

SubstiTUBE® IS LED T8



Compatible LED T8 for use with instant start electronic T8 ballasts



Key Features & Benefits

- Available in 4ft, 3ft & 2ft lengths
- CCT: 3000K, 3500K, 4100K, 5000K
- Beam angle: 150°
- Compatible with instant start electronic T8 ballasts with input voltage of 120-277V and 347V
- THD <20%, power factor >0.90
- G13 medium bi-pin base; sockets must be shunted
- Long life: 50,000 hour life (L₇₀)
- 6 year limited system warranty with purchase of new QHE IS ballast (16/7 operation)
- 5 year limited lamp warranty (24/7 operation)
- Reduces energy consumption up to 35%
- No warm-up time, instant-on with full light output and stable lamp to lamp color
- Glass free, vibration and impact resistant
- No UV emission
- Suitable for dry and damp locations (cannot come in direct contact with water)
- Maximize energy savings with occupancy sensors

OSRAM SubstiTUBE IS LED T8 lamps are an energy saving alternative, designed to replace traditional fluorescent T8 lamps. These shatterproof LED T8 lamps contain no mercury, provide instant light and a uniform light distribution.

Engineered to operate on existing instant start electronic T8 ballasts, these lamps minimize labor and recycling costs.

Because the SubstiTUBE IS LED T8 is not affected by switching cycles, the use of occupancy or vacancy sensors can now be installed with the existing instant start ballasts for optimal energy savings.

Install a new QHE Instant start ballast with the SubstiTUBE IS LED T8 lamp for optimal performance and to take advantage of the QUICK 72SUB+ System warranty. (See website for details.)

Product Offering

Length	Color Temperature	CRI
48in.	3000K, 3500K, 4100K, 5000K	>82
36in.	3000K, 3500K, 4100K, 5000K	>82
24in.	3000K, 3500K, 4100K, 5000K	>82

Application Information

Applications

- Cooler/freezer case
- Cove lighting
- Display case
- General illumination
- Parking garage
- Tunnels

Specifications and Certifications



3233 W Hunting Park Avenue, Philadelphia PA 19132-1845
 (800) 79-ROYAL (215) 221-1200 fax (215) 221-1201
 advisors@royalelectric.com www.royalelectric.com

WE GET IT
 24/7 Emergency Material Access



Specification Data

Catalog #	Type
Project	
Comments	
Prepared by	

Specifications

Energy Data

Ambient Operating Temperature: -4°F to 122°F (-20°C to 50°C)

EMI/RFI: FCC Title 47 CFR, Part 18, Non-Consumer

Lighting Data

Lumen Output: See specification table below (output is dependent on operating ballast)

Lumens per Watt: Up to 109

Correlated Color Temperature (CCT): 3000K, 3500K, 4100K, 5000K

Color Rendering Index (CRI): >82

R9: Up to 21

Ordering Information

Item Number	Ordering Abbreviation	Length	Lamp Power (W) ¹	Lamp Lumens (lm) ¹	Color Temp.	CRI	Beam Angle (°)	Package Quantity	DLC (Y/N)
73312	LED19T8/L48/F/830/SUB	4ft	16.5	2000	3000K	82	150	9	Y
73313	LED19T8/L48/F/835/SUB	4ft	16.5	2000	3500K	83	150	9	Y
(*)75089									
73314	LED19T8/L48/F/841/SUB	4ft	16.5	2000	4100K	85	150	9	Y
(*)75090									
73315	LED19T8/L48/F/850/SUB	4ft	16.5	2000	5000K	85	150	9	Y
(*)75091									
73688	LED16T8/L36/F/830/SUB	3ft	13.5	1600	3000K	82	150	9	n/a
73689	LED16T8/L36/F/835/SUB	3ft	13.5	1600	3500K	83	150	9	n/a
73690	LED16T8/L36/F/841/SUB	3ft	13.5	1600	4100K	85	150	9	n/a
73691	LED16T8/L36/F/850/SUB	3ft	13.5	1600	5000K	85	150	9	n/a
73679	LED10T8/L24/F/830/SUB	2ft	8.5	1050	3000K	82	150	9	Y
73680	LED10T8/L24/F/835/SUB	2ft	8.5	1050	3500K	83	150	9	Y
73686	LED10T8/L24/F/841/SUB	2ft	8.5	1050	4100K	85	150	9	Y
73687	LED10T8/L24/F/850/SUB	2ft	8.5	1050	5000K	85	150	9	Y

¹Lamp Power and Lamp Lumens rated on QHE1x32T8/UNV ISN

(*) Item number will change when inventory is depleted (73313 = 75089, 73314 = 75090, 73315 = 75091)

Please contact OSRAM SYLVANIA for additional information

Specifications & Lighting Data

Lamp	Ballast	Current (AMPS)	System Power (W)	System Lumens (lm)	System Efficacy (lm/W)	No. of Lamps
LED19T8/L48	QHE1x32T8/UNV ISL	0.13/0.06	15	1600	107	1
	QHE2x32T8/UNV ISL	0.25/0.11	30	3300	110	2
	QHE3x32T8/UNV ISL	0.38/0.17	46/45	4900	107/109	3
	QHE4x32T8/UNV ISL	0.50/0.22	60/59	6400	107/109	4
	QHE1x32T8/UNV ISN	0.16/0.07	19	2000	105	1
	QHE2x32T8/UNV ISN	0.30/0.13	36	3900	108	2
	QHE3x32T8/UNV ISN	0.43/0.19	51	5400	106	3
	QHE4x32T8/UNV ISN	0.57/0.25	68	7200	106	4
	QHE1x32T8/UNV ISH	0.21/0.09	25.5	2500	98	1
	QHE2x32T8/UNV ISH	0.46/0.20	56.5	5300	94	2
QHE3x32T8/UNV ISH	0.64/0.28	77/76	7500	97/99	3	
LED16T8/L36	QHE1x32T8/UNV ISL	0.10/0.04	12	1200	100	1
	QHE2x32T8/UNV ISL	0.20/0.09	24	2400	100	2
	QHE3x32T8/UNV ISL	0.31/0.14	38	3800	100	3
	QHE4x32T8/UNV ISL	0.41/0.18	50	5000	100	4
	QHE1x32T8/UNV ISN	0.14/0.06	16	1600	100	1
	QHE2x32T8/UNV ISN	0.25/0.11	30	3000	100	2
	QHE3x32T8/UNV ISN	0.36/0.16	44	4400	100	3
	QHE4x32T8/UNV ISN	0.48/0.20	57	5750	105	4
	QHE1x32T8/UNV ISH	0.19/0.08	23	2300	100	1
	QHE2x32T8/UNV ISH	0.40/0.18	49	4750	97	2
QHE3x32T8/UNV ISH	0.53/0.23	63	6100	97	3	
LED10T8/L24	QHE1x32T8/UNV ISL	0.07/0.03	8	800	100	1
	QHE2x32T8/UNV ISL	0.13/0.06	16	1600	100	2
	QHE3x32T8/UNV ISL	0.20/0.09	24	2400	100	3
	QHE4x32T8/UNV ISL	0.27/0.12	32	3200	100	4
	QHE1x32T8/UNV ISN	0.09/0.04	10	1050	105	1
	QHE2x32T8/UNV ISN	0.16/0.07	19	1900	100	2
	QHE3x32T8/UNV ISN	0.23/0.10	28	2800	100	3
	QHE4x32T8/UNV ISN	0.31/0.13	37	3750	105	4
	QHE1x32T8/UNV ISH	0.12/0.06	14.5	1500	103	1
	QHE2x32T8/UNV ISH	0.26/0.11	30	3000	100	2
QHE3x32T8/UNV ISH	0.34/0.15	40	4000	100	3	

Ordering Guide

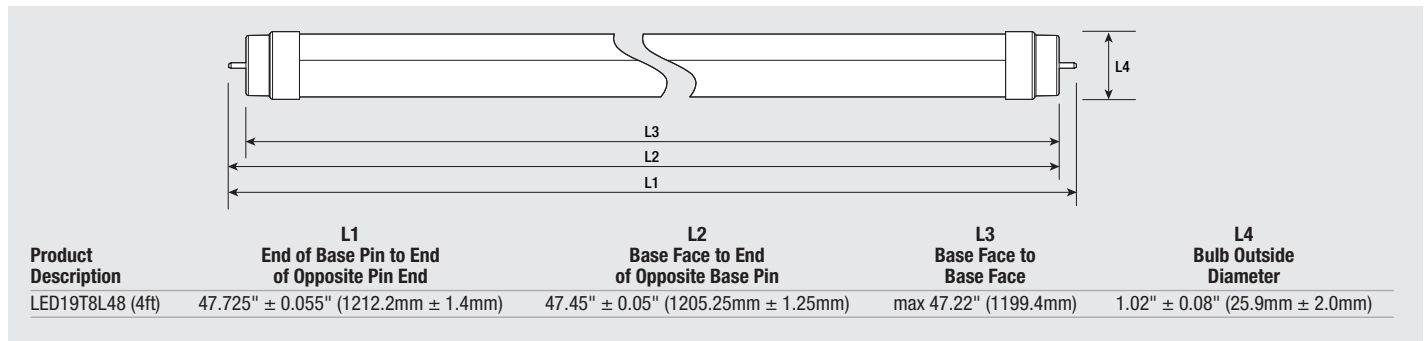
LED	19	T8	/	L	48	/	F	/	8	35	/	SUB
LED	Wattage (ISN ballast)	Lamp Type		Length	48 Inches Overall Length		Frosted Lens		CRI 83	Color Temperature 35 = 3500K		SubstiTUBE® IS (Compatible LED T8 for use with instant start T8 electronic ballasts)

Application Information

Application Notes

1. Due to numerous ballast designs and topologies, this lamp should be tested on existing ballasts before mass quantities are installed.
2. Not intended for use with older dedicated voltage (120V or 277V) instant start ballasts (only for 73312-0; 73313-0; 73314-0 and 73315-0). These ballasts have electronic components that degrade over time and may become unsuitable for the new LED T8 lamp.
3. Turn power off before installing the SubstiTUBE lamp. If relamped with power on and incorrect ballast is installed, ballast could be damaged.
4. Operating temperature range between -4°F and 122°F (-20°C and 50°C).
5. Suitable for use in dry and damp environments.
6. Maximum mounting distance between tube and driver is 20 feet.
7. Not compatible with QHE4x32T8/UNV ISH ballasts (only for 73312-0; 73313-0; 73314-0 and 73315-0).
8. Insert and align tubes properly in lamp holders, otherwise, tube lifetime might be shorter.
9. Compatible with IOTA emergency back-up model I-32, IOTA I-24, ISL-54 and I-160, Philips Bodine model LP600STU and B50.
10. For detailed warranty information, please see www.osram-americas.com
11. NSF certified Food Zone (Non-Contact), Splash Zone and Non-Food Zone.
12. Compatible IS ballasts can be de-lamped. The warranty still applies.
13. For enclosed fixture operation, the SubstiTUBE Tc point can not exceed 53°C. The Tc point is located right below the tube etch (represented by a small dot).

Assembly Diagram



SubstiTUBE® IPS LED T8



Compatible LED T8 for use with instant start and select programmed rapid start (parallel wiring) electronic T8 ballasts



Key Features & Benefits

- Available in 2, 3 and 4ft
- CCT: 3000K, 3500K, 4100K, 5000K
- Beam angle: 150°
- Compatible with instant start and select programmed rapid start (parallel-wiring) electronic T8 ballasts with input voltage of 120-277V and 347V
- THD <20%, power factor >0.90
- G13 medium bi-pin base
- Long life: 50,000 hour life (L₇₀)
- 6 year limited system warranty with purchase of new QHE IS ballast (16/7 operation)
- 5 year limited lamp warranty (24/7 operation)
- Reduces energy consumption up to 35%
- No warm-up time, instant-on with full light output and stable lamp to lamp color
- Glass free, vibration and impact resistant
- No UV emission
- Suitable for dry and damp locations (cannot come in direct contact with water)
- Maximize energy savings with occupancy sensors

OSRAM SubstiTUBE IPS LED T8 lamps are an energy saving alternative, designed to replace traditional fluorescent T8 lamps. These shatter-resistant LED T8 lamps contain no mercury, provide instant light and a uniform light distribution.

Engineered to operate on existing instant start and select programmed rapid start electronic T8 ballasts, these lamps minimize labor and recycling costs. Because the SubstiTUBE IPS LED T8 is not affected by switching cycles, the use of occupancy or vacancy sensors can be installed with the existing instant start ballasts for optimal energy savings.

Install a new QHE Instant start ballast with the SubstiTUBE IPS LED T8 lamp for optimal performance and to take advantage of the QUICK 72SUB+ System warranty. (See website for details.)

Product Offering

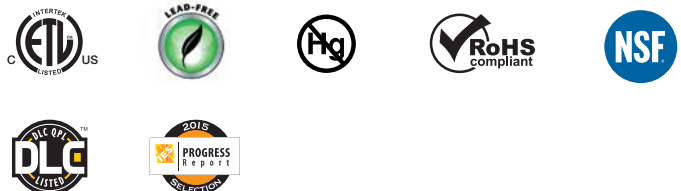
Length	Color Temperature	CRI
24in., 36in. and 48in.	3000K, 3500K, 4100K, 5000K	82

Application Information

Applications

- Cove lighting
- Display case
- General illumination
- Parking garage
- Tunnels

Specifications and Certifications



Specification Data

Catalog #	Type
Project	
Comments	
Prepared by	

Specifications

Energy Data

Ambient Operating Temperature: -4°F to 122°F (-20°C to 50°C)

EMI/RFI: FCC Title 47 CFR, Part 18, Non-Consumer

Lighting Data

Lumen Output: See specification table (output is dependent on operating ballast)

Lumens per Watt: Up to 127

Correlated Color Temperature (CCT): 3000K, 3500K, 4100K, 5000K

Color Rendering Index (CRI): 82

R9: Up to 21

Ordering Information

Item Number	Ordering Abbreviation	Length	Lamp Power (W) ¹	Lamp Lumens (lm) ¹	Color Temp.	CRI	Beam Angle (°)	Package Quantity	DLC (Y/N)
75181	LED15T8/L48/F/830/SUB/G5	4ft	15.5	2200	3000K	82	150	10	Y
75182	LED15T8/L48/F/835/SUB/G5	4ft	15.5	2200	3500K	82	150	10	Y
75183	LED15T8/L48/F/841/SUB/G5	4ft	15.5	2200	4100K	82	150	10	Y
75184	LED15T8/L48/F/850/SUB/G5	4ft	15.5	2200	5000K	82	150	10	Y
75084	LED12T8/L48/F/830/SUB/G5	4ft	12	1600	3000K	82	150	10	Y
75085	LED12T8/L48/F/835/SUB/G5	4ft	12	1600	3500K	82	150	10	Y
75086	LED12T8/L48/F/841/SUB/G5	4ft	12	1600	4100K	82	150	10	Y
75087	LED12T8/L48/F/850/SUB/G5	4ft	12	1600	5000K	82	150	10	Y
75150	LED12T8/L36/F/830/SUB/G5	3ft	12.5	1600	3000K	82	150	10	N/A
75151	LED12T8/L36/F/835/SUB/G5	3ft	12.5	1600	3500K	82	150	10	N/A
75152	LED12T8/L36/F/841/SUB/G5	3ft	12.5	1600	4100K	82	150	10	N/A
75153	LED12T8/L36/F/850/SUB/G5	3ft	12.5	1600	5000K	82	150	10	N/A
75146	LED08T8/L24/F/830/SUB/G5	2ft	8.5	1100	3000K	82	150	10	*
75147	LED08T8/L24/F/835/SUB/G5	2ft	8.5	1100	3500K	82	150	10	*
75148	LED08T8/L24/F/841/SUB/G5	2ft	8.5	1100	4100K	82	150	10	*
75149	LED08T8/L24/F/850/SUB/G5	2ft	8.5	1100	5000K	82	150	10	*

¹Lamp Power and Lamp Lumens rated on QHE1x32T8/UNV ISN

*Lamps are in DLC approval process.

Please contact OSRAM SYLVANIA for additional information.

Ordering Guide

LED	15	T8	/	L	48	/	F	/	8	41	/	SUB	/	G5
LED	Wattage (ISN ballast)	Lamp Type		Length	48 Inches 24 Inches 36 Inches Overall Length		Frosted		CRI 82	Color Temperature 41 = 4100K 30 = 3000K 35 = 3500K 50 = 5000K		SubstiTUBE® IPS (Compatible LED T8 for use with instant start and select programmed rapid start - parallel wiring -T8 electronic ballasts)		Generation

Application Information

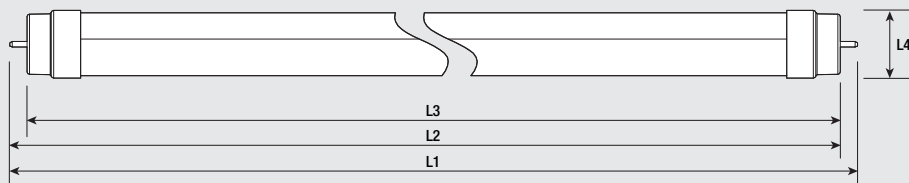
Application Notes

- Due to numerous ballast designs and topologies, this lamp should be tested on existing ballasts before mass quantities are installed.
- Not intended for use with older dedicated voltage (120V or 277V) ballasts. These ballasts have electronic components that degrade over time and may become unsuitable for the new LED T8 lamp.
- All installation, inspection, and maintenance of lighting fixtures should be done with the power to the fixture turned off. Lamps should be installed and operated in compliance with the National Electrical Code (NEC), Underwriters Laboratories Inc. (UL) requirements, and all applicable codes and regulations.
- Insert and align tubes properly in lamp holders. Partial insertion results in a poor or intermittent electrical contact that can result in short lamp life and arcing. Arcing at the lamp holder can result in localized overheating.
- For instant start ballasts, use lamp holders with an internal shunt or ensure that lamp holders are wired in a shunt configuration
- Operating temperature range between -4°F and 122°F (-20°C and 50°C).
- Suitable for use in dry and damp environments.
- Maximum mounting distance between tube and ballast is 20 feet.
- NSF certified Food Zone (Non-Contact), Splash Zone and Non-Food Zone.
- Please read all installation instructions before attempting installation.
- For detailed warranty information, please see www.osram-america.com

Specifications & Lighting Data

Lamp	Ballast	Current (AMPS)	System Power (W)	System Lumens (lm)	System Efficacy (lm/W)	No. of Lamps	
LED15T8/L48	QHE1X32T8/UNV ISL	0.13 / 0.06	15.0	1,900	127	1	
	QHE2X32T8/UNV ISL	0.26 / 0.12	30.0	3,800	127	2	
	QHE3X32T8/UNV ISL	0.38 / 0.17	45.0	5,700	127	3	
	QHE4X32T8/UNV ISL	0.51 / 0.23	60.0	7,600	127	4	
	QHE1X32T8/UNV ISN	0.15 / 0.07	18.0	2,200	122	1	
	QHE2X32T8/UNV ISN	0.30 / 0.13	36.0	4,400	122	2	
	QHE3X32T8/UNV ISN	0.43 / 0.19	52.5	6,400	122	3	
	QHE4X32T8/UNV ISN	0.57 / 0.26	69.5	8,500	122	4	
	QHE1X32T8/UNV ISH	0.20 / 0.09	23.0	2,800	122	1	
	QHE2X32T8/UNV ISH	0.40 / 0.19	47.5	5,800	122	2	
	QHE3X32T8/UNV ISH	0.57 / 0.27	66.5	8,100	122	3	
	QHE4X32T8/UNV ISH	0.77 / 0.34	91.0	11,000	121	4	
	LED12T8/L48	QHE1X32T8/UNV ISL	0.11 / 0.05	12.5	1,400	112	1
		QHE2X32T8/UNV ISL	0.22 / 0.10	26.0	2,900	112	2
QHE3X32T8/UNV ISL		0.34 / 0.15	40.0	4,500	113	3	
QHE4X32T8/UNV ISL		0.44 / 0.20	52.0	5,800	112	4	
QHE1X32T8/UNV ISN		0.12 / 0.06	14.5	1,600	110	1	
QHE2X32T8/UNV ISN		0.25 / 0.11	29.0	3,200	110	2	
QHE3X32T8/UNV ISN		0.36 / 0.16	42.0	4,600	110	3	
QHE4X32T8/UNV ISN		0.48 / 0.21	56.5	6,200	110	4	
QHE1X32T8/UNV ISH		0.15 / 0.07	17.5	1,800	103	1	
QHE2X32T8/UNV ISH		0.30 / 0.13	35.0	3,600	103	2	
QHE3X32T8/UNV ISH		0.90 / 0.19	51.5	5,300	103	3	
QHE4X32T8/UNV ISH		0.60 / 0.27	70.0	7,200	103	4	
LED12T8/L36		QHE1X32T8/UNV ISL	0.11 / 0.05	12.0	1350	113	1
		QHE2X32T8/UNV ISL	0.22 / 0.10	25.5	2900	114	2
	QHE3X32T8/UNV ISL	0.34 / 0.15	39.5	4500	114	3	
	QHE4X32T8/UNV ISL	0.44 / 0.20	51.5	5850	114	4	
	QHE1X32T8/UNV ISN	0.13 / 0.06	14.5	1650	114	1	
	QHE2X32T8/UNV ISN	0.24 / 0.11	28.0	3200	114	2	
	QHE3X32T8/UNV ISN	0.35 / 0.16	41.0	4650	113	3	
	QHE4X32T8/UNV ISN	0.48 / 0.21	56.0	6300	113	4	
	QHE1X32T8/UNV ISH	0.15 / 0.07	17.0	1800	106	1	
	QHE2X32T8/UNV ISH	0.30 / 0.14	34.0	3600	106	2	
	QHE3X32T8/UNV ISH	0.34 / 0.16	51.0	5400	106	3	
	LED08T8/L24	QHE1X32T8/UNV ISL	0.08 / 0.04	9.5	1050	111	1
		QHE2X32T8/UNV ISL	0.16 / 0.08	19.0	2100	111	2
		QHE3X32T8/UNV ISL	0.24 / 0.11	28.5	3150	111	3
QHE4X32T8/UNV ISL		0.32 / 0.14	38.0	4200	111	4	
QHE1X32T8/UNV ISN		0.09 / 0.04	10.0	1100	110	1	
QHE2X32T8/UNV ISN		0.17 / 0.08	20.0	2200	110	2	
QHE3X32T8/UNV ISN		0.26 / 0.11	30.0	3300	110	3	
QHE4X32T8/UNV ISN		0.34 / 0.16	39.5	4350	110	4	
QHE1X32T8/UNV ISH		0.11 / 0.05	12.5	1350	108	1	
QHE2X32T8/UNV ISH		0.21 / 0.10	24.5	2600	106	2	
QHE3X32T8/UNV ISH	0.29 / 0.14	34.0	3600	106	3		

Assembly Diagram



Product Description	L1 End of Base Pin to End of Opposite Pin End	L2 Base Face to End of Opposite Base Pin	L3 Base Face to Base Face	L4 Bulb Outside Diameter
LED15T8L48 (4ft)	47.725" ± 0.055" (1212.2mm ± 1.4mm)	47.45" ± 0.05" (1205.25mm ± 1.25mm)	max 47.22" (1199.4mm)	1.02" ± 0.08" (25.9mm ± 2.0mm)

SubstiTUBE® CURVALUME® IPS LED T8



Compatible LED T8 for use with instant start and select programmed rapid start (parallel wiring) electronic T8 ballasts



OSRAM SubstiTUBE CURVALUME IPS LED T8 lamps are an energy saving alternative, designed to replace traditional fluorescent T8 lamps. These shatter-resistant LED T8 lamps contain no mercury, provide instant light and a uniform light distribution.

Engineered to operate on existing instant start and select programmed rapid start electronic T8 ballasts, these lamps minimize labor and recycling costs. Because the SubstiTUBE CURVALUME IPS LED T8 is not affected by switching cycles, the use of occupancy or vacancy sensors can be installed with the existing instant start ballasts for optimal energy savings.

Install a new QHE Instant start ballast with the SubstiTUBE CURVALUME IPS LED T8 lamp for optimal performance and to take advantage of the QUICK 72SUB+ System warranty.

Key Features & Benefits

- CCT: 3000K, 3500K, 4100K, 5000K
- Beam angle: 150°
- Compatible with instant start and select programmed rapid start (parallel-wiring) electronic T8 ballasts with input voltage of 120-277V and 347V
- THD <20%, power factor >0.90
- G13 medium bi-pin base
- Long life: 50,000 hour life (L₇₀)
- 6 year limited system warranty with purchase of new QHE IS ballast (16/7 operation)
- 5 year limited lamp warranty (24/7 operation)
- Reduces energy consumption up to 35%
- No warm-up time, instant-on with full light output and stable lamp to lamp color
- Glass free, vibration and impact resistant
- No UV emission
- Suitable for dry and damp locations (cannot come in direct contact with water)
- Maximize energy savings with occupancy sensors

Product Offering

Length	Color Temperature	CRI
15.5W U-Bend LED T8	3000K, 3500K, 4100K, 5000K	82

Application Information

Applications

- General illumination
- Parking garage

Specifications and Certifications



Specification Data

Catalog #	Type
Project	
Comments	
Prepared by	

Specifications

Energy Data

Ambient Operating Temperature: -4°F to 122°F (-20°C to 50°C)

EMI/RFI: FCC Title 47 CFR, Part 18, Non-Consumer

Lighting Data

Lumen Output: See specification table below (output is dependent on operating ballast)

Lumens per Watt: Up to 127

Correlated Color Temperature (CCT): 3000K, 3500K, 4100K, 5000K

Color Rendering Index (CRI): 82

R9: Up to 21

Ordering Information

Item Number	Ordering Abbreviation	Leg Spacing	Lamp Power (W) ¹	Lamp Lumens (lm) ¹	Color Temp.	CRI	Beam Angle (°)	Package Quantity
75141	LED15T8/U/F/830/SUB/G5	6 inch	15	2200	3000K	82	150	10
75142	LED15T8/U/F/835/SUB/G5	6 inch	15	2200	3500K	82	150	10
75143	LED15T8/U/F/841/SUB/G5	6 inch	15	2200	4100K	82	150	10
75145	LED15T8/U/F/850/SUB/G5	6 inch	15	2200	5000K	82	150	10

¹Lamp Power and Lamp Lumens rated on QHE1x32T8/UNV ISN
Please contact OSRAM SYLVANIA for additional information.

Ordering Guide

LED	15	T8	/	Shape	/	F	/	8	41	/	SUB	/	G5
LED	Wattage (ISN ballast)	Lamp Type	/	U-Bend	/	Frosted	/	CRI 82	Color Temperature 41 = 4100K 30 = 3000K 35 = 3500K 50 = 5000K	/	SubstiTUBE® IPS (Compatible LED T8 for use with instant start and select programmed rapid start - parallel wiring -T8 electronic ballasts)	/	Generation

Application Information

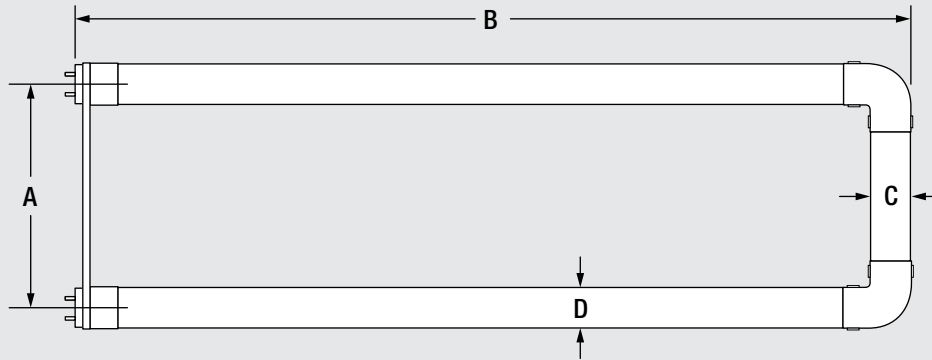
Application Notes

- Due to numerous ballast designs and topologies, this lamp should be tested on existing ballasts before mass quantities are installed.
- Not intended for use with older dedicated voltage (120V or 277V) ballasts. These ballasts have electronic components that degrade over time and may become unsuitable for the new LED T8 lamp.
- All installation, inspection, and maintenance of lighting fixtures should be done with the power to the fixture turned off. Lamps should be installed and operated in compliance with the National Electrical Code (NEC), Underwriters Laboratories Inc. (UL) requirements, and all applicable codes and regulations.
- Insert and align tubes properly in lamp holders. Partial insertion results in a poor or intermittent electrical contact that can result in short lamp life and arcing. Arcing at the lamp holder can result in localized overheating.
- For instant start ballasts, use lamp holders with an internal shunt or ensure that lamp holders are wired in a shunt configuration
- Operating temperature range between -4°F and 122°F (-20°C and 50°C).
- Suitable for use in dry and damp environments.
- Maximum mounting distance between tube and ballast is 20 feet.
- NSF certified Food Zone (Non-Contact), Splash Zone and Non-Food Zone.
- Please read all installation instructions before attempting installation.
- For detailed warranty information, please see www.osram-americas.com

Specifications & Lighting Data

Lamp	Ballast	Current (AMPS)	System Power (W)	System Lumens (lm)	System Efficacy (lm/W)	No. of Lamps
LED15T8/U	QHE1X32T8/UNV ISL	0.13 / 0.06	15.0	1,900	127	1
	QHE2X32T8/UNV ISL	0.26 / 0.12	30.0	3,800	127	2
	QHE3X32T8/UNV ISL	0.38 / 0.17	45.0	5,700	127	3
	QHE4X32T8/UNV ISL	0.51 / 0.23	60.0	7,600	127	4
	QHE1X32T8/UNV ISN	0.15 / 0.07	18.0	2,200	122	1
	QHE2X32T8/UNV ISN	0.30 / 0.13	36.0	4,400	122	2
	QHE3X32T8/UNV ISN	0.43 / 0.19	52.5	6,400	122	3
	QHE4X32T8/UNV ISN	0.57 / 0.26	69.5	8,500	122	4
	QHE1X32T8/UNV ISH	0.20 / 0.09	23.0	2,800	122	1
	QHE2X32T8/UNV ISH	0.40 / 0.19	47.5	5,800	122	2
	QHE3X32T8/UNV ISH	0.57 / 0.27	66.5	8,100	122	3
	QHE4X32T8/UNV ISH	0.77 / 0.34	91.0	11,000	121	4

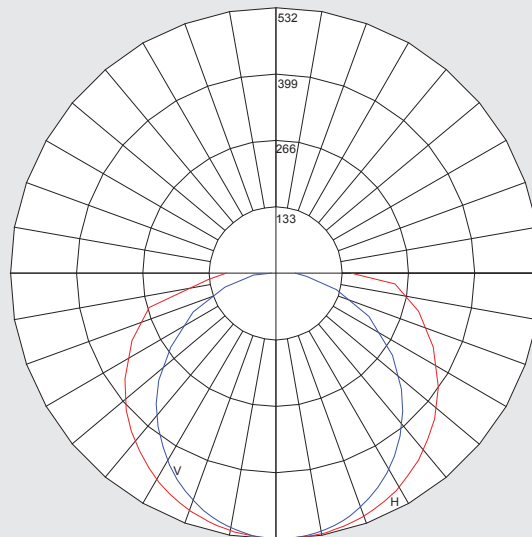
Dimensions



ANSI Spec	Typical
A (Lamp legs, center to center, nominal)	6.0
B (Base face to lamp end)	22.4
C (Bulb diameter in bend)	1.0
D (Bulb diameter in legs)	1.0

Units: inches

Photometric Information



Maximum Candela = 532
 — H - Horizontal Axial Candela
 — V - Vertical Axial Candela

Total Lumen Distribution

Zoom	Lumens
0-30	419
0-40	697
0-60	1298
0-90	1945
60-90	873
0-180	2187

Photometric information for 3500K