



Application of Flicker-free Constant Voltage Switching Power Supply

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By: Weiqiang Wu/ Technical Dept.

RMA@meanwell.com.cn

What is Flicker?

Flicker : a visible change in brightness between cycles. Luminaries flicker is caused by the light changes. Generally, a frequency of flicker lower than 100Hz is visible to human eyes. The frequency goes above 100Hz is hard to be detected by human eyes.

Since traditional lamps use AC main as input source, the current is transmitted by a frequency of 50HZ. The output voltage fluctuates between peak and trough. The brightness of the lamp changes with the periodic changes of AC power and because electronic ballasts have no control loop, about 2 times the frequency of the AC main is incurred.

With the continuous development of modern farm lighting, farm lighting has entered into the stage of intelligent control. LED poultry lighting is different from ordinary commercial lighting. It is necessary to fully consider the physiological characteristics of the poultry. The growth of poultry is greatly affected by the intensity, time, and spectrum of the light. Under the ideal environment, the led light can stimulate the appetite of poultry, increasing the intake and enhancing the growth of poultry. Consequently, the production of "meat and eggs" is boosted. However, as poultry is very sensitive to light, LED drivers with PWM dimming are not suitable for poultry-related dimming applications. (Figure 1: waveform of PWM dimming voltage and current)

Duty Cycle

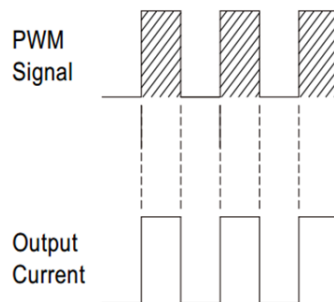
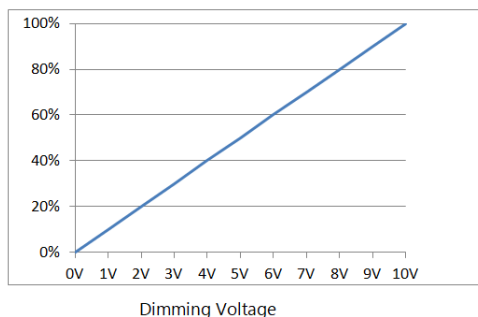


Figure 1. Waveform of PWM Dimming Voltage and Current

Because the scale of poultry farms is various, the lighting requirements of the poultry farm are different. The power and the number of lamps configured of each breeding site should be customized based on its own needs. The constant voltage dimming method is applied in poultry lighting, which is controlled by a 0~10V signal provided by the control system. In figure 2, no flicker showed when dimming. Undoubtedly, drivers play a critical role in designing luminaries.

Duty Cycle

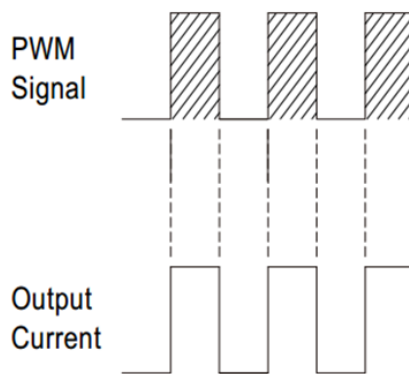
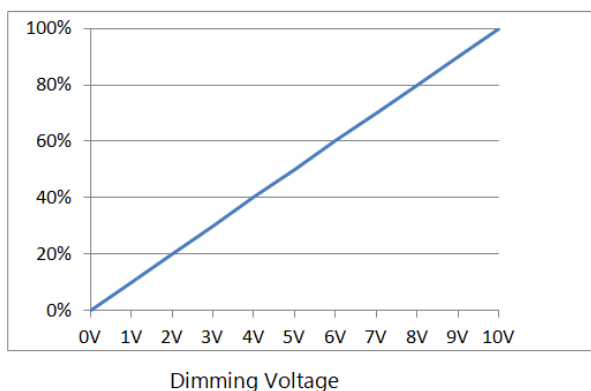
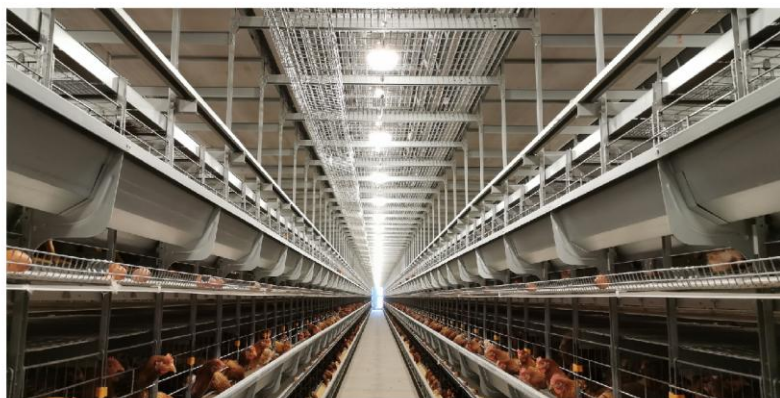
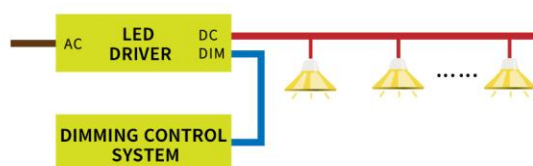


Figure2. Linear Dimming Voltage VS Output Current

In response to the market requirements of the poultry lighting, NPF-200/HLG/ELG/ERP series, MEAN WELL newly launched constant voltage dimming products, adopt constant voltage and low ripple design.

Also, flicker-free design makes them suitable for the expansion of breeding sites. Currently, a wide-range 150W/200W/320W/400W products are available for customers. If you have other requirements for poultry lighting solutions, please do not hesitate to contact MEAN WELL.

SOLUTION FOR POULTRY LIGHTING APPLICATION



ELGC SERIES

HLG SERIES

ERPF-400 SERIES