

# Technical Descriptions

## Lamp Listing Sequence

Lamps are listed in wattage sequence except for special groupings such as Street Lighting, Tungsten Halogen, High Intensity and Silicone Coated Lamps.

## Ordering Code

The complete information shown in the ordering code column together with the voltage, if applicable, should be used when placing orders. In a number of instances a lamp type may be available in different kinds of packaging such as 2 or 4 lamp wrappers. Some small lamp types which are generally multiple packed on a platform with an overwrap are also packaged as a blister-carded item for the retail market. Each of these items is shown as a separate listing. To identify them, additional information is included with the ordering code. The following examples illustrate this:

Ordering Code	Pkg. Qty.*	Explanation
BC-777/W 12/2	12cnds	Carded pack—2 lps per card. The number shown in the "Pkg.Qty" column is the number of cards per minimum shipping case.
60T/SW 12/4	48	12-4 lp wrappers = 48 lps per minimum shipping case.
50/150T/W/L/TP 96/1	96	96-1 lp wrappers = 96 lps per minimum shipping case.

\* Quantity shown is minimum shipping container. Refer to Net Price Schedule for number of lamps required for qualification as a standard case.

## Voltage

Lamps listed are available only in the voltage shown. Lamps listed in range voltages such as 115-125 or 230-250 are intended for use on circuits normally varying within these voltage limits and are designed for an average voltage suitable for operation on such circuits. Lamps intended for operation in range voltages have a design volt center as follows, unless otherwise noted by a footnote:

Range Voltage	Design Voltage
115-125.....	120
120-125.....	120
120-130.....	125
125-130.....	130
230-250.....	240

## Class of Lamp

Incandescent lamps are classified as type B or type C. The type B lamp is one in which the filament operates in a vacuum. The type C lamp is one in which the filament operates in an atmosphere of inert gas. For gas-filled lamps which can be operated in any position the lumen maintenance is best when lamps are operated base up. For the vacuum type lamps which have no restrictions on operating position the lumen maintenance is the same in all operating positions.

## Lamp Dimensions

Bulb designations consist of a letter or letters to indicate shape and a number to indicate the approximate diameter in eighths of an inch.

## Maximum Overall Length (M.O.L.)

Maximum Overall Length is measured from the top of the bulb to bottom of the base.

## Nominal Length

A measurement of fluorescent lamp length based on the length of the lamp plus the proper allowance for standard lamp holders.

## Light Center Length (L.C.L.)

Light Center Length is the distance from a reference point on a lamp base (usually the eyelet) to the center of the light source. For high intensity discharge lamps, it is the distance from the center of the filament or center of the arc to the point shown below for the base indicated.

All Screw bases—Bottom base contact  
Medium and Mogul Prefocus—Top of base pin  
Medium Bipost—Bottom of bulb  
Bayonet Candelabra and Medium Bayonet—Top of base pins  
SC or DC Prefocus—Plane of locating bosses of prefocusing collar  
Mini-Can—Intersection of 45° taper with maximum diameter of base

## Inches to Metric Conversion

To calculate the metric equivalent of inches in millimeters (mm) use the following formula: inches x 25.4001 = millimeters

## Operating Position

Lamps may be operated in any position unless otherwise indicated.

## Base Pin Position for Bayonet Candelabra Based Lamps

When lamps are based with a bayonet candelabra base, the plane of the base pins will be approximately at right angles to the plane of the filament, unless otherwise indicated.

## SC or DC Prefocus Based Lamps

The plane containing the base axis and the major locking eyelet which is the eyelet equidistant from the two other eyelets, will be at right angles to the plane of the filament or lead wires unless otherwise indicated. The letter (A) shown in the Base column after SC or DC Pref. based lamps indicates that the distance from the bottom of base contact or contacts to the bottom of the collar is .406". In the case of DC Pref. based lamps, the letter (A) also indicates that the plane containing the base axis and contacts is at right angles to the plane containing the base axis and the major locking locking eyelet.

# Glossary of Terms

## Candela

The unit of measure for the intensity of light at the source roughly equal to the amount of light in any direction from the flame of a candle.

## Color Rendering Index (CRI)

Color Rendering is the ability of a light source to produce color in objects. The CRI is expressed on a scale from 0-100, where 100 is best in producing vibrant color in objects. Relatively speaking, a source with a CRI of 80 will produce more vibrant color in the same object than a source with a CRI of 60.

## Color Temperature

The overall color appearance of the light itself. When referring to a source as either "warm" or "cool" the Color Temperature is being discussed. Color temperature is expressed in units of Kelvin. Lamps range from 2100-7500 Kelvin. Lower color temperature (3000K) represents "warm" light, higher (4100K) represents "cool" light.

## Design Lumens

Lumen value at 40% of rated average life.

## Exitance

The term used to describe the total light which comes off a surface. Exitance is dependent upon the illuminance on and the reflectance of the surface.

## Footcandle

The unit of measure for the density of light as it reaches a surface. One footcandle is equal to one lumen per square foot. Measured footcandles are sensitive to the distance from the source to the surface of measure (inverse square law) and the angle at which the light reaches the surface (cosine law).

## Illuminance

The density of luminous flux on a surface, is measured in footcandles (one lumen per square foot) or lux (one lumen per square meter).

## Illumination

The result of the use of light.

## Instant Start

A circuit used to start specially-designed fluorescent lamps without the aid of a starter. The circuit utilizes higher open circuit voltage than is required for the same length preheat lamp, to strike the arc instantly. This circuit is used today in slimline and cold cathode lamps. Instant start 40-watt bipin lamps are made with a short circuiting device built into the base.

## Intensity

The light emitted from a source. Intensity most often varies given the direction at which one views the source. Intensity does not vary with distance. A candle produces the same intensity in a given direction whether on a table in front of you or one mile away.

## Kilowatt (KW)

A larger unit of power, a thousand watts (watts x 1000 = kilowatts).

## Kilowatt Hour (kWh)

The measure of electrical energy from which electricity billing is determined. For example, a 100-watt bulb operated for 1000 hours would consume 100 kilowatt hours, (100 watts x 1000 hours = 100 kWh). At a billing rate of \$0.10/kWh, this bulb would cost \$10.00 (100 kWh x \$0.10/kWh) to operate over its life.

## Light

The energy that allows us to see. Professionally, light can be expressed in five terms. They are Intensity (candela), Flux (lumen) and Luminance (candela/square ft.) and Exitance (lumen/square ft.).

## Lumen

The unit of measure for the light energy which flows in air. The total light output from electric sources is expressed in lumens. A uniform source of one candlepower placed in a sphere emits 12.57 lumens or mean spherical candela equals to 12.57 lumens.

## Lumens Per Watt (LPW)

A measure of the efficacy of a light source in terms of the light produced for the power consumed. For example, a 100-watt lamp producing 1750 lumens gives 17.5 lumens per watt.

## Luminance

The term used to describe the specific light which comes off a surface whether off a filament, light bulb, lens, louver, tabletop, etc. Luminance varies with both the direction at which you view the surface and its gloss characteristics. Luminance is measured in candela per square foot.

## Preheat

A circuit used in fluorescent lamps where in the electrodes are heated or warmed to a glow stage, by an auxiliary switch or starter (can be a glow switch, thermal type or a mechanical device like a push button) before the lamps are lighted. This system was used on the original fluorescent lamps and is still in use today.

## Rapid Start

A circuit designed to start lamps by continuously heating or preheating the electrodes. This circuit is a modern version of the trigger start system and requires lamps designed for this circuit. In the rapid start two-lamp circuit, one end of each lamp is connected to a separate starting winding, the other end of each lamp is connected to a common winding. Except for slimline lamps, all modern fixtures using 40-watt and higher lamps are equipped with rapid start ballasts.

## Rated Average Life

The operating life (hours) at which 50% of the lamps are still operating. Where a plus (+) is used in stating the life, survival rate is 67% at the stated time.

## Trigger Start

A circuit used to eliminate the starter and start the preheat lamp almost instantly. In this circuit each electrode is connected to a separate winding in the ballast so that the electrode is continuously heated. This circuit is primarily used on 20-watt and lower wattage fluorescent lamps today.

## Voltage (V or E)

A measurement of electromotive force or the pressure of electricity. This is analogous to the pressure in a water line; i.e. pounds per square inch. The voltage of a circuit is the electrical pressure it gives. In an incandescent lamp "voltage" designates the supply voltage to which the lamp should be connected. In other lamp types, it may refer to "operating voltage" of a lighted arc discharge lamp.

## Watt (W)

Unit used to measure power consumption of lamp.