

CENTRIC DAYLIGHT™ Full Spectrum T8 LED Tube Light

PN 4024.40 | 4024.50 | 4024.65

Waveform Lighting's ultra high CRI technology is now available for your home, office or studio in a standard 4-ft T8 LED tube form factor. These lamps offer near-perfect color rendering with a 95 CRI rating, and provide completely flicker-free light output.

Ideal for direct replacement of fluorescent lamps, these T8 LED tube lights feature TriplePlay™ ballast-compatibility, allowing for quick and easy installation in a variety of fixture types and configurations.

Lamps are constructed of NSF shatterproof glass with a high-diffusion coating, providing a soft and evenly distributed lighting effect.

PRODUCT FEATURES

- Available in 4000 K (morning sun), 5000 K (noon sun) and 6500 K (noon sky)
- 95+ CRI and R9 > 90
- 1800 lumens (F32T8 fluorescent lamp equivalent)
- Compatible with electronic ballasts and direct-wire (ballast bypass)
- Fully flicker-free light output (when installed in ballast-bypass fixtures)
- Not compatible with dimmers
- ETL listed (4008503), damp location rated



ELECTRICAL SPECIFICATIONS

Input type options:	With electronic ballast
	Direct-wire, single-ended
	Direct-wire, double-ended
Input voltage:	120-240V AC, 50-60 Hz
Power consumption:	18 watts
Power factor:	0.9

MECHANICAL SPECIFICATIONS

Length:	48 in (1200 mm)
Bulb diameter:	1.1 in (28 mm)
Base:	G13 bi-pin

FLICKER METRICS (Direct-Wire Only)

Flicker (%):	<2%
Flicker index:	<0.02
Flicker frequency:	0 Hz

For reference, incandescent bulbs typically exhibit 12% flicker, a flicker index value of 0.03, and a flicker frequency of 120 Hz. Flicker performance when used with an electrical ballast will depend on the ballast's flicker characteristics.

PHOTOMETRIC SPECIFICATIONS

	CCT Range	Duv	CIE (x,y)
4000 K:	±100K	0.0000 ±0.0010	(0.3806, 0.3768)
5000 K:	±150K	0.0015 ±0.0015	(0.3455, 0.3548)
6500 K:	±250K	0.0025 ±0.0015	(0.3134, 0.3283)

Light Output:	1800 lm
Beam angle:	320°
CRI Ra:	95+
CRI R9:	90+
CRI R13:	90+
TM-30-15 Rf/ Rg*:	90+/100

*For additional detail on TM-30-15 metrics for this product, please see our separate test report documentation.

LIFETIME INFORMATION

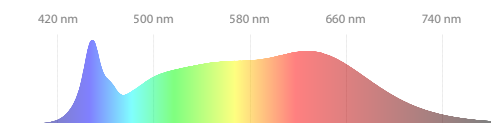
Warranty period:	60 months (5 years)
Lifetime (L90):	36,000 hours

EXTENDED CRI VALUES (TYPICAL)

R1	98
R2	99
R3	98
R4	98
R5	97
R6	95
R7	97
R8	96
R9	94
R10	98
R11	98
R12	75
R13	100
R14	99
R15	96

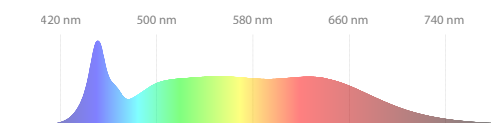
4000 K SPECTRUM

M/P ratio: 0.74



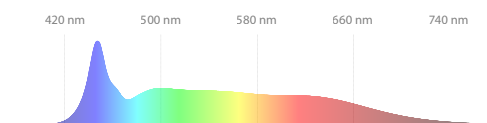
5000 K SPECTRUM

M/P ratio: 0.89



6500 K SPECTRUM

M/P ratio: 1.06



FIXTURE & BALLAST COMPATIBILITY

This lamp is designed for use in 4-ft fluorescent fixtures only. Our lamps feature TriplePlay™ technology, which allows them to be used in virtually all commonly seen fixture wiring configurations detailed below. For additional details, please reference the product installation manual.

CONFIGURATION #1 - WITH BALLAST

The most convenient option, the "with ballast" configuration keeps the T8 fluorescent ballast connected in the fixture, and the LED lamps are installed directly without any rewiring or modifications to the fixture.

The ballast used in the fixture must be listed in our approved ballast list for safety and reliability. Note that magnetic ballasts and T12 ballasts are not compatible.

CONFIGURATION #2 - DIRECT-WIRE, SINGLE-ENDED

The direct-wire (aka ballast-bypass) method bypasses the fluorescent ballast completely, such that line voltage is connected directly to the lamps. The direct-wire, single-ended method connects the live and neutral wires to just one end of the lamp. This configuration requires the use of *non-shunted* lampholders.

Waveform Lighting's LED-ready T8 fixtures (PN 4501 / 4502) are pre-configured for direct-wire, single-ended LED T8 lamp installations, and are a great, pre-tested and compatible option when new fixtures are required.

CONFIGURATION #3 - DIRECT-WIRE, DOUBLE-ENDED

This method also bypasses the fluorescent ballast, but line voltage is connected via both ends of the lamps. This configuration requires the use of *shunted* lampholders.

The M/P ratio describes a light source's potential to influence the human circadian cycle, measured between 0.0 and 1.1. Higher values are more likely to affect the circadian cycle. M/P ratio calculations are based on Well Building's *Equivalent Melanopic Lux* methodology (2018).

COMPATIBLE FIXTURES

PN 4501, 4502, third-party 4-ft fluorescent fixtures*

*See left panel for details.

PART NUMBERS AND ORDERING

4000K 4-pack:	4024.40.4P
4000K 24-pack:	4024.40.24P
5000K 4-pack:	4024.50.4P
5000K 24-pack:	4024.50.24P
6500K 4-pack:	4024.65.4P
6500K 24-pack:	4024.65.24P

CERTIFICATIONS

Light-Emitting Diode (LED) Retrofit Luminaire Conversion Kits (UL-1598C), Retrofit Kits For Luminaire Conversion (CAN/CSA-C22.2 No. 250.1), Self-Ballasted Lamps and Lamp Adapters (UL-1993)



CAUTION: DO NOT USE WITH DIMMERS. SUITABLE FOR DAMP LOCATIONS. DIRECT REPLACEMENT FOR F32T8 LAMPS ONLY.