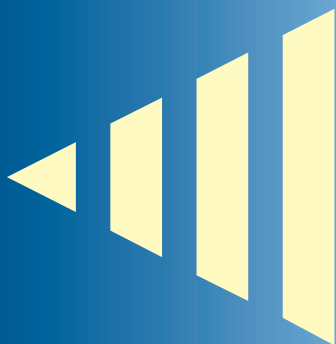


elcotroni^{srl}



Electronic Ballasts for Fluorescent Lamps

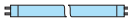











UP TO 45% SAVING ON ELECTRICITY

12-24-110-220 AC/DC INPUT VOLTAGE

OPERATING 1- 2 FLUORESCENT LAMPS






FOR LINEAR, COMPACT AND CIRCULAR LAMPS

SOFT START-UP, NO HUMMING NOISE

| | Code | Power Supply | Lamps x Watt | Body | |
|--|---|---|------------------------------|---------------|---|
| 12VDC POWER SUPPLY Specially designed to supply low input voltage to fluorescent tubes, they are used wherever required by safety regulations or in those places where only low voltage is available, i.e. motor-homes, buses or marine applications. |  105 TNX - 12VDC | 10/16 VDC | 1x5 W | A | |
| |  107 TNX - 12VDC | 10/16 VDC | 1x7 W | A | |
| | 109 TNX - 12VDC | 10/16 VDC | 1x9 W | A | |
| | 111 TNX - 12VDC | 10/16 VDC | 1x11 W | A | |
| | 118 TNXE - 12VDC -70% | 10/16 VDC | 1x18 W 70% efficiency | A | |
| | 118 TNX - 12VDC | 10/16 VDC | 1x18 W | B | |
| | 136 TNX - 12VDC | 10/16 VDC | 1x36 W | B | |
| 24VDC POWER SUPPLY The possibility of providing 24 Volt direct or alternating current makes this electronic ballast extremely interesting for special applications, i.e. automatic machines and machine tools. |  105 TNX - 24VDC | 22/28 VDC | 1x5 W | A | |
| |  107 TNX - 24VDC | 22/28 VDC | 1x7 W | A | |
| | 109 TNX - 24VDC | 22/28 VDC | 1x9 W | A | |
| | 111 TNX - 24VDC | 22/28 VDC | 1x11 W | A | |
| | 118 TNXE - 24VDC -70% | 22/28 VDC | 1x18 W 70% efficiency | A | |
| | 118 TNX - 24VDC | 22/28 VDC | 1x18 W | B | |
| | 136 TNX - 24VDC | 22/28 VDC | 1x36 W | B | |
| 24VAC    | 105 TN - 24VAC | 22/28 VAC - 50/60Hz | 1x5 W | A | |
| | 107 TN - 24VAC | 22/28 VAC - 50/60Hz | 1x7 W | A | |
| | 109 TN - 24VAC | 22/28 VAC - 50/60Hz | 1x9 W | A | |
| | 111 TN - 24VAC | 22/28 VAC - 50/60Hz | 1x11 W | A | |
| | 113 TN - 24VAC | 22/28 VAC - 50/60Hz | 1x13 W | A | |
| | 115 TN - 24VAC - 70% | 22/28 VAC - 50/60Hz | 1x15 W 70% efficiency | A | |
| | 118 TN - 24VAC - 70% | 22/28 VAC - 50/60Hz | 1x18 W 70% efficiency | A | |
| 110VDC POWER SUPPLY The 110 Volt direct-current power supply makes this electronic ballast ideally suited for use in emergency lights systems. |  109TNX -110VDC-70% | 110/120 VDC | 1x9 W 70% efficiency | A | |
| |  113TNX -110VDC-70% | 110/120 VDC | 1x13 W 70% efficiency | A | |
| | 118TNX -110VDC-70% | 110/120 VDC | 1x18 W 70% efficiency | A | |
| | 136TNX -110VDC-70% | 110/120 VDC | 1x36 W 70% efficiency | A | |
| | 110VAC This alternating current power supply is specially used on machineries and applications for the American market. In the different VDC e VAC versions, they can operate both linear and compact tubes. |  113 TN -110VAC | 110/120 VAC - 50/60Hz | 1x13 W | A |
| | | 115 TN -110VAC | 110/120 VAC - 50/60Hz | 1x15 W | A |
| | | 118 TN -110VAC | 110/120 VAC - 50/60Hz | 1x18 W | A |
| | | 130 TN -110VAC | 110/120 VAC - 50/60Hz | 1x30 W | A |
| | | 136 TN -110VAC | 110/120 VAC - 50/60Hz | 1x36 W | A |
| | | 158 TN -110VAC | 110/120 VAC - 50/60Hz | 1x58 W | B |
| | | 213 TN -110VAC | 110/120 VAC - 50/60Hz | 2x13 W | B |
| | | 215 TN -110VAC | 110/120 VAC - 50/60Hz | 2x15 W | B |
| | | 218 TN -110VAC | 110/120 VAC - 50/60Hz | 2x18 W | B |
| 230 TN -110VAC | | 110/120 VAC - 50/60Hz | 2x30 W | B | |
| 236 TN -110VAC | 110/120 VAC - 50/60Hz | 2x36 W | B | | |
|   | 105 DL -110VAC | 110/120 VAC - 50/60Hz | 1x5 W | A | |
| | 107 DL -110VAC | 110/120 VAC - 50/60Hz | 1x7 W | A | |
| | 109 DL -110VAC | 110/120 VAC - 50/60Hz | 1x9 W | A | |
| | 111 DL -110VAC | 110/120 VAC - 50/60Hz | 1x11 W | A | |
| | 113 DL -110VAC | 110/120 VAC - 50/60Hz | 1x13 W | A | |
| | 118 DL -110VAC | 110/120 VAC - 50/60Hz | 1x18 W | A | |
| | 126 DL -110VAC | 110/120 VAC - 50/60Hz | 1x26 W | A | |
| | 136 DL -110VAC | 110/120 VAC - 50/60Hz | 1x36 W | A | |
| | 155 DL -110VAC | 110/120 VAC - 50/60Hz | 1x55 W | A | |
| | 205 DL -110VAC | 110/120 VAC - 50/60Hz | 2x5 W | B | |
| | 207 DL -110VAC | 110/120 VAC - 50/60Hz | 2x7 W | B | |
| | 209 DL -110VAC | 110/120 VAC - 50/60Hz | 2x9 W | B | |
| | 211 DL -110VAC | 110/120 VAC - 50/60Hz | 2x11 W | B | |
| | 213 DL -110VAC | 110/120 VAC - 50/60Hz | 2x13 W | B | |
| | 218 DL -110VAC | 110/120 VAC - 50/60Hz | 2x18 W | B | |
| | 226 DL -110VAC | 110/120 VAC - 50/60Hz | 2x26 W | B | |
| | 236 DL -110VAC | 110/120 VAC - 50/60Hz | 2x36 W | B | |

Special electronic ballasts can be designed and produced to suit customer's requirements; customized versions of printed circuit size, power supply and lamp to be used can be supplied.

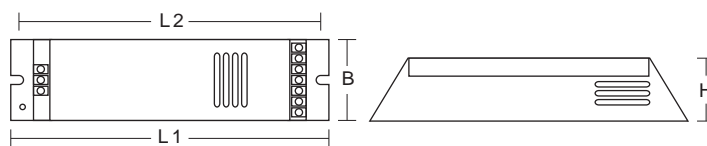
Electronic Ballasts for fluorescent lamps

| | Code | Power Supply | Lamps x Watt | Body | |
|--|---|-----------------------|-----------------------|--------|---|
| 220VAC POWER SUPPLY  <p>With a reduction of up to 45% in energy consumption, Elcotronic ballasts are ideally suited for use in hotels, warehouses, meeting rooms, museums, offices, restaurants and all those places where an efficient lighting system is required. The use of new technologies (MOS-FET) reduces the number of electronic components to a minimum and ensures improved reliability.</p> | 113 TN - 220VAC | 220/240 VAC - 50/60Hz | 1x13 W | A | |
| | 115 TN - 220VAC | 220/240 VAC - 50/60Hz | 1x15 W | A | |
| | 118 TN - 220VAC | 220/240 VAC - 50/60Hz | 1x18 W | A | |
| | 130 TN - 220VAC | 220/240 VAC - 50/60Hz | 1x30 W | A | |
| | 136 TN - 220VAC | 220/240 VAC - 50/60Hz | 1x36 W | A | |
| | 158 TN - 220VAC | 220/240 VAC - 50/60Hz | 1x58 W | A | |
| | 213 TN - 220VAC | 220/240 VAC - 50/60Hz | 2x13 W | B | |
| | 215 TN - 220VAC | 220/240 VAC - 50/60Hz | 2x15 W | B | |
| | 218 TN - 220VAC | 220/240 VAC - 50/60Hz | 2x18 W | B | |
| | 230 TN - 220VAC | 220/240 VAC - 50/60Hz | 2x30 W | B | |
| | 236 TN - 220VAC | 220/240 VAC - 50/60Hz | 2x36 W | B | |
| | 258 TN - 220VAC | 220/240 VAC - 50/60Hz | 2x58 W | B | |
| | <p>Example: considering that computers operate at a 50Hz frequency, the use of fluorescent tubes working at the same frequency can cause interferences between the systems, resulting in unclear images and sight troubles. Using a 25/35 KHz frequency, Elcotronic ballasts avoid these problems and provide a steadier light which is more relaxing for human eyes.</p>  | 105 DL - 220VAC | 220/240 VAC - 50/60Hz | 1x5 W | A |
| | | 107 DL - 220VAC | 220/240 VAC - 50/60Hz | 1x7 W | A |
| 109 DL - 220VAC | | 220/240 VAC - 50/60Hz | 1x9 W | A | |
| 111 DL - 220VAC | | 220/240 VAC - 50/60Hz | 1x11 W | A | |
| 113 DL - 220VAC | | 220/240 VAC - 50/60Hz | 1x13 W | A | |
| 118 DL - 220VAC | | 220/240 VAC - 50/60Hz | 1x18 W | A | |
| 126 DL - 220VAC | | 220/240 VAC - 50/60Hz | 1x26 W | A | |
| 136 DL - 220VAC | | 220/240 VAC - 50/60Hz | 1x36 W | A | |
| 155 DL - 220VAC | | 220/240 VAC - 50/60Hz | 1x55 W | A | |
| 205 DL-220VAC | | 220/240 VAC - 50/60Hz | 2x5 W | B | |
| 207 DL - 220VAC | | 220/240 VAC - 50/60Hz | 2x7 W | B | |
| 209 DL - 220VAC | | 220/240 VAC - 50/60Hz | 2x9 W | B | |
| 211 DL - 220VAC | | 220/240 VAC - 50/60Hz | 2x11 W | B | |
| 213 DL - 220VAC | | 220/240 VAC - 50/60Hz | 2x13 W | B | |
| 218 DL - 220VAC | | 220/240 VAC - 50/60Hz | 2x18 W | B | |
| 226 DL - 220VAC | | 220/240 VAC - 50/60Hz | 2x26 W | B | |
| 236 DL - 220VAC | | 220/240 VAC - 50/60Hz | 2x36 W | B | |
| 255 DL - 220VAC | | 220/240 VAC - 50/60Hz | 2x55 W | B | |
| <p>Specially designed for circular tubes, this ballast has considerably reduced dimensions, incorporates passive components, is noiseless and minimizes tube stress thereby prolonging lamp life. This ballast is supplied with a special connector for round tubes with a 30 cm long cable.</p>  | | 122 C - 220VAC | 220/240 VAC - 50/60Hz | 1x22 W | A |
| | 132 C - 220VAC | 220/240 VAC - 50/60Hz | 1x32 W | A | |
| | 140 C - 220VAC | 220/240 VAC - 50/60Hz | 1x40 W | A | |
|  | 116 DD - 220VAC | 220/240 VAC - 50/60Hz | 1x16 W | A | |
| | 121 DD - 220VAC | 220/240 VAC - 50/60Hz | 1x21 W | A | |
| | 128 DD - 220VAC | 220/240 VAC - 50/60Hz | 1x28 W | A | |
| | 138 DD - 220VAC | 220/240 VAC - 50/60Hz | 1x38 W | A | |
| | 155 DD - 220VAC | 220/240 VAC - 50/60Hz | 1x55 W | A | |
| <p>6mm. dia. tubes L 53cm The following ballasts have been designed for these particular neon tubes having a 6 mm diameter. Input voltages are specified beside:</p>  | 113 TNX - 12VDC | 10-16 VDC | 1x13 W | A | |
| | 113 TNX - 24VDC | 18-28 VDC | 1x13 W | A | |
| | 113 TNX - 110VDC | 80-140 VDC | 1x13 W | A | |
| | 113 TN - 115VAC | 80-140 VAC | 1x13 W | A | |
| | 113 TN - 230VAC | 180-250 VAC | 1x13 W | A | |

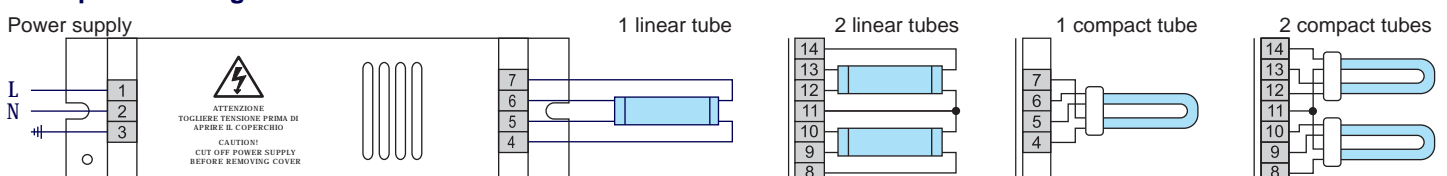


Ballast body dimensions

| Measure | A | B |
|---------|--------|--------|
| L1 | 140 mm | 175 mm |
| L2 | 130 mm | 165 mm |
| B | 40 mm | 45 mm |
| H | 30 mm | 35 mm |



Examples of wiring connections



APPLICATIONS & TECHNICAL GUIDELINES

Electronic ballasts used in combination with quality fluorescent lamps, offer many advantages, including not only improved lighting quality and consequently better life quality, but also a considerable reduction in energy costs.

Specially in large environments, where fluorescent lamps are widely used, i.e. offices or supermarkets, the use of electronic ballasts makes it possible to save up to 45% on energy costs, while doubling the average lamp life.

Therefore, we can say that ballasts quickly pay for themselves within a period of one year.

In addition to our standard range of electronic ballasts, Elcotronic is available to work out and execute customised ballasts for use with special lamps, according to customer's specifications.

NORMAL



Shops • Boutique

- Supermarkets • Big department stores
- Banks
- Public offices
- Private offices • Industries
- Restaurants • Canteens
- Hotels
- Show rooms • Fairs
- Museums • Galleries
- Libraries
- Theatres • Auditoriums
- Clinics • Hospitals
- Nursery-schools • Schools • Universities

PARTICULAR



Emergency lighting systems

- Signaling lights
- Refrigerated counter • cold-storage rooms
- Aquarium, greenhouses lighting system
- Decorative lights
- Motor-homes • Caravans
- Marine applications
- Buses
- Trains

SPECIAL



Sun tanning lamps

- Medical appliances
- Germicide apparatus
- Non-destructive tests on materials
- Visual analysis on materials
- Detectors for false banknotes, documents, stamps, and so on.

- Elcotronic ballasts have been specially designed for installation inside ceiling lamps and panels, thus making wiring connections extremely easy.
- Use fluorescent lamps with the same rating as the ballast to ensure proper operation. In case of need Elcotronic is at the customers' disposal for all technical explanations.
- It is recommended to supply mains voltage to ballast input terminals and 4 lamp poles output terminals; strictly follow, for each model, the diagram shown on the ballast. Always use cables of suitable section.
- In case of wrong connection, the fluorescent tube will not start but is not damaged. Check for proper connection to restore tube operation. When a fluorescent tube runs out, it is automatically cut out by the ballast and will be restored once replaced.
- It is also recommended to position the ballast far from heat sources and leave at least 5 cm clearance on both sides to allow for air exchange.
- All ballasts are equipped with a protective fuse against short-circuits.
- As regards direct-current ballasts, if input poles are inverted, just replace inner fuse to restore proper operation.

STANDARDS

All Elcotronic electronic ballasts are submitted to severe testing.

- Test of electric strength 2.5 KV to the ground.
- Test for proper operation and starting from 120 to 260 Volts at 50 Hz, in oven at 50°C, in freezer at -20°C, with mechanical shock, to check components for proper fixing.

Sample tests are performed to check compliance with EMC European Standards.

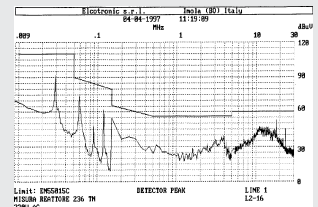
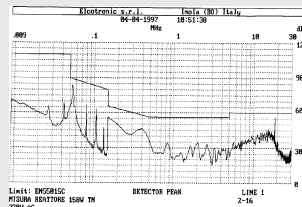
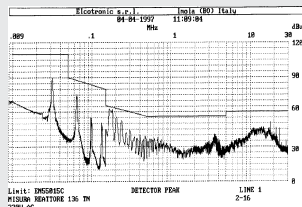
- PMM 8010 - Signal analyzer 9KHz - 30MHz - PMM L2-16 LISN - Artificial mains network, produced and calibrated by PMM Costruzioni Elettroniche Centro Misure Radioelettriche.

In particular, our ballasts comply with the following standards :

EN 60928-60929 Alternating current ballast for tubular fluorescent lamps.

EN 55015-CEI 110-2 Limits and measuring methods for fluorescent lamps and lighting fixtures, as regards radio interferences.

Some examples of graphs for compliance with EN 55015 standard are reported beside.



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Data are given only as an example.
Technical details can be changed
without notice.

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DEALER