## PHILIPS <br> ADVANCE

Electrical Specifications

| IOP3P32 N@120V |  |
| ---: | :--- |
| Brand Name | OPTANIUM |
| Ballast Type | Electronic |
| Starting Method | Instant Start |
| Lamp Connection | Parallel |
| Input Voltage | $\mathbf{1 2 0 - 2 7 7}$ |
| Input Frequency | $\mathbf{5 0 / 6 0 ~ H Z}$ |
| Status | Active |


| Lamp Type | Num. <br> of <br> Lamps | Rated <br> Lamp Watts | Min. Start <br> Temp (F/C) | Input Current <br> (Amps) | Input Power <br> (ANSI <br> Watts) | Ballast <br> Factor | MAX <br> THD <br> $\%$ | Power <br> Factor | MAX Lamp <br> Current Crest <br> Factor | B.E.F. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F17T8 | 2 | 17 | $-20 /-29$ | 0.30 | 35 | 1.01 | 10 | 0.98 | 1.6 | 2.89 |
| F17T8 | 3 | 17 | $-20 /-29$ | 0.38 | 45 | 0.90 | 10 | 0.98 | 1.6 | 2.00 |
| F25T8 | 2 | 25 | $-20 /-29$ | 0.42 | 49 | 1.00 | 10 | 0.98 | 1.6 | 2.04 |
| F25T8 | 3 | 25 | $-20 /-29$ | 0.54 | 64 | 0.88 | 10 | 0.98 | 1.6 | 1.38 |
| F32T8 | 2 | 32 | $-20 /-29$ | 0.53 | 63 | 1.00 | 10 | 0.98 | 1.6 | 1.59 |
| * F32T8 | 3 | 32 | $-20 /-29$ | 0.70 | 82 | 0.87 | 10 | 0.98 | 1.6 | 1.06 |
| F32T8/ES (25W) | 2 | 25 | $60 / 16$ | 0.42 | 49 | 1.00 | 10 | 0.98 | 1.6 | 2.04 |
| F32T8/ES (25W) | 3 | 25 | $60 / 16$ | 0.55 | 65 | 0.87 | 10 | 0.98 | 1.6 | 1.34 |
| F32T8/ES (28W) | 2 | 28 | $60 / 16$ | 0.46 | 55 | 1.00 | 10 | 0.98 | 1.6 | 1.82 |
| F32T8/ES (28W) | 3 | 28 | $60 / 16$ | 0.61 | 72 | 0.87 | 10 | 0.98 | 1.6 | 1.21 |
| F32T8/ES (30W) | 2 | 30 | $60 / 16$ | 0.50 | 59 | 1.00 | 10 | 0.98 | 1.6 | 1.69 |
| F32T8/ES (30W) | 3 | 30 | $60 / 16$ | 0.65 | 77 | 0.87 | 10 | 0.98 | 1.6 | 1.13 |
| F40T8 | 2 | 40 | $32 / 00$ | 0.64 | 74 | 0.97 | 10 | 0.98 | 1.6 | 1.31 |

## Wiring Diagram



Diag. 65
The wiring diagram that appears above is for the lamp type denoted by the asterisk (*)

## Standard Lead Length (inches)

|  | in. | cm. |
| ---: | ---: | ---: |
| Black | 24 | 61 |
| White | 24 | 61 |
| Blue | 28 | 71.1 |
| Red | 43 | 109.2 |
| Yellow |  | 0 |
| Gray |  | 0 |
| Violet |  | 0 |

Enclosure


## Enclosure Dimensions

| OverAll (L) | Width (W) | Height (H) | Mounting (M) |
| ---: | ---: | ---: | ---: |
| $9.500^{\prime}$ | $1.7^{\mathrm{\prime}}$ | $1.18^{\prime \prime}$ | $8.90{ }^{\prime}$ |
| $91 / 2$ | $17 / 10$ | $19 / 50$ | $89 / 10$ |
| 24.1 cm | 4.3 cm | 3 cm | 22.6 cm |


| IOP3P32N@120V |  |
| ---: | :--- |
| Brand Name | OPTANIUM |
| Ballast Type | Electronic |
| Starting Method | Instant Start |
| Lamp Connection | Parallel |
| Input Voltage | $120-277$ |
| Input Frequency | $\mathbf{5 0 / 6 0} \mathbf{~ H Z ~}$ |
| Status | Active |

## Notes:

Status Active

## Electrical Specifications

Section I - Physical Characteristics
1.1 Ballast shall be physically interchangeable with standard electromagnetic or standard electronic ballasts, where applicable.
1.2 Ballast shall be provided with integral leads color-coded per ANSI C82.11.

Section II - Performance
2.1 Ballast shall be $\qquad$ (Instant or Programmed) Start.
2.2 Ballast shall provide Independent Lamp Operation (ILO) for Instant Start or Programmed Start Parallel ballasts allowing remaining lamp(s) to maintain full light output when one or more lamps fail.
2.3 Ballast shall contain auto restart circuitry in order to restart lamps without resetting power.
2.4 Ballast shall operate from $50 / 60 \mathrm{~Hz}$ input source of $\qquad$ (120V through 277 V or 347 V ) with sustained variations of $+/-10 \%$ (voltage and frequency).
2.5 Ballast shall be high frequency electronic type and operate lamps at a frequency between 42 kHz and 52 kHz to avoid interference with infrared devices, eliminate visible flicker and avoid Article Surveillance System, such as anti-theft devices.
2.6 Ballast shall have a Power Factor greater than 0.98 for primary lamp.
2.7 Ballast shall have a minimum ballast factor for primary lamp application as follows: 0.77 for Low Watt, 0.87 for Normal Light Output, and 1.18 for High Light for Instant Start ballasts or 0.71 for Low Watt and 0.88 for Normal Light Output for Programmed Start ballasts.
2.8 Ballast shall provide for a Lamp Current Crest Factor of 1.7 or less.
2.9 Ballast input current shall have Total Harmonic Distortion (THD) of less than $10 \%$ when operated at nominal line voltage with primary lamp.
2.10 Ballast shall have a Class A sound rating for all 4 -foot lamps and smaller.
2.11 Ballast shall have a minimum starting temperature of -29C (-20F) on Instant Start ballasts or -18C (0F) on Programmed Start ballasts for standard T8 lamps and 16C (60F) for energy-saving T8 lamps. Consult lamp manufacturer for temperature versus light output characteristics.
2.12 Ballast shall tolerate sustained open circuit and short circuit output conditions.
2.13 Ballast shall have lamp striation-reduction circuitry.
2.14 Programmed Start ballast shall provide lamp EOL protection circuitry.
2.15 Maximum distance for Energy Saving Lamps in Remote/Tandem wiring applications shall be 6 feet for Instant Start and Programmed Start models.
Section III - Regulatory
3.1 Ballast shall not contain any Polychlorinated Biphenyl (PCB).
3.2 Ballast shall be Underwriters Laboratories (UL) listed, Class P and Type 1 Outdoor; and Canadian Standards Association (CSA) certified where applicable.
3.3 Ballast shall comply with ANSI C62.41 Category A for Transient protection.
3.4 Ballast shall comply with ANSI C82.11 where applicable.
3.5 Ballast shall comply with applicable requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR part 18, for Non-Consumer equipment.
3.6 Ballast shall meet NEMA Premium/CEE High Performance T8 Lighting System Specifications.
3.7 IOP or GOP ballast shall comply with UL Type CC rating.
3.8 Ballast shall comply with NEMA 410 for in-rush current limits.
3.9 Ballast shall meet RoHS Compliance Standards

Section IV - Other
4.1 Ballast shall be manufactured in an ISO 9001 Qualified factory.
4.2 Ballast shall carry a five-year warranty from date of manufacture against defects in material or workmanship, including replacement, for operation at a maximum case temperature of 70 C . Ballasts with a " 90 C " designation in their catalog number shall also carry a three-year warranty at maximum case temperature of 90 C .
4.3 Manufacturer shall have a twenty-year history of producing electronic ballasts for the North American market.
4.4 Energy-saving T8 lamps (25W, 28W or 30W) may experience lamp striations if operated on ballasts not rated for their use.


## PHILIPS <br> ADVANCE

Electrical Specifications

| IOP3P32N@277V |  |
| ---: | :--- |
| Brand Name | OPTANIUM |
| Ballast Type | Electronic |
| Starting Method | Instant Start |
| Lamp Connection | Parallel |
| Input Voltage | $120-277$ |
| Input Frequency | $\mathbf{5 0 / 6 0} \mathbf{~ H Z ~}$ |
| Status | Active |


| Lamp Type | Num. <br> of <br> Lamps | Rated <br> Lamp Watts | Min. Start <br> Temp (F/C) | Input Current <br> (Amps) | Input Power <br> (ANSI <br> Watts) | Ballast <br> Factor | MAX <br> THD <br> $\%$ | Power <br> Factor | MAX Lamp <br> Current Crest <br> Factor | B.E.F. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F17T8 | 2 | 17 | $-20 /-29$ | 0.14 | 35 | 1.01 | 10 | 0.98 | 1.6 | 2.89 |
| F17T8 | 3 | 17 | $-20 /-29$ | 0.17 | 45 | 0.90 | 10 | 0.98 | 1.6 | 2.00 |
| F25T8 | 2 | 25 | $-20 /-29$ | 0.18 | 49 | 1.00 | 10 | 0.98 | 1.6 | 2.04 |
| F25T8 | 3 | 25 | $-20 /-29$ | 0.24 | 63 | 0.88 | 10 | 0.98 | 1.6 | 1.40 |
| *F32T8 | 2 | 32 | $-20 /-29$ | 0.23 | 62 | 1.00 | 10 | 0.98 | 1.6 | 1.61 |
| F32T8 | 3 | 32 | $-20 /-29$ | 0.30 | 80 | 0.87 | 10 | 0.98 | 1.6 | 1.09 |
| F32T8/ES (25W) | 2 | 25 | $60 / 16$ | 0.18 | 49 | 1.00 | 10 | 0.98 | 1.6 | 2.04 |
| F32T8/ES (25W) | 3 | 25 | $60 / 16$ | 0.24 | 64 | 0.87 | 10 | 0.98 | 1.6 | 1.36 |
| F32T8/ES (28W) | 2 | 28 | $60 / 16$ | 0.20 | 54 | 1.00 | 10 | 0.98 | 1.6 | 1.85 |
| F32T8/ES (28W) | 3 | 28 | $60 / 16$ | 0.26 | 71 | 0.87 | 10 | 0.98 | 1.6 | 1.23 |
| F32T8/ES (30W) | 2 | 30 | $60 / 16$ | 0.21 | 58 | 1.00 | 10 | 0.98 | 1.6 | 1.72 |
| F32T8/ES (30W) | 3 | 30 | $60 / 16$ | 0.28 | 76 | 0.87 | 10 | 0.98 | 1.6 | 1.14 |
| F40T8 | 2 | 40 | $32 / 00$ | 0.27 | 72 | 0.97 | 10 | 0.98 | 1.6 | 1.35 |

## Wiring Diagram



Diag. 70
The wiring diagram that appears above is for the lamp type denoted by the asterisk (*)

## Standard Lead Length (inches)

|  | in. | cm. |
| ---: | ---: | ---: |
| Black | 24 | 61 |
| White | 24 | 61 |
| Blue | 28 | 71.1 |
| Red | 43 | 109.2 |
| Yellow |  | 0 |
| Gray |  | 0 |
| Violet |  | 0 |

Enclosure


## Enclosure Dimensions

| OverAll (L) | Width (W) | Height (H) | Mounting (M) |
| ---: | ---: | ---: | ---: |
| $9.500^{\prime}$ | $1.7^{\prime}$ | $1.18^{\prime \prime}$ | $8.90{ }^{\prime \prime}$ |
| $91 / 2$ | $17 / 10$ | $19 / 50$ | $89 / 10$ |
| 24.1 cm | 4.3 cm | 3 cm | 22.6 cm |


| IOP3P32N@277V |  |
| ---: | :--- |
| Brand Name | OPTANIUM |
| Ballast Type | Electronic |
| Starting Method | Instant Start |
| Lamp Connection | Parallel |
| Input Voltage | 120-277 |
| Input Frequency | $\mathbf{5 0 / 6 0} \mathbf{~ H Z ~}$ |
| Status | Active |

## Notes:

Status Active

## Electrical Specifications

Section I - Physical Characteristics
1.1 Ballast shall be physically interchangeable with standard electromagnetic or standard electronic ballasts, where applicable.
1.2 Ballast shall be provided with integral leads color-coded per ANSI C82.11.

Section II - Performance
2.1 Ballast shall be $\qquad$ (Instant or Programmed) Start.
2.2 Ballast shall provide Independent Lamp Operation (ILO) for Instant Start or Programmed Start Parallel ballasts allowing remaining lamp(s) to maintain full light output when one or more lamps fail.
2.3 Ballast shall contain auto restart circuitry in order to restart lamps without resetting power.
2.4 Ballast shall operate from $50 / 60 \mathrm{~Hz}$ input source of $\qquad$ (120V through 277 V or 347 V ) with sustained variations of $+/-10 \%$ (voltage and frequency).
2.5 Ballast shall be high frequency electronic type and operate lamps at a frequency between 42 kHz and 52 kHz to avoid interference with infrared devices, eliminate visible flicker and avoid Article Surveillance System, such as anti-theft devices.
2.6 Ballast shall have a Power Factor greater than 0.98 for primary lamp.
2.7 Ballast shall have a minimum ballast factor for primary lamp application as follows: 0.77 for Low Watt, 0.87 for Normal Light Output, and 1.18 for High Light for Instant Start ballasts or 0.71 for Low Watt and 0.88 for Normal Light Output for Programmed Start ballasts.
2.8 Ballast shall provide for a Lamp Current Crest Factor of 1.7 or less.
2.9 Ballast input current shall have Total Harmonic Distortion (THD) of less than $10 \%$ when operated at nominal line voltage with primary lamp.
2.10 Ballast shall have a Class A sound rating for all 4 -foot lamps and smaller.
2.11 Ballast shall have a minimum starting temperature of -29C (-20F) on Instant Start ballasts or -18C (0F) on Programmed Start ballasts for standard T8 lamps and 16C (60F) for energy-saving T8 lamps. Consult lamp manufacturer for temperature versus light output characteristics.
2.12 Ballast shall tolerate sustained open circuit and short circuit output conditions.
2.13 Ballast shall have lamp striation-reduction circuitry.
2.14 Programmed Start ballast shall provide lamp EOL protection circuitry.
2.15 Maximum distance for Energy Saving Lamps in Remote/Tandem wiring applications shall be 6 feet for Instant Start and Programmed Start models.
Section III - Regulatory
3.1 Ballast shall not contain any Polychlorinated Biphenyl (PCB).
3.2 Ballast shall be Underwriters Laboratories (UL) listed, Class P and Type 1 Outdoor; and Canadian Standards Association (CSA) certified where applicable.
3.3 Ballast shall comply with ANSI C62.41 Category A for Transient protection.
3.4 Ballast shall comply with ANSI C82.11 where applicable.
3.5 Ballast shall comply with applicable requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR part 18, for Non-Consumer equipment.
3.6 Ballast shall meet NEMA Premium/CEE High Performance T8 Lighting System Specifications.
3.7 IOP or GOP ballast shall comply with UL Type CC rating.
3.8 Ballast shall comply with NEMA 410 for in-rush current limits.
3.9 Ballast shall meet RoHS Compliance Standards

Section IV - Other
4.1 Ballast shall be manufactured in an ISO 9001 Qualified factory.
4.2 Ballast shall carry a five-year warranty from date of manufacture against defects in material or workmanship, including replacement, for operation at a maximum case temperature of 70 C . Ballasts with a " 90 C " designation in their catalog number shall also carry a three-year warranty at maximum case temperature of 90 C .
4.3 Manufacturer shall have a twenty-year history of producing electronic ballasts for the North American market.
4.4 Energy-saving T8 lamps (25W, 28W or 30W) may experience lamp striations if operated on ballasts not rated for their use.


