

1.01 "SMART TRACK" LIGHTING SYSTEM

A. General

1. The Lighting System shall consist of high quality aluminum lighting track with integral data distribution, rugged multi adapters to support fixtures and to transfer power and data from the track to devices mounted on the track system, and controllable devices such as lighting fixtures. The Lighting System shall be the Smart-Track System as manufactured by Altman Stage Lighting.
2. Track Sections shall distribute (1) or (2) 20amp 120vAC power circuits and shall include integral distribution of DMX-512A (ANSI E.1.11-2004) and RDM (ANSI E1.20-2006) control signals to lighting fixtures and controllable devices mounted on the Smart Track. Connection of a "SMART" lighting fixture to the Smart Track shall automatically connect it to the data network.
3. The Lighting System provide for the connection and control of a variety of load types, including:
 - a. Quartz-halogen
 - b. Low Voltage
 - c. CDM (Metal Halide)
 - d. LED (Light Emitting Diode)
4. Each load or fixture in the lighting system shall incorporate its own dimmer, relay, or LED driver. Submittals for systems requiring installation and provision of dimmer panels relay panels, or external LED Drivers shall be rejected without review.
5. Each load or device connected to the Lighting System shall be independently controlled via a unique digital address. Control zones shall be determined on a fixture by fixture basis, shall be field changeable, and shall be completely independent of circuitry and wiring used to power the load.
6. The Lighting System shall be compatible with any Lighting Controller fully compliant with the DMX-512A (ANSI E.1.11-2004) standard. Connection points shall be provided for both wired and wireless connection of controls to the Lighting System.

7. The Lighting System shall have a complete line of components to join data and electrify separate track pieces, including:
 - a. Live & Dead End Feeds
 - b. In-line couplers
 - c. Feed thru connectors
 - d. L turns (left and right)
 - e. X-Connectors
 - f. Data Terminators

8. All components of the Lighting System shall be U.L. or ETL listed

B. Components

1. Track System
 - a. Track Sections shall include (1) or (2) separately switchable circuits with independent and dedicated neutral conductors as well as associated couplers, feeds, and terminators.
 - b. Track Sections shall include a data bus track with two 22 gauge nickel plated copper conductors integrated into the bottom slot of the track for distribution of DMX-512A and RDM control signals.
 - 1) Data can be accessed anywhere along the track.
 - 2) Adaptors without bus contacts also can use the 2 circuit track with data bus, but without DMX-512A and RDM functions.
 - c. Track Sections shall consist of the following:
 - 1) an extruded aluminum housing measuring 1-1/4" x 1-3/4". Track sections shall be available in pre-cut lengths of 4', 8' or 12'
 - 2) the extruded aluminum housing shall also function as ground
 - 3) track sections shall include two inserted plastic profiles carrying up to (4) embedded 12 gauge copper conductors.
 - d. Mounting & Installation:
 - 1) It shall be possible to field cut Track Sections to necessary lengths for each project and location. It shall not be necessary to cut back or bend back the conductors after field cutting of track sections.
 - 2) Track Sections shall have pre-punched holes for mounting every 8" on center.

- 3) The top of the track shall have an extruded profile to allow for the mounting a manufacturer supplied bracket/ hanging supports for connecting with contractor supplied stem, cable or threaded rod.
- e. Track Sections shall be available in shall be available in white, black, or silver finish

2. Multi Adapters

- a. Multi Adapters shall be rugged, highly compact components that connect lighting fixtures and other controllable devices to the Smart Track system.
- b. Multi Adapters shall include a double lock mechanism allowing for connection of 22 lbs maximum spotlights:
 - 1) one mechanical lock shall securing the adapter to the track
 - 2) One mechanical lock shall connect the power contacts and shall be used for selecting circuit 1, circuit 2 (2-circuit tracks only), or "off".
- c. Multi Adapters shall include the following features:
 - 1) wiring terminals and nickel plated spring contacts.
 - 2) approval and listing for 120V
 - 3) integral ground contact and on/off switch.
 - 4) support a maximum load up to 22 lbs
- d. Multi Adapters shall be constructed of self-extinguishing polycarbonate according to class V0.
- e. Multi Adapters shall be available in white, black, or silver finish.
 - 1)

3. Luminaires

- a. Fixtures for use on the DMX track system shall consist of a family of luminaries designed with an on-board DMX interface and an installed Multi Adapter designed to mechanically hang, power and feed data
- b. Fixtures compatible with the Lighting System shall include Altman Lighting's full range of Architectural and Themed Entertainment Fixtures, including:
 - 1) IQ Series Incandescent & Low Voltage
 - 2) IQ Spectra-Series LED
 - 3) IQ Metal Halide (CDM)
 - 4) Micro Ellipse/ ME2/ ME3 / Micro Par/ and Micro Flood
 - 5) Master Ellipse/ Star*Par/300L / 3.5Q

- c. Fixtures shall be of three types; LED, Quartz and Metal Halide.
 - 1) LED color changing luminaires shall be available as three types; fixed color temperature white, color temperature control white, or color mixing (RGB or RGBA). LED fixtures shall feature integral power supplies, drivers, and DMX interface and pre-programmed modes.
 - 2) Quartz fixtures shall have an integral, on-board DMX controlled phase-forward (leading edge) dimmer compatible with incandescent, low voltage, and certain phase-dimmable LED loads.
 - 3) Metal Halide (CDM) fixtures shall have an on-board DMX on/off relay. Relay rated for 70 watts maximum.
- d. DMX addressing for all system fixtures shall be conducted via manual setting of the rotary dials for Dimmer & CDM luminaires and push button for LED or via RDM from a remote location with a Remote Authorization Device.
 - 1) The units shall be supplied with two dip switches to change modes from DMX, RDM, manual over ride dimmer control and full on power mode.
 - 2) All fixture dip switches and dials will be concealed by a latch that requires the use of a screwdriver to access and make changes.
 - 3) Luminaires shall retain their identity and programming, even when moved to a new location and the comma
 - 4) Data input on all fixtures will have high voltage protection circuitry.
- e. Fixtures may be connected to the system at any point along the track.
- f. Fixtures equipped with Multi Adapters without data bus contacts may be used to connect standard lighting fixtures to the power distributed by the track, without connection to control functions.
- g. All fixtures shall be U.L. or ETL listed.

C. Data Distribution, Wiring, and Connection

1. Control wiring shall be suitable for transport of DMX-512A (ANSI E.1.11-2004) and RDM (ANSI E1.20-2006) control information between the output of the lighting control system and smart track sections and/or other DMX-controlled devices.
2. Maximum overall length of each control segment as measured from the output of the control system (and related RDM compatible signal splitters or amplifiers), including control cable and smart track sections, shall not exceed 1000'.
3. Control segments shall be installed as daisy chain topology only. "T-tap" or "star" type installations shall not be allowed.
4. Each Control Segment shall be terminated with a 120ohm resistor as specified by DMX-512A (ANSI E.1.11-2004) standard.
5. Maximum number of recommended devices per segment shall not exceed (32). Each individual Luminaire with associated driver/ dimmer/ relay shall count as 1/4 device.
6. Contractor shall furnish and install suitable DMX-512A (ANSI E.1.11-2004) control cable as recommended by the manufacturer of the control system procured and installed for this project.

D. Provide Altman Lighting Smart Track sections, hardware, luminaires, and accessories as required to execute the designs shown on contract documents.