

Emergency LED Drivers



### What is Constant Power?

Constant Power (or “CP”) is a term used by IOTA to identify emergency LED drivers that deliver a consistent output wattage to the LED load while operating in the emergency mode. The advantage of delivering constant wattage is that the LED array will illuminate in direct proportion to the wattage, or power, it is given. If the wattage remains the same, illumination levels also remain the same. Conversely, if the wattage were to decrease, then LED illumination must also diminish. The patented Constant Power circuitry of IOTA emergency LED drivers is an improvement over traditional *constant current* emergency driver types that force wattage to drop as battery voltage decreases. This function is illustrated in Joule’s Law as “ $P = I \times E$ ” where  $P$  = watts,  $I$  = current, and  $E$  = volts. In a constant current scenario, as battery voltage decreases, wattage must also decrease to maintain a consistent output current value. The specialized design of IOTA “CP” emergency drivers, however, manipulates the output as battery voltage drops, ensuring that wattage does not change and there is no change in emergency LED illumination.

### Identifying True Constant Power

IOTA emergency LED drivers that feature the patented constant power performance are easily recognized by the presence of ‘CP’ in the model name. It is important to note that not all emergency LED drivers provided by other manufacturers deliver constant power output, despite claims to the contrary. Some constant power claims are due to either a simple lack of understanding of how LEDs operate or they classify the output as ‘regulated’ which means that the output power is only constant for a limited amount of time but is then reduced to protect battery discharge. Refer closely to emergency driver specifications – if the amperage of the emergency driver states a single value, then it is impossible for the output wattage to remain constant.

### Achieving Required Foot-Candles Along the Path of Egress

Maintaining constant illumination along the path of egress provides many advantages. First, non-diminishing illumination ensures the lumen levels provided by a properly specified emergency driver never drop below the minimum foot-candles required by national and local safety codes. Violating these minimums can incur fines and penalties from the authorities having jurisdiction, but more importantly, can also place families and loved ones at risk during an emergency. Two factors can impact the emergency lumen output levels of a fixture: the first is the decrease in battery voltage as it discharges as noted above, and second, is the age of the LED components which naturally lose efficacy over time. While some degradation is allowable by code during the runtime duration, having constant power output provides additional protection against dropping below the minimum threshold for the safety of the building’s occupants. Another advantage of constant power is potential cost-savings by eliminating the need for ‘over-sizing.’ In order to achieve the necessary minimum foot candles required at the end of the runtime, a *constant current driver* must provide additional power at the initial output. For example, if a specifier determines a path of egress fixture would require a minimum 5W at the end of the runtime, then a higher wattage (ie. higher priced) constant current driver would need to be purchased to ensure 5W of power can be delivered at Minute 90 of emergency operation. A *constant power* emergency driver, however, does not need to be ‘over-sized’ to accommodate this decline.

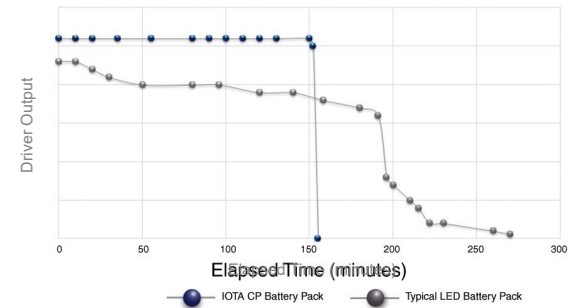
### Confident Performance Evaluation and Project Specification

Constant Power emergency drivers offer ease of specifying by eliminating the question marks of varying lumen outputs. By simply multiplying the unchanging wattage value of the CP emergency driver with the luminaire efficacy (lumens per watt) of the specified fixture, the fixed emergency lumen output is quickly determined.

### True Constant Power (CP) Emergency LED Drivers

- Deliver constant wattage to the LED array
- Provide non-diminishing light output for the full emergency runtime
- Simplify the specification process
- Help prevent falling below ft-candle levels required by local and national codes

The illumination level of the LED is directly related to the wattage it receives. IOTA CP emergency drivers deliver constant wattage to prevent diminishing emergency output.



Since wattage does not change, specifying the optimal IOTA CP emergency driver for the desired lumen level is easily calculated by multiplying the fixed output by luminaire efficacy (lumens per watt). See reverse side for lumen performance breakdown.



# ILB CP Lumen Reference Chart

Select the desired lumen output for your fixture's efficacy rating. The shown ILB CP unit will be the minimum wattage unit required. Only general efficacies and lumen values are shown. For specific lumen performance, multiply your fixture's efficacy by the wattage of the desired ILB CP unit. Refer to ILB CP product specification sheets for complete product details.



Desired Lumen Output - Constant from Minute 1 to Minute 90

		400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200 to 3600*	
Luminaire Efficacy (lm/w)	80	CP05	CP07	CP08	CP10	CP10	CP12	CP15	CP15	CP15	CP20	CP20	CP20	CP20	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	90	CP05	CP07	CP07	CP08	CP10	CP10	CP12	CP15	CP15	CP15	CP20	CP20	CP20	CP20	CP20	n/a	n/a	n/a	n/a	n/a
	100	CP05	CP05	CP07	CP07	CP08	CP10	CP10	CP12	CP12	CP15	CP15	CP15	CP20	CP20	CP20	CP20	CP20	n/a	n/a	n/a
	110	CP05	CP05	CP05	CP07	CP08	CP10	CP10	CP10	CP12	CP12	CP15	CP15	CP15	CP20	CP20	CP20	CP20	CP20	CP20	CP20
	120	CP05	CP05	CP05	CP07	CP07	CP08	CP10	CP10	CP10	CP12	CP12	CP15	CP15	CP15	CP15	CP20	CP20	CP20	CP20	CP20
	130	CP05	CP05	CP05	CP07	CP07	CP07	CP08	CP10	CP10	CP10	CP12	CP12	CP15	CP15	CP15	CP15	CP20	CP20	CP20	CP20
	140	CP05	CP05	CP05	CP05	CP07	CP07	CP08	CP08	CP10	CP10	CP10	CP12	CP12	CP15	CP15	CP15	CP15	CP15	CP15	CP20
	150	CP05	CP05	CP05	CP05	CP07	CP07	CP07	CP08	CP08	CP10	CP10	CP10	CP12	CP12	CP12	CP15	CP15	CP15	CP15	CP15
	160	CP05	CP05	CP05	CP05	CP05	CP07	CP07	CP07	CP08	CP10	CP10	CP10	CP10	CP12	CP12	CP12	CP12	CP15	CP15	CP15
	170	CP05	CP05	CP05	CP05	CP05	CP07	CP07	CP07	CP08	CP08	CP10	CP10	CP10	CP10	CP12	CP12	CP12	CP12	CP15	CP15
180	CP05	CP05	CP05	CP05	CP05	CP05	CP07	CP07	CP07	CP08	CP08	CP10	CP10	CP10	CP10	CP12	CP12	CP12	CP12	CP15	

Options include:

- Flex or No Flex Options
- Slim Profile Model
- High Efficiency models to meet CA T20 for small battery chargers

Options include:

- Flex or No Flex Options
- Slim Profile Model
- High Efficiency models to meet CA T20 for small battery chargers
- FEMA 2-hour runtime

Options include:

- Slim Profile Only
- High Efficiency models to meet CA T20 for small battery chargers

Options include:

- Flex or No Flex Options
  - Slim Profile Model
  - High Efficiency models to meet CA T20 for small battery chargers
  - Self-Diagnostics
  - Open Board / External Battery Designs
- (UL Component Recognized)

Options include:

- Flex or No Flex Options
- Slim Profile Model
- Power-over-Ethernet

Options include:

- Flex or No Flex Options
  - Slim Profile Model
  - High Efficiency meets CA T20 for small battery chargers (included)
  - Self-Diagnostics (included)
  - External Battery Designs
- (UL Component Recognized)

Options include:

- Single or Dual Flex
- High Efficiency meets CA T20 for small battery chargers (included)
- Self-Diagnostics
- High-Voltage Output

## Standard ILB CP Features

### Patented Constant Power Output

Provides the same wattage to the LED array for the entire emergency runtime - no need to oversize the unit to ensure lumen levels at the end of the 90 minute duration.

### UL Listed for Field Installation

UL Listed for United States and Canada for both field and factory installation.

### Auto-sense Class 2 Output

Auto-sensing output automatically adjusts forward voltage to operate LED arrays from 10-60VDC. On ILB CP20 High Voltage models, the operating voltage range is 50-250VDC.

### Five-Year Warranty

Durable and confident IOTA design is fully backed by our five-year warranty against manufacturer defects.

n/a = driver option not available for lumen levels at that efficacy rating. For full light output, use an IOTA IIS Micro or Mini Inverter.

\*Options shown are for 2200 lumen levels. For lumen values above 2200, multiply fixture efficacy by 20 to determine output levels of CP20 models.