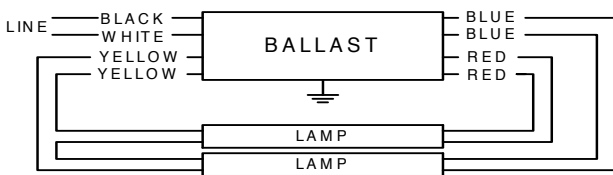


Electrical Specifications at 120V

Lamp Type	Num. of Lamps	Rated Lamp Watts	Min. Start Temp (°F/°C)	Input Current (Amps)	Input Power (ANSI Watts)	Ballast Factor	MAX THD %	Power Factor	MAX Lamp Current Crest Factor	B.E.F.
F14T5	2	14	0/-18	0.25	30	0.95	15	0.98	1.7	3.17
F21T5	1	21	0/-18	0.19	23	0.95	15	0.98	1.7	4.13
F21T5	2	21	0/-18	0.37	44	0.95	10	0.98	1.7	2.16
F28T5	1	28	0/-18	0.25	30	0.95	10	0.98	1.7	3.17
* F28T5	2	28	0/-18	0.50	59	0.95	10	0.98	1.7	1.61
F28T5/ES (25W)	1	25	0/-18	0.22	27	0.95	10	0.98	1.7	3.52
F28T5/ES (25W)	2	25	0/-18	0.45	54	0.95	10	0.98	1.7	1.76
F35T5	1	35	0/-18	0.31	37	0.95	10	0.98	1.7	2.57

Wiring Diagram



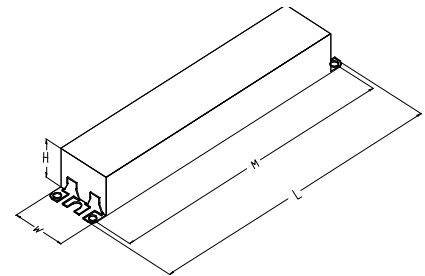
Diag. 74

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

Standard Lead Length (inches)

	in.	cm.		in.	cm.
Black	22	55.9	Yellow/Blue		0
White	22	55.9	Blue/White		0
Blue	26	66	Brown		0
Red	26	66	Orange		0
Yellow	36	91.4	Orange/Black		0
Gray		0	Black/White		0
Violet		0	Red/White		0

Enclosure



Enclosure Dimensions

OverAll (L)	Width (W)	Height (H)	Mounting (M)
9.50 "	1.7 "	1.18 "	8.90 "
9 1/2	1 7/10	1 9/50	8 9/10
24.1 cm	4.3 cm	3 cm	22.6 cm



Revised 01/12/12

Optanium T5 IOP2S2895SC

IOP2S2895SC@120	
Brand Name	OPTANIUM T5
Ballast Type	Electronic
Starting Method	Programmed Start
Lamp Connection	Series
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications at 120V

Notes:

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 Programmed Start.
- 2.2 Ballast shall provide Independent Lamp Operation (ILO) for 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 Hz input source of _____ (120V through 277V or 347V through 480V) 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 Systems, 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 ballast factor of 1.0 for primary T5HO lamps or a ballast factor of 0.95 or 1.15 for primary T5HE lamps at full light output.
- 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 with primary lamp.
- 2.10 Ballast shall have a Class A sound rating.
- 2.11 Ballast shall have a minimum starting temperature of _____ {-18C (0F) or -29C (-20F) or 0C (32F)} for primary lamp. 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 provide Lamp EOL Protection Circuit.
- 2.14 Ballast for step-dim applications shall have a 50% control step where the input power is <=50% of the full light input power for the primary lamp.

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 comply with UL Type CC rating.
- 3.7 Ballast shall comply with NEMA 410 for in-rush current limits.

Section IV - Other

- 4.1 Ballast shall be manufactured in a factory certified to ISO 9001 Quality System Standards.
- 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 70C.
- 4.3 Ballast designated 90C shall carry a three-year warranty from date of manufacture against defects in material or workmanship, including replacement, for operation at a maximum case temperature of 90C.
- 4.4 Manufacturer shall have a twenty-year history of producing electronic ballasts for the North American market



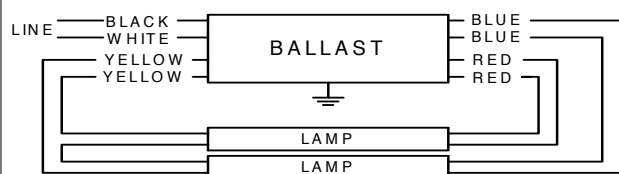
Revised 01/12/12

Optanium T5 IOP2S2895SC

Electrical Specifications at 277V

Lamp Type	Num. of Lamps	Rated Lamp Watts	Min. Start Temp (°F/°C)	Input Current (Amps)	Input Power (ANSI Watts)	Ballast Factor	MAX THD %	Power Factor	MAX Lamp Current Crest Factor	B.E.F.
F14T5	2	14	0/-18	0.11	30	0.95	15	0.95	1.7	3.17
F21T5	1	21	0/-18	0.08	23	0.95	15	0.98	1.7	4.13
F21T5	2	21	0/-18	0.16	44	0.95	10	0.98	1.7	2.16
F28T5	1	28	0/-18	0.11	30	0.95	10	0.98	1.7	3.17
* F28T5	2	28	0/-18	0.22	58	0.95	10	0.98	1.7	1.64
F28T5/ES (25W)	1	25	0/-18	0.10	27	0.95	10	0.98	1.7	3.52
F28T5/ES (25W)	2	25	0/-18	0.20	54	0.95	10	0.98	1.7	1.76
F35T5	1	35	0/-18	0.14	37	0.95	10	0.98	1.7	2.57

Wiring Diagram



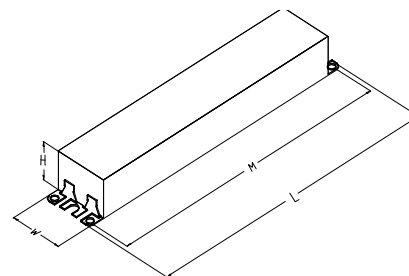
Diag. 74

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

Standard Lead Length (inches)

	in.	cm.		in.	cm.
Black	22	55.9	Yellow/Blue		0
White	22	55.9	Blue/White		0
Blue	26	66	Brown		0
Red	26	66	Orange		0
Yellow	36	91.4	Orange/Black		0
Gray		0	Black/White		0
Violet		0	Red/White		0

Enclosure



Enclosure Dimensions

OverAll (L)	Width (W)	Height (H)	Mounting (M)
9.50 "	1.7 "	1.18 "	8.90 "
9 1/2	1 7/10	1 9/50	8 9/10
24.1 cm	4.3 cm	3 cm	22.6 cm



Revised 09/06/12

Optanium T5 IOP2S2895SC

IOP2S2895SC@277	
Brand Name	OPTANIUM T5
Ballast Type	Electronic
Starting Method	Programmed Start
Lamp Connection	Series
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications at 277V

Notes:

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 Programmed Start.
- 2.2 Ballast shall provide Independent Lamp Operation (ILO) for Programmed Start Parallel ballasts allowing remaining lamp(s) to maintain full light output when one or more lamps fail.
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- 2.12 Ballast shall tolerate sustained open circuit and short circuit output conditions.
- 2.13 Ballast shall provide Lamp EOL Protection Circuit.
- 2.14 Ballast for step-dim applications shall have a 50% control step where the input power is <=50% of the full light input power for the primary lamp.

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 comply with UL Type CC rating.
- 3.7 Ballast shall comply with NEMA 410 for in-rush current limits.

Section IV - Other

- 4.1 Ballast shall be manufactured in a factory certified to ISO 9001 Quality System Standards.
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- 4.4 Manufacturer shall have a twenty-year history of producing electronic ballasts for the North American market



Revised 09/06/12

Optanium T5 IOP2S2895SC

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