

DIRTY POWER:

How to Overcome This Common Lighting System Killer

Industrial lighting has evolved tremendously from the antiquated HID sources most companies have relied on for years. Today, modern, high-performance and high-efficiency LED technology has become the lighting solution of choice, especially for harsh, hazardous and heavy industrial environments.

With benefits such as lower energy consumption, longer lifespans, drastically reduced maintenance and better light quality over time, it's no surprise. Not only do well-designed LED fixtures aid with corporate sustainability goals, but these purpose-built, rugged, solid-state designs also make them much more resilient against vibration, shock and harsh conditions than their HID counterparts.

But not all LED systems are bulletproof. Dirty power conditions can wreak havoc on lighting systems as well as industrial PLCs, drives and other sensitive industrial electronics. These conditions, if not properly mitigated or at a minimum understood, can cause premature fixture failures, potentially creating an unsafe work environment due to reduced light levels.

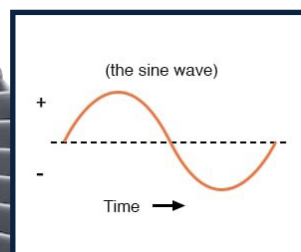
What is Dirty Power?

Various types of anomalies cause dirty power. Utility power spikes and surges, excessive line noise, low voltage conditions caused by switching large inductive loads, ground faults or other issues such as harmonics all can fall in to the category of dirty power and can seriously affect electrical equipment and electronic devices in your facility. These conditions can also be more prevalent in older 347/480V power systems. Although the overall facility-wide solution to dirty power is to put in place correctional infrastructure that ensures consistent and clean power delivery, in many mature facilities we can still frequently find:

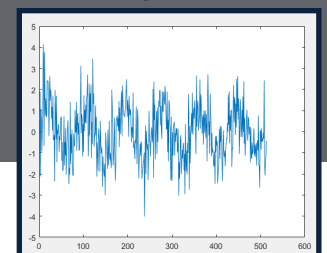
- Antiquated ungrounded or corner grounded Delta systems prone to transients during arc faults
- Lighting systems fed from panel boards and bus systems which also supply arc welders and large inductive loads
- Dated wiring systems, ground faults and intermittent earth/ground connectivity
- Stressful, high line-line and line-ground voltages, even under normal conditions

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Normal Power



Dirty Power

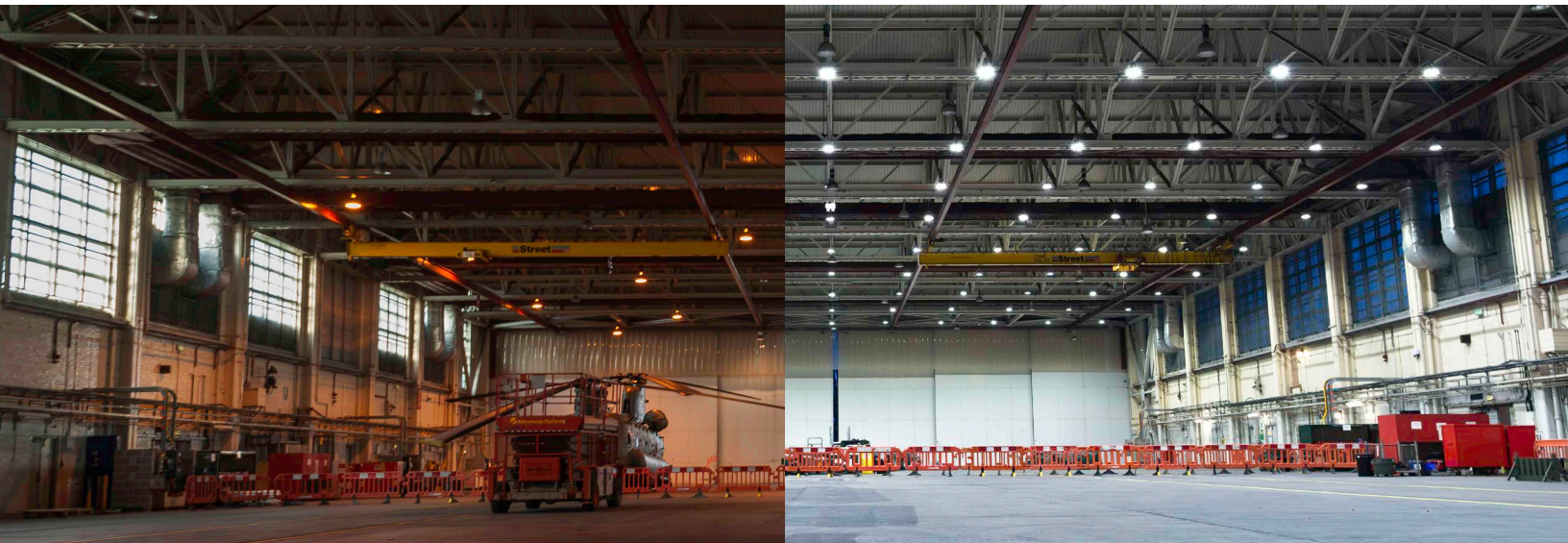


The Impact of Dirty Power on Industrial Lighting

When dirty power affects the reliability of a facility's lighting system, it can put employees at risk for accidents and injuries. Consistent and reliable lighting is critical for safety in industrial manufacturing, and anything that causes interruptions or failures creates unsafe conditions.

With HID lighting, the impact of dirty power is quite visible: you may notice the fixture lamps will dim or surge bright as heavy machine loads cycle on and off. While dirty power may not directly cause HID lighting to fail, HID lighting is undesirable due to the short lifespan, dingy color, poor energy efficiency, color shifting and near constant maintenance required for consistent operation.

Industrial grade LED systems, when properly designed by a reputable manufacturer, can alleviate many if not all of the legacy issues of HID lighting.



Is LED Immune to Dirty Power?

With most LED technology, dirty power can be an issue. LED fixtures are electronic devices after all. They are more sensitive to power fluctuations than traditional HID systems. This may cause catastrophic damage to the fixture when certain dirty power conditions are present, potentially creating an unsafe work environment, where workers suddenly cannot see, increasing the risk of accidents. Not to mention, it can destroy your investment, which negates the benefits of using LEDs in the first place.

Because of the risk of dirty power, some have been hesitant to deploy LED solutions in facilities with problematic 347-480V systems. Some feel as if they must suffer with inadequate and antiquated HID systems as their only viable option. However, there are LED lighting solutions on the market that can overcome dirty power conditions, allowing any facility to enjoy the many benefits of safe, modern, industrial-grade LED lighting. You just need to make sure you choose the right product to survive these conditions.

The Dirty Power Solution: Dialight's Built-in Passive Protection

To be clear, the risk of dirty power does not prevent your facility from reaping the benefits of modern, industrial-grade LED lighting. However, you need a lighting solution that can tolerate the unpredictability.

Dialight has created the world's first passive power supply for 347/480V fixtures to protect our LED fixtures by working like a gatekeeper for incoming power. It arrests surges and evens out low-voltage situations to provide steady, clean power to the fixture to prevent damage from dirty power.

Dialight's unique passive designs do not use any switching techniques and use very few electronic components, yet still achieve very high efficiency, high power factor and low THD. The big advantage passive designs have is extremely high reliability, making them well suited to the toughest 347-480V industrial environments.

Dialight's High Bay with Passive Power Supply

Equipped with our exclusive dirty power arresting system, Dialight's Vigilant® High Bay with Passive Power Supply has become the gold standard of lighting for 347/480V environments, offering all the high efficiency, low maintenance, high visibility and safety benefits that are the hallmarks of our industry-leading High Bay line with integrated dirty power protection.

In addition to offering the most robust solution on the market, the Vigilant High Bay with Dialight's Passive Power Supply, is also covered by our industry-leading 10-year warranty, which was recently recognized by the [National Lighting Bureau's](#) Trusted Warranty Program.

This combination of high-performance, long life and durability makes the Dialight High Bay the safest, most reliable lighting solution for a wide variety of harsh industrial environments.



ADVANTAGES OF DIALIGHT'S PASSIVE POWER SUPPLY



Fewer components



Greater reliability and longer life



Low electromagnetic radiation



High-temperature compatible



High efficiency performance