





WE MASTER THE ART OF LIGHTING
www.hato.lighting



DUTCH
ENGINEERING



SURNIA

The SURNIA: an innovative LED agricultural lighting solution that is applicable to low ceiling broiler houses. This product provides an exceptional light distribution and has an expected average lifetime of 50.000 hours.

APPLICATION:

- ✓ Layer
- ✓ Layer parent stock
- ✓ Broiler
- ✓ Broiler parent stock

HOUSING:

- ✓ Floor housing
- ✗ Aviary
- ✓ Cage (A-type)
- ✓ Cage (H-type)

SPECIFICATIONS:

	SURNIA CW-Blue	SURNIA WW
Operating voltage:	48VDC	48VDC
Dim range:	100 - 0%	100 - 0%
Light source:	LED	LED
Power consumption:	3W (Blue) 9.4W (CW)	9.4W
Light output:	40lm (Blue) 925lm (CW)	925lm
Efficacy:	13.3lm/W (Blue) 98lm/W (CW)	98.4lm/W
Light colour:	460nm (Blue) 4000K (CW)	2900K
Flicker-free:		yes
IP rating:		IP67
Expected average lifetime:		50,000h



T-connector



Direct connector



Junction box

ACCESSORIES:

Power supply:	HATO 48VDC power supply
	DIM adapter (optional)
Power supply box:	PSH2 or PSH small
T-connector, connection cables:	PCC & PPCC
Endcap:	LTS-10-01
Sunlight simulator:	PLD2

More info: www.hato.lighting

POULTRY LIGHTING

THE 4 KEY ASPECTS

A poultry house is not fully equipped without high-performance house lighting. Poultry lighting has several aspects that can significantly influence poultry behaviour, welfare and performances.

1. SPECTRUM

The first important aspect of poultry lighting is the light spectrum. You probably already know that poultry is very sensitive to light. An increasing volume of research confirms that chickens perform best under a broad light spectrum. Colour is significantly present in a broad light spectrum, which means it approximates daylight closely.

2. LIGHT DISTRIBUTION

A second important aspect is light distribution. Correct light distribution enables optimal usage of the available space by the chickens. Chickens will notice bright spots and shadows in their surroundings. This can lead to piling, the avoidance of particular areas and other undesirable behaviour.

3. DIMMING

Thirdly, it is important that a lamp is able to dim smoothly, deeply and evenly from 100-0% to simulate sunrise and sunset conditions. Sunset/sunrise dimming gives chickens a clear sign to comfortably prepare to rest or wake up. Suddenly turning the lamps on or off will shock them, with increased stress as a result.

4. FLICKERING

Another aspect that is of significant importance is flicker. Chickens originally used to live in the jungle. Since they were prey animals, they had to be on guard 24/7. Flickering lamps (constantly varying in light output) are believed to give chickens the impression that a predator bird is flying above them. This constant – possible – threat causes the birds stress.





CORAX

The CORAX: uniform light distribution and a perfect light spectrum ensure correct light management. This results in the prevention of shades, leading to a decrease in piling.

» Multiple light colour combinations available.



APPLICATION:

- ☒ Layer
- ☒ Layer parent stock
- ☒ Broiler
- ☒ Broiler parent stock

HOUSING:

- ☒ Floor housing
- ☒ Aviary
- ☒ Cage (A-type)
- ☒ Cage (H-type)

ACCESSORIES:

Power supply:

HATO 48VDC power supply

DIM adapter (optional)

Power supply box:

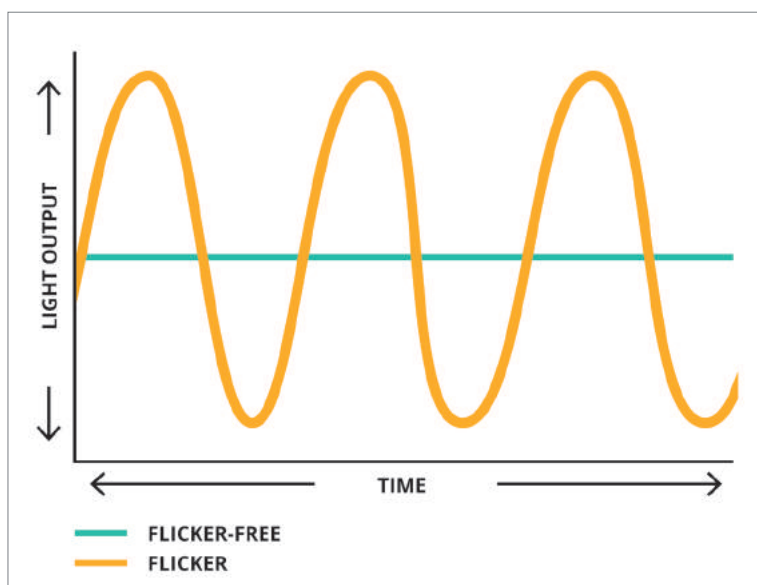
PSH2 or PSH small

SPECIFICATIONS:

	Operating voltage	Dim range	Light source	Power consumption	Light output	Efficacy	Light colour	Flicker-free	IP rating	Expected average lifetime
CORAX	48VDC	100 - 0%	LED	9W	1000lm	111lm/W	2900K	yes	IP67	50,000h
CORAX CW	48VDC	100 - 0%	LED	9W	1060lm	118lm/W	4500K	yes	IP67	50,000h
CORAX XL	48VDC	100 - 0%	LED	15.4W	1750lm	112lm/W	2900K	yes	IP67	45,000h
CORAX DDS	48VDC	100 - 0%	LED	9W (WW / CW) 1W (UV-A)	WW: 1000lm CW: 1060lm	WW: 100lm/W CW: 106lm/W	WW: 2500K CW: 6700K	yes	IP67	50,000h

ALL YOU NEED TO KNOW ABOUT **LIGHT FLICKER**

In short, flicker is the (rapid) change of the light output of a lamp. The frequency at which this occurs is important. When the frequency is high enough, even a flicker ratio of 100% may not be visible for poultry.



WHAT FLICKER INDEX OR FLICKER FREQUENCY IS SUITABLE FOR POULTRY?

There is no generally accepted norm for either of these. However, when there is literally no flicker at all, there is no discussion about the correct value needed. That's why the majority of our lighting solutions are 100% flicker-free.

THE EFFECTS OF FLICKER ON POULTRY

Chickens are very sensitive to light. Flicker therefore leads to stress. This stress has different consequences for each type of chicken, which eventually lead to decreasing animal welfare and performances.

LAYERS & PARENT STOCK

Stress has a great impact on the agitation levels of hens. Agitation can trigger pecking and possibly lead to cannibalism. Piling can occur as well. Both cannibalism and piling will eventually lead to increased mortality.

Stress caused by flicker will also negatively impact feed intake and egg production. Result: increased feed conversion rates.

BROILERS

Flicker can be a major source of stress for broilers. This can lead to agitation and consequently induce piling. Piling leads to wet litter, which causes footpad lesions and breast blisters, with increased mortality as a result.

Furthermore, stress leads to a decrease of uniform growth and an increase of feed conversion rates.



Please get in touch with us via sales@hato.lighting for more information about light flicker and the importance of flicker-free lighting.



PULSA

The PULSA: the standard for today's agricultural lighting applications as confirmed by many users worldwide. Easy installation is possible thanks to advanced plug & play connection.

» Multiple light colour combinations available.



APPLICATION:

- ☒ Layer
- ☒ Layer parent stock
- ☒ Broiler
- ☒ Broiler parent stock

HOUSING:

- ☒ Floor housing
- ☒ Aviary
- ☒ Cage (A-type)
- ☒ Cage (H-type)

ACCESSORIES:

- Power supply: HATO 48VDC power supply
DIM adapter (optional)
- Power supply box: PSH2 or PSH small
- Connection cables: PCC & PPCC
- Endcap: LTS-10-01

SPECIFICATIONS:

	Operating voltage	Dim range	Light source	Power consumption	Light output	Efficacy	Light colour	Flicker-free	IP rating	Expected average lifetime
PULSA	48VDC	100 - 0%	LED	9W	1000lm	111lm/W	2900K	yes	IP67	50,000h
PULSA CW	48VDC	100 - 0%	LED	9W	1060lm	118lm/W	4500K	yes	IP67	50,000h
PULSA XL	48VDC	100 - 0%	LED	15.4W	1750lm	112lm/W	2900K	yes	IP67	45,000h
PULSA DDS	48VDC	100 - 0%	LED	9W (WW / CW) 1W (UV-A)	WW: 1000lm CW: 1060lm	WW: 100lm/W CW: 106lm/W	WW: 2500K CW: 6700K	yes	IP67	50,000h



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STERNA

The STERNA: an LED lighting solution for vertical layer cages. This product has coated surfaces that face the cages to stimulate maximal animal comfort. The LEDs are specially placed to reach the feeding line at every tier.

APPLICATION:

- ☒ Layer
- ☒ Layer parent stock
- ☒ Broiler
- ☒ Broiler parent stock

HOUSING:

- ☒ Floor housing
- ☒ Aviary
- ☒ Cage (A-type)
- ☒ Cage (H-type)

SPECIFICATIONS:

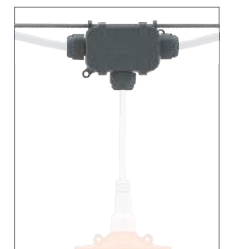
Operating voltage:	48VDC
Dim range:	100 - 0%
Light source:	LED
Power consumption:	9.4W
Light output:	820lumen
Efficacy:	87.2lm/W
Light colour:	2900K
Flicker-free:	yes
IP rating:	IP67
Expected average lifetime:	50,000h



T-connector



Direct connector



Junction box

ACCESSORIES:

Power supply:	HATO 48VDC power supply
	DIM adapter (optional)
Power supply box:	PSH2 or PSH small
T-connector, connection cables:	PCC & PPCC
Endcap:	LTS-10-01
Fixation:	hook (RCH) or eye (RCE)

More info: www.hato.lighting

IMPROVE PERFORMANCES

REQUEST A **FREE** LIGHTPLAN

It is essential that your light climate is adapted to your animals, your house and the housing equipment used. Each type of animals and each house has different needs. Follow the steps below to fulfill those needs and start improving performances straight away!



WHAT ARE YOU WAITING FOR?

Visit www.hato.lighting/en/lightplan and receive your custom lightplan within two businessdays!



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More info: www.hato.lighting



WOW

The WOW is the ideal solution to change a traditionally lighted house into a modern and efficient LED lighted house. It contains all features that are required to answer the needs of today's poultry houses.

This E27 solution is available in warm white, cold white and warm white with UV-A. UV-A improves the chicken's view, which leads to better performances.



APPLICATION:

- ✓ Layer
- ✓ Layer parent stock
- ✓ Broiler
- ✓ Broiler parent stock

HOUSING:

- ✓ Floor housing
- ✓ Aviary
- ✓ Cage (A-type)
- ✗ Cage (H-type)



WOW: HATO E27 cable

SPECIFICATIONS:

	Operating voltage	Dim range	Light source	Power consumption	Light output	Efficacy	CCT	Flicker-free	IP rating	Expected average lifetime
Warm white	96VDC	100 - 0%	LED	7W	790lm	112.9m/W	3000K	yes	IP67	35,000h
Cold white	96VDC	100 - 0%	LED	7W	884lm	126.3m/W	4500K	yes	IP67	35,000h
Warm white + UV	96VDC	100 - 0%	LED	7W	754lm	107.8lm/W	3000K	yes	IP67	35,000h



BUBO

The BUBO: a tubular LED lighting solution that is applicable to enriched cage housing and aviary systems.

It ensures the right amount of light at the right place. This results in proper usage of the system and stimulation of feed and water intake.



APPLICATION:

- ☒ Layer
- ☒ Layer parent stock
- ☒ Broiler
- ☒ Broiler parent stock

HOUSING:

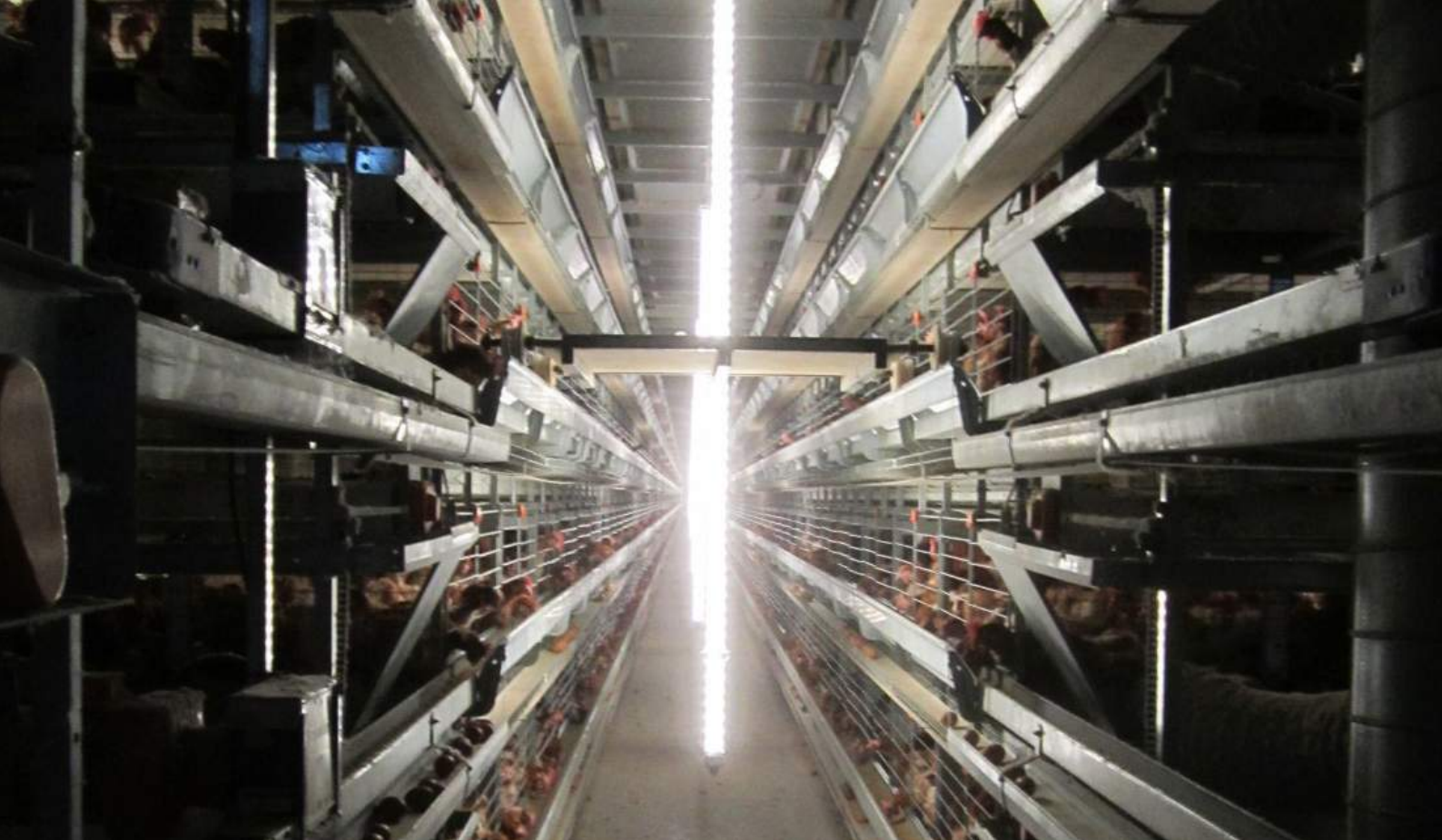
- ☒ Floor housing
- ☒ Aviary
- ☒ Cage (A-type)
- ☒ Cage (H-type)

ACCESSORIES:

- Power supply: HATO 48VDC power supply
- DIM adapter (optional)
- Power supply box: PSH2 or PSH small
- Extension cables: LTC-300-01 / LTC-3000-01
- Endcap: LTS-10-01

SPECIFICATIONS:

	Operating voltage	Dim range	Light source	Power consumption	Light output	Efficacy	Light colour	Flicker-free	IP rating	Expected average lifetime
Amber 90cm	48VDC	100 - 0%	LED	1.5W	58lm	38.6m/W	594nm	yes	IP67	50,000h
Amber 180cm	48VDC	100 - 0%	LED	3W	116lm	38.6m/W	594nm	yes	IP67	50,000h
Warm white 90cm	48VDC	100 - 0%	LED	2.3W	210lm	91.3lm/W	2900K	yes	IP67	50,000h
Warm white 180cm	48VDC	100 - 0%	LED	4.6W	420lm	91.3lm/W	2900K	yes	IP67	50,000h



STRIX

The STRIX can, depending on the application, be attached both vertically and horizontally (STRIX VSHAPE). 100-0% dimmability and flicker-free lighting increase animal welfare and performances.

APPLICATION:

- ☒ Layer
- ☒ Layer parent stock
- ☒ Broiler
- ☒ Broiler parent stock

HOUSING:

- ☒ Floor housing
- ☒ Aviary
- ☒ Cage (A-type)
- ☒ Cage (H-type)

SPECIFICATIONS:

	STRIX 1650	STRIX 2250
Operating voltage:	48VDC	48VDC
Dim range:	100 - 0%	100 - 0%
Light source:	LED	LED
Power consumption:	25W	36W
Light output:	3300lumen	4700lumen
Efficacy:	132lm/W	130.5lm/W
Light colour:	2900K	2900K
Flicker-free:		yes
IP rating:		IP67
Expected average lifetime:		50,000h



STRIX V SHAPE: attached to the ceiling, excellent air flow!

ACCESSORIES:

Power supply:	HATO 48VDC power supply
	DIM adapter (optional)
Power supply box:	PSH2 or PSH small
Advanced sunlight simulator:	PLD2



KGH 50

KGU 50

KGW 50

KGZ 50

More info: www.hato.lighting



ED

The ED: the first poultry specific lighting solution on the market. This 100-1% dimmable tubular lighting solution provides a unique and perfect light distribution.

APPLICATION:

- ☒ Layer
- ☒ Layer parent stock
- ☒ Broiler
- ☒ Broiler parent stock

HOUSING:

- ☒ Floor housing
- ☒ Aviary
- ☒ Cage (A-type)
- ☒ Cage (H-type)

SPECIFICATIONS:

Operating voltage:	230V / 50-60Hz
Dim range:	100 - 1%
Light source:	Fluorescent T8
Power consumption:	18.9W, 36W or 58W
Light output:	1200lm, 3000lm or 4700lm
Efficacy:	63.5lm/W, 83lm/W or 84lm/W
Light colour:	3000K
Flicker-free:	40 - 100kHz
IP rating:	IP67
Expected average lifetime:	20.000h



OPTIONAL:

Protection foil:	Anti shatter foil for glass
Tube material:	Polycarbonate
Reflectors:	180°+80°perforated 80°perforated + 80°perforated



KGH 50



KGU 50



KGW 50



KGZ 50



REVOLUTIONARY

The HATO ONE is an all in-one poultry light meter. A must-have for every poultry specialist.



MEASURE

Measure every aspect of light that matters for poultry. Light intensity, light flicker, light spectrum, CCT, CRI and more!



ANALYZE

Compare the measurement results with poultry needs and more. Export all data, analyse them and start improving!



IMPROVE

Start realising an optimal light climate and improve animal welfare and performances straight away!



Unique Measurement Features

By hand or app



Light intensity



CCT - Correlated Colour Temperature



Light spectrum



CRI
COLOUR RENDERING INDEX



Light flicker

A poultry specialist without a light meter is like a painter without paint. Order the HATO ONE now and start improving your light climate straight away. **MORE INFO: WWW.HATO.ONE**

HATO ONE



IMPROVE PERFORMANCES



HATO Agricultural Lighting is one of the world's major producers of agricultural lighting solutions. Our leading position has been built on our knowledge and expertise about how light affects animal behaviour and well-being. With a strong commitment to innovation, we are constantly renewing our range of products to fulfil the needs of both the animal and the customer.

MISSION

Delivering reliable lighting solutions worldwide for the advancement of our customers with a focus on animal welfare.

CONTACT

Handelsstraat 31, 6135 KK Sittard - The Netherlands

T. +31 (0)46 458 50 50

info@hato.lighting

www.hato.lighting

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