control leg to the control circuit of the local time clock or occupancy sensor.

Full Spec Sheets: http://www.gpslightlock.com/images/GPS_LightLock_Astronomical_Timer_Specifications.zip

Provide your customer a better experience than the competition by specifying GPS LightLock.

**Free Lifetime Technical Consulting available 24/7 by calling
(239) 848-6675**

Applied Physics Laboratories LLC
Fort Myers, FL USA
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www.GPSLightLock.com



GPS LightLock

Astronomical Timers

Our most popular controls
Custom builds & configurations available.



Twist-Lock Astronomical Timer 120-277VAC

Model # GPS-MV-T

Installs in under a minute! Switches lights dusk-to-dawn anywhere in the world. Plug & play, never needs programming, maintenance or even batteries. Self-recovers from power outages. Direct replacement for twist-lock photocells. Rated 120-277VAC, 1800VA, Listed UL916. 15 Year Warranty. Made in USA.



Wire-In Astronomical Timer 120-277VAC

Model # GPS-MV-W

Our most popular model. Includes twist-lock astronomical timer plus wire-in twist-lock socket with industry standard 1/2" NPT female thread. Direct replacement for all wire-in photocells and programmable timers. Rated 120-277VAC, 1800VA, Listed UL916. 15 Year Warranty. Made in USA.



Weatherproof Surface Mount Box Kit w/ Bypass On

Model # WPSM-BP-KIT

The most popular way electricians use our controls on contactor cabinets. Makes periodic testing of the lights as easy as flipping a switch! Surface mount for easy installation on any wall or pedestal. Rated 120-277VAC, 1800VA. Listed UL916. 15 Year Warranty. Made in USA.



Controlled Receptacles

Model # CPCR-1R (shown)

Landscape Lighting Timer / Holiday Light Timer. Ready to use, plug & play. Has 2 outlets. Surface mount for easy installation on any wall or pedestal. Rated 120VAC, 15A, 1800W. Listed UL916. 15 Year Warranty. Made in USA. Also available with GFCI, Bypass On or Off, Double Gang configuration, etc.

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Landscape Lighting Timers / Controlled Receptacles
Custom builds available upon request

Features:

Single gang & double gang surface mount weatherproof boxes.

Extra- Duty, In-Use covers.

Weather Resistant, Tamper Resistant (WR, TR) receptacles. GFCI = self testing.

Gang	Receptacle Outlets	Switches	Order Code
Single	2	0	CPCR-1G
Single	1	1-Bypass On	CPCR-1G-BP
Single	2- GFCI Protected	0	CPCR-1G-GF
Double	4	0	CPCR-2G-4R
Double	3	1- Bypass On	CP-2G-3R-1S
Double	4- GFCI Protected	0	CP-2G-4R-GF



CPCR-1G



CPCR-1G-GF



CPCR-1G-BP



CPCR-2G-4R

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Accessories



Shorting Cap



Open Cap



Twist-Lock Receptacle ANSI C136.10 w/ 1/2" NPT

Bracket



1/2" PVC Offset Riser w/ Female Terminal Adapter

Offsets center of the control approximately 2-1/2".

Total height approx. 5". Installed height approx. 4-1/2".

Used with all of our surface mount box products to provide clearance from wall.

Description	Order Code
Shorting Cap	T-SHORT
Open Cap	T-OPEN
ANSI C136.10 Twist-Lock Receptacle	T-RECEP
Bracket for receptacle.	T-BRACKET
1/2" PVC Offset for surface mount applications	T-OFFSET

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Frequently Asked Questions

How much does it cost per month for the GPS service? Zero (\$0.00). The GPS system is always free worldwide.

How do I program it? You don't. There are no user settings. There is nothing to confuse you and nothing to go wrong. It doesn't even need batteries.

How does it work? GPS LightLock gets an automatic date, time & location update from the GPS satellite system as soon as you power it up. It runs our proprietary algorithm and programs your dusk-to-dawn switch times for that day. Each day it switches at a slightly different time to adjust for the seasons.

What about power failures? GPS LightLock self-recovers from power failures. When the power comes back on it updates the internal clock with the GPS atomic clock. You don't need to do anything.

What happens if the GPS system goes offline? The internal clock will continue on with normal operation.

Does GPS LightLock work with motion sensors, occupancy sensors, time clocks, Bypass ON and Bypass OFF? Yes. You can very easily configure GPS LightLock to work with all of these common lighting control configurations. See our installation sheet for more information.

Will GPS LightLock work inside a building or a NEMA enclosure? Yes. You can install GPS LightLock inside the attic of a building with a plywood roof and asphalt shingles. You can also install it inside a plastic enclosure for security purposes. See our installation sheet for more information.

Why is GPS LightLock better than a photocell? Photocells use 1800's technology and cause lights to switch at all different times of day. They often need replacing within 2 years of installation because the lens gets dirty and oxidizes. By the time you realize this your lights are already coming on too early, staying on too late, and even turning on and off as clouds go over. They waste energy, burn out your fixtures, bulbs & ballasts, cost you money and require unnecessary servicing and maintenance.

Why is GPS LightLock better than a programmable timer? Programmable timers rely on humans to program and maintain them. Regardless of claims by manufacturers, the lights are almost always switching at improper times. Often the lights are on for 12 hours per day but it's the wrong 12 hours, leaving people in the dark in dangerous situations. They don't last long and they only come with a 1 or 2 year warranty. They're expensive, high maintenance, and take a long time to change out when servicing a lighting circuit.

Have a question that's not answered here? We'd enjoy hearing from you. Give us a call any time.

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Installation Instructions

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Congratulations on your purchase of the most advanced and simplest to use astronomical timer on the market today. Please read this document in full prior to installation to obtain the best experience for yourself and your customer.

Socket Location & Orientation:

GPS LightLock must be installed where it can receive GPS signals. A complete view of the horizon is preferred but not required. In fact, it does not even need to be exposed to daylight. You can paint it and it can even be installed inside a plastic NEMA enclosure or inside the attic of a building with a plywood roof deck and asphalt shingles, but should not be installed inside a masonry building with a steel, concrete or clay tile roof.

GPS signals will penetrate: Glass, plywood, roofing shingles, plastic, fiberglass, and many other natural and man made materials. GPS signals will not penetrate masonry, thick metals, concrete or clay tile.

If you would like to pretest a proposed indoor installation location, there are several ways you can do so:

- By using a smart phone. Simply download and run any of the free GPS apps. We use an app called "GPS Test". You are in a good location if you can track four or more satellites with good signal reception. (Signal-to-noise ratio of 40+)
- By using a low cost handheld GPS unit to see if you are tracking four or more satellites with good signal reception.
- By making up a test jig using the controller and a light during the daytime. The light goes out when you get a fix.

If installed without a full view of the horizon, look through the lens to the left, and identify the tan colored rectangle on the top of the printed circuit board; this is the antenna. Best performance will result when the antenna is oriented towards open horizon and away from a building or other obstruction.

Physical & Electrical Connections:

Popular installations use Surface Mount Boxes, Conduit Bodies (type LB, LL, etc.) or Box Extensions. Some installers also prefer to add a Bypass switch to make servicing the lights easy.

Wire connections are:

- Black → Line (hot)
- White → Neutral
- Red → Load (light, lighting circuit or contactor)

For step dimming or local time control, if required, connect GPS LightLock control leg (red wire) to the control circuit of the local time clock or occupancy sensor. For Bypass On simply install a switch between black & red.

Specifications:

Rated 120-277VAC, 50-60Hz,
-40 to + 80C (-40 to 176F) ambient operating environment,

382 Joules MOV Lightning Arrestor,
10,000Amps Surge Protected

Listings:

Listed UL916, ANSI C136.10, FCC Part 15,
CSA 22.2 No. 205, CE, RoHS.

Energy code compliant in all 50 states.

Energy Code Compliance manufacturer's declarations:

- GPS LightLock is an astronomical time switch designated for dusk-to-dawn operation.
- GPS LightLock is a time switch capable of retaining programming and the time setting during loss of power indefinitely.
- For step dimming or local time control, if required, connect GPS LightLock control leg to the control circuit of the local time clock or occupancy sensor.

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Installation Instructions

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Time to First Fix (IMPORTANT):

In the GPS industry there is a phrase Time To First Fix (TTFF) and this is the period of time between power-up and the unit taking control of the light or lighting circuit. The design TTFF is 38 seconds. In practice your TTFF will vary and this is normal. Sometimes in an optimal location TTFF will occur in under 20 seconds. Even a TTFF up to 20 minutes is still considered a good location. In testing we have had success in locations where TTFF was several hours inside a solid concrete building with a corrugated steel roof deck, although we don't recommend you install the unit inside such a building, because your TTFF will be repeated following an extended power outage and we would not want your lights on if that happens during daytime hours. The lower your TTFF, the better the performance. If power outages are only anticipated 1-2 times per year at the installation location, TTFF up to 30 minutes is fine.

Fifteen (15) Year Warranty & Terms of Use Proviso:

In consideration of retail purchase price paid, Applied Physics Laboratories LLC (APL) warrants GPS LightLock (the product) against defects in materials & manufacturing, and switching performance, when properly installed and maintained within the 48 contiguous United States of America, for a period of fifteen (15) years from date of purchase, to the original retail purchaser. APL will repair or replace the product or refund the purchase price, at the option of APL, if a unit is found to be defective. Customer is responsible for shipping & handling charges, if applicable. Returns require a Return Merchandise Authorization which can be obtained by calling (239) 848-6675. Installer assumes all risk with respect to installation of the product. Owner is responsible for maintaining the product in safe working order at all times. No claims may rise for damages to property or persons. Limits of liability will not exceed the price paid for the product. All characteristics of the product are the proprietary, intellectual property of APL. No hardware, software, firmware, algorithms, circuits, trade secrets, manufacturing processes, theories of operation or means and methods of accomplishing the objective may be copied, reproduced, recorded, photographed, logged, analyzed, replicated or reverse engineered. Although good faith and diligent effort are exercised in publishing our printed and digital materials, we will not be responsible for errors or omissions in said material. Purchase, possession, installation and/ or use of the product is subject to agreement with this Warranty & Terms of Use Proviso. If you do not agree to the foregoing, immediately stop using the product and return the product to Applied Physics Laboratories LLC at 3905 Dr M L King Blvd #26 Fort Myers, FL 33916. GPS LightLock is manufactured under US Patent 8,816,842.

Free Lifetime 24/7 Tech Support available by calling