



LP 491

IPL Electronic Dimmer

For IPL Electronic Adapters

In Poultry Houses

User Manual

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Read this manual before installing, using or servicing this equipment

Disclaimer

Improper installation, service, adjustment or maintenance can result in property damage, injury or death. A qualified electrician should install this equipment. The supplier, its subsidiaries and affiliates, can not be responsible for ensuring that all appropriate safety precautions, proper installation are followed. This is the entire responsibility of the installation distributor, the installer and the equipment owner.

1. Introduction

Continuous control of light intensity of Compact Fluorescent Lamps (CFLs) is facilitated by this system for use in poultry houses. It complies with the specific requirements of the breeders and it is very efficient in energy as well as featuring extended lamps longevity.

2. Properties of the system

The system is designed for mains voltage rated $230V \pm 10\%$ at 50/60Hz and for IPL adapters units suitable for 11W 4 pins lamps.

The IPL Dimmer can control a maximum of 200 11W 4 pins lamps.

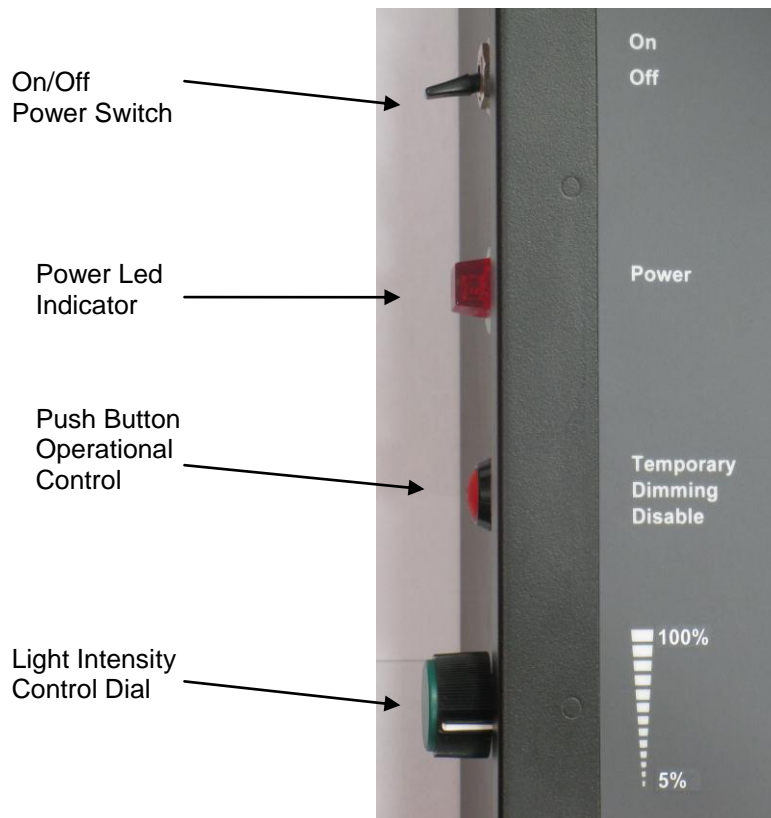
The IPL Dimmer operates in between 5% to maximum output 100% or turned OFF.

The following methods of operation are available:

1. **Manual mode** Manual mode for operating the Orion Dimmer on site as a stand alone system.
2. **Auto mode** for operating the IPL Dimmer remotely by 0-10V.
The dimmer can be directly controlled by your poultry house controller through its analog output (0-10 volt).

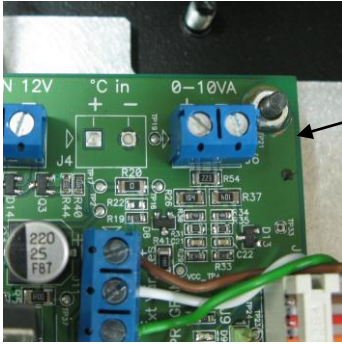
These methods of operation will be discussed further in the following chapters.

The following figure describes the controls Light Intensity Controller:



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3. Analogue input (0-10 volt) wiring



Analogue input (0-10 volt) terminal block. Designated to connect with poultry house controller through its analog output (0-10 volt). Enables dimming by an external controller.

4. Power-up

The system display shows the following LCD display. Light output automatically slides to the level set by the intensity control knob (or 0-10V input intensity level as described in the appropriate chapter).

After starting, the CFL bulbs may require several minutes to reach their rated light output.

The following LCD display appears:

W	e	l	c	o	m	e	,	w	a	i	t	i	n	g
f	o	r	s	t	e	a	d	y	g	r	i	d		

Once a steady grid exits, the following LCD display appears:

S	t	e	a	d	y	g	r	i	d			
d	e	t	e	c	t	e	d	.	.	.		

Followed by the operational display (the values displayed here are only examples):

1	1	W		4	.	3	A	P	W	R	U	P
1	0	0	%	2	3	0	V	N	L		8	6

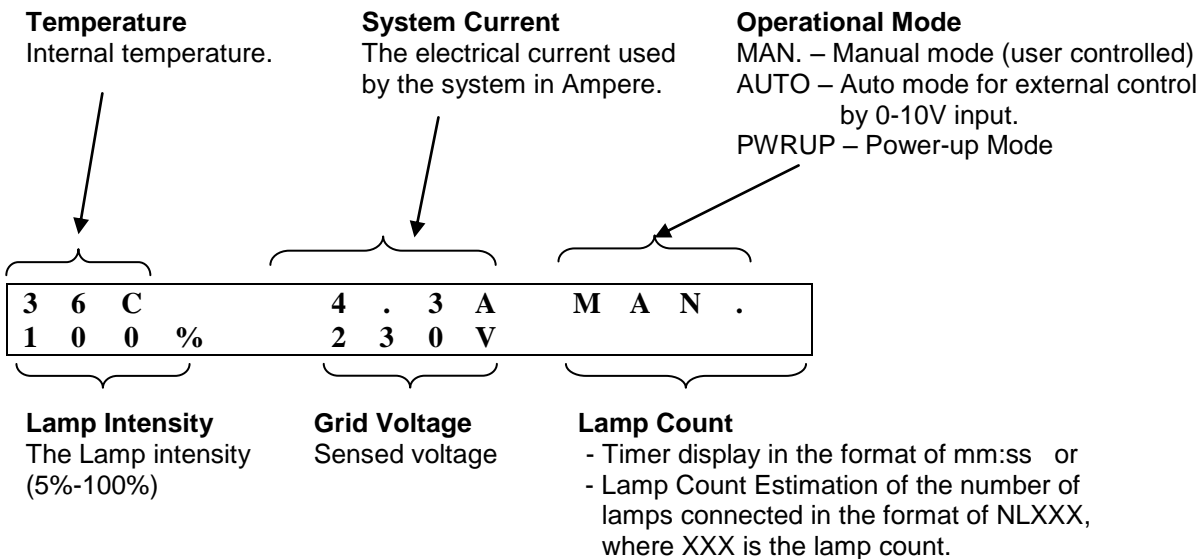
Note that the "Welcome" and "Steady grid" messages could not be noticed as they are displayed only momentarily.

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5. LCD Functional Display

The LCD Display consists of 16x2 characters which display the functional data of the IPL Dimmer.

The following figure describes the functional data displayed:



In case of an excessive number of lamps are connected to the system it will warn the user by blinking the NLXXX field in the LCD display.

- The system will activate the blinking warning limit in case 200 or more lamps are connected

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6. Wire diameters / Wiring

The incoming electric supply cable should have leads of at least 2.5mm²; the outgoing wires to lamps should have leads of at least 1.5mm². Connect the leads to the connectors marked IN 230V, OUT 230V respectively.

7. Maintenance / safety

Always disconnect the main power supply to the IPL Dimmer prior to opening the front panel.

For example: In case of a need to replace the internal main Fuse.

8. Short Circuit

In the event of a short circuit, repair the failure before replacing the board internal fuse.

Main Fuse characteristics:

Cylindrical fuse, rated Voltage 250V, rated Current 20A fast acting, size 6.3 x 32 mm

9. Manual Operation Mode

The IPL Dimmer operates in "Manual Mode" when the "0-10V" input lines are disconnected.

The system recognizes when "0-10V" input is set on the input lines and starts working on Auto Mode.

In manual mode, the following operational functionalities are available:

Potentiometer controlled for setting light intensity between 5% - 100%

Push button operational functionality to allow "Poultry House" maintenance procedures in maximum light output for a predetermined time selectable by the user.

The following, is an LCD display example for system manual operational mode:

4 0 C	4 . 3 A	M A N .	
7 0 %	2 3 0 V	N L 1 2 0	

10. Manual Override Operational Mode

When pressing the push button in manual mode, the IPL Dimmer switches automatically to 100% for a predetermined time selectable by the user.

The predetermined time timer is controlled by the push button as follows:

- 1st push: 30 seconds
- 2nd push: 5 minutes
- 3rd push: 20 minutes

After the timer has reached its timeout, the IPL Dimmer resumes operation in the dimmer's original intensity settings.

The following, is an LCD display example for system manual override operational mode:

4 0 C	4 . 3 A	M A N .	
1 0 0 %	2 3 0 V	N L 1 2 0	

11. Auto Operation Mode

The IPL Dimmer operates in auto mode when sensing a wires connection of 1-10V on the analog input. In auto mode, the light intensity level of the controller is determined by the input voltage level received.

The following table depicts the IPL dimming operation according to the input voltage ranges:

Input Voltage Range	Dimming Operation
1V – 1.5V	Minimum Intensity – 5%
1.5V – 9.5V	Intensity according to analog input value
9.5V – 10V	Maximum Intensity – 100%

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The following, is an LCD display example for system auto operational mode:

4	0	C	4	.	3	A	A	U	T	O	
8	0	%	2	3	0	V	N	L	1	2	0

12. Auto Override Operational Mode

When pressing the push button in Auto mode, the IPL Dimmer temporarily switches to Manual mode for a preset time controlled by the push button as follows:

- 1st push: 30 seconds
- 2nd push: 5 minutes
- 3rd push: 20 minutes

After the timer has reached its timeout, the system resumes operation in the dimmer's 0-10V analogue input original intensity settings.

The following, is an LCD display example for system manual override operational mode:

4	0	C	4	.	3	A	A	U	T	O		
1	0	0	%	2	3	0	V	0	5	:	0	0

13. Diagnostics

The IPL Dimmer has a diagnostic feature which allows it to monitor record and display fault events which occur and disable the system in case dangerous levels are monitored.

This feature allows the IPL Dimmer to monitor unsteady grid frequency, high/low voltage level events as well as high/low current level events which might disable the operation of the system. In case such an event is monitored, the IPL Dimmer immediately takes precaution actions by disabling the system so to preserve the system and lamps. The IPL Dimmer records this event to allow the user to display it on the system's LCD screen.

13.1 System Faults

13.1.1 Over-Voltage Fault:

In case the system detects high voltage of above 270 volts, the system is disabled.

Recovery from such an event is automatic after the system detects a voltage of below 260v.

The following LCD display appears:

O	v	e	r	-	V	o	l	t	s	.		
W	a	i	t	t	o	r	e	c	o	v	e	r

When the system senses that the grid voltage has dropped, it re-initializes automatically and continues its operation.

13.1.2 Under-Voltage Fault:

In case the system detects low voltage of below 185 volts, the system is disabled.

Recovery from such an event is automatic after the system detects a voltage of above 200v.

The following LCD display appears:

U	n	d	e	r	-	v	o	l	t	s	.	
W	a	i	t	t	o	r	e	c	o	v	e	r

When the system senses that the grid voltage has risen, it re-initializes automatically and continues its operation.

13.1.3 Over Current Fault:

In case the system detects current above 16 Amperes, the system is disabled.

A manual recovery is needed from such an event.

The following LCD display appears:

O	v	e	r	C	u	R	r	e	n	t	P	u	s	h
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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b u t t o n t o r e t r y

The user has to press the push button for the system to attempt recovery.
In case the high current persists the system will be disabled again.

13.1.4 DC failure:

In case the system detects a unidirectional current or missing grid pulses, the system is disabled.
A manual recovery is needed from such an event.

The following LCD display appears:

D C F a i l u r e . P u s h
b u t t o n t o r e t r y

The user has to press the push button for the system to attempt recovery.
In case the high current persists the system will be disabled again.

13.2 Diagnostics View

The user can display the fault history of the system by entering the "Diagnostic View" option.
To enter this option, the user has to perform the following procedure:

- Press the push button continuously for at least 5 seconds.
- LCD display will change to "View Diagnostics".
- Let go of the push button.

An LCD screen with the following content will appear:

Column #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Line #1	V	e	e		#	y	y	y		C	o	d	e		X	X
Line #2	M	o	o	d	d	e	e			C	T	L	A	A		1

The main data fields are:

1. XX – represents the screen fault designator. Possible values are:
 - "SX" - Stack 1..6 recently occurred faults(S1 represents the recorded data of the last fault. The data ranges from S1 until a maximum of S6 for 6 recently recorded faults).
 - "LX" - Last 1..5 - Last faults by type where "L1" corresponds to fault "FV+" and "L5" corresponds to fault "FHSP".

The user can page through the recorded faults by pressing the push-button. Each recorded fault contains 3 screens. The fault screen number indication is in the bottom right of the LCD screen.

2. Code - which represents the recorded fault code. Possible values are:
 - "FV+" - Over-Voltage Fault
 - "FV-" – Under-Voltage Fault
 - "FI+" – Elec. Current Peak Fault
 - "FIDC" – Un-even Thyrsitor Current Fault
 - "FHSP" – Missed Pulses Fault

In order to leave this mode, the user has to page through all the recorded faults by pressing the push button repeatedly until leaving this option and going back to the operational menu.

The rest of the displayed data fields are outside the scope of this manual document and should be sent to manufacturer for analysis incase of a fault.