

## Products Designed for Swine

### AgriShift® MLM-S

The AgriShift® MLM-S for swine is a highly efficient lighting fixture designed to evenly distribute light for both the swine herd and humans caring for them. The red spectrum used makes it easy to provide natural daylight simulation for improved productivity.

### AgriShift® MLS

The AgriShift® MLS is designed to evenly distribute light for both the swine herd and humans caring for them, while supporting bio-security measures of modern swine facilities. It is suitable for use in sow barns, gestation buildings, nurseries, gilt development units and finishing facilities.

## Additional Essentials and Accessories

### Junction Box (Not Pictured)

This Junction Box is designed to withstand routine cleanings and resist corrosion in wet, damp and dry locations. It is made with a gray PVC and comes with four (4) sealed threaded hubs (3/4" NPT) and 1 open hub (3/4" NPT).

### AgriShift® G Controller

The AgriShift® G Controller is a slave dimmer that provides full potential to any ONCE® AC lighting fixture. It offers smooth dimming solutions that can easily be controlled by two separate 0-10 VDC control signals and several advanced features, adding flexibility while addressing the complex modern agriculture facilities.

### AgriShift® Master Controller

The AgriShift® Master Controller is used for dimming and controlling lights in commercial agriculture applications. The integrated controller is easily controlled manually by the front panel, remotely with a 0-10VDC control signal—standard with most barn controllers, or as a stand alone programmable controller.

### AgriShift® Slave Dimmer

The AgriShift® Slave Dimmer provides smooth dimming of any AgriShift® lighting fixture. It is easily controlled manually with the front panel controls or remotely with a 0-10VDC control signal—standard with most barn controllers. The dual output channels allow control of more lights at higher power levels.

### BioShift® Pass-Through UV-C Chamber - Small and Large

The BioShift® Pass-Through UV-C Chamber is an Eco-Friendly tool to use alongside established bio-security protocols. It is designed to fix key vulnerabilities within agriculture facilities, while enhancing protocols by killing viruses and other pathogens in a recommended time of 5 minutes, before they can enter your bio-secure farm facility.

### AgriShift® STC/STA Stringer

Made for any AgriShift® ML lighting fixture, the AgriShift® STC is a stringer designed to connect on the AgriShift® STA, adapters offering various drop cord lengths, allowing for easy and cost efficient installation.

Attaching to the ceiling of barns up to 152 meters long, the AgriShift® STC comes in 25 or 30 1/2 meter lengths, with 2.43 or 3 meter sections. It gives producers the opportunity to provide a species-specific light spectrum for their animals, while the durable, Built For Your Barn®, design guarantees it will withstand harsh barn environments for years to come.



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## Animal-Centric Lighting Systems for Swine

- Improves animal welfare
- Out-performs generic LED lighting
- Advanced systems specialized for swine
- Reduces energy costs

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## The Science Behind the Technology

Light, a key environmental factor and essential to sustain life, is why raising animals in indoor facilities requires specialized lighting programs to achieve optimal results. ONCE® animal-centric lighting systems go beyond traditional LED technologies by offering a lighting solution designed to influence desirable physiological and biological processes in animals. With AgriShift® technology and a production dimmer program, light intensity, photoperiod and color spectrum can be adjusted for better performance, naturally resulting in increased production and enhanced animal welfare. However, artificial lighting programs must be applied with a thorough understanding of the animal's response to light and the significance of the different characteristics of light.

### The Importance of Light Color in Swine Lighting

By understanding how a typical human sees color and light compared to how a certain animal sees, allows us to produce a better quality of light for that particular species. When a human and an animal see the same light, they both perceive something totally different.

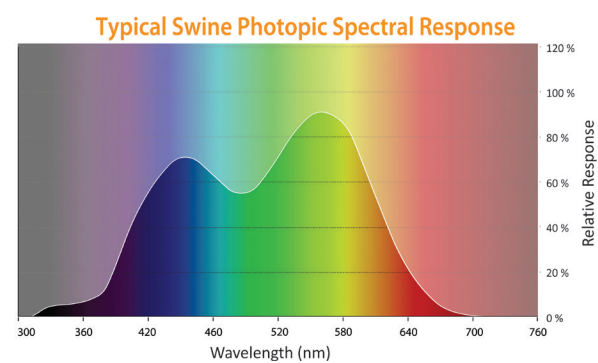
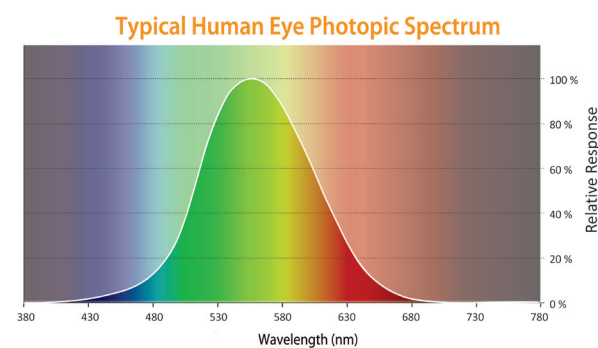
#### How Humans See

Lighting for humans is typically categorized on a white scale. Our eyes all have the same types of photo receptors so we perceive the same colors. Humans have three types of pigment cones, which results in being able to see and decipher a higher clarity of colors.

In the top graph to the right, you see the typical color sensitivity of a human. The smooth white line curve and large hill in the center shows that humans see more green and yellow colors than they see blue and red.

#### How Swine See

Swine see colors much more subdued than humans do. They have dichromatism, meaning they have 2 pigment cones and can only see two distinct colors, blue and green - with the highest sensitivity being green light. In the swine spectrum to the right, this is demonstrated by the two large hills over the blue and green colors. The smooth white line drops off significantly before the color red (right), showing that pigs can not see that color.



## Benefits of ONCE® Swine Lighting Systems

ONCE® lighting systems are designed to provide exceptional light quality for both the swine herds and humans caring for them. They are made with species-specific, Dim-to-Calm™ technology and are suitable for use in sow barns, gestation buildings, nurseries, gilt development units and finishing facilities. Our technology allows the lighting fixture to fully dim red, which swine perceive as darkness. This allows the red light to be used as a "service light", allowing workers to access the facility without disturbing or interrupting the sleep cycles of the animal.

### Animal Welfare

Lighting systems designed to minimize extreme changes in lighting can positively direct animal behavior to reduce stress and improve their livability and performance. Abrupt changes are shown to excite animals, increasing cortisol levels and inhibiting melatonin secretion—both of which have a negative effect on their well-being. Sunrise and sunset simulation eliminates the stress inputs of switching lights on and off abruptly, supporting an animal's immune response. By offering LED fixtures that present uniform coverage and a consistent light pattern, corticosterone levels are minimized and animal welfare is improved.

### Easy Installation

ONCE® swine lighting fixtures are made with a modular build and Built For Your Barn® design, providing easy installation with a retrofit solution that helps eliminate constant replacement cycles.

### Energy Savings

AgriShift® LED lighting is more energy efficient than fluorescent and incandescent lighting. Switching from incandescent to LED lighting with dimming, can save from 75 to 85% of your lighting electricity costs. Switching from compact fluorescent lamps (CFLs) to ONCE® LED lighting products saves from 45 to 50%. In most situations, the financial payback period of an LED investment is between 1 and 2 years.

## Our Technology



**AgriShift®** lighting systems "shift" spectrum and intensity, meeting the individual needs of your animals¹.



**Dim-to-Calm™** technology provides daylight simulation and can act as a "service light" when fully dimmed.



A **Built For Your Barn®** design uses techniques and materials that withstand harsh barn environment for years to come.