

# IOTA

# DC

INVERTER BALLASTS

**RAPID AND INSTANT  
START MODELS**

**OPERATE A WIDE RANGE  
OF FLUORESCENT LAMPS**

**12-56VDC INPUT**

**REVERSE POLARITY  
PROTECTION**

**LOW EMI EMISSIONS**

**ENERGY EFFICIENT**

**CUSTOM DESIGNS AVAILABLE**



**APPLICATIONS INCLUDE...**



**TRANSIT**



**SOLAR**



**MARINE**



**RECREATIONAL  
VEHICLES**



**UV GERMICIDAL  
FLUID AND AIR  
PURIFICATION**

IOTA has been involved with the production of low voltage high frequency (Electronic) ballasts for fluorescent lamps since 1968. The original DC inverter ballast paved the way for the design and development of special high intensity fluorescent lights installed aboard the SKYLAB spacecraft. IOTA continues to develop numerous ballasts for military, aerospace, industrial and commercial applications. IOTA DC Ballasts are one of the most efficient and dependable ballasts available anywhere, and have been designed to operate a wide range of fluorescent lamps for a number of different input voltages.

Standard IOTA inverter ballasts operate preheat compact, rapid start, and instant start lamps. The rapid start and instant start lamps are operated in the instant start mode. Instant start is inherently more efficient since the ballast output voltage is sufficient to start the lamp, and the lamp cathodes are not continuously supplied with power to keep them heated. Rapid start ballasts are offered on some models as an option for better starting of the lamps when ambient temperatures are less than 50°F (10°C) or when the lamps are cycled on and off continuously. The ballast topology utilizes an efficient two (2) transistor, push-pull inverter to change the low voltage DC source into high voltage, sinusoidal AC power (20–30kHz) to start and operate the fluorescent lamp.

## PRODUCT FEATURES

- Energy efficient
- Designed for long life
- Reliable starts - wide operating volt-ages assure consistent performance
- Inherent circuit protection to insure low RFI - conductive and inductive
- High frequency switching eliminates lamp flicker
- Custom designs available

## LOW WATTAGE BALLAST GUIDE

### 12 VDC Ballasts (10.5V - 14.0V Input Range) - 24VDC Ballasts (21.0V - 28.0V Input Range)

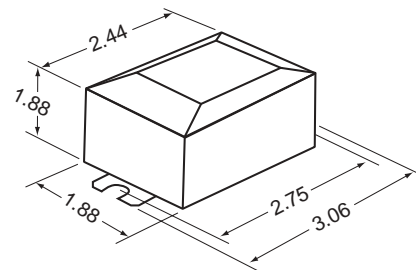
| LAMPS OPERATED   | IOTA BALLAST NUMBER | NOMINAL CURRENT DRAW |      | WIRING DIAGRAM |
|------------------|---------------------|----------------------|------|----------------|
|                  |                     | 12V                  | 24V  |                |
| F4T5             | 2D12-1-9            | .50A                 | .25A | 1              |
| F6T5             |                     | .60A                 | .30A | 1              |
| F8T5             |                     | .75A                 | .35A | 1              |
| 5W TWIN TUBE     | 2D24-1-9            | .55A                 | .25A | 2              |
| 7W TWIN TUBE     |                     | .65A                 | .30A | 2              |
| 9W TWIN TUBE     |                     | .85A                 | .40A | 2              |
| 9W DBL TT 2 PIN  |                     | .85A                 | .40A | 2              |
| 13W TWIN TUBE    | 2D12-1-13           | 1.30A                | .60A | 2              |
| 13W DBL TT 2 PIN | 2D24-1-13           | 1.30A                | .60A | 2              |

For lamp types not shown, contact Customer Service.

### LOW WATTAGE HOUSINGS (Up to 13 Watts)

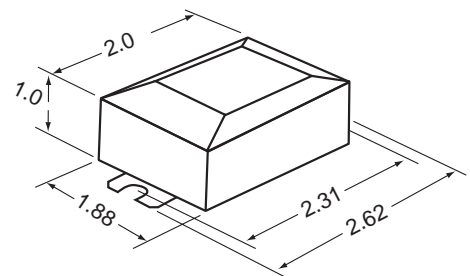
Low Wattage Inverter Ballasts are available in two can sizes - the standard profile can or the shallow profile can.

STANDARD HOUSING



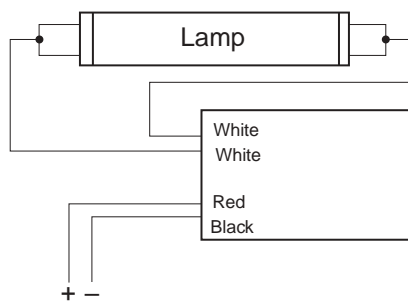
WEIGHT: 7 OZ.

SHALLOW HOUSING

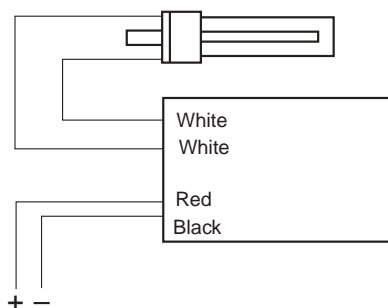


### LOW WATTAGE WIRING

WIRING DIAGRAM #1



WIRING DIAGRAM #2



# HIGH WATTAGE BALLAST GUIDE

## 12 VDC Ballasts (10.5V - 14.0V Input Range) - 24VDC Ballasts (21.0V - 28.0V Input Range)

| LAMPS OPERATED        | IOTA BALLAST NUMBER | NOMINAL CURRENT DRAW |       | WIRING DIAGRAM |   |
|-----------------------|---------------------|----------------------|-------|----------------|---|
|                       |                     | 12V                  | 24V   |                |   |
| F13T8                 | 2D12-1-32           | .90A                 | .60A  | 1              |   |
| F14T8                 |                     | 1.20A                | .70A  | 1              |   |
| F15T8                 |                     | 1.25A                | .60A  | 1              |   |
| F17T8                 |                     | 1.50A                | .75A  | 1              |   |
| F32T8                 |                     | 2.50A                | 1.25A | 1              |   |
| FC8T9                 |                     | 1.70A                | .90A  | 3              |   |
| 18W DBL TT 4 PIN      |                     | 1.70A                | .85A  | 4              |   |
| 18W TRIPLE TUBE 4 PIN |                     | 1.70A                | .80A  | 4              |   |
| 26W DBL TT 4 PIN      |                     | 2D24-1-32            | 1.85A | .70A           | 4 |
| 26W TRIPLE TUBE 4 PIN |                     |                      | 1.85A | .90A           | 4 |
| 32W TRIPLE TUBE 4 PIN |                     |                      | 2.20A | 1.10A          | 4 |
| F15T12                |                     |                      | 1.40A | .75A           | 1 |
| F20T12                |                     |                      | 1.40A | .70A           | 1 |
| F30T12                |                     | 1.75A                | .90A  | 1              |   |
| F34T12                |                     | 2.10A                | 1.00A | 1              |   |
| F36T12*               | N/A                 | 1.20A                | 1     |                |   |
| F40T12                | 2.10A               | 1.00A                | 1     |                |   |
| F48T12*               | N/A                 | 1.50A                | 1     |                |   |

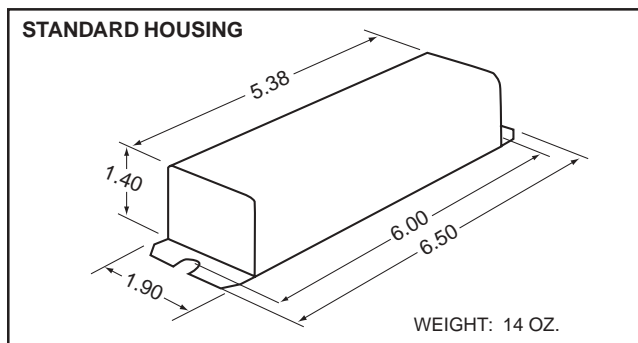
\*FOR USE WITH 2D24-1-32 INVERTER BALLAST ONLY

## 42V - 56V Input Range

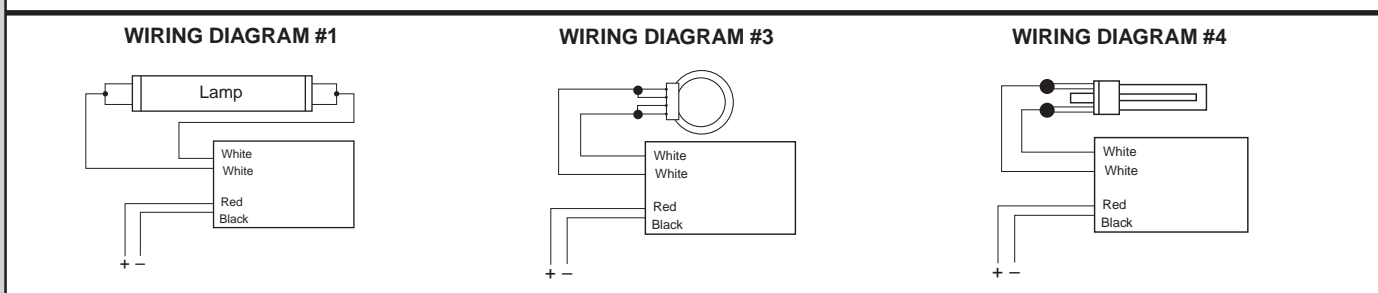
| LAMPS OPERATED |           | NOMINAL CURRENT DRAW | WIRING DIAGRAM |
|----------------|-----------|----------------------|----------------|
| F32T8          | 2D48-1-40 | .75A                 | 1              |
| FC12T9         |           | .65A                 | 3              |
| FC16T9         |           | .80A                 | 3              |
| F30T12         |           | .60A                 | 1              |
| F40T12         |           | .75A                 | 1              |

For lamp types not shown, contact Customer Service.

## HIGH WATTAGE HOUSING (14V to 40 Watts)



## HIGH WATTAGE WIRING



## INSTALLATION

All ballasts require heat sinking to some degree, depending on the anticipated ambient temperature, the size of the fixture, and the ventilation it affords. Generally, a fixture of metal construction will provide adequate heat dissipation in most applications. Plastic fixtures can present a problem with overheating and additional metal may need to be added to the fixture for mounting the ballast. Maximum allowable ballast case temperature is 150°F (65°C). It is the consumer's responsibility to determine that the heat sinking afforded by the fixture is adequate for the application.

## TECHNICAL

All ballasts are designed to operate within a range of voltages chosen to reflect real operating conditions. For instance, a nominally rated 12 volt ballast will operate over a range of 10.5 to 14 volts since this is typical of a 12 volt storage battery during charge and discharge cycles. Operation of the ballasts on higher than rated voltages will result in ballast overheating and shortened lamp life. Under-voltage

operation will cause poor lamp starting and excessive blackening at the ends of the lamp. All ballasts contain reverse polarity protection in the event the ballast is connected to the DC source backwards. All of these units may be used in positive and negative ground distribution systems, since the ballast case is electrically neutral.

## ONE-YEAR WARRANTY

While all IOTA products receive 100% quality inspection before shipment, IOTA still offers as comprehensive a one-year warranty program as any available in the lighting industry. IOTA will replace any defective product, provided that the defect occurred and was reported to IOTA within one year from the date of manufacture; and that the failure was due to defects in the workmanship or materials. Repair or replacement will be made at no charge, if our inspection and testing show that operating conditions had been within specified limits. IOTA will not be responsible for any customer incurred labor charges.

