

POWALITE

LIGHTING CONTROLLERS



• ADVANCED ENERGY SAVING VOLTAGE CONTROL SYSTEMS •

powalite offers

- Energy savings of up to 40%
- Increased lamp life
- Advanced communication & control
- Easy installation
- Rapid payback period



up to **40%** savings

No other lighting power control system combines all the benefits of voltage stabilisation, energy saving & ease of installation within a rapid payback period.

POWALITE

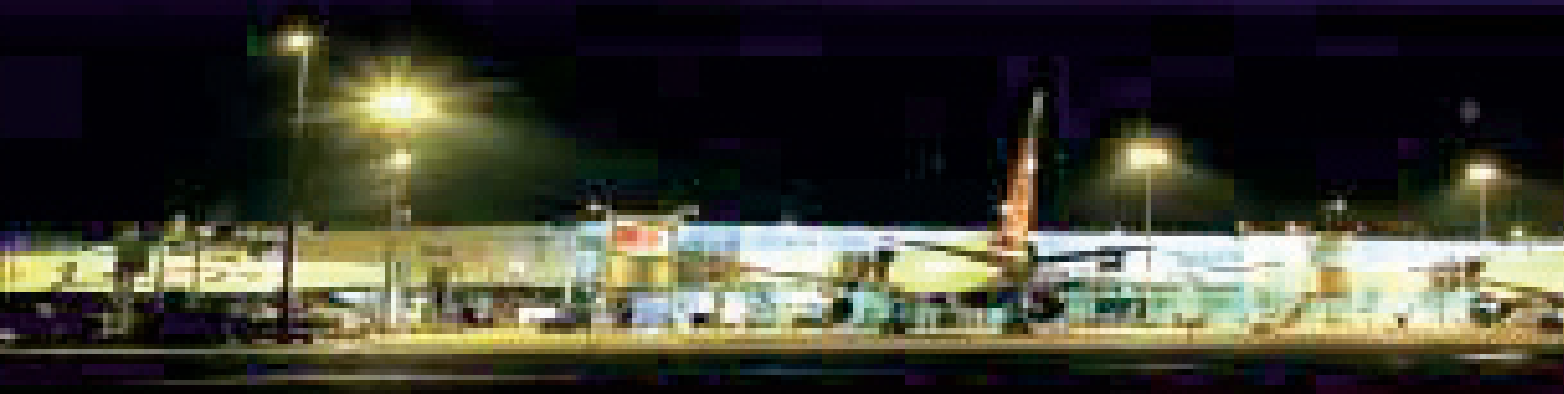
Principles

Lamps require certain voltage to strike, but once energised, the supply voltage does not significantly affect light intensity. Voltage can be reduced by 15% to 20% without any noticeable impact, however power consumption is considerably reduced; not by the percentage savings but also by the nature of voltage explained in Ohms Law.

how powalite works

Over Voltage - the problem with night-time lighting

By definition, we need lights at night, but the reduced industrial and commercial activities between 8pm and 8am often result in the mains voltage being over supplied. A typical over voltage of +10% increases power consumption by +21% since power is related to the square of voltage (Ohm's Law in action). Reducing and regulating the voltage to lamps between 15% and 25%, decreases power consumption, but not the lamps efficiency. The result? Energy savings of up to 40%.

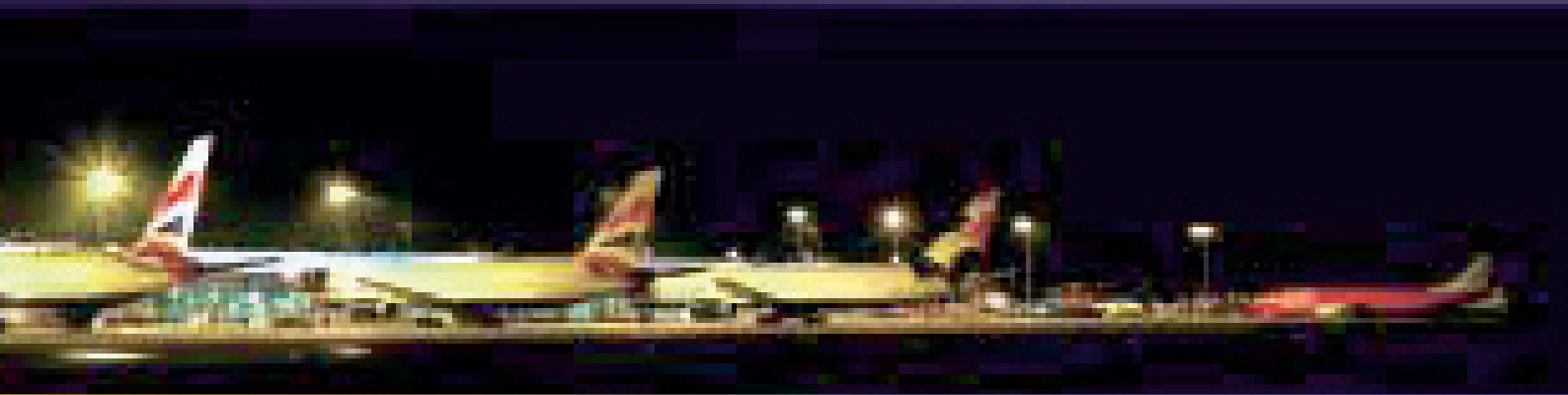


Case Study

Heathrow Airport is among one of the busiest airports in the world, with approximately 1500 take-off and landings per day. The airports total power consumption is in the region of 80MW, of which lighting accounts for approximately 25%.

Heathrow's programme to reduce both CO₂ emissions and power consumption of lighting led it to first trial and then install the PowerWorks Powalite units on its stand and under-pier lighting. So far it has achieved an average 37% saving on consumed power and an equivalent reduction in CO₂ emissions.

Payback period is calculated at 3 - 5 Years on all Heathrow installations, this includes all electrical installation work, maintenance and provision of an external bypass.



Powalite Takes Control

How it works – When lighting is required a message is sent via the Powalite CPU to begin a self-test of all its essential parameters. On successful completion, the lamps 'soft start' process commences at 210VAC (this voltage can be set) for two and a half minutes. This initial cycle eliminates approximately 40% of the start-up surges to the lamps. The voltage is now slowly increased to the rated 230VAC over five minutes. This slow ramp significantly increases lamp life. During the start-up process, the voltage will be constantly monitored and stabilised at pre-programmed values.

Once start-up is completed, Powalite will continue supplying a stabilised voltage at the normal value, until it receives an instruction to reduce the voltage level. An external device (timer, clock, remote control etc.) sends the instruction instigating a 'soft ramp' voltage reduction process lasting about ten minutes until the pre-programmed 'saving voltage' is reached. This process will be repeated as many times as programmed as well as maintaining power levels during power cuts or brownouts.

t₀ to t₁

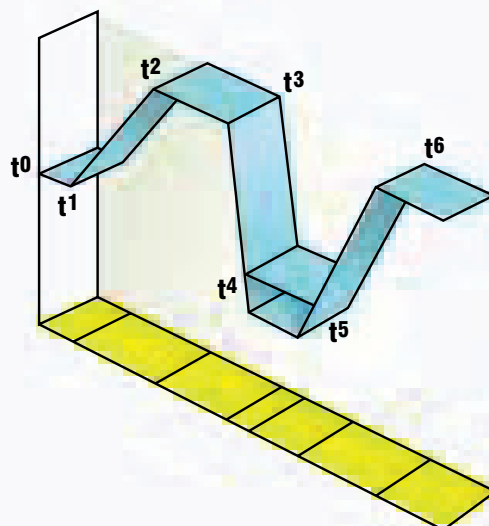
Soft start at 210V for 2 minutes 30 seconds.

t₁ to t₂

Soft ramp up to nominal voltage over 5 minutes.

t₂ to t₃

Stabilised nominal voltage.



t₃ to t₄

Instruction to reduce voltage. Soft ramp down to saving voltage.

t₄ to t₅

Saving voltage.

t₅ to t₆

Instruction to increase voltage. Soft ramp up to stabilised nominal voltage over 10 minutes

Powalite Power Stabilisation

The Powalite lighting controllers assure stabilised power and realisable power savings at optimal conditions for discharge lamps. The Powalite unit ensures that the voltage supplied to the lamps will always be within $\pm 2\%$ of the rated value, while maintaining expected lighting levels. Powalite ensures a significant increase of the discharge lamps' life. Similarly, the unit allows soft and controlled transitions of the voltage supplied to the lamps, resulting in uniform light intensity and significant power savings.

advanced electronic control

Sophisticated Programmable Automatic Control Manager

The electronic control unit automatically manages the control status of the by-pass and RS485 port by constantly sampling data from the main operating parameters. These parameters include input voltage, output voltage and frequency, all of which are recorded in the EEPROM.

Programming the required output voltage, prevents undesired oscillations. The micro-controller determines the output reference voltage which ensures an accurate output.

INPUT	
Voltage	Single phase: 120V, 220V, 230V, 240V Three phase: 208V, 220V, 230V, 240V, 380V, 400V, 415V +N +Gr
Regulation margin	+25% / -5% normal voltage +11% / -19% saving voltage (MV) +10% / -25% saving voltage (HPSV)
Frequency	From 48 to 63Hz
Phase protection	One-pole curve U circuit breaker
OUTPUT	
Voltage	Single phase: 120V, 220V, 230V, 240V Three phase: 208V, 220V, 230V, 240V, 380V, 400V, 415V +N +Gr
Accuracy	> +2%
Soft start voltage	210VAC
Saving level min. voltage	180VAC (phase to neutral). Adjustable, depending on the type of lamp. Recommended values: Voltage for MV: 190VAC Voltage for HPSV: 180VAC
Regulation	Phase independent
Harmonic distortion	Nil
Efficiency	>97%
Power factor permitted	From 0.5 lead to 0.7 lag
Phase to phase unbalance	100%
Type of lamp selection	MV and HPSV (by micro-switches)
BY-PASS	
	Incorporated automatic solid state, independent per phase
ENVIRONMENT	
Operating temperature	From -40°C to +45°C
Relative humidity	From 0% to 95%, non condensing
Maximum altitude	2400m above sea level
MTBF	60000 hours
MTTR	30 minutes
Audible noise at 1m	<35dB
INDICATORS	
Visual (by phase)	'Mode' process, 'Saving ON', Selected tap, Auto solid state by-pass
Audible (by phase)	Alarm auto solid state by-pass
HOUSING	
Outdoor versions	Type 1 cabinet made of carbon steel plate with cataphoresis treatment, painted with epoxy grey colour paint RAL 7032.
Panel mounted	Type 1 cabinet made of polyester Carbon steel vichromated chassis with four drilled base to fix on the cabinet's floor where it should be installed vertically

technical data

The PowerWorks Limited

Unit A, Lake Works, Cranleigh,
Portchester, Hampshire
PO16 9DH

Tel: +44 (0)1329 288444

Fax: +44 (0)1329 288777

e-mail: sales@powerworks.co.uk

Web: www.powerworks.co.uk

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