

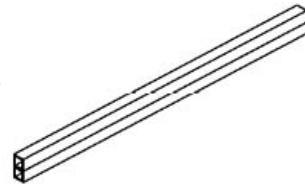
# NEWWORLD Lighting

## Amtrax Product Overview

Amtrax systems consist of:

- Rail
- Connectors
- Fixtures
- Supports
- Bulbs
- Accessories
- Electrical connection

**Rail** comes in 1 meter lengths (39 inches). Each piece of rail has two conducting sections separated by an insulating layer. Straight rail is the most common type though various types of curved rail are available. Pieces of curved rail can be used individually, or combined to form circles of 2 ft., 4 ft., 6 ft., or 8 ft. diameter. Rail can be cut with a hacksaw to provide any desired length. Care should be taken to wipe any cut edges to ensure no burrs touch each conductor, thus creating a short circuit.



**Connectors** are used to join rail. A connector is inserted part way into each conductor on a piece of rail then inserted into another piece of rail. This forms both an electrical connection and a sturdy physical connection. Connectors come in many shapes:

- Straight – for joining two pieces of rail.
- 'L' for joining two pieces of rail at any angle from 20° to 180°.
- 'T' for joining three pieces of rail, two in a straight line and the third at a variable angle.
- 'X' for joining four pieces of rail.



Insulating connectors, made of non-conducting plastic, are used to make a physical connection between two pieces of rail while isolating the pieces electrically, thus allowing separate circuits and controls on a section of joined rail.

End caps are placed at the ends of rail sections.



**Fixtures** can be attached to rail in a number of ways. Some fixtures (*Trapeze, Galleria, Swing*) attach directly to the rail while others (*Saturn, Radar, Pendant*) attach to the rail via a *Universal Connector*.

*Trapeze, Galleria, and Swing* fixtures have two sleeve and thumbscrew assemblies that attach to each conductor of the rail. To ensure a good electrical connection it is imperative the thumbscrews are tight. It is not necessary to use a wrench for tightening, firm finger-tight is sufficient. MR16 bulbs are inserted into the fixture and secured with two thumbscrews. Again, it is important to have a tight connection. *Trapeze, Galleria and Swing* fixtures can be cut to a desired length by snipping the ends opposite the rail.



*Saturn, Radar, and Pendant* fixtures utilize *Universal Connectors* for physical and electrical connection to the rail. *Universal Connectors* have a center channel that is electrically isolated from the body of the connector thus providing a positive and negative connection to the fixture. Before attaching fixtures to the *Universal Connector*, be sure the small metal cylinder included in the *Universal Connector* package is inserted into the body of the connector (from the bottom). The *Saturn, Radar, or Pendant* fixture is then screwed onto the threaded end of the *Universal Connector*. Be sure the spring on the end of the fixture is inserted into the *Universal Connector*. Insert a bulb into the fixture. Finally, attach the completed assembly to the rail. Unscrew the cap on the top of the connector, place the connector over the rail and screw the cap back on tightly.



*Saturn fixture*



*Universal Connector*



*Radar fixture*

*Saturns* typically use MR16 bulbs while *Radar and Pendant* fixtures look best with T4 bi-pin bulbs. *Radar and Pendant* fixtures are designed for mounting various styles of glass and shades. *Radar and Pendant* fixtures must not have more than a 35 watt bulb. *Saturn and Radar* fixtures are available in four lengths from 11/4" to 24". *Pendant* fixtures come with a 4 ft. cable. The cable can be shortened to any desired length in about 10 minutes using basic hand tools.

Detailed instructions for shortening *Pendant* cables are included with each pendant.

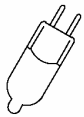
**Supports** for installing rail systems are available in a variety of types and finishes. The most common type is the *Ceiling Support*, a black plastic cylinder with mounting screw. The support is mounted to the ceiling then the rail inserted and secured with the thumb screw. Typically a ceiling support is mounted at each rail end/joint. Thus a two rail section requires three supports, a three rail section four supports, etc.

*Ceiling supports* should be installed in a manner that fully supports the finished product. In wood frame construction the support should be mounted to a joist rather than to sheetrock. In hung ceiling applications, plywood or 1x3 strapping should be placed above the tiles to provide a solid mounting. Local codes may require this be attached to the structure rather than merely placed on top of the ceiling tile T bars.



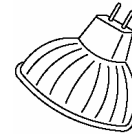
In more complex installations, Amtrax can be suspended from the ceiling using either stems or cabling. A *Stem/Cable Mount* is attached to the ceiling, stems or cabling attached to the mount and then attached to the rail using a *Ceiling Support*.

**Bulbs** come in a wide array of types, strengths, and beam spreads.



T4 bulb

T4 bi-pin bulbs are normally used in fixtures holding Glass or Shades (Radar or Pendant fixtures). MR16 bulbs are used in all other fixtures. In a typical installation, the vast majority, if not all, of the bulbs are MR16.



MR16 bulb

Both bulbs are available in 20, 35 and 50 watt, but 50 watt bulbs should not be used in Radar or Pendant fixtures. MR16 bulbs also come in several beam spreads, 10°, 38° and 60°. The beam spread indicates the size of the focus of the bulb. A tight beam spread, 10°, can be used to highlight an object like a spot light. A wide beam spread can be used for wider area lighting. In a typical installation, the most common bulb used is a 35 watt 38°, called a 3538.

**Accessories** are used to enhance the appearance of a fixture and are available in two types: bulb supplements and glass/shades.

Bulb supplements are the same size as an MR16 bulb and are available in a variety of colors and finishes. The bulb is placed inside the supplement then inserted into the fixture. Bulb supplements can be used on *Trapeze*, *Saturn*, *Swing* and *Galleria* fixtures. However, the *Super Hood* supplement can only be used on the *Saturn* fixture.

Glass and shades are larger, more elegant accessories requiring *Radar* or *Pendant* fixtures. To mount the glass or shade, unscrew the nut on the center post of the *Radar* or *Pendant* fixture, place the glass on the center post, then replace the nut and tighten finger-tight. Multiple pieces of glass can also be mounted one inside the other for a more attractive appearance.

**Electrical connection** of the rail is done through a *Center Feed*. A *Center Feed* package includes two devices (pictured at right), two metal sleeves and an Allen wrench. Insert the wire from the transformer into the metal sleeve, then insert the sleeve/wire combination into the hole in the *Center Feed*. Tighten the wire/sleeve securely into the *Center Feed* using the Allen wrench then place the *Center Feed* onto the rail. Tighten the thumb screw securely to ensure a good electrical connection between the feed and the rail. Two *Center Feeds* are needed to complete the circuit, one connected from the transformer to the upper portion of the rail and the other to the lower portion of the rail.



**Wire Size Formula**

Distance of 12 volt feed wire from transformer to rail or cable system.

**250 Watts**

| Length     | Gauge |
|------------|-------|
| 1' to 13'  | 10    |
| 14' to 21' | 8     |

**300 Watts**

| Length     | Gauge |
|------------|-------|
| 1' to 11'  | 10    |
| 12' to 18' | 8     |