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DEB 1.2k/2.5k

Electronic Flicker Free Ballast

MOD. 2525.210

INSTRUCTION AND MAINTENANCE MANUAL





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SECTION 1

1.1 - GENERAL

This new DEB range of electronic ballasts are designed to provide a compact, lightweight, flicker free power source for metal halide discharge lamps. The control circuit are managed by microprocessors (PIC) to reduce the components number and improve performances. In the ballast front panel there is a 16 characters led display to give various information like: ballast correct operation, failure and more. New cooling system performed by double speed fans with heat sink inside the ballast body and overtemperature protection. New circuit with output short circuit and arc to ground protection. Dual power output with automatic selection. Power factor corrected input circuit to reduce the input current. Constant output power circuit to reduce the variations due to different lamp characteristics (different lamps brand and age). Low noise and flicker free mode. Safety mains breaker. Very small size and weight. CE approved.

1.2 - CONTROLS

The controls for the ballast are all mounted on the front plate and comprise on the left hand side from the top: the two green and red buttons for on and off, the 16 characters display with three command buttons, the three control knobs for local/remote/DMX, low noise/flicker free and dimmer, the mains breaker, the input mains connector and the output lamp connector.



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SECTION 2

OPERATION & ROUTINE MAINTENANCE

2.1 - OPERATION

2.1.1 Ensure that a correctly sized connector has been fitted in relation to both the ballast output rating and the size of the mains supply. And the ground wire connected to a good ground.

CONNECTORS: 220 V – 16A

2.1.2. Ensure that the LOCAL – REMOTE - DMX switch is set for the control mode required.

LOCAL =Control is from the ballast or the lamp fixtures using the appropriate on / off buttons.

REMOTE = Lamp fixtures will operate immediately upon connection to the mains supply or operation of the MCB.

DMX = Lamp fixtures will operate accordingly with the commands received via DMX channel.

LP switch on= The power in 2.5kw mode is limited at 1.7kw. The input current is less than 20 A for use with house standard plugs. (the switch is under the DMX cover).

2.1.3. Ensure that the ballast should be put in a place with a good ventilation and possibly protect from the direct sun and rain and with the air inlets free.

2.1.4. Ensure that the lamp fixtures is fitted with an operational lamp.

2.1.5. Connect the lamp fixtures to the ballast using the cable supplied with the lamp fixtures, ensuring that the groove of the military specification connector along the inner body aligns with the pin on the internal face of the outer housing of the outlet, (on the face of the ballast) and push home. Take a grip of the outer sleeve of the cable connector and rotate clockwise. The



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twist lock will rotate through approximately 90% and then come positively to a stop.

2.1.6. Connect the ballast to the power supply and switch the power supply on.

2.1.7. Lift the mains circuit breaker from the off position into the ON position. CAUTION If remote has been selected the lamp fixtures will operate after about two seconds, therefore ensure that the barn doors are open and that the lamp fixtures is not in proximity of any combustible material and not facing any persons, now the display after the start messages will show "READY"

2.1.8. If the ground connection isn't good the display will show "EARTH MISSING" for some seconds and after will go back to previous message.

2.1.9. The system is now ready for use and operation can be initiated from the on switch on the lamp fixtures or ballast.

2.1.10 The lamp fixtures will ignite irrespective of the dimmer setting and will reach its stable position after approximately 1 - 2 minutes from cold when it will automatically revert to the dimmer setting dialed up. Full clockwise rotation gives maximum rated output while full counterclockwise rotation will dim the light output by nominally 30% of its maximum rated value.

2.2 ROUTINE MAINTENANCE

2.2.1. Isolate the ballast from the mains supply.

2.2.2. Clean the ballast casing, removing all dust and grime, in particular from the air inlets.

2.2.3. Check the condition of the mains input cable and connector for signs of visible damage.

2.2.4. Check the multipin output socket for signs of damage or deformation.

2.2.5. Check for the free rotation of the dimmer control.

2.2.6. Ensure that the selector switch is set to local.



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SECTION 3

DISPLAY MESSAGES

FAULT MESSAGES:

SUPPLY TOO HIGH
SUPPLY TOO LOW
EARTH MISSING
OVERTEMPERATURE
BALLAST FAIL
HEAD FAULT
OUTPUT FAULT
IGN. BREAKER OFF
LAMP VOLT. HIGH
LAMP ON FAILURE
LAMP OFF
BALLAST BLOCKED

MAINS VOLTAGE TOO HIGH
MAINS VOLTAGE TOO LOW
EARTH CONNECTION MISSING
OVERTEMPERATURE IN THE INTERNAL HEAT SINK
PFC CIRCUIT FAIL
LAMP ON FAILED FOR PROBLEM IN THE HEAD
OUTPUT FAULT
IGNITER BREAKER OFF
LAMP VOLTAGE TOO HIGH
LAMP ON FAILED
IF THE LAMP SWITCH OFF ITSELF
BALLAST MUST BE SWITCHED OFF

OPERATIONAL MESSAGES

LAMP NOT CONN.
.. or LENS OPEN
READ *
TURNING ON
LAMP HEATING
LAMP ON 1.2 KW
LAMP ON 2.5 KW
FIRMWARE UPGRADE
LP (reverse)

HEAD NOT CONNECTED OR LENS OPEN :
.. THE BALLAST CANNOT SWITCH ON
BALLAST READY
IGNITER WORKING TIME
LAMP HEATING TIME WITH DIMMER COMMAND INHIBIT
BALLAST SWITCH ON WITH 1.2 KW LAMP
BALLAST SWITCH ON WITH 2.5 KW LAMP
FIRMWARE UPGRADE IN PROGRESS
LOW POWER SWITCH ACTIVATE (only 2.5kW)

LOG MESSAGES

TOT. HRS (1.2):
TOT. HRS (2.5):
HOURS (1.2 kW):
HOURS (2.5 kW):
STRIKES OK:
FAIL. STRKS:

TOTAL HOURS WITH 1.2 KW LAMP
TOTAL HOURS WITH 2.5 KW LAMP
RESETTABLE HOURS WITH 1.2 KW LAMP
RESETTABLE HOURS WITH 2.5 KW LAMP
RESETTABLE SUCCESSFUL STRIKES NUMBER
RESETTABLE FAILED STRIKES NUMBER



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The <> will blink if the DMX stream is currently present.



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Ballast Display Controller User Manual (v.5.7)

Display Brightness Change

The Display Brightness can be changed by acting upon the following keys:

- key → to increase
- key ← to decrease

The modified level of brightness is automatically saved permanently if the user enters and then exits the Setup menu (no action is required).

Main Menu

All menus are only operating while the Ballast is in READY status.
Press the **SEL** key. The following will display:

LOGS | setup | info

As in all other menus, the selection must be made by acting upon the keys → and ← : only one of the items is selected and will appear in UPPERCASE.

When the desired item is selected, press the **SEL** key:
either the **LOGS** or the **SETUP** menu or INFO data, will display.

Logs Menu

The LOGS menu can only be accessed by authorized personnel, who know the Personal Identification Number, made up by 5 digits and hereafter called **PIN5** (please note that PIN5 must be entered only one time, until the Ballast will be switched off).

The Enter PIN message will appear:



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ENTER PIN5

Then the User must select, for five times, a digit in the following display:

0 1 2 3 4 5 6 7 8 9 → * * * * *

- the keys → and ← will select a digit, which will appear magnified
- the **SEL** key must be pressed
- an asterisk will appear in the right side. The default PIN value is (02468).

At the fifth digit, if the entered PIN is correct, the choice of viewing or resetting the logs data is displayed:

VIEW | clear

Select an item and then press **SEL**.

View Logs

The keys → and ← will allow the change of the log item displayed.
The **SEL** key will exit the Log display.
The following items are displayed:

- 1 - total Ballast hours @ 1.2 kW

TOT.HRS(1.2): nnnn

- 2 - total Ballast hours @ 2.5 kW

TOT.HRS (2.5):
nnnn



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3 - hours @ 1.2 kW since last clear

HOURS 1.2 kW:nnnn

4 - hours @ 2.5 kW since last clear

HOURS 2.5 kW:
nnnn

5 - number of successful lamp strikes since last clear

STRIKES OK : nnnn

6 - number of failed lamp strikes since last clear

FAIL. STRKS : nnnn

Items 1- and 2- are total Ballast data and cannot be cleared.
Items 3 -, 4 -, 5 - and 6 - can be cleared by user as explained below.

Clear Logs

A confirmation request is displayed:

SEL to clear log

If the user presses the **SEL** key, logs are cleared and then is displayed the confirm message:

Logs cleared !



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Setup Menu

The Display Setup purpose is to allow the choice of selecting user preferred options.

The current display brightness level is automatically saved.

The Setup menu currently offers three choices:

LANG | dmx ch | freq

Lang Setup

The available languages are shown:

EN | it | fr | es | de | ru

and one of them can be selected: English, Italian, French, Spanish, German, Russian.

DMX channel Setup

The DMX channel can be selected (range 1 – 512):

DMX CHAN: 2

The DMX channel can be changed by acting upon the following keys:

- key → to increase selected channel number
- key ← to decrease selected channel number

The number will advance / decrease continuously by keeping pressed the key → or the key ←



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Freq Setup

AUTO | 100 | 120

The output frequency can be chosen between:

- AUTO : output frequency will adjust automatically based on input mains frequency
- 100 : output frequency always at 100 Hz
- 120 : output frequency always at 120 Hz

Info Menu

One of that INFO data is shown, depending on current operating mode and status.

DMX operation selected:

DMX channel current value (useful for installation and test purposes)

LOCAL/REMOTE operation, READY status:
MAINS VOLTAGE current value (Volt)

LOCAL/REMOTE operation, LAMP ON status:
LAMP voltage current value (Volt)

Low Power

In 2.5kW there is the possibility to work in low power mode by switch placed under the DMX cover. When the ballast is in LP mode the max power is about 1.8 kW and the input current is 19 A with 110V input. In the display appear LP and the mains voltage.



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BALLAST FAULT ANALYSIS

SYMPTOM	POSSIBLE CAUSE	REMEDY
<ul style="list-style-type: none"> Lamp fixtures fails to light up and make one flash for a short time. And the display message is "LAMP ON FAILURE". 	<ul style="list-style-type: none"> Lamp not fitted or blown. Connector not mated correctly or with oxidation in the contacts. Ballast fails to operate 	<ul style="list-style-type: none"> Fit operational lamp Re-make connection. Clean the oxidation from the contacts .
<ul style="list-style-type: none"> The lamp fails to light up and a noise is audible inside the housing of the lamp fixtures. And the display message is "HEAD FAULT". 	<ul style="list-style-type: none"> Igniter in the lamp fixtures failed. High voltage cable damaged. Lamp holder damaged. Inverter circuit failure 	<ul style="list-style-type: none"> Replace igniter. Replace high voltage cables. Replace lamp holder. Check the inverter circuit
<ul style="list-style-type: none"> Red button light fails to light up when is all the system is connected and is in " ON " position the Main Breaker. And the display message is "LAMP NOT CONN.". 	<ul style="list-style-type: none"> Failed termination within the mains cable connector Indicator red lamp failure. Safety circuit failure(lens door switch in the lamp fixtures) 	<ul style="list-style-type: none"> Re-make terminations- Replace either the MAIN BREAKER Mains switch. or the mains filter. Check into the lamp fixture if the safety circuit is close perfectly.



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SECTION 4

SPECIFICATION & MAIN FEATURES OF DESIGN AND OPERATION.

4.1 TECHNICAL SPECIFICATION.

4.1.1 Electrical Performance.

Input voltage	95 – 265 V
Nominal effective input current	12.5 A (1.2kw) – 26 A - 19 A LP (2.5kw) (110V) 6.2 A (1.2kw) – 13 A - 10.5 A LP (2.5kw)(220V)
Efficiency (Average)	> 0.93
Power factor (Average)	> 0.95
Dimmer range	30 %
On/Off control	Local. Remote or DMX

4.1.2 Dimensions and Weight

Dimensions	Width 270 mm. Height 270 mm. Depth 380 mm.
Weight	18 kg.
Working position	Ballast with control panel facing front.
Ambient temperature & Humidity allowed	-20....+45° C IP23