



LP 600

Orion Electronic Dimmer for Magnetic 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, periodic maintenance and cleaning 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 longevity.

2. Properties of the system

The system is designed for mains voltage rated $230V \pm 10\%$ at 50/60Hz and for Orion light units with Orionlux lamps 9W or 11W rated for the mains frequency.

The standard unit can control a group of maximum 70 lamps 9W or 90 lamps 11W.

The System light intensity can be operated in between 100% to about 50%, or turned OFF.

The following methods of operation are available:

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

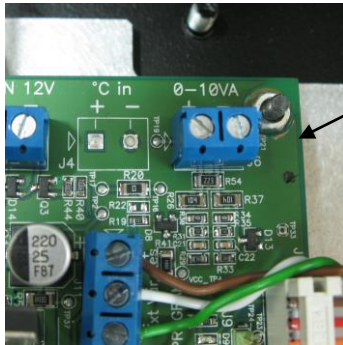
These methods of operation will be discussed further in the following chapters.

The following figure describes the controls of Orion Dimmer:



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3. Analogue input (0-10 volt) wiring



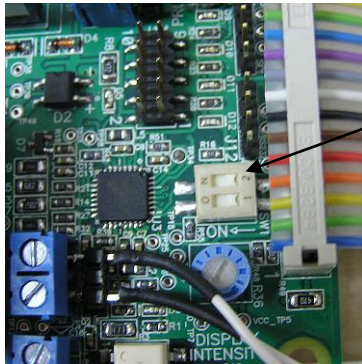
Analogue input (0-10 volt) terminal block. Designated to connect with poultry house controller through its analog output (0-10 volt). Enables dimming by an external controller.

4. Lamp Type Configuration

The Orion Dimmer supports 9Watt and 11Watt lamp types.

By default the Orion Dimmer is configured to be used with 11Watt lamps.

In order to configure the lamp type in used, the Orion Dimmer contains a "DIP" switch situated on the electronic board, as shown in the following figure:



Only switch 2 is used:

- When set to "OFF"(adjacent to the right), the Dimmer is configured to use 11Watt lamps.
- When set to "ON"(adjacent to the left), the Dimmer is configured to use 9Watt lamps.

5. Power-up

The system includes an automatic delay that prevents the dimming during the first 30 seconds after the system has been turned on. This precaution is vital to ensure safe ignition and initial warm-up of the lamps. After this short period, the 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 lamps 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	0	0	:	3	0

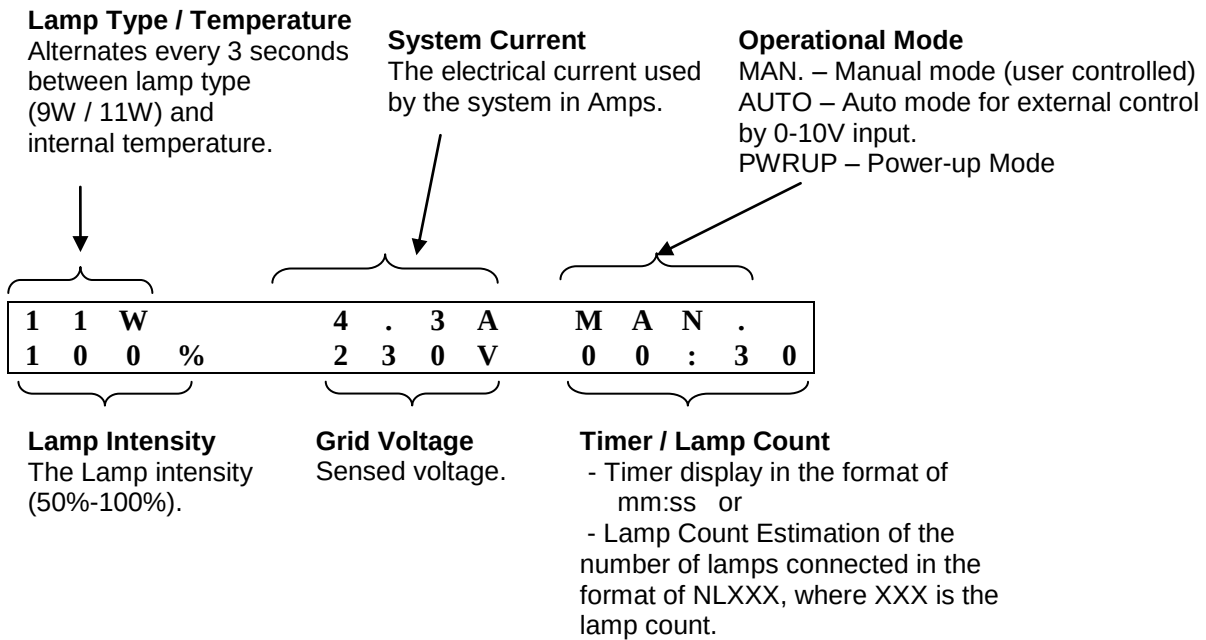
Note that the "Welcome" and "Steady grid" messages could not be noticed as they are displayed only momentarily.

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6. LCD Functional Display

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

The following figure describes the functional data displayed:



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

The number of connected lamps warning limit is determined by the lamp types used:

- For 11Watt Lamps – the Dimmer will activate the blinking warning limit if 95 or more lamps are connected
- For 9Watt Lamps – the Dimmer will activate the blinking warning limit if 75 or more lamps are connected

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7. Power factor correction

To be considered when working with small numbers of lamps say 10 to 40 lamps.

The Orion Dimmer is equipped with 2 capacitors to enable an adequate power factor correction when working with large or small number of lamps.

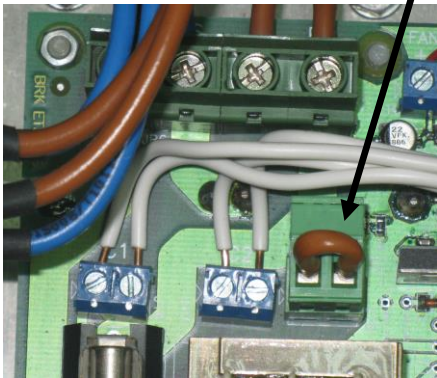
To enable an adequate PF correction while working with 10 to 40 lamps only 1 capacitor should be connected, when working with 40 to 90 lamps, 2 capacitors should be connected - factory default.

While working with “40 to 90 lamps” - factory default.

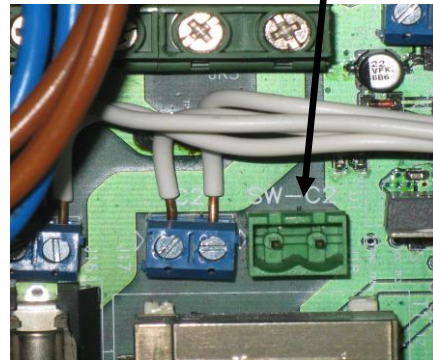
Terminal block SW-C2 is already bridged with a brown wire connecting 2 capacitors.

While working with “10 to 40 lamps” an adequate power factor correction is achieved by disconnecting the brown wire from terminal block SW-C2.

Working with “40 to 90 lamps”
factory default, Terminal block in place



Working with “10 to 40 lamps”
Terminal block removed



8. Wire diameters / Wiring

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

9. Maintenance / safety

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

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

10. Short Circuit

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

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Manual Operation Mode

The Orion 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 50% - 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:

1	1	W		4	.	3	A	M	A	N	.
7	0	%		2	3	0	V	N	L	0	8 5

11. Manual Override Operational Mode

When pressing the push button in manual mode, the 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 Dimmer resumes operation in the dimmer's original intensity settings.

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

1	1	W		4	.	3	A	M	A	N	.
1	0	0	%	2	3	0	V	0	0	:	3 0

12. Auto Operation Mode

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

The following table depicts the 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 analogue input value
9.5V – 10V	Maximum Intensity – 100%

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	0	8 5

13. Auto Override Operational Mode

When pressing the push button in Auto mode, the Orion 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

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14. Diagnostics

The Orion 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 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 Dimmer immediately takes precaution actions by disabling the system so to preserve the system and lamps. The Dimmer records this event to allow the user to display it on the system's LCD screen.

14.1 System Faults

14.1.1 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.

14.1.2 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.

14.1.3 Over Current Fault:

In case the system detects a current of above 16 Amps, 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
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.

14.1.4 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.

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14.2 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 Thyristor 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 in case of a fault.