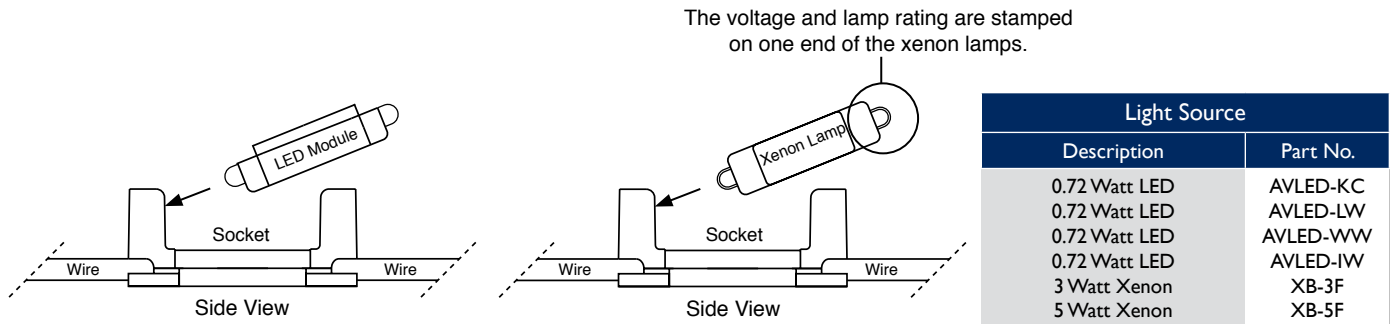


TOKISTAR LIGHTING INSTRUCTION MANUAL

Advantage Series

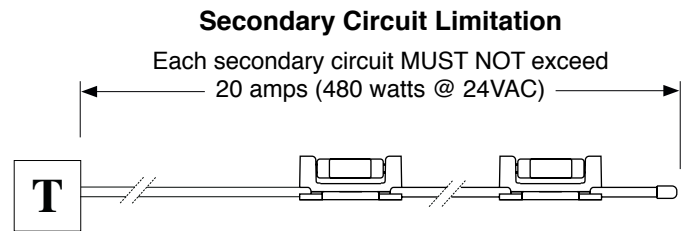
General Description

Tokistar's Advantage Series is a 24 VAC lighting system using LED modules or rigid-loop xenon lamps. LEDs are 0.72 watts. Xenon lamps are available at 3 watt and 5 watt. Xenon lamps have the voltage and rating stamped on the glass at one end. Each Advantage fixture is labeled with wattage and operating voltage.



Secondary Circuit Limitation

The maximum load of each fixture must not exceed 480 Watts (20 amps @ 24 Volts). In addition to this limitation, consideration must be given to the effects of voltage drop. Fixtures with lower wattage lamps (such as LEDs) and more distant socket spacing have recommended maximum lengths less than 480 Watts.



This chart gives recommended maximum lengths which take into account these two limitations. Conforming to these lengths will ensure no fixture exceeds 480 Watts, and will not be subjected to excessive voltage drop.

	3 Watt/X3	5 Watt/X5	0.72 Watt LED Modules
Maximum Lamps/Circuit	160 Lamps	96 Lamps	400 LEDs
Lamp Spacing	Maximum Run Lengths		
2.4" O.C. (60 mm)	32' (9.6 M)	19' (5.76 M)	80' (24 M)
3" O.C. (75 mm)	40' (12 M)	24' (7.2 M)	100' (30 M)
4" O.C. (100 mm)	48' (14.4 M)	32' (9.6 M)	133' (40 M)
6" O.C. (150 mm)	60' (18 M)	48' (14.4 M)	200' (60 M)

⚠️ PRECAUTIONS

1. Read all instructions completely before beginning installation.
2. Turn off electricity before beginning installation.
3. All wiring is to be performed by a qualified electrician.
4. Installation must comply with the National Electrical Code, and all applicable codes.
5. Turn main supply to transformer on only after all connections are made and tested.
6. Use only transformers provided by Tokistar with the system.

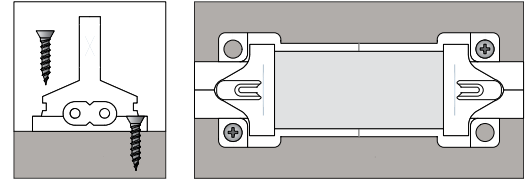
TOKISTAR LIGHTING

1015 E. Discovery Lane
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TEL: 714 772 7005 FAX: 714 772 7014
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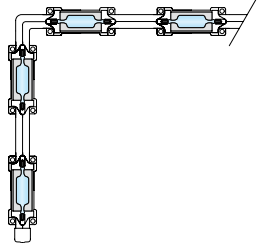
Step 1: Mounting Fixtures

Option 1 - Direct Screw Mounting (Part# AV-MS)

Each LED or lamp socket, has four mounting holes designed to accept screws. For secure mounting, use two screws in opposing holes. Sockets must be firmly attached to support the weight of the fixture.



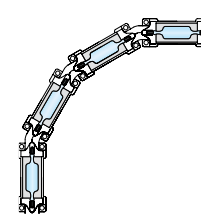
3", 4" and 6" socket spacing



Seamless Light

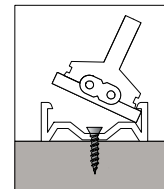
Advantage fixtures are flexible enough to turn corners without the use of special hardware, eliminating dark spots at corner locations.

2.4" socket spacing

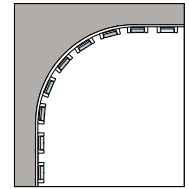


Option 2 - Mounting Channel (Part# AV-MC)

An optional mounting channel may have been provided with your materials. Screw the channel securely in place, then snap each socket into the channel. Attach screws every 8".



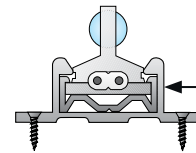
Attach screws every 8"



Mounting Channel conforms to a 24" inside or outside radius.

Option 2A - Channel Clamps (Part# AV-CL)

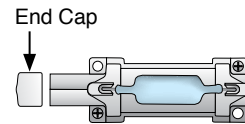
These clamps are for use with our AV-MC Mounting Channel. Screw the clamps securely in place, then snap in the channel. Attach clamps every 8".



Channel Clamp

End Caps - Part# ECD-WH (White) / Part# ECD-BK (Black)

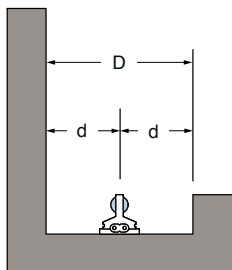
Ends caps are attached to the end of each Advantage lighting fixture. If the fixture needs to be trimmed, a new end cap needs to be attached to the end of the fixture after trimming.



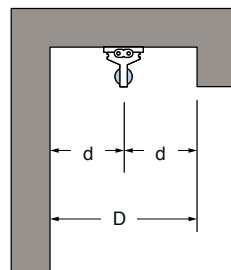
End Cap

⚠ PRECAUTIONS / Heat Consideration

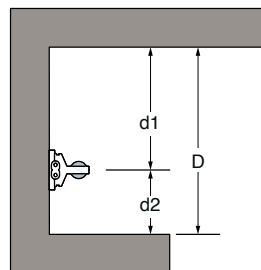
Xenon lamps produce heat and will cause damage if they come in direct contact with persons or combustible materials. In accordance with NEC/NFPA 70 Article 410.11, combustible materials next to fixtures must not be subjected to temperatures in excess of 90° C (194° F). In order to conform to this standard, fixtures need to be installed according to the minimum space requirements shown below.



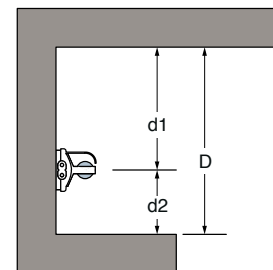
Basic System 2.4" O.C.		
Watts	d	D
3	.75"	1.5"
5	1"	2"



Basic System 2.4" O.C.		
Watts	d	D
3	1"	2"
5	1.5"	3"



Basic System 2.4" O.C.			
Watts	d1	d2	D
3	1"	.75"	1.75"
5	1.5"	1"	2.5"

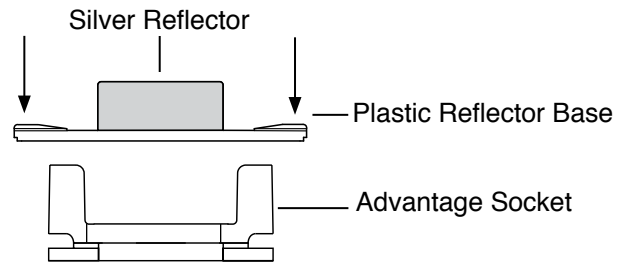


With Reflector 2.4" O.C.			
Watts	d1	d2	D
3	.75"	.75"	1.5"
5	.75"	1.25"	2"

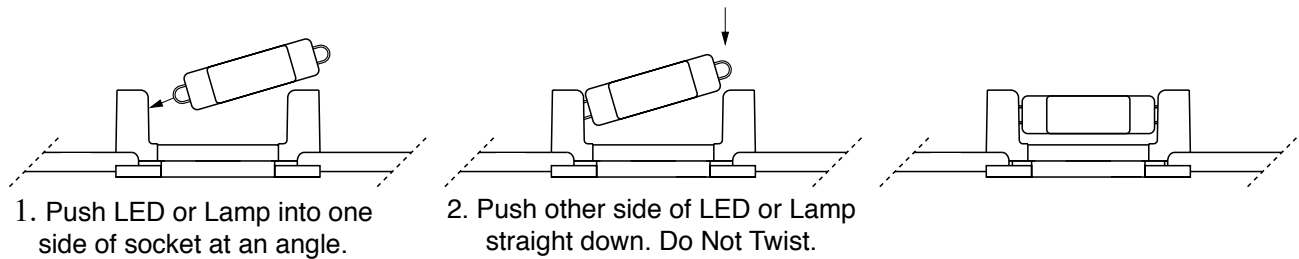
Step 2: Installing Reflectors/LEDs/Lamps

**Installing Reflectors - Part # AVWH-REF-S (White) / Part #: AVBK-REF-S (Black)
Part# AVWH-REF-A (White) / Part# AVBK-REF-A (Black)**

Your fixture may have been provided with optional reflectors. Symmetrical reflectors (#AVWH/BK-REF-S) must be attached before lamps are installed. Push the plastic reflector base directly over the socket until it is firmly seated in place. Asymmetrical reflectors (#AVWH/BK-REF-A) may be attached after lamps or LEDs have been installed.



Installing LEDs or Lamps

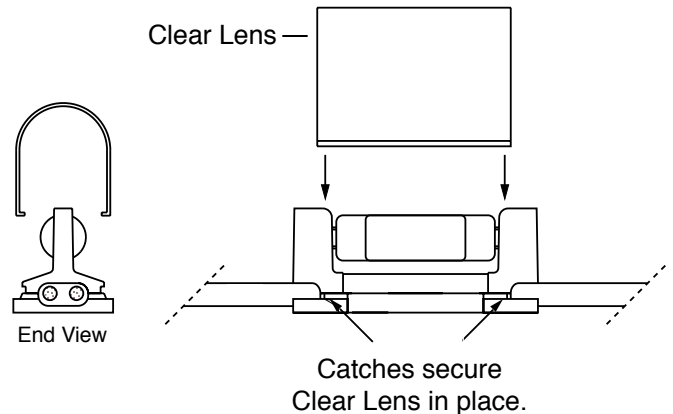


Lamp Replacement

1. Remove lamps from socket by pulling directly out (Do Not Twist).
2. Replace lamps only with the same or lower wattage lamp.

Installing Clear Lens - Part# AV-LNS

Your fixture may have been provided with clear lens covers. Push the lens directly over the top of the socket. When properly seated between the two catches on the side of the socket, the lens will be securely fastened and not move from side to side.

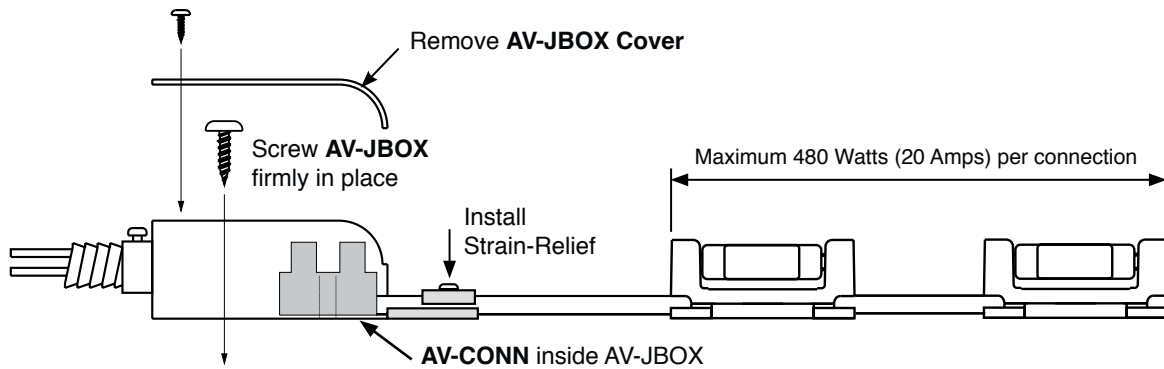


Step 3: Secondary Wiring

Mini Junction Box Connectors - Part# AV-JBOX

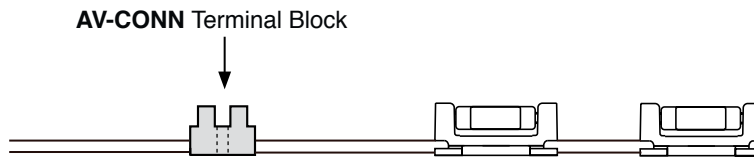
If installation involves running wire through a building structure, conduit may be required to feed the fixture. A miniature junction box is available with a 1/2"Ø knockout for use with conduit fittings. The terminal block inside the junction box accepts 14-8 AWG wire.

All secondary circuit wiring must conform to the National Electrical Code and all applicable codes.



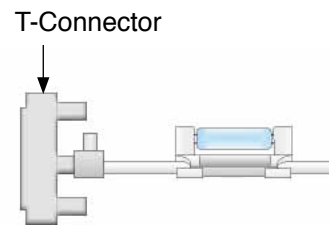
Terminal Block Connectors - Part# AV-CONN

Advantage Series fixtures may have been provided with terminal block connectors. One end of this connector screws directly to the Advantage fixture, and the other end accepts 14-8 AWG wire. A screw hole is provided in the center of the connector for secure mounting.



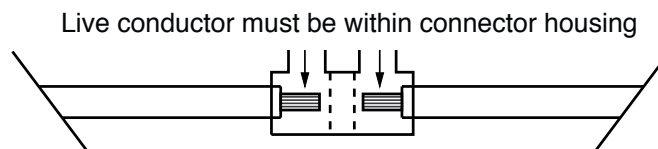
T-Connection System - Part# AV-TCON

Our T-Connection system can feed multiple fixtures from a single wiring harness. Female connectors are attached to the main harness at any interval and the mating male connectors attach to each end of the fixture.



⚠ PRECAUTIONS

When attaching wire to terminals, make certain the insulation is stripped and the connection is made so no live conductors are exposed.

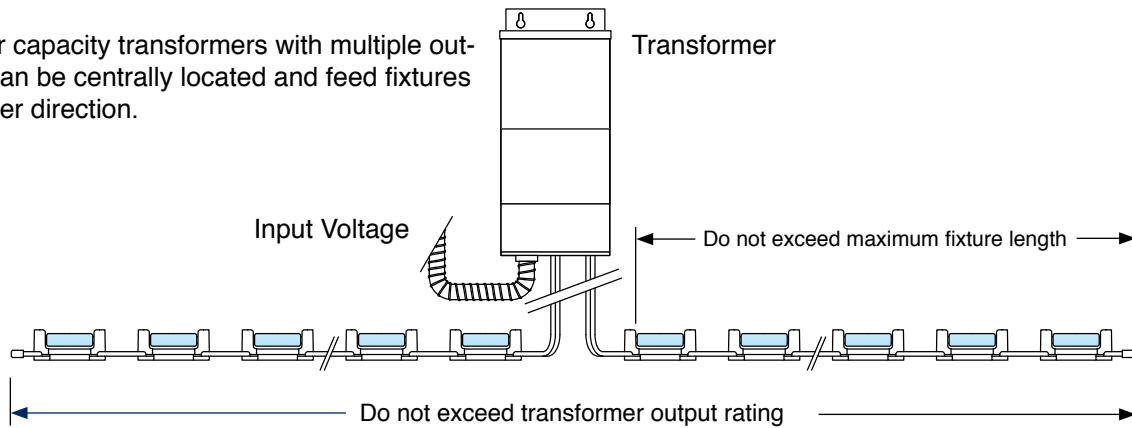


Step 4: Transformer Instructions

Transformer Location

The maximum recommended distance between the fixture and the transformer varies, based upon the load of each fixture and the size of secondary wire feeding the fixture. It is impossible to give a definitive distance without considering all the variables. Electrical engineers and contractors can calculate these distances. Should you need guidance, consult the factory.

Larger capacity transformers with multiple outputs can be centrally located and feed fixtures in either direction.



Secondary Circuit Protection

Transformers are provided with circuit breakers to protect secondary circuits. The maximum size circuit breaker on a transformer is 25 amps, but the circuit wired to the breaker **MUST NOT EXCEED 20 AMPS**.

There are several transformer sizes available, and different size breakers installed in them. Below is a selection of transformers with their respective circuit limitations.

1000 Watt Transformer	25 A	Max. Load 20 Amps 480 Watts @ 24 VAC	960 Watts Max.	300 Watt Transformer	15 A	Max. Load 12.5 Amps 300 Watts @ 24 VAC
	25 A	Max. Load 20 Amps 480 Watts @ 24 VAC		250 Watt Transformer	15 A	Max. Load 10.4 Amps 250 Watts @ 24 VAC
750 Watt Transformer	25 A	Max. Load 20 Amps 480 Watts @ 24 VAC	750 Watts Max.	100 Watt Transformer	7 A	Max. Load 4.1 Amps 100 Watts @ 24 VAC
	25 A	Max. Load 20 Amps 480 Watts @ 24 VAC		500 Watt Transformer	25 A	Max. Load 20 Amps 480 Watts Max.

PRECAUTIONS

Transformers should be installed in an accessible location. Magnetic transformers generate heat and must be installed in locations where there is free-air circulation. Electronic transformers require less space to dissipate heat, but they too should be installed in accessible locations with free-air circulation.

For additional information, please refer to the instruction manual provided with your transformer.